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July 15, 2016

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New England Region
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Secretary Matthew Beaton
Executive Office of Energy and
Environmental Affairs
MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

**Re: Boston-Logan International Airport, Terminal E Modernization Project
Environmental Assessment/Draft Environmental Impact Report (EEA #15434)**

Gentlemen:

On behalf of the Massachusetts Port Authority (Massport), we are pleased to submit this joint federal Environmental Assessment and state Draft Environmental Impact Report (EA/DEIR) for the *Boston-Logan International Airport Terminal E Modernization Project* for public review in accordance with the National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA).

The Project will modernize Terminal E, entirely within the Airport footprint, to efficiently accommodate current and projected international operations and passengers while minimizing community and environmental impacts. When it was built in 1974, Terminal E served 1.4 million passengers. In 2015, it served 5.5 million passengers. Despite this growth, Massport has not added any new gates to Terminal E since it was built. The shortage of available gates results in extended aircraft taxi times, prolonged idling of aircraft on the apron, delays in passenger processing, and a congested international Terminal E.

Without the Project, international flights will increasingly be required to hold for an available gate or bus passengers to and from remote locations. The Terminal E Modernization Project will result in significant environmental benefits including an overall reduction in air emissions by allowing aircraft to plug into gates, thereby reducing overall aircraft engine idling at Terminal E and taxi-time. In addition, by constructing the terminal extension to serve as a noise barrier, the Project is expected to result in a significant reduction of ground noise from aircraft operations on the North Apron.

With over 13 billion dollars a year in total economic activity, Logan Airport is an economic engine contributing nearly 95,000 direct and indirect jobs and significant economic activity to the Boston metropolitan area and the larger New England region. The City of Boston is a world-class city with companies that do business internationally and are increasingly interconnected to the global

economy. Non-stop travel to global points is a central component of this new economy. International travel and business is central to the Massachusetts and regional economy, and the Terminal E Modernization Project will contribute to the continued strength of the region.

This EA fully follows the proposed scope and all the environmental categories as required under FAA Order 1050.1F, as included in the Environmental Notification Form (ENF), which was submitted to the MEPA Office on October 30, 2015, and serves as the federal scoping document. In accordance with the December 16, 2015 Certificate issued by the Executive Office of Energy and Environmental Affairs (EEA), the DEIR is narrowly focused on the areas of noise, air quality, greenhouse gas emissions, and construction impacts as they relate to the proposed Project. The other environmental categories are evaluated in detail as part of the federal EA portion of the joint document.

As clarified in the Secretary's Certificate on the ENF, broader issues associated with overall Airport operations will continue to be addressed through Massport's annual *Environmental Data Reports* and *Environmental Status and Planning Reports*, which also undergo public review through the MEPA process.

Massport respectfully requests that EEA Publish the Notice of Availability of the DEIR in the July 20, 2016 edition of the *Environmental Monitor*. Public comments would be due August 19, 2016, and a decision on the DEIR would be due August 26, 2016.

An electronic copy of the EA/DEIR has also been posted on Massport's website at (www.massport.com/environment/environmental-reporting).

In addition to the distribution list, the EA/DEIR is available for public viewing at the following locations: Boston Public Library (Main, Connolly, Charlestown, and East Boston branches), Chelsea Public Library, Winthrop Public Library, Revere Public Library, Everett Public Library, and Cambridge Public Library.

A Public Information Session has been scheduled for August 10, at 6:00 PM, at the Mario Umana Middle School Academy Auditorium at 312 Border Street in East Boston, MA. Massport, FAA, and MEPA staff will attend to answer questions pertaining to the NEPA and MEPA review processes.

If you have any questions regarding the EA/DEIR, please contact Stewart Dalzell at 617-568-3524 or sdalzell@massport.com.

Sincerely,
Massachusetts Port Authority

A handwritten signature in blue ink that reads "Stewart Dalzell". The signature is fluid and cursive, with the first name "Stewart" and last name "Dalzell" clearly legible.

Stewart Dalzell, Deputy Director
Strategic & Business Planning Department

Enclosures

cc: Massport
VHB
AECOM

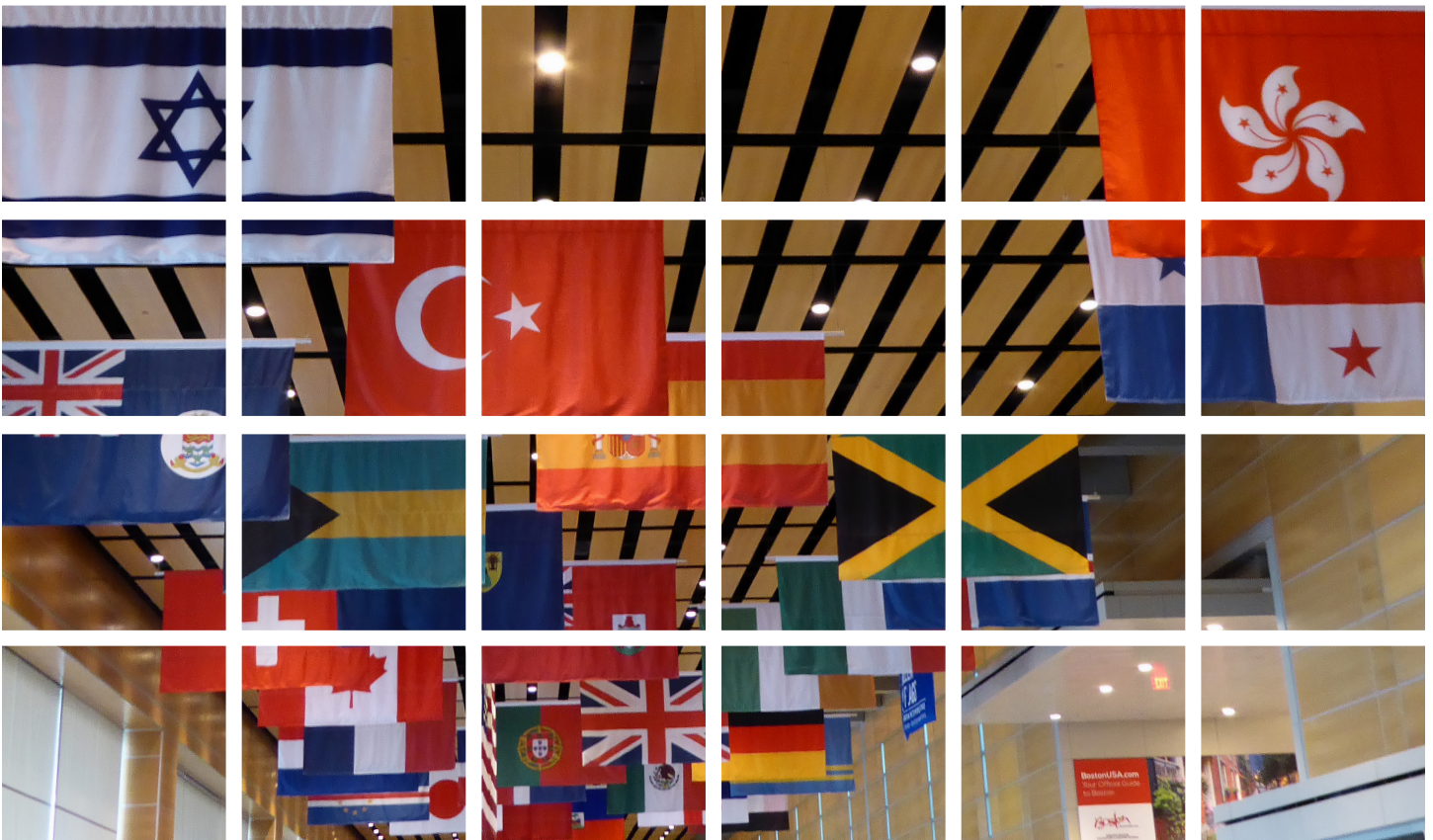
VOLUME I

ENVIRONMENTAL ASSESSMENT/
DRAFT ENVIRONMENTAL IMPACT REPORT

Terminal E Modernization Project

Boston-Logan International Airport
EAST BOSTON, MASSACHUSETTS

EEA# 15434



PREPARED FOR



Massachusetts Port Authority

PREPARED BY



IN ASSOCIATION WITH

AECOM
Harris Miller Miller & Hanson, Inc.
KB Environmental Sciences, Inc.
LeighFisher, Inc.

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*Environmental Assessment/
Draft Environmental Impact Report*

Boston-Logan International Airport Terminal E Modernization Project

East Boston,
Massachusetts

Prepared for Massachusetts Port Authority

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July 15, 2016

This environmental assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

A handwritten signature in blue ink, appearing to read "R. Dorelli".

Responsible FAA Official
Environmental Program Manager
FAA New England Region

July 15, 2016

Date



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Acronyms

AEDT	Aviation Environmental Design Tool
ACEIT	Airport Construction Emissions Inventory Tool
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CO	Carbon monoxide
CO ₂	Carbon dioxide
dB	Decibel
dBA	A-weighted decibels
DFE	Design Flood Elevation
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EEA	Executive Office of Energy and Environmental Affairs
EDR	Environmental Data Report
EIR	Environmental Impact Report
ENF	Environmental Notification Form
EPA	U.S. Environmental Protection Agency
ESPR	Environmental Status and Planning Report
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GHG	Greenhouse Gas
Hz	Hertz
kBtu	Thousand British thermal units
kWh	Kilowatt-hour
LEED®	Leadership in Energy and Environmental Design
Leq	Equivalent Sound Level
Lmax	Maximum A-weighted Sound Level
LOS	Level of Service
MassDEP	Massachusetts Department of Environmental Protection
MAAQS	Massachusetts Ambient Air Quality Standards
MBTA	Massachusetts Bay Transportation Authority



MCP	Massachusetts Contingency Plan
MEPA	Massachusetts Environmental Policy Act
MMBtu	Million British thermal units
MOVES	Motor Vehicle Emission Simulator
MWh	Megawatt hour
MWRA	Massachusetts Water Resources Authority
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHESP	Massachusetts Natural Heritage and Endangered Species Program
NO ₂	Nitrogen Dioxide
N ₂ O	Nitrous Oxide
NPDES	National Pollutant Discharge Elimination System
NO _x	Nitrogen oxides
O ₃	Ozone
OHM	Oil and/or hazardous materials
Pb	Lead
PCBs	Polychlorinated biphenyls
PM	Particulate Matter
RTN	Release Tracking Number
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SO	Sulfur oxides
SR	Service Road
UPS	United Parcel Service
QATAR	Quick Analysis Tool for Airport Roadways
VOC	Volatile Organic Compounds

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
DRAFT FINDING OF NO SIGNIFICANT IMPACT**

**Boston - Logan International Airport
Terminal E Modernization Project**

Proposed Action

The Massachusetts Port Authority (Massport) is the sponsor of the Terminal E Modernization Project (the Project) at Boston-Logan International Airport. The purpose of the Project is to modernize international Terminal E, entirely within the Airport footprint, to efficiently accommodate current and projected international operations and passengers, and to meet regional economic goals, while minimizing community and environmental impacts.

Terminal E consistently serves higher passenger volumes than the facility was designed to serve over three decades ago. When the terminal first opened in 1974, Logan Airport served 1.4 million international passengers a year through 12 gates. In the mid-1990s, Massport received approvals to add three new gates as part of the International Gateway/West Concourse Project that expanded and updated terminal passenger handling and U.S. Customs and Border Protection facilities. Massport completed the terminal roadway, curb enhancements, and select terminal additions. After September 11, 2001, it put the expansion on hold and did not construct the three new gates. In 2015, the Airport served 5.5 million international passengers at Terminal E through the same 12 gates, causing delays on the airside ramp serving the terminal, delays in passenger processing, and overcrowding passenger holdrooms. This historic growth has occurred without significant airfield or terminal improvements, and will continue independent of facility improvements. International passenger activity is projected to reach eight million passengers in 2030 or sooner.

The modernization of Terminal E will:

- Construct seven new aircraft contact gates. These include the three gates originally approved in 1995, but never constructed, and four additional gates.
- Construct additional passenger holdrooms, concourse circulation, concessions, passenger processing (including Customs and Border Protection facilities), and expanded bag screening and make-up facilities.
- Configure the new terminal area to provide noise buffering for adjacent neighborhoods.
- Modify airside ramp and apron areas and taxilanes to accommodate the new gates, terminal improvements, and supporting facilities.
- Reconfigure adjacent landside roadways, parking, and curbs to accommodate the modernized terminal configuration.
- Provide a direct pedestrian connection between Terminal E and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station.
- Incorporate sustainability measures.

The new areas of the terminal would extend from the western end of existing Terminal E and will be four stories in height, and approximately 560,000 square feet in total area. Within the terminal, space would be provided for amenities to support future passenger volumes, including additional ticket counters, new holdrooms, the potential for a satellite Customs and Border Protection facility, baggage carousels, restrooms, etc. Additions to the terminal

will be phased with four gates and associated facilities to be constructed by 2022 and the remaining gates and terminal areas to be completed by 2028.

The new terminal configuration would require relocation of some facilities and operations on the airside and landside that are currently occupying the space the new terminal would be built upon. Aircraft parking areas and ground service equipment storage would be shifted to maximize the space available on the existing paved areas of the apron and ramp. The relocated activities and associated changes in ground transportation operations are included in the analysis of environmental effects.

The revisions to the Airport Layout Plan require Federal Aviation Administration (FAA) approval. Massport and FAA prepared an Environmental Assessment (EA) to assess the Proposed Action. The Proposed Action will require a Construction General Permit under the National Pollutant Discharge Elimination System, but is not expected to require any other federal or state approvals.

Alternatives Considered

Logan Airport has the local market demand, critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service, which cannot be replicated at smaller airports. Accordingly, the EA includes an evaluation of on-Airport project alternatives according to their ability to meet the Project purpose and need, as well as considerations such as space requirements, layout efficiency, efficiency of airfield operations, ability to buffer noise, efficiency of traffic operations, and cost. All alternatives evaluated would be located on previously developed land within the Airport boundary and are expected to have very similar beneficial environmental effects. The Project reuses space already in aviation use without expansion of the Airport footprint or a change in land use.

Early design concepts evaluated different configurations of the new terminal area and North Apron. All build alternatives considered would add the required seven new gates. The key differences among the terminal configuration alternatives relate to efficiency of interior operations, frontage on the adjacent roadway to provide curbside access to the terminal for passengers, disruption to existing terminal and apron operations, and cost. With the exception of ability to buffer ground noise from ground operations, there is very little difference among the alternatives from an environmental perspective.

Assessment and Mitigation

EA Chapter 5, *Environmental Consequences* and Chapter 6, *Beneficial Measures/Mitigation* evaluate the environmental consequences and mitigation measures of the Terminal E Modernization Project. Together with the proposed mitigation, all adverse impacts to resource categories are anticipated to be less than significant based on the significance thresholds defined in FAA *Order 1050.1F*. The Project will, however, provide significant environmental benefits. Project elements designed to provide environmental benefits or to minimize adverse impacts are described below.

- Terminal improvements will be sited, designed, and constructed to serve as a noise barrier to the adjacent East Boston neighborhoods and Memorial Stadium Park to the southwest of the North Cargo Area. The new structures will have a minimum height of 45 feet above ground level. Noise levels associated with aircraft single events will decrease by up to 15 dB in Jeffries Point neighborhood. Any areas of predicted noise increases are negligible.

- Seven new gates equipped with 400-hertz power and pre-conditioned air will allow aircraft to plug-in at a gate rather than be serviced remotely, as would occur without the Project. This will reduce the need for on-board engine operation, thereby reducing aircraft air emissions, greenhouse gas emissions, and energy consumption. New gates will increase ramp efficiency by reducing ramp movements and minimize busing passengers between the terminal and remote aircraft parking locations (hardstands). Carbon monoxide (CO), nitrogen oxide (NO_x), sulfur oxide (SO_x) emissions will decrease compared to the No-Action Alternative.
- Upon Project completion, improved high-occupancy vehicle access to the Airport will be supported via a direct pedestrian connection to the MBTA Blue Line Airport Station. Roadway and curb improvements will improve vehicle flow and high-occupancy vehicle access upon Project completion.
- Passenger processing and experience will improve through building additions and new amenities.

The Project will be built to Leadership in Energy and Environmental Design (LEED®) and Massachusetts LEED Plus standards, to achieve LEED Silver, or higher certification. Additional sustainable design opportunities will be addressed as the Project progresses into design development. These design commitments will be incorporated into construction, especially as they relate to the proper specification of sustainable materials and construction practices. The Project has been designed to comply with the resiliency goals set by Massport guidelines, including siting of critical infrastructure outside of future flood hazard areas.

All other impacts discussed in the EA are minor construction related impacts that are temporary in nature, including noise, air, and construction-related traffic. Massport commits to follow appropriate construction best management practices to minimize minor temporary construction related impacts.

Finding of No Significant Impact

I have carefully and thoroughly considered the facts contained in the EA. Based on that information, I find the proposed federal action is consistent with the existing national environmental policies and objectives of Section 101(a) of the National Environmental Policy Act of 1969 (NEPA) and other applicable environmental requirements. I also find the proposed federal action will not significantly affect the quality of the human environment or include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA. As a result, FAA will not prepare an EIS for this action.

APPROVED:

 Richard Doucette,
 Environmental Program Manager, FAA New England Region

 Date

DISAPPROVED

 Richard Doucette,
 Environmental Program Manager, FAA New England Region

 Date

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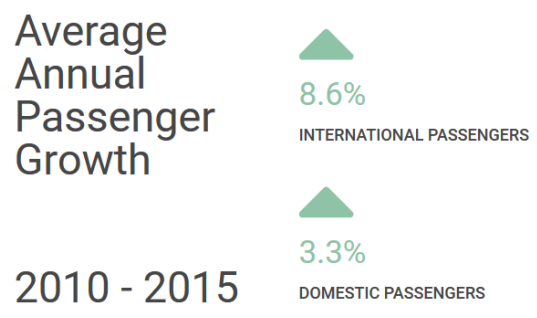
Executive Summary

The Massachusetts Port Authority (Massport) is proposing to modernize Terminal E at Boston-Logan International Airport (Logan Airport or Airport), to accommodate current and forecasted international passenger demand. This joint federal Environmental Assessment/state Draft Environmental Impact Report (EA/DEIR) fulfills the requirements of the National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA).

When it was built in 1974, Terminal E served 1.4 million passengers. In 2015, it served 5.5 million. Despite this growth, Massport has not added any new gates to Terminal E since it was built. The shortage of available gates, results in extended aircraft taxi times, prolonged idling of aircraft on the apron and delays in passenger processing and a congested international Terminal E.

Modernizing Terminal E would have environmental benefits to neighboring communities. The Terminal E Modernization Project is anticipated to achieve the following:

- Accommodate the existing and forecasted growth in the international market to reduce delays for the traveling public, improve apron operating efficiencies, while reducing noise and emissions from ground operations;
- Add seven new gates to the terminal, three of which were approved in the late 1990s but never built because of the downturn in aircraft operations worldwide related to the events of September 11, 2001;
- No significant noise increase within the DNL 65 dB, and a reduction of noise from aircraft ground operations on the North Apron, for example, by up to 17 decibels (dB) for a single event (i.e., from a single portion of an operation) by constructing the terminal extension to serve as a noise barrier;
- Enable international flights to taxi directly to 400-hertz (Hz) power at Terminal E gates and shut down their engines, rather than idling on the apron as they often do now;

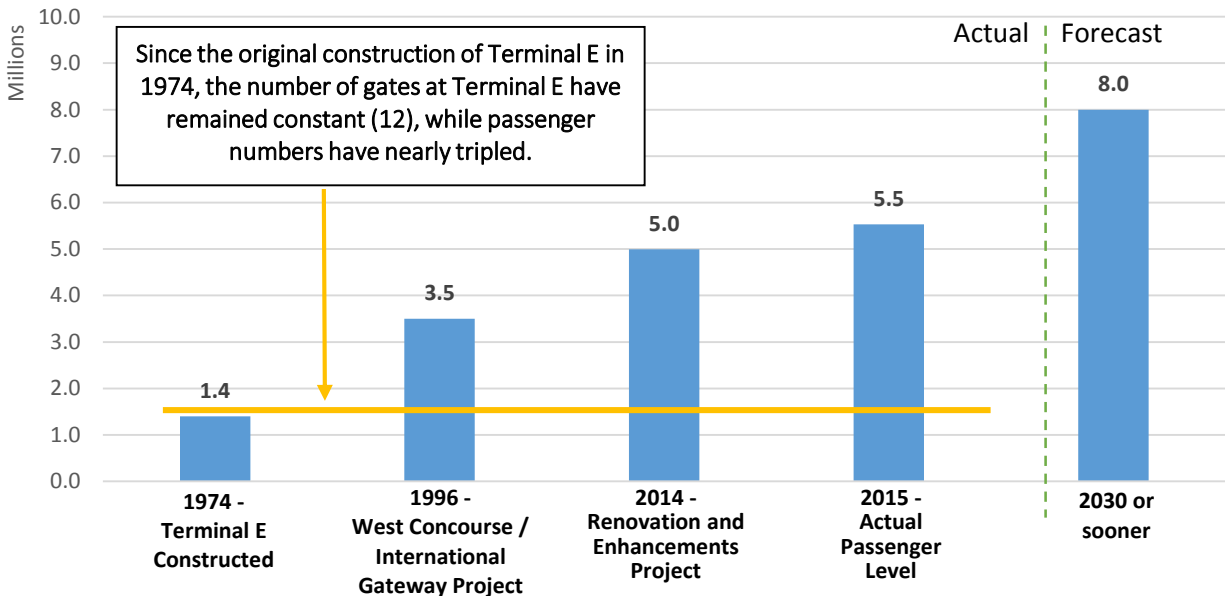




- The number of airside busing operations would decrease by 94% and airside busing vehicle miles traveled would decrease by 97%;
- Reduce aircraft towing by 49%;
- Reduce average aircraft taxi-time by 20%;
- Reduce use of on-board aircraft power units by 74%;
- Reduce vehicle curbside idle time by 13%;
- Reduce airside operational-related (i.e., aircraft, ground support equipment, and ground access vehicles) greenhouse gas emissions by 15%;¹
- Reduce overall project GHG emissions (airside, curbside and new terminal) by 8%;
- Reduce nitrogen oxide (NO_x) emissions by 44%;
- Reduce particulate matter (PM_{2.5}) by 25%;
- Provide a weather-protected direct pedestrian connection between a terminal (Terminal E) and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station;
- Reduce relative energy consumption by ensuring consistency with Massport's Sustainable Design Standards and Guidelines, designing to meet Leadership in Energy and Environmental Design (LEED®) Silver standards, as well as incorporating other energy conservation measures into Project design; and
- Reduce vehicle miles traveled by processing passengers more efficiently and providing curbside improvements.

¹ Does not include potential reductions from building energy performance.

Figure 1-1: Terminal E Historical International Passenger Levels and Terminal Improvements Timeline



Sources: Massport, 2013; InterVISTAS, 2016

Notes: The Terminal E Renovation and Enhancements Project will accommodate A380 aircraft, but no new gates will be constructed as part of that ongoing project. Estimated construction completion for this project is July 2017.

The Project would modify airside apron areas and construct taxilanes to accommodate the new gates, and terminal improvements and supporting facilities to include additional space for passenger holdrooms, concourse circulation, concessions, passenger processing (including U.S. Customs and Border Protection facilities), and baggage screening. The reconfiguration of the roadways in front of and adjacent to the terminal would be required to accommodate the modernized terminal configuration. The Project would also construct a weather-protected pedestrian connection between Terminal E and the MBTA Blue Line Airport Station.

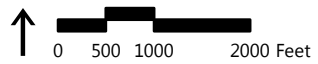
The Terminal E Modernization Project is in the planning stages with construction expected to begin in 2018. The location of the Project in relation to the community is shown in **Figure 1-2**.



FIGURE 1-2 Logan Airport Physical Setting

Terminal E Modernization Project

— Select Roadways



1.1 Purpose of the Project

The purpose of the Project is to modernize Terminal E, entirely within the Airport footprint, to efficiently accommodate current and projected international operations and passengers, and to meet regional economic goals, while minimizing community and environmental impacts.

The Terminal E Modernization Project would accommodate growth in the international air service market and help alleviate current delays as well as the adverse effects of that growth. Without the Project, Logan Airport would continue seeing growth in international passengers and aircraft operations, but there would be no significant changes to Terminal E interior or exterior facilities. Because gate service facilities would be inadequate to handle the increases when an aircraft touches down and no gate is available, more arriving aircraft would wait with engines idling until a gate is clear. If no gate becomes available, the aircraft is directed to remotely park or “hardstand” away from the terminal at a North Apron aircraft parking area. Passengers subsequently deplane on the apron with Massport busing passengers between the aircraft and the terminal. Remote hardstands routinely occur during peak periods under existing conditions, and without additional gates to accommodate the expected growth in demand for international air service at Logan Airport; such occurrences will increase in frequency.

Remote hardstand operations require the additional use of energy from aircraft idling or the use of on-board auxiliary power units as well as the use of shuttle buses that transport passengers to and from the terminal. North Apron hardstands are closer to the East Boston neighborhood than the terminal. Shuttling passengers to and from the terminal also creates conflicts with baggage and ground support equipment movements around the aircraft and on the ramp, consequently increasing times for boarding and arriving passengers. Within the terminal, existing passenger processing facilities are not adequate to accommodate the increase in service that is projected to occur by 2030 or sooner. Without improvements, this would result in increasingly long wait times at ticketing and security for departing passengers and delays at Customs and Border Protection for arriving passengers, and additional congestion at the curb and roadway.



Passenger crowding in Terminal E and busing from hardstand locations





1.2 Increased Passenger Growth at Terminal E

Logan Airport has been one of the fastest growing major U.S. airports over the past four years. From 2010 to 2014, Logan Airport experienced a growth of 32% in overall passenger volumes. Logan Airport broke another record in 2015 with 33.4 million passengers served. The international segment of the air service market has seen an even higher percentage of growth than the domestic market during this period, as new nonstop international flights have doubled in the past ten years to accommodate this demand.

- Recent forecasts show that unprecedented growth will continue, and will reach 8 million annual international air passengers by 2030 or sooner.
- Terminal E in 2015 had nonstop service to 53 international destinations, up from 21 in 2012.

This historical growth at Logan Airport has occurred without an increase in gates, demonstrating that demand at the Airport is driven by economic and market factors, not airport improvements. Massport has not added any gates at Terminal E since the initial 12 gates were constructed in 1974. Logan Airport will need to handle the increased passengers and operations whether or not Massport modernizes Terminal E.

Terminal E will require a total of 19 gates to support international operations, seven more gates than exist today, to efficiently accommodate the forecasted volume of 8 million annual international passengers expected to pass through Logan Airport by 2030 or sooner.

1.3 Logan Airport's Regional Economic and Market Context

Logan Airport is the primary airport providing international service for the New England region. Logan Airport operates within a larger network of New England regional airports that include Boston-Manchester Regional Airport (New Hampshire) and T.F. Green Airport (Rhode Island). For the most part, air service from these two regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. The demand for international travel to these regional locations is considerably lower than that of Boston, which is a major international destination.

Connecting international flights to and from these regional airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure, such as Customs and Border Protection facilities, are also limited at these airports.

95,000

Direct and indirect jobs

\$13.3 Billion

Total economic activity per year

\$1 Billion

Amount spent by overseas visitors per year (2014)

Source: Massport and InterVISTAS, 2015



With over 13 billion dollars a year in total economic activity, Logan Airport is an economic engine contributing many jobs and significant economic activity² to the Boston metropolitan area and the larger New England region.

International travel and business is central to the Massachusetts and regional economy. The city of Boston is a world-class city with companies that do business internationally and are increasingly interconnected to the global economy. Non-stop travel to global points is a central component of this new economy.

The Boston metropolitan area is a central player in the nation's finance, technology, biotechnology, healthcare, and education sectors. As one of the nation's largest population and economic centers, the City of Boston is a mature market with a per capita income of \$34,770, approximately 18% higher than the nationwide per capita income of \$28,555.³

Such favorable economic conditions drive Logan Airport's sustained demand for international air travel.

1.4 Alternatives Considered and Proposed Action

Massport evaluated several options for accommodating the forecasted growth in international passengers and operations. Logan Airport serves as a major origin and destination airport and acts as the primary international gateway for the New England Region. Other regional airports serve their local service area and provide limited international service, mainly to vacation destinations. However, Logan Airport is best positioned in terms of access, competitive airfares, and available air service to meet the demands of the core international market for the Boston area. Therefore, to meet the project purpose and need, build alternatives focus on meeting the demand at Logan Airport. Alternatives were evaluated according to their ability to meet the Project purpose and need, as well as considerations such as airline network requirements, space requirements, layout efficiency, efficiency of airfield operations, ability to buffer noise, efficiency of traffic operations, overall cost, and constructability. All build alternatives considered include seven new gates with different configurations of the concourse and interior amenities. Alternatives included building a terminal extension with separate core functions, building a satellite terminal accessed through an underground walkway, building a concourse only with no processing facilities, and building a terminal extension as an expansion of the terminal core. All alternatives evaluated would be located on previously developed land within the Airport boundary, and are expected to have very similar beneficial environmental effects. The Project reuses space already in aviation use.

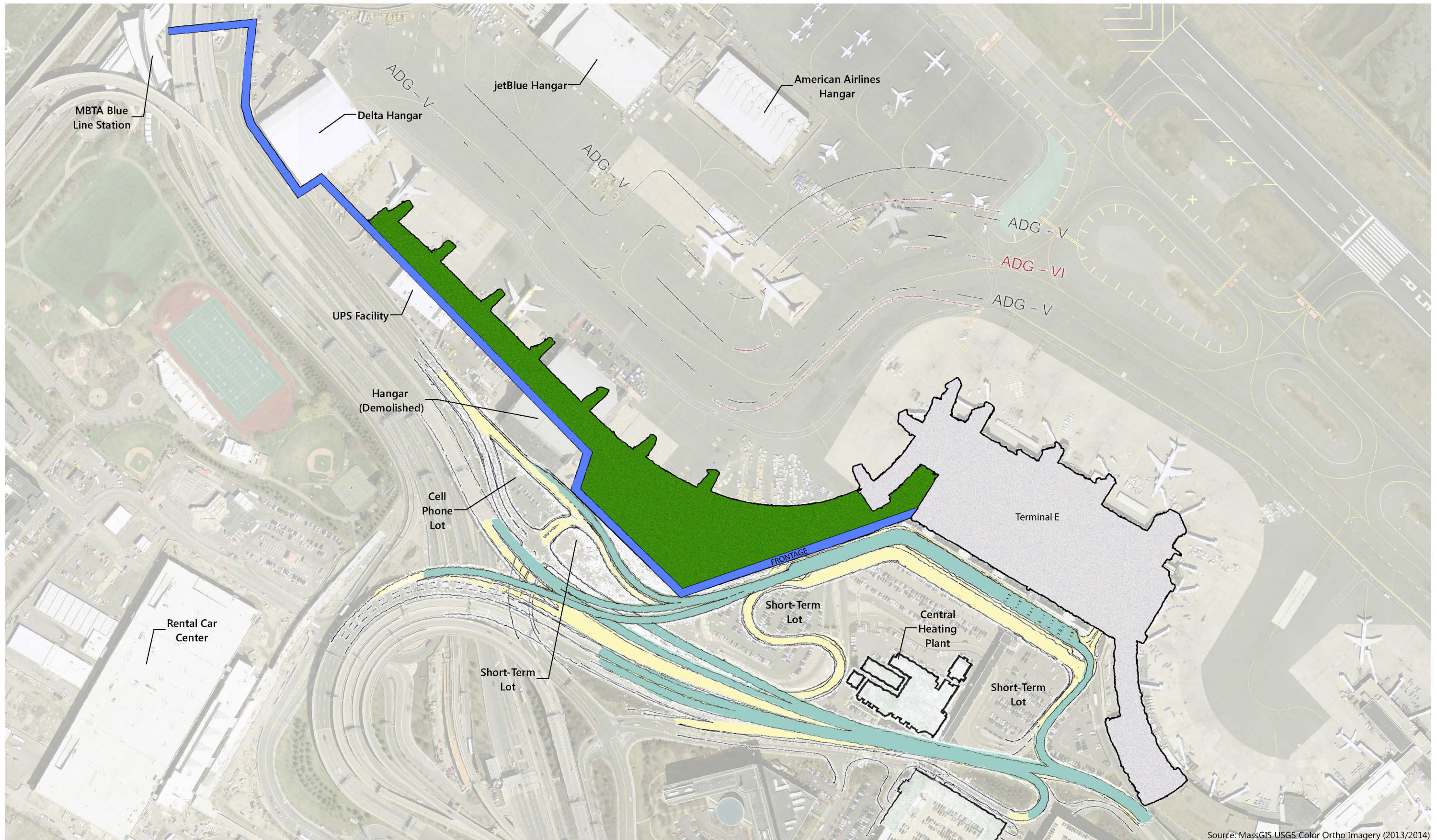
The Terminal E Modernization Project (see **Figure 1-3**) would extend the existing concourse, terminal core, and terminal roadway frontages. The concourse extension would connect to the Gate 12 area of the existing terminal. The extension of the terminal core would include additional ticketing, airline offices, bag screening, and bag make-up facilities, and would have the potential to allow separate Customs and Border Protection facilities including Immigration Control and Bag Claim/Customs facilities. The roadways in front of Terminal E would be upgraded to accommodate the new building configuration and provide for efficient curbside operations along the new terminal frontage for passenger pick-up and drop-off for both high-occupancy vehicles (e.g., buses and shuttles) and private vehicles. The footprint of the new terminal and roadways would require

² Massport and InterVISTAS, 2015

³ United States Census Bureau. 2014. *2010-2014 American Community Survey 5-Year Estimates (for the Boston-Cambridge-Newton, MA-NH Metropolitan Statistical Area)*.



some relocation of existing facilities and associated operations including the gas station and United Parcel Service (UPS) airside facilities. These would be relocated on-Airport. The Terminal E Modernization Project would provide a direct passenger connection from the terminal to the MBTA Blue Line Airport Station. This weather-protected passenger connection underscores Massport's commitment to accommodating and promoting the use of transit and high-occupancy vehicle modes of transportation Airport-wide.



Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 1-3 Proposed Action

Terminal E Modernization Project

- Proposed Terminal Building
- Arrival Level Roadways
- Existing Terminal Building
- Departure Level Roadways
- MBTA Connector



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1.4.1 Phasing of the Project

Based on interim operational demands and available budget, Massport is proposing that the Project be constructed in phases. Construction of the Terminal E Modernization Project is planned to commence in 2018 with the first phase complete by 2022. Phase 1 would include the construction of four new gates to relieve the existing deficiencies and accommodate interim growth. The interim phase provides a measured approach to the terminal extension, providing facilities, as they are needed, to mitigate the effect of international passenger demand fluctuations. The entire Project would be complete and operational by 2030.

1.4.2 Environmental Benefits of the Proposed Action

Proposed Action vs. No-Action Alternative

 Passenger Processing

 Noise

 Air Pollutants

 Greenhouse Gas Emissions

 Vehicle Miles Traveled

Massport is proposing the Terminal E Modernization Project to efficiently accommodate future demand for the international air service market at Logan Airport and mitigate the adverse effects of related growth. **The additional gates and new terminal area would provide noise buffering and reduce the need for aircraft engine idling on the apron.**

Massport has seen a significant reduction in air pollutant emissions Airport-wide due to an industry shift to larger and more efficient aircraft that are quieter, emit fewer pollutants and carry more passengers per trip than ever before. In 2000, Logan Airport accommodated approximately 27 million passengers on 490,000 flights compared to over 33.4 million

passengers on 373,000 flights in 2015. As documented in the *2011 Logan Airport Environmental Status and Planning Report (ESPR)* and *2014 Environmental Data Report (EDR)*, this 24% decrease in the total number of flights since 2000 has been paralleled by substantial decreases in noise and air emissions impacts during the same time period.

The Terminal E Modernization Project would reduce emissions by accommodating the increase in operations with improvements that allow aircraft to plug into a gate and operate with less idle time on the North Apron and allow the Airport to operate with fewer delays within Terminal E. The construction of the terminal extension would result in substantial noise buffering of operations on the apron resulting in ground noise reduction of up to 17 dB in some locations for a single aircraft operation event. Similarly, emissions from airside operations would be reduced due to the shorter aircraft idle time on the apron. With respect to the criteria pollutants, carbon monoxide (CO) emissions would decrease by 9%, NO_x emissions would decrease by 44%, and sulfur oxides (SO_x) emissions would decrease by 33%. Volatile organic compounds (VOCs) emissions would decrease by 6% and PM₁₀ and PM_{2.5} emissions would decrease by 9% and 25%, respectively. With respect to climate change emissions, airside operational-related carbon dioxide (CO₂) emissions would decrease by 15%. By processing passengers more efficiently and providing curbside operational improvements, the Project is also expected to reduce overall vehicle miles traveled and reduce emissions from traffic.



The Project would provide an additional benefit with a direct passenger connection from the terminal to the MBTA Blue Line Airport Station. This direct, weather-protected passenger connection underscores Massport’s commitment to connectivity and passenger convenience.

1.5 NEPA/MEPA Compliance

The Terminal E Modernization Project is subject to both federal and state environmental regulations. For this Project, these processes are conducted jointly. The Federal Aviation Administration (FAA) has determined that the Proposed Action requires an EA under NEPA, due to changes to the Airport Layout Plan that would result from the Project’s implementation.

The Project also required the preparation of an Environmental Notification Form (ENF) under MEPA (301 CMR 11.03(6)(b) 6) as an “expansion of an existing terminal at Logan Airport by 100,000 square feet or more.” Under the MEPA thresholds, an DEIR is not automatically required. Massport filed an ENF for the Project in October 2015 (EEA #15434). No major Project changes have occurred since the ENF was filed. The MBTA pedestrian connection originally conceived in the ENF as part of Phase 1, would be built as part of Phase 2 due to planning and budget constraints.

On December 16, 2016, the Secretary of the Executive Office of Energy and Environmental Affairs issued a Certificate on the ENF that required the preparation of a focused DEIR for the Project to address specific issues relating to resiliency, greenhouse gases, air quality, and noise. The proposed scope for the EA, the Secretary’s Certificate, and public comments on the ENF helped guide the contents and analyses included in this joint EA/DEIR. This EA/DEIR describes the Proposed Action; identifies alternatives considered; and documents potential environmental effects, positive and negative, associated with Project construction and operation.

The Project would enhance the passenger experience and is expected to result in environmental benefits for noise and air emissions compared to the No-Action Alternative.

Table 1-1 summarizes the environmental benefits of the Project. This EA/DEIR describes the Proposed Action, identifies alternatives considered, and documents the potential environmental effects associated with constructing and operating the proposed Terminal E Modernization Project at Logan Airport.

Table 1-1 Summary of Environmental Benefits of Terminal E Modernization

Environmental Resource ¹	Project Benefit
Noise and Noise-Compatible Land Use (NEPA)	The Terminal E Modernization Project would improve noise conditions from ground operations as compared to the future No-Action Alternative, as the terminal extension would act as a noise barrier to the community.
Surface Transportation (MEPA)	The Terminal E Modernization Project would reduce overall vehicle miles traveled as compared to the future No-Action Alternative due to reduction in recirculation of traffic at the terminal curb. The Project would not result in any reduction in level of service on any Airport roadways. There is sufficient capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line to support any increase in passenger loads.



Table 1-1 Summary of Environmental Benefits of Terminal E Modernization (Continued)

Environmental Resource¹	Project Benefit
Air Quality (NEPA/MEPA)	The Terminal E Modernization Project <u>would reduce criteria pollutant emissions</u> when measured against the No-Action Alternative through reduced usage of aircraft engines, auxiliary power units, and ground support equipment. The Terminal E Modernization Project would be in conformance with the General Conformity Rule, established under the Clean Air Act, as related emissions would be within <i>de minimis</i> thresholds.
Natural Resources and Energy Supply (NEPA)	The Terminal E Modernization Project would not have a significant adverse impact on natural resources or energy supplies because there is sufficient capacity available to support the operation of the new building systems.
Climate/GHG Emissions (NEPA/MEPA)	The Terminal E Modernization Project would <u>reduce greenhouse gas emissions</u> by decreasing the number of instances when aircraft use auxiliary power units as well as ground support equipment and airside ground access vehicles.
Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, Groundwater, and Wild and Scenic Rivers) (NEPA)	No direct or indirect water quality impacts are anticipated from the Terminal E Modernization Project. The Project Area is located on previously developed land in Airport use. The areas proposed for the Terminal E Modernization Project are already paved, and the Project would not result in increased impervious surfaces or pollutant-generating activities on the apron or ramp.
Hazardous Materials, Solid Waste, and Pollution Prevention (NEPA)	The Terminal E Modernization Project would not have a significant adverse impact related to hazardous materials or solid waste. On-site contamination encountered would be assessed and if necessary, remediated prior to and during construction activities as per the Massachusetts Contingency Plan.
Coastal Resources (NEPA)	The Terminal E Modernization Project is limited to paved areas of the airfield and terminal that are already in use for aviation purposes, and would not change the manner of use or quality of land in the coastal zone.
Land Use (NEPA)	The Terminal E Modernization Project would not result in an adverse impact to land use, as it would not change existing land uses on- or off-Airport. Massport would conduct all proposed work within the existing Airport footprint on land that is currently paved and in aviation use.
Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks (NEPA)	The Terminal E Modernization Project would occur entirely within the Airport boundary, and would not cause a disproportionately adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as Environmental Justice communities. The Project would not change any land uses, and would include measures to reduce air emissions and community noise impacts.
Department of Transportation Act, Section 4(f) (NEPA)	The Terminal E Modernization Project would not result in a direct or constructive use of a Section 4(f) property. The Project is located entirely within the Airport boundary, and no construction activities would take place outside the Airport property.
Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	The Terminal E Modernization Project would not adversely impact the visual character of the Project Area or surrounding areas. The Project would be consistent with the existing architectural character of the existing Terminal E building, and would not be highly visible from nearby residential communities due to the positioning of adjacent roadways and other existing on-Airport buildings. Massport will shield lighting associated with the Proposed Action, where feasible, to limit uncontrolled light pollution.

¹ Environmental resource categories as specified in FAA NEPA Orders 1050.1F and 5050.4B as well as MEPA regulations under 301 CMR 11.00.

1.6 Project Commitments

As part of the Terminal E Modernization Project, Massport commits to implementing the following measures, as summarized in **Table 1-2**.

Table 1-2 Summary of Terminal E Modernization Beneficial Measures

Element	Beneficial Measure
Project Design Features	<ul style="list-style-type: none"> ■ The extended terminal concourse would serve as a noise barrier to nearby residences and neighborhood recreational areas ■ The new gates with 400-hertz (Hz) power and pre-conditioned air would allow aircraft to plug in and reduce air emissions from auxiliary power units ■ The new gates would increase the operational efficiency of the North Apron and reduce the need for remote hardstand use and busing passengers to the terminal ■ The Project includes a direct weather protected pedestrian connection between the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station and Terminal E, which would improve the passenger experience and convenience
Sustainability	<ul style="list-style-type: none"> ■ The Terminal E Modernization Project would be built to Leadership in Energy and Environmental Design (LEED®) Silver standards, or higher ■ As design proceeds, Massport will consider the following: <ul style="list-style-type: none"> ■ Incorporate materials to reduce Heat Island Effect ■ Use of no-glare roofing material will be non-glare ■ Prioritize materials based on lifespan and lifecycle maintenance costs ■ Specify products with recycled content to the maximum extent practicable ■ Incorporate infrastructure for collection, storage, and handling of recyclables (approved pre-security and post-security recycling stations, on-site collection bins, and storage dumpsters). ■ Establish a project specific goal and specify materials extracted, harvested, recovered, and /or manufactured within New England ■ Design Project to achieve energy efficiencies of a minimum of 20% below Massachusetts Energy code ■ Specify energy efficient interior and exterior lighting ■ Investigate the feasibility of supplying, at a minimum, 2.5% of the Project's power with on-site renewable energy systems ■ Design Project to be able to accommodate roof top solar, in accordance with Federal Aviation Administration (FAA) guidance regarding glare ■ Design infrastructure and operations that reduce water use by 20% below the Massachusetts Plumbing code ■ Incorporate occupancy sensors with a manual override in all indoor areas ■ Incorporate infrastructure for collection, storage, and handling of recyclables ■ Incorporate options such as broad roof overhangs or shading devices to reduce solar heat gain and glare ■ Install 400 Hz gate power at all newly constructed gates to support pre-conditioned air for aircraft and other state-of-the-art energy efficiency upgrades for gates to reduce use of on-board engines
Resiliency/Floodproofing	<ul style="list-style-type: none"> ■ In general, the first level (lowest floor) of the proposed Project is located above the Design Flood Elevation (DFE) ■ Where spaces must be below the DFE, critical areas would be flood proofed through measures such as: <ul style="list-style-type: none"> ■ Install watertight shields on doors, windows, and louvers ■ Use exterior and interior membranes and sealants to reduce seepage ■ Seal electrical conduits and other utilities entering below the DFE ■ Install drainage collection systems and sump pumps ■ Install early warning devices to monitor water levels

Table 1-2 Summary of Terminal E Modernization Beneficial Measures (Continued)

Element	Beneficial Measure
Resiliency/Floodproofing (Continued)	<ul style="list-style-type: none"> ■ Install back-flow preventer valves on drainage and sanitary sewer piping located below the DFE ■ Install flood openings to equalize the hydrostatic pressure ■ Provide pumps to remove floodwater in non-draining areas
Construction Period Mitigation	<ul style="list-style-type: none"> ■ Hours of work generally would be limited to typical working hours of 7:00 AM to 5:00 PM ■ Massport would require its Construction Manager to prepare: <ul style="list-style-type: none"> ■ Draft Soil Management Plan ■ Draft Stormwater Pollution Prevention Plan ■ Draft Management Plan for Dewatering (if needed) ■ Draft Health and Safety Plan ■ Ground transportation construction-period mitigation measures would include: <ul style="list-style-type: none"> ■ All trucks will access the site by Route 1A, Interstate 90, and the main Airport roadway only ■ Trucks would be prohibited from using local streets ■ Truck routes would be specified in contractors' construction specifications ■ Concrete production and batching would occur in existing plants with access via Route 1A or Interstate 90 ■ Massport would encourage construction workers to use Logan Express, the water shuttle, and other modes of public transportation ■ Air quality construction-period mitigation measures would include: <ul style="list-style-type: none"> ■ Construction vehicle/equipment anti-idling ■ Retrofitting of appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters ■ Air quality and fugitive dust management would be deployed including monitoring of construction dust; disposal options for excavated materials; and fences, wheel washing, and other methods to protect the Airport and surrounding communities from fugitive dust during construction ■ Sound levels from activities associated with the construction of the Project would be voluntarily consistent with the City of Boston's noise criteria; therefore, no construction noise mitigation is required. However, construction equipment would use noise-reduction measures such as: <ul style="list-style-type: none"> ■ Noise control techniques would be used to reduce noise from pile driving by at least 5 A-weighted decibels (dBA) below their unmitigated level ■ Community noise levels would be monitored during construction to verify compliance with contract specifications and applicable state and local noise regulations ■ To protect water quality, and in compliance with the Stormwater Pollution Prevention Plan, an Erosion and Sedimentation Control Program would be put in place to minimize construction phase impacts to Boston Harbor <ul style="list-style-type: none"> ■ Spill prevention measures and sedimentation controls would be deployed throughout the construction phase to prevent pollution from construction equipment and erosion ■ Erosion and sedimentation controls would be used during the airfield earthwork and construction phases ■ Perimeter Barriers like straw wattles or compost-filled "silt sock" barriers would be placed around upland work areas to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site ■ Existing catch basins within the work areas would be protected with barriers (where appropriate) or silt sacks throughout construction ■ Open soil surfaces would be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased ■ The contractor or subcontractor would be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan



1.7 Anticipated Permits

Table 1-3 includes anticipated state and federal permits required for the Proposed Action along with the status of the permits and other approvals.

Table 1-3 Anticipated Permits and Approvals

Issuing Agency	Approval or Permit	Status
Federal Aviation Administration	Airport Layout Plan Approval	Approval to be issued
Federal Aviation Administration	Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA)	Environmental Assessment submitted herein; determination will be made at the conclusion of the NEPA process
Federal Aviation Administration	14 CFR Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction
Executive Office of Energy and Environmental Affairs	Secretary's Certificate under the Massachusetts Environmental Policy Act (MEPA)	Draft Environmental Impact Report (DEIR) submitted herein. A Final Environmental Impact Report (FEIR) will be noticed following the close of the comment period and issuance of the Secretary's Certificate on the DEIR.
U.S. Environmental Protection Agency Region 1	National Pollutant Discharge Elimination System (NPDES) Individual Permit	The Project would meet the standards included in Logan Airport's individual NPDES permit (No. MA0000787)
Massachusetts Contingency Plan (MCP)	Hazardous materials encountered during the development would be addressed in accordance with applicable MCP regulations	As required
Massachusetts Water Resources Authority (MWRA)	Modification to existing MWRA Sewer Use Discharge Permit	As required prior to construction

1.8 Public Involvement

Public outreach and community input is an important element of Massport's overall process for the Terminal E Modernization project. Commencing before even filing the ENF and continuing during the ongoing permitting process, Massport staff has attended various public meetings to both provide an overview and answer questions on the Terminal E Modernization. These meetings ranged from briefing local community groups in East Boston to meeting with public officials at the local, state and federal level, and meeting with key stakeholders such as major business groups, and non-profit organizations such as the Logan Community Advisory Committee. In addition to this specific outreach, the joint FAA and MEPA public meeting held on November 19, 2015 associated with the ENF filing was well attended by the public and included an extensive opportunity for questions and answers. Massport advertised the notice of the meeting in local papers in English and in Spanish. Additionally, Spanish translation services were provided at the meeting. Following the hearing, Massport has continued its conversation with the community regarding Terminal E, with additional briefings to local community leaders, and Massport is planning a second publicly advertised hearing following the filing of



the DEIR. Collectively, Massport has been pursuing widespread public outreach regarding the Terminal E Modernization project for more than ten (10) consecutive months.

Massport has also consulted directly with resource agencies, including Massachusetts Office of Coastal Zone Management, Massachusetts Department of Energy Resources, Executive Office of Energy and Environmental Affairs, and FAA regarding potential impacts, avoidance, and minimization of these impacts, and mitigation strategies.

The public information session was held on November 19, 2015, at 6:30 PM at the Logan Airport Rental Car Center Noddle Island Community Room. The goal of this meeting was to acquaint the nearby community with the Project, including construction schedule/activities, and to solicit input regarding potential neighborhood issues.

Massport posts information about key regulatory filings on its website. Massport also publishes annual EDRs and periodic ESPRs on its website. The most recent environmental filings, including this EA/DEIR and all supporting documentation are available on Massport's website at:

www.massport.com/environment/environmental-reporting/environmental-filings/.

A public information briefing will be held in East Boston, MA. Massport and FAA staff will be available to discuss the Proposed Action and answer questions.

1.9 Contents of this EA/DEIR

Chapter 2, *Purpose and Need*: This chapter provides a description of the existing and anticipated future deficiencies at Terminal E with regards to accommodating increased demand in the international air service market. It summarizes the history of improvements at the terminal, details operations and passenger forecasts through 2030, and provides baseline facility requirements for accommodating the anticipated growth.

Chapter 3, *Alternatives and Proposed Action*: This chapter describes the alternatives investigated, and the extent to which each alternative addresses the Project's purpose and need as well as Massport's goals for the Project. It concludes with the presentation of the preferred alternative – the Proposed Action.

Chapter 4, *Affected Environment*: This chapter describes the Project Area, including its natural and built environmental features, as it exists today.

Chapter 5, *Environmental Consequences*: This chapter presents the results of the studies and technical analyses completed to identify the environmental effects of the Proposed Action as compared to the No-Action Alternative. The discussion includes an analysis of temporary and permanent effects of the Project on the natural and built environments related to the resource areas of noise, air, surface transportation, natural resources and energy supply, climate and greenhouse gas emissions, water resources, hazardous materials, land use, socioeconomics and environmental justice, parkland, and visual resources.

Chapter 6, *Beneficial Measures/Mitigation*: This chapter lists Massport's commitments and additional considerations for the protection of natural and built environments during the construction period and in the long-term.



Chapter 7, *Regulatory Compliance and Public/Agency Coordination*: This chapter lists the federal, state, and local environmental permits required for the Proposed Action to be built.

Chapter 8, *Distribution List*: This chapter provides the list of interested parties and public libraries that Massport provided a copy of this EA/DEIR.

Chapter 9, *List of Preparers*: This chapter lists the consultant team involved with the preparation of the Terminal E Modernization EA/DEIR technical analyses and documents.

Appendices

The extensive technical material and references used to support the analysis within this EA/DEIR are included as appendices. Supporting appendices include:

Volume I

- Appendix A – MEPA Environmental Notification Form Certificate and Responses to Comments
- Appendix B – Draft Section 61 Findings

Volume II

- Appendix C – Federal Aviation Administration Terminal Area Forecast
- Appendix D – Noise Technical Appendix
- Appendix E – Surface Transportation Technical Appendix
- Appendix F – Air Quality Technical Appendix
- Appendix G – Energy Model
- Appendix H – Agency Correspondence

Chapters 1 through 9 and Appendices A through B are included in Volume I of this EA/DEIR. Appendices C through H are included on Volume II. The full document is also available on a compact disc located at the end of this report. Additional materials referenced in the text are available on the Massport website at www.massport.com/environment/environmental-reporting/environmental-filings/.



2

Purpose and Need

2.1 Introduction

The Massachusetts Port Authority (Massport) proposes to modernize international Terminal E to accommodate existing and forecasted demand for international air service at Boston-Logan International Airport (Logan Airport). The proposed Terminal E Modernization Project (Proposed Action) will:

- Construct the three new aircraft contact gates that were originally approved by the Federal Aviation Administration (FAA) and under the Massachusetts Environmental Policy Act in 1995, but have not yet been constructed;
- Construct four additional contact gates, passenger holdrooms, concourse circulation areas, concession space, passenger processing areas (including U.S. Customs and Border Protection facilities), and expanded baggage screening;
- Modify airside apron areas and taxiways to accommodate the new gates, terminal improvements, and supporting facilities;
- Reconfigure adjacent landside roadways, parking, and curbs to accommodate the modernized terminal configuration; and

In addition, Massport plans to provide a weather-protected direct pedestrian connection between Terminal E and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station. This chapter describes the project context, the purpose of the Terminal E Modernization Project, and the terminal and facility deficiencies that compel terminal modernization.

2.2 Project Context

Logan Airport serves as New England's primary domestic and international airport, and plays a key role in the metropolitan Boston and New England passenger- and freight-transportation networks. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It is the primary airport serving the Boston metropolitan area, is the principle New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services.



Logan Airport is a primary economic engine for the New England region, the state, and the Boston metropolitan area. It supports nearly 95,000 direct and indirect jobs,¹ while generating approximately \$13.3 billion per year in total economic activity.

International passengers contribute a substantially higher share to the local and regional economy than domestic passengers do. Approximately 1.4 million overseas visitors spent more than \$1 billion in 2014, or \$763, on average, per visit.² New international service in the last three years alone has contributed more than \$1.4 billion per year to the local economy and \$44 million in new incremental tax revenue through income and sales.³

Figure 2-1 illustrates the annual estimated economic impact of select new nonstop international flights. Sustaining Boston’s competitive edge in international travel is critical to the Massachusetts and New England economies.

95,000

Direct and indirect jobs

\$13.3 Billion

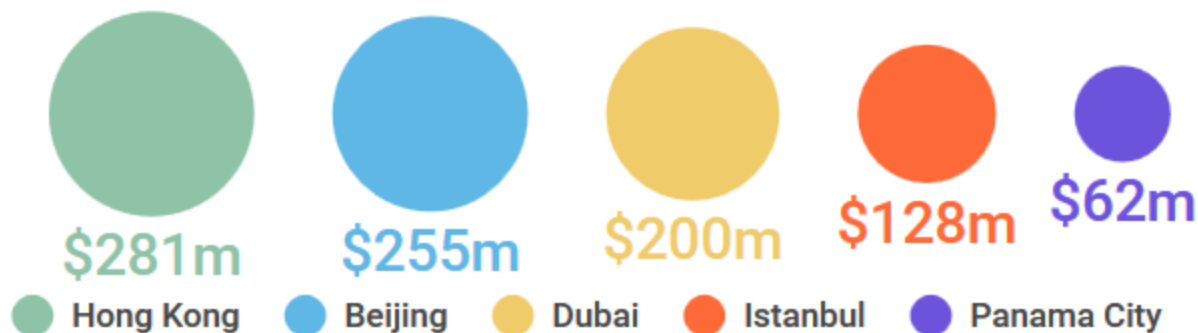
Total economic activity per year

\$1 Billion

Amount spent by overseas visitors per year (2014)

Source: InterVISTAS, 2015

Figure 2-1 Annual Economic Impacts of Select Nonstop International Flights



Source: InterVISTAS, 2015

In 2014, Logan Airport was the 18th busiest commercial airport in North America, as ranked by aircraft operations, and the 19th busiest in North America, as ranked by number of passengers.⁴ In the international sector, Logan Airport ranked as the 13th largest U.S. passenger gateway to the world.⁵ Over the last four years, Logan Airport has been one of the fastest growing major U.S. airports.

1 Massachusetts Aeronautics Commission. 2013. *Massachusetts Statewide Airport Economic Impact Study*. http://www.massdot.state.ma.us/portals/7/docs/mass_exec_summary_cml.pdf.
 2 Greater Boston Convention and Visitors Bureau. 2016. *GBCVB, Massport Celebrates Record Number of International Visitors in 2014*. <http://www.bostonusa.com/partner/press/press-releases/view/GBCVB-Massport-Celebrate-Record-Number-of-International-Visitors-in-2014-/113/>.
 3 InterVISTAS 2015. *Economic Impact of Recent International Routes*.
 4 ACI-NA. 2014. *Airport Traffic Reports*. www.aci-na.org. Accessed February, 2016. Note: 2014 is the year for which the most recent information is available.
 5 U.S. Department of Transportation. 2015. *U.S. International Air Passenger and Freight Statistics*. https://www.transportation.gov/sites/dot.gov/files/docs/US%20International%20Air%20Passenger%20and%20Freight%20Statistics%20Report%20for%20December%202014_0.pdf. Accessed March 14, 2016.



Since no airline maintains a connecting hub operation at the Airport, Logan Airport is principally an origin and destination airport. This means that the majority of passengers either begin or end their journeys at the Airport.

Logan Airport's market demand is due to the Boston metropolitan area's status as an important national and international destination, a robust regional economy, and regional demographics favorable to air travel. Market demand largely determines passenger levels, and these levels are not dependent on airlines connecting passengers that transfer from one flight to another without leaving the terminal area.

Following the longest and deepest economic downturn since the Great Depression, the Massachusetts economy has recovered and consistently outperformed much of the nation. Of the ten largest U.S. metropolitan areas in terms of economic output, the Boston metropolitan area economy recorded the fifth highest rate of growth between 2009 and 2013. The state's unemployment rate is also regularly below the national average. This economic resilience is due, in part, to the area's diversified economy. The Boston metropolitan area is a central player in the nation's finance, technology, biotechnology, healthcare, and education sectors. These industries are highly travel-dependent.

Millions of people travel to Massachusetts, particularly to the City of Boston, every year to enjoy the rich historic and cultural heritage, attend cultural or sporting events, conduct business, visit area beaches, and attend conferences at one of the city's convention centers. In fact, Massachusetts was the seventh most popular state to visit in 2014, and its 10% year-over-year increase in international visitors outpaced the rest of the nation, which increased by 7.3%.⁶ The Commonwealth's world-class medical, educational, and research and development institutions are also a major driver of the regional economy and Logan Airport passenger growth.

The Boston metropolitan area is one of the most populated metropolitan areas in the nation,⁷ and its strong economy has helped it become a high-income population area. In 2014, the Boston metropolitan area had a per capita income of \$39,858, which is nearly 40% higher than the national average of \$28,555.⁸ The region's mature market supports a sustained demand for air travel, particularly those with above-average incomes that have a high propensity for personal and business-related airline travel.

The market demand for air travel in the Boston metropolitan area has led to Logan Airport experiencing a record-breaking annual passenger volume, including 33.4 million passengers in 2015. Despite these increased volumes, however, aircraft operations continue to remain well-below historic highs. This reflects industry trends of more passengers per flight (higher load factors) and "right-sizing" of aircraft to specific routes.

Figures 2-2 and 2-3 compare passenger activity and aircraft operations at Logan Airport between 1990 and 2015.

⁶ Greater Boston Convention and Visitors Bureau. 2016. *GBCVB, Massport Celebrate Record Number of International Visitors in 2014*.

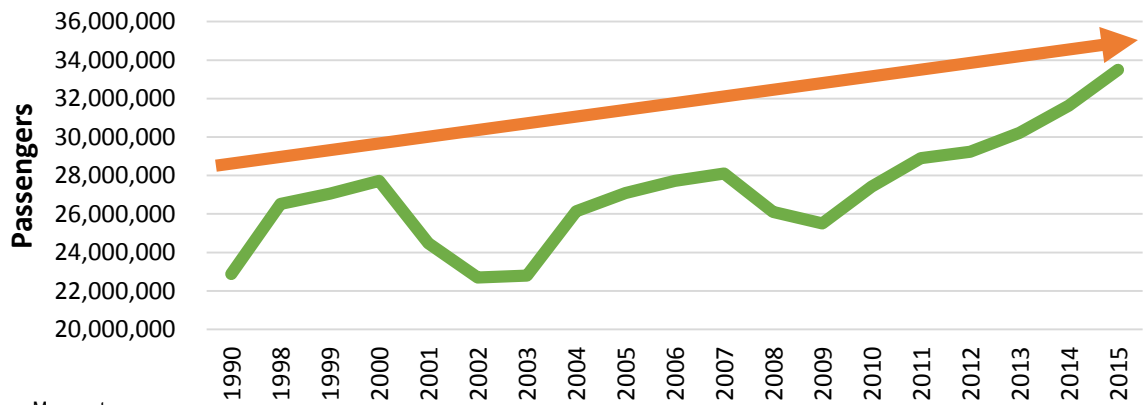
<http://www.bostonusa.com/partner/press/press-releases/view/GBCVB-Massport-Celebrate-Record-Number-of-International-Visitors-in-2014-/113/>.

⁷ United States Census Bureau, *Annual Estimates of the Resident Population of Metropolitan and Micropolitan Statistical Areas: April 1, 2010 to July 1, 2014*, (for the Boston-Cambridge-Newton, MA-NH Metropolitan Statistical Area).

⁸ United States Census Bureau. 2014. *2010-2014 American Community Survey 5-Year Estimates* (for the Boston-Cambridge-Newton, MA-NH Metropolitan Statistical Area).

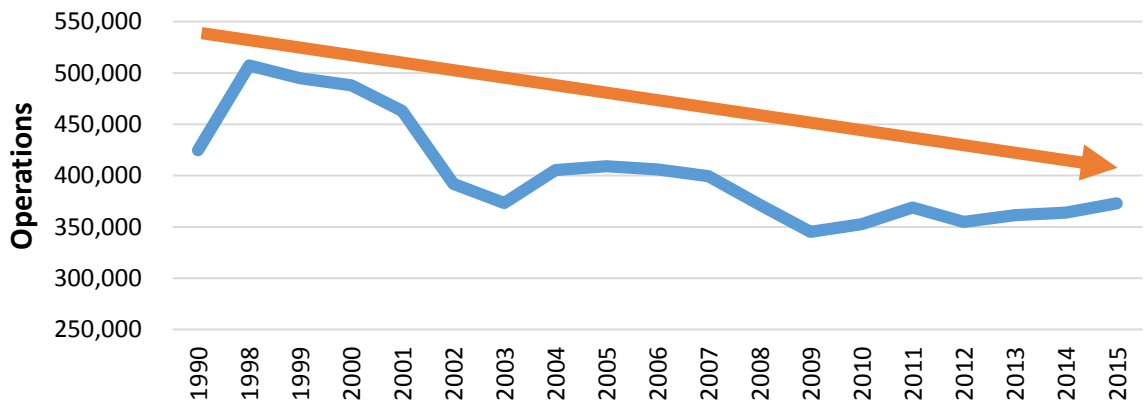


Figure 2-2 Logan Airport Annual Passenger Activity, 1990-2015



Source: Massport

Figure 2-3 Logan Airport Annual Aircraft Operations, 1990-2015

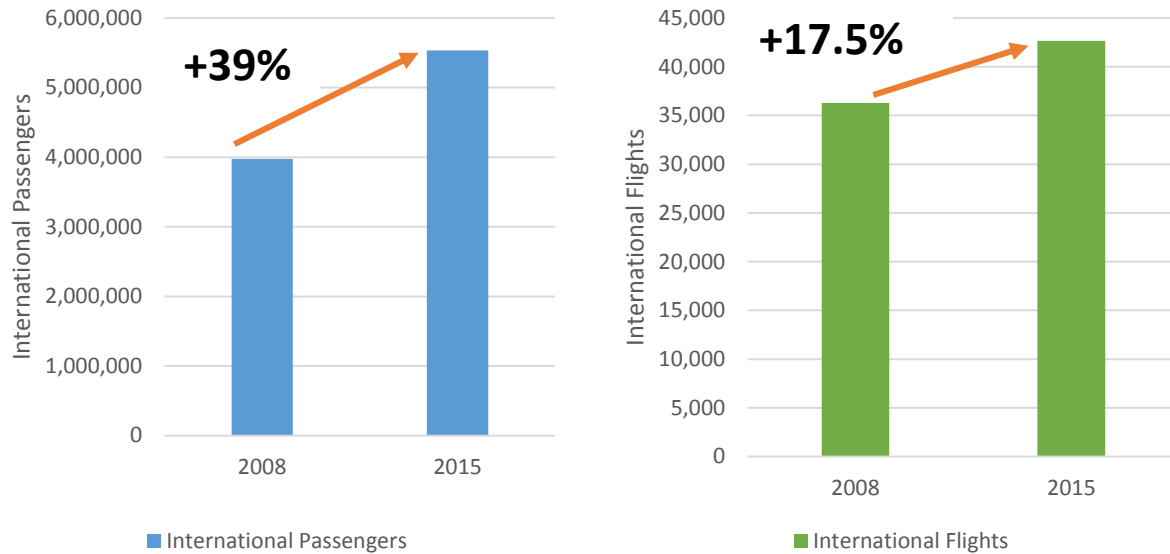


Source: Massport

While both domestic and international passenger numbers are increasing Airport-wide, international passenger demand is increasing at a faster rate than domestic demand. Between 2010 and 2015, international passenger levels at Logan Airport increased by an average of 8.6% per year, from approximately 3.7 million to 5.5 million. Domestic passenger volumes increased at an average of only 3.3% per year during the same period.

Since 2008, international passengers are up 39%, while international flights have experienced only a 17.5% growth. **Figure 2-4** illustrates these increases. Some of this growth is not “new,” but rather represents recovery from post-September 11, 2001 levels. After 2001, passenger activity level growth slowed through 2012. It was not until 2013 that Logan Airport exceeded international passenger levels from 2000 (see **Table 2-2**).

Figure 2-4 International Passenger Activity and Flights, 2008-2015



Source: Massport

One contributing factor to increasing international passenger activity is the growth in nonstop international service with new foreign-based carriers using cleaner and quieter wide-body aircraft. In the past three years, the number of nonstop destinations from Logan Airport increased by 152%, from 21 to 53 destinations.

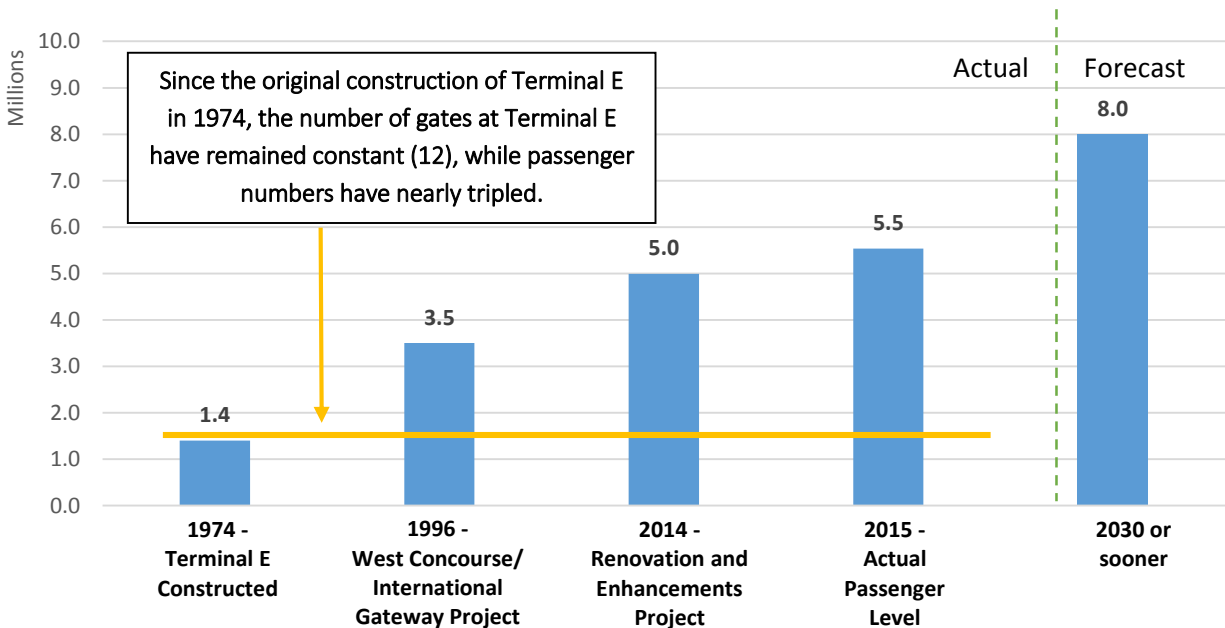
Figure 2-5 illustrates international nonstop flights currently available from Logan Airport. Nonstop international routes added in 2016 include:

- Düsseldorf, Germany (May 2016);
- Cologne, Germany (May 2016);
- Manchester, England (May 2016);
- Oslo, Norway, (May 2016);
- Copenhagen, Denmark (March 2016);
- London-Gatwick (March 2016); and
- Doha, Qatar (March 2016).



September 11, 2001, it put the Customs and Border Protection expansion on hold and did not construct the three new gates. Similarly, the Terminal E Renovation and Enhancement project, currently underway, addresses the need for Logan Airport to accommodate larger Group VI aircraft, but will not provide any additional gates. In 2015, the Airport served 5.5 million international passengers using the same number of gates it operated in 1974. This historical growth has occurred, and will continue to occur independent of any facility improvements, as international passenger activity is projected to reach 8 million passengers in 2030 or sooner. **Figure 2-6** illustrates the historical and projected increases in international passenger activity alongside a timeline of significant projects that Massport has undertaken at Terminal E since its opening.

Figure 2-6 Terminal E Historical International Passenger Levels and Terminal Improvements Timeline



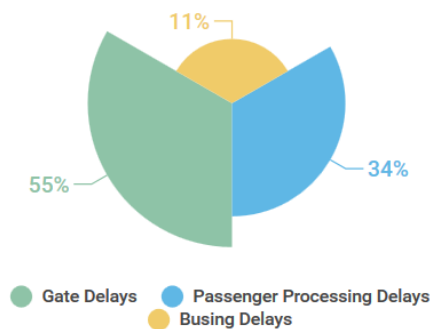
Sources: Massport, 2013; InterVISTAS, 2016

Notes: The Terminal E Renovation and Enhancements Project will accommodate A380 aircraft, but no new gates will be constructed as part of this project. Estimated construction completion for this project is July 2017.

Existing and continued growth in international air service at Logan Airport presents challenges for Terminal E operations. The current level of activity routinely causes severe congestion in the terminal at peak times, leading to greatly reduced customer service, and inefficient operations in the terminal and at the gates. Gate congestion, in turn, leads to airside delays and inefficiencies on the North Apron. When no gates are available, arriving aircraft and passengers are held on the apron. Alternatively, the aircraft will be directed to a remote “hardstand” at a North Cargo Area aircraft parking area, where passengers have to deplane using mobile stairs and a mobile lift for handicapped passengers, and are bused to the terminal. When aircraft remain on the apron waiting for a gate to become available or are remotely parked, they have at least one engine running or are using auxiliary power units, which both generate noise and air emissions until a gate becomes available. The North Cargo Area hardstands are closer to the East Boston neighborhood than the terminal, increasing the intensity of these impacts. The running of the ramp shuttle buses (diesel-powered) also generates air emissions,

Terminal E Facility Constraints (Summer 2015)

Aircraft waiting for gates accounted for the largest share of delays at Terminal E



Terminal E experienced delays due to facility constraints:



and can create conflicts with baggage and ground support equipment movements around the aircraft and on the ramp, which in turn increases wait times for boarding and arriving passengers.

In the summer of 2015, aircraft scheduling demanded 13 gates, one above the existing 12. This demand, and the further increases projected, is the primary reason for the Terminal E Modernization Project. To allow for the construction of the Terminal E Renovation and Enhancements Project, Massport decommissioned two gates at Terminal E (E8A and E8B), which were unavailable for use in 2015. By 2017, Massport will restore the two gates; however, as the Airport moves toward 2030, Massport expects seven additional gates will be required. The impact of this demand will be worse than that of 2015 when existing gating constraints at Terminal E led to numerous flight delays. Aircraft waiting for gates account for 55% of total delays at Terminal E, the largest percentage, while busing operations to remote hardstands account for 11%. From April to September 2015, facility constraints at Terminal E resulted in 293 gate-delays, affecting nearly 44,000 passengers. During that same period, Massport conducted 49 ramp busing operations, affecting over 8,200 passengers.¹² Massport has limited control over the scheduling of transatlantic flights, which are subject to lengthy flight times and time zone changes that cause arrival and departure peaks to occur within a relatively short time period. These schedules result in peaks in activity at the terminal that exceed the capacity of the facility to efficiently handle them.

Constraints within the terminal also cause delays. Passenger processing delays, particularly associated with Customs and Border Protection, account for 34% of passenger delays at Terminal E. In 2015, during the peak travel period of July and August, delays in passenger processing resulted in the holding of 178 flights, impacting 26,700 passengers.¹³ Other terminal constraints include insufficient post-security space for passenger seating, concessions, and other support services.

Overall, between April and September 2015, facility constraints at Terminal E affected 520 flights, resulting in 10,091 minutes of delays and 78,893 passengers impacted.¹⁴

¹² Massport operations records.

¹³ *Ibid.*

¹⁴ *Ibid.*

Figure 2-7 depicts the common challenges Massport faces at Terminal E because of facility constraints amid existing and continued growth in international air service.

Figure 2-7 Terminal E Challenges



Outdoor Ramp Parking



Remote Boeing 747 Parking



Ramp Busing



Arrivals Congestion



Holdroom Congestion



Departures Congestion

Source: Massport, 2015

As Logan Airport is severely land-constrained, and given the federal international passenger processing requirements, there are no other practical on-Airport locations for additional international gates than at Terminal E. To address challenges presented by Terminal E's space and facility constraints amid increasing international passenger activity, Massport proposes this Terminal E Modernization Project.



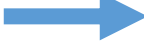



2.3 Project Purpose

The purpose of the Proposed Action is to modernize Terminal E, entirely within the Airport footprint, to efficiently accommodate current and projected international operations and passengers, and to meet regional economic goals, while minimizing community and environmental impacts.



The Terminal E Modernization Project would allow Massport to more efficiently accommodate current and projected international operations and passenger volumes and with a higher level of customer service through improved terminal, landside, and airside facilities at Terminal E. The modernization of Terminal E would allow the Airport to better and more efficiently serve existing demand and meet the projected demand for international travel through 2030, with an acceptable level of customer service and reduced environmental impacts compared to the No-Action Alternative. **Table 2-1** presents the goals of the Terminal E Modernization Project along with its features that Massport incorporated into its design to achieve those goals.

Table 2-1 Project Goals and Associated Terminal E Modernization Project Features

Project Goal	Project Features
Reduce Community Impacts	 <ul style="list-style-type: none"> ■ An extended terminal building would act as a noise barrier between the North Apron activity and the nearby communities of Jeffries Point and Gove Street in East Boston ■ Additional contact gates would reduce aircraft idling, the use of on-board auxiliary power units, and would reduce passenger busing from hardstand aircraft to and from the terminal, thus reducing noise and emissions
Reduce Environmental Impacts	 <ul style="list-style-type: none"> ■ Additional contact gates would reduce aircraft idling, use of on-board auxiliary power units, and passenger busing from hardstand aircraft to and from the terminal, lowering Logan Airport's indirect greenhouse gas emissions compared to the No-Action Alternative ■ Consistency with Leadership in Energy and Environmental Design (LEED®) guidance would minimize increases of energy consumption and associated direct and indirect greenhouse gas emissions, among other environmental benefits
Meet Regional Economic Goals	 <ul style="list-style-type: none"> ■ The Terminal E Modernization Project would support numerous construction jobs ■ Consistency with the Boston Region's growth in international business and to support the City of Boston's status as an international city and destination
Improve Customer Service	 <ul style="list-style-type: none"> ■ Adequately-sized modern facilities would reduce congestion and related delays in the terminal, and enhance the passenger experience
Improve Operational Efficiencies	 <ul style="list-style-type: none"> ■ Additional contact gates would reduce times that aircraft are waiting on the apron ■ An additional lane in the outer curb at the Arrivals Level would improve roadway efficiency ■ The extended terminal building would be designed to be consistent with Massport's Floodproofing Design Guide to protect the safety of passengers, occupants, workers, and first responders, while improving the Airport's operational resiliency during extreme storms
Enhance Connectivity	 <ul style="list-style-type: none"> ■ A direct weather-protected pedestrian connection between Terminal E and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station would enhance connectivity to high-occupancy vehicle modes of transportation and would improve passenger convenience



2.3.1 Passenger and Aircraft Activity and Forecasts

Massport requires additional facilities to efficiently accommodate growth in international air service at Logan Airport. Key planning parameters for determining facilities requirements are passenger and aircraft operations forecasts. An assessment of current activity levels and future anticipated demand help determine the required number of aircraft gates, passenger holdrooms, as well as passenger processing requirements for Customs and Border Protection and baggage handling facilities.

2.3.1.1 Historical, Existing, and Forecast International Passenger Activity Levels

Massport documents and reports Logan Airport’s passenger activity levels each year in its annual Logan Airport Environmental Data Report (EDR). In addition, Massport prepares passenger demand forecasts for the Logan Airport Environmental Status and Planning Reports (ESPRs). The 2011 ESPR was published in April 2013. This 2011 forecast was re-evaluated by Massport and adjusted in 2016 to account for recent changes in the airline industry and economic conditions.

As **Table 2-2** shows, annual international passenger levels at Logan Airport increased by over 1.8 million since 2010. As described below, this level of growth exceeds previous forecasts, as the actual number of international passengers at Logan Airport in 2015 was nearly 428,000 passengers above the 2014 projections.¹⁵

Table 2-2 Air Passengers by Market Segment, 2000, and 2010-2015

	2000	2010	2011	2012	2013	2014	2015	% Change (2013-2014)	% Change (2014-2015)
Domestic	23,100,645	23,688,471	24,579,780	24,743,008	25,578,080	26,545,978	27,810,256	3.8%	4.8%
International	4,513,192	3,681,739	4,215,071	4,383,945	4,546,018	4,992,225	5,534,176	9.8%	10.9%
Europe/ Middle East	2,948,452	2,672,635	2,939,226	2,896,002	2,901,529	3,194,109	3,473,579	10.1%	8.7%
Bermuda/ Caribbean	693,620	486,911	700,267	793,953	863,842	887,301	946,428	2.7%	6.7%
Canada	833,669	518,088	573,660	614,879	643,987	669,546	688,459	4.0%	2.8%
Asia/Pacific	37,451	0	0	78,484	104,235	170,867	316,621	63.9%	85.3%
Central/South America	0	4,105	1,918	627	32,425	70,402	109,089	117.1%	55.0%
General Aviation	112,996	58,752	114,416	109,134	94,872	96,242	105,148	1.4%	9.3%
Total Passengers	27,726,833	27,428,962	28,909,267	29,236,087	30,218,970	31,634,445	33,449,580	4.7%	5.7%

Sources: Massport. 2015, September. 2014 EDR (EEA # 3247).
 Massport. 2015. Logan Statistics for 2015. <https://www.massport.com/logan-airport/about-logan/airport-statistics/>

¹⁵ SH&E/ICF. 2014. *Massport Short-Term Forecast Update*. Internal document.



As **Table 2-3** shows, Massport’s most recent forecasts project that international air passenger activity at Logan Airport will increase to approximately 8 million in 2030 or sooner.¹⁶ Logan Airport will continue to experience an unprecedented level of growth through 2017, increasing nearly 30% above 2014 levels. International passenger activity will continue to grow after 2017, but at a rate consistent with its long-term economic drivers such as local and national economic conditions, airfares, and demographic trends.

Table 2-3 Passenger Activity and Forecasts, 2014, 2017, and 2030 or Sooner

Year	Forecast Passengers			% of Total Passengers	
	Domestic	International	Total	Domestic	International
2014 Actual ¹	26,545,978	4,992,225	31,538,203	84.2%	15.8%
2017	29,598,754	6,478,554	36,077,308	82.0%	18.0%
2030 or sooner	33,004,403	8,063,068	41,067,471	80.4%	19.6%

Sources: Massport. 2015, September. *2014 EDR* (EEA # 3247).
InterVISTAS. 2016, January. Forecast update to the *2011 ESPR* prepared for Massport.

Note: Totals do not include General Aviation passenger activity.

¹ Actual 2014 passengers

Current forecasts indicate that average weekday peak-hour passenger activity at Terminal E will increase. In 2030, the year the Terminal E Modernization Project will be fully operational, these forecasts predict 1,954 passengers would depart during the peak hour and 1,885 passengers would arrive during the peak hour, a 45% increase from 2014. Massport anticipates that the peak hour for departures will be between 9:00 PM to 10:00 PM and the peak hour for arrivals will be between 6:00 PM and 7:00 PM.

“ International air passenger activity at Logan Airport will increase to approximately 8 million in 2030 or sooner. ”

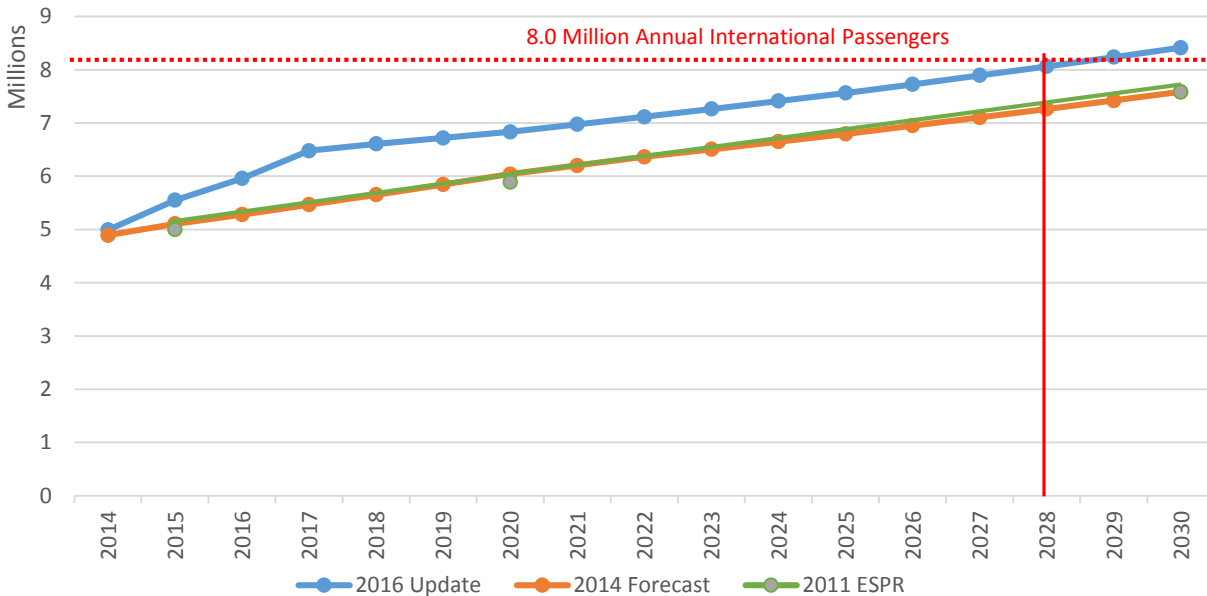
Massport’s current forecasts for international air service at Logan Airport exceed previous forecasts, underlining the unprecedented nature of this growth. Forecasts prepared for the *2011 ESPR*,¹⁷ which Massport published in 2013, and a 2014 forecast update,¹⁸ did not project international air service at Logan Airport to reach 8 million passengers until after 2030. **Figure 2-8** compares the currently (2016) expected growth for international air service at Logan Airport with the *2011 ESPR* and 2014 forecasts.

¹⁶ InterVISTAS. 2016. *Updating BOS Long Range Forecast Summary*. Internal document.

¹⁷ Massport. 2013. *2011 ESPR*.

¹⁸ SH&E/ICF. 2014. *Massport Short-Term Forecast Update*. Internal document.

Figure 2-8 Comparison of 2011, 2014, and 2016 International Passenger Activity Forecasts



Sources: SH&E/ICF, 2014; InterVISTAS, 2016; Massport, 2013

2.3.1.2 Historical, Existing, and Forecast International Aircraft Operations

Since 2000, the number of aircraft operations at Logan Airport decreased due to changes in fleet mix, increased passenger load factors, and consolidation within the airline industry. Changes in fleet mix involved a shift to larger aircraft that are more fuel efficient and quieter than the older aircraft.



6.7%

Change in Scheduled International Passenger Service (2014 - 2015)

Total scheduled international passenger aircraft operations at Logan Airport increased by 6.1% from 2013 to 2014 and by 6.7% from 2014 to 2015. Similar to overall aircraft operations (**Figure 2-3**), however, international aircraft operations at Logan Airport remain below historical highs. **Table 2-4** summarizes annual international passenger aircraft operations at Logan Airport by destination region in 2000, between 2010 and 2015.



Table 2-4 International Passenger Aircraft Operations by Market Segment, 2000, and 2010-2015

Category	2000	2010	2011	2012	2013	2014	2015	% Change 2014-2015
Canada	26,067	16,399	16,290	16,787	16,125	15,839	15,874	0.2%
Europe/Middle East	13,435	12,750	14,782	13,890	13,530	14,931	16,298	9.2%
Bermuda/Caribbean ¹	3,205	4,116	6,054	6,752	7,031	7,428	7,672	3.3%
Asia	0	0	0	474	646	1,018	1,757	72.6%
Central/South America	314	0	0	0	347	730	1,053	44.2%
Total Scheduled International	43,021	33,265	37,216	37,903	37,679	39,970	42,654	6.7%

Sources: Massport. 2015, September. 2014 EDR (EEA # 3247).
 Massport. 2015. Logan Statistics for 2015. Retrieved 24 March 2015, from <https://www.massport.com/logan-airport/about-logan/airport-statistics/>
 1 Includes Puerto Rico and U.S. Virgin Islands.

As **Table 2-5** shows, Massport’s most recent forecasts project that international scheduled operations at Logan Airport will increase to over 62,000 in 2030 or sooner, an increase of approximately 55.5% from 2014 levels.¹⁹ International aircraft operations at Logan Airport will exceed recent historic highs from 2010 (43,021) by 2016, when they will reach 44,498. International aircraft operations are increasing at a faster rate than domestic aircraft operations, and will grow its share of total aircraft operations at Logan Airport from 12.0% in 2014 to about 16.1% in 2030 or sooner.

Table 2-5 International Scheduled Operations Forecast, 2014, 2017, and 2030 or Sooner

Year	Forecast Scheduled Operations			% of Total Scheduled Operations	
	Domestic	International	Total	Domestic	International
2014 ¹	291,679	39,953	331,632	88.0%	12.0%
2017	298,843	46,360	345,203	86.6%	13.4%
2030 or sooner	323,473	62,135	385,608	83.9%	16.1%

Sources: Massport. 2015, September. 2014 EDR (EEA # 3247).
 InterVISTAS. 2016, January. Forecast update to the 2011 ESPR prepared for Massport.

Note: Totals do not include General Aviation or Charter/Cargo operations.
 1 Actual reported 2014 passenger activity level

2.3.2 Logan Airport Consistency with the FAA Terminal Area Forecast

Massport’s most recent passenger forecasts are consistent with the FAA’s Terminal Area Forecast.²⁰ For forecasts to be considered consistent with the Terminal Area Forecast, they must “differ by less than 10% in the 5-year forecast period, and 15% in the 10-year forecast period.”²¹ In the 5-year and 10-year forecast periods, Massport’s most recent passenger forecasts are slightly below the Terminal Area Forecast, but within 10%. **Table 2-6** compares the projected overall passenger activity levels and aircraft operations associated with Massport’s most

¹⁹ InterVISTAS. 2016. *Updating BOS Long Range Forecast Summary*. Internal document.

²⁰ FAA. 2015. *Aviation Policy and Plans Office Terminal Area Forecast Quick Data Summary, For National Forecast 2015*.

²¹ FAA. 2008. *Review And Approval Of Aviation Forecasts*. https://www.faa.gov/airports/planning_capacity/media/approval_local_forecasts_2008.pdf. Accessed February 18, 2016.



recent forecast with the Terminal Area Forecast. Appendix C, *Federal Aviation Administration Terminal Area Forecast* provides the FAA’s most recent forecast for Logan Airport.

Table 2-6 Forecast Comparison, 2021 and 2026

	2021 (5 years)			2026 (10 years)		
	Recent Forecast	TAF ¹	Difference (%)	Recent Forecast	TAF ¹	Difference (%)
Passenger Enplanements	17,814,593	18,325,769	(2.8%)	19,385,599	20,492,608	(5.4%)
Aircraft Operations	395,323	403,119	(1.9%)	418,048	440,643	(5.1%)

Sources: FAA. 2015. "Aviation Policy and Plans Office Terminal Area Forecast Quick Data Summary, For National Forecast 2015." InterVISTAS. 2016, January. Forecast update to the 2011 *ESPR* prepared for Massport.

1 TAF data represents air carrier and commuter air carriers.

2.4 Project Need

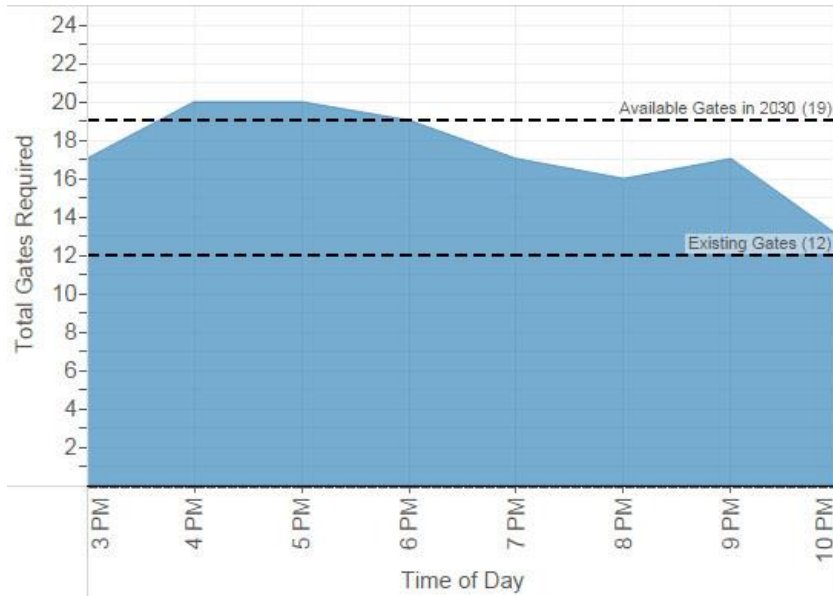
To enhance operational safety and efficiency, improve customer service, and reduce environmental impacts associated with existing and for future for international flights that are expected whether or not the Project is constructed, additional gates and passenger processing facilities are needed. The current terminal facilities at Terminal E are undersized and cannot efficiently handle the increase in passenger levels. Airside operations on the North Apron are also inefficient, resulting in adverse operational and environmental impacts that will continue to worsen without the proposed improvements. The following sections describe facility needs at Terminal E, based on existing and forecasted international passenger and aircraft operations.

2.4.1 Gate Needs

To determine the number of gates required to accommodate the volume of passengers and aircraft that will be arriving and departing at Terminal E, Massport conducted a gating analysis for forecast passenger activity and aircraft operations levels. Gate utilization varies with the type of flight. While domestic flights typically require 45 to 90 minutes to arrive, unload passengers, load passengers, and depart, transatlantic international flights require additional time at the gate due to longer servicing time, larger aircraft, and peak schedule constraints. The gating analysis conducted for Terminal E assumes that aircraft will occupy a gate for 75 to 105 minutes, depending on the size of aircraft, to load the aircraft for departure. Once an aircraft arrives, the analysis assumes 60 minutes to deplane and prepare the plane for the next flight. If the time between arrival and departure is significant, Massport may tow the aircraft off the gate to a remote location on the apron to allow other aircraft to utilize the gate space. At the end of the day, these aircraft usually remain overnight and depart the next morning.

With the forecasted volume of 8 million annual international passengers per year passing through Logan Airport by 2030 or sooner, the gating analysis indicates that Logan Airport will require a total of 19 gates to efficiently support international operations - seven more gates than exist at Terminal E today. **Figure 2-9** depicts the 2030 or sooner peak hour gate requirements by time of day.

Figure 2-9 Terminal E, Peak Hour Gate Requirements by Time of Day - 2030 or Sooner



Source: LeighFisher, 2016

To allow for flexibility in future operations, Massport would size the gates to accommodate Group IV (for example, Boeing 757 and Airbus A300) and Group V aircraft (for example, Boeing 747 and Airbus A340). The gates modified as part of the recent Terminal E Renovation and Enhancements Project are expected to adequately accommodate forecasted Group VI aircraft (such as the Airbus A380).

Other airside modifications that Massport would implement as part of the Terminal E Modernization Project include adjustments to the taxilane and layout of the adjacent aircraft apron to provide access to and from the new gates. Massport would also reposition and add airside storage areas for aircraft ground support equipment and other flight service equipment as well as hydrant fuel pits in the immediate vicinity of Terminal E.

2.4.2 Terminal Needs

Massport undertook Terminal E space programming for modernizing Terminal E to establish gross size requirements for various functional components of the terminal facilities necessary for efficient future Airport operations related to forecasted passenger volumes and the seven new gates. To address existing and projected deficiencies at Terminal E, Massport is considering all required interior terminal elements, and is basing sizing on forecasting, industry standards and guidelines, and professional best practices.

2.4.2.1 Check In

The number and size of ticketing and check in counters are a function of the peak-hour passenger volumes and the configuration of counters. Terminal E has Common Use Terminal Equipment meaning counter occupancy is not specific to an airline. Counter use varies throughout the day to meet demand. The nature of International Airlines is that some airlines are active in the morning, some in the evening, some late evening. By having common use facilities one airline may use several counters during one time period and another airline would



use the same counters during a different time period. While creating complexities for equipment, the common use counter concept provides a much more efficient utilization of space.

The evening is the peak time for Terminal E check in, generally driven by travel to Europe which has specific time constraints to coordinate with overseas Airport operations. Check in facilities are generally adequate for today's demand but will become deficient as peak hour demand grows. Planned expansion is a direct function of the forecasted peak hour growth.

2.4.2.2 Baggage

Outbound bags are screened in three dedicated rooms within Terminal E. Existing facilities are generally adequate for today's travel volumes, but as peak hour passenger volumes grow, so does the volume of bags to be screened. Planning has envisioned an expansion of the bag screening rooms commensurate with increase in peak hour travel.

After screening, bags are conveyed to baggage make-up rooms where they are sorted to go on specific flights. Within the make-up room there are multi-cart trains to transport sorted bags to aircraft. Each multi-cart train is dedicated to a specific flight. There are numerous flights being sorted on carts loaded at any time. When flights are being prepared for departure the baggage carts are brought to the aircraft and loaded. Baggage make-up facilities are somewhat deficient for today's volume, especially the West bag room which is closest to many of the largest aircraft. As number of flights in peak times increases, so will demand for baggage make up facilities. Planning has envisioned an expansion to address both current deficiencies and to accommodate future growth in concurrent aircraft departure activity.

2.4.2.3 Passenger Screening

After passengers have checked in and have checked their bags they proceed to Passenger Screening. Passenger screening facilities at Terminal E are deficient for today's passenger volumes and will become even more of a problem as peak-hour volumes grow. Deficiencies are not just the number of lanes for screening but also inadequate re-composure area (where passengers put on shoes, jackets, and other items that went through the x-ray scanner). Current deficiencies also include lack of queue space for passengers approaching the screening lanes. This causes backups into the ticket hall and congestion and confusion for passengers.

2.4.2.4 Passenger Holdrooms

The sizes of passenger holdrooms are a direct function of aircraft size. Currently there is a significant deficiency in passenger holdroom capacity at Terminal E. This deficiency will be somewhat relieved by the Terminal E Renovation and Enhancement Project which will increase hold room capacity in the Gate 10, 11 and 12 area. As peak-hour flight activity increases there is an accompanying need for holdroom capacity.

2.4.2.5 Customs and Border Protection

The key Customs and Border Protection functional areas are designated as Primary and Secondary Processing based on current regulatory protocols. Primary processing is passport and immigration control and consists of:

- Forms counters



- Queuing area and primary processing lanes
- Video monitors to display information for travelers in queue
- Self-service pre-entry kiosks
- Trusted traveler primary area
- Primary processing booths (piggyback units)
- Support areas/offices

From primary processing, passengers retrieve their checked bags in the bag claim area and proceed to exit control and secondary processing which includes customs inspection and various interview rooms and other spaces.

Currently there is a significant deficiency in the bag claim area - there are not adequate claim carousels to handle incoming flights. This often causes passenger flow to back up into the primary processing area, and can result in airlines having to hold passengers on arriving aircraft to prevent overcrowding in the building. All aspects of the Customs and Border Protection process must be sized to accommodate the demand, otherwise the delays and congestion (and passenger aggravation) are created.

Table 2-7 compares existing terminal square footage with the future space requirements associated with a total of 19 gates (12 existing plus three that were previously approved but never constructed and an additional four gates) to accommodate 8 million passengers.

2.4.3 Curbside Needs

Passengers currently utilizing the outer curbside on the Terminal E Arrivals level frequently experience congestion, as there are not enough lanes to accommodate the queuing of vehicles picking up passengers during peak periods, recirculating as they wait for passengers to clear Customs and Border Protection, and maneuvering between the pick-up curb and the travel lane. There are currently three lanes at the outer curb utilized for private passenger vehicle pick-up. Standing and loading passengers use the inner two lanes, which leaves only the third lane on the outer curb for vehicles looking for an open spot at the curb and for vehicles trying to move through the terminal area to exit or recirculate. This congestion frequently backs up traffic to the terminal roadway during peak travel periods. A fourth lane at the outer curb of the Arrivals Level at Terminal E would provide for more efficient roadway operations.



Table 2-7 Terminal E Modernization- Space Program Terminal Facility Requirements¹

Element	Existing 12 Gates (sq ft)	Requirements for 8 Million Air Passengers	
		19 Gates (sq ft) ²	Needed (sq ft)
Check In	27,500	41,800	14,300
Outbound Baggage Screening	49,800	75,800	26,000
Outbound Baggage Make Up	47,700	69,600	21,900
Airline Cargo Handling	0	15,000	15,000
Passenger Screening	7,200	27,300	20,100
Concessions	31,500	55,200	23,700
Restrooms	21,600	34,100	12,500
Passenger Holdrooms	52,000	84,900	32,900
Holdrooms Corridor	37,000	74,500	37,500
Airline Clubs	44,800	72,800	28,000
Customs & Border Protection	147,300	252,500	105,200
Mechanical/Electrical/Plumbing	110,000	161,000	51,000
Meeter/Greeter Area	9,900	14,900	5,000
Support, Circulation, Other	212,000	315,000	103,000
Contingency		68,000	68,000
Total (sq ft)	798,300	1,362,400	564,100

Source: Massport; LeighFisher; AECOM, 2016

- 1 Includes enhancements associated with the Terminal E Renovation and Enhancements Project, which Massport anticipates to be complete in 2017, prior to construction commencing on the Terminal E Modernization Project.
- 2 To mitigate excessive passenger processing wait times, Massport proposes a satellite Customs and Border Protection, which would be in addition to existing Customs and Border Protection facilities at Terminal E.

2.5 Summary

In the last five years, Logan Airport has seen unprecedented passenger growth in international air service due to regional economic growth. Forecasts show that this level of growth will continue through at least 2017, rising still thereafter to reach 8 million passengers by 2030 or sooner whether or not the Terminal E Modernization Project is constructed.²² Terminal E is currently undersized and will not be able to handle the projected increase in passengers in a manner that would allow Massport to provide safe, efficient, flexible, and convenient facilities for its passengers, tenants, and other Airport users. These deficiencies will lead to increased (and avoidable) adverse environmental impacts. To accommodate current and projected demand for international air service at Logan Airport through 2030, Massport intends to improve airside and landside facilities at Terminal E. Projected passenger demand is anticipated with or without facility improvements.

²² InterVISTAS. 2016. *Updating BOS Long Range Forecast Summary*. Internal document.



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Alternatives and Proposed Action

3.1 Introduction

As required by the National Environmental Policy Act (NEPA) and the Massachusetts Environmental Policy Act (MEPA), this chapter describes the alternatives considered for the Terminal E Modernization Project (Project or Proposed Action). The purpose of the Project is to modernize Terminal E, entirely within the Boston-Logan International Airport (Logan Airport or Airport) footprint, to efficiently accommodate current and projected international operations and passengers, while minimizing community and environmental impacts that can be avoided through Project implementation.

As described in Chapter 2, *Purpose and Need*, in response primarily to regional and international economic growth, international travel has been growing at an unprecedented pace at Logan Airport and Massport anticipates that this trend will continue well into the future. Additional gates are needed to allow aircraft to park at a gate and minimize apron idling time and associated environmental impacts.

The Terminal E Modernization Project includes new gates and associated terminal improvements, associated curbside and roadway improvements, and a direct weather-protected passenger connection to the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station. Relocation of existing facilities that would be displaced by the new extended terminal core is also included in the Project.

The Terminal E Modernization Project aims to improve the ability of Logan Airport to efficiently accommodate current future passenger volumes by constructing new gates and amenities at Terminal E. All Action Alternatives studied would provide seven new contact gates, new passenger holdrooms, an extended public concourse, vertical circulation cores, and new restrooms and amenities. The Terminal E Modernization Project would also include additional U.S. Customs and Border Protection processing capacity. The modification of the terminal in turn would require reconfiguration of the North Cargo and North Apron areas and adjacent terminal roadways to accommodate the new terminal building area and to allow these areas to operate efficiently to accommodate the increased volumes of passengers.

Massport evaluated alternatives according to their ability to meet the Project's purpose and need, as well as considerations such as meeting program space requirements, layout efficiency, efficiency of airfield operations, ability to buffer noise, efficiency of traffic operations, overall cost, and constructability. All terminal Action Alternatives are located on previously developed land within the Airport boundary and are expected to have very similar beneficial environmental effects.



3.2 Analysis Year

This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) uses the analysis year of 2030 to compare the Proposed Action to the No-Action Alternative. Forecasts conducted by Massport indicate that passenger volumes for international travel will reach 8 million annual passengers by the year 2030 or sooner. The forecasting of passenger volumes 15 years into the future is based on best available data and modeling. The design of alternatives is based primarily on accommodating the anticipated passenger volumes associated with an 8 million annual passenger volume being processed through Terminal E; the exact year may be somewhat sooner or somewhat later than 2030.

3.3 Regional Context

Boston-Logan International Airport is the primary airport providing international service for the New England region. Logan Airport, one of three airports¹ owned by Massport, operates within a larger network of New England regional airports. Other regional airports, Boston-Manchester Regional Airport (New Hampshire) and T.F. Green Airport (Rhode Island), primarily serve their local service areas, and provide limited international service mainly to seasonal vacation destinations. Logan Airport serves as a major domestic origin and destination market and acts as the primary international gateway for the New England region.

Logan Airport is well positioned in terms of access, competitive airfares, and available air service to meet the demands of the core Boston passenger market. Logan Airport also provides a connecting hub for airports in more remote New England communities such as Cape Cod, Massachusetts; Augusta, Presque Isle, and Rockland, Maine; and Rutland Vermont. Rail service connects the Boston region with service from Boston to the New York and Washington D.C. metropolitan areas to the south and Portland to the north. The ease and choice of multimodal regional access is another factor in the continued demand for international service at Logan Airport.

Regional airports (Boston-Manchester Regional Airport and T.F. Green Airport) provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from these two regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. The demand for international travel to these regional locations is considerably lower than that of Boston, which is a major international destination. Connecting international flights to and from these regional airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities are also limited at these airports and would require additional staffing by Transportation Security Administration and Homeland Security agencies to accommodate these additional international flights.

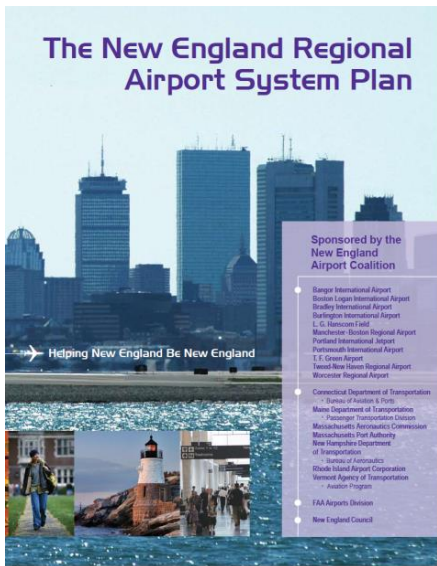
Logan Airport has the local market demand, critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network, which cannot be replicated at smaller, regional airports. Total international annual passenger numbers increased from 4.9 million in 2014 to 5.5 million in 2015, a 10.9-% increase in just one year. The strong international passenger growth was

¹ Massport owns and operates Boston-Logan International Airport, Hanscom Field, and Worcester Regional Airport.



driven by several new nonstop services introduced by a number of foreign airlines including Emirates, Turkish Airlines, Hainan Airlines, and Cathay Pacific. As illustrated on **Figure 2-5** recently launched international destinations include Mexico City, Tokyo, Beijing, Dubai, Istanbul, Panama City, Hong Kong, and Shanghai.

Massport, working with other New England regional state aviation divisions and the Federal Aviation Administration (FAA), produced *Regional Airport System Plans* in 1995 and 2006. The plans included extensive investments in Boston-Manchester Regional and T.F. Green Airports to meet demand for regional domestic air service, such as improved direct highway access, new parking garages, lengthening of runways, and new terminals, which are underway or have now been accomplished. The *Regional Airport System Plans* envisioned expanded high-speed rail in the Northeast Corridor and that increased rail service would divert air passengers in the Logan Airport to New York City market (accomplished). Additional Massport investment in Worcester Regional Airport, including improvements to instrumentation systems to allow aircraft to land in low visibility conditions, and commercial service were anticipated and are now under construction. Hanscom Field’s role as



New England’s premier general aviation facility would continue. The plans also call for more investment in Logan Airport to support its critical role as the region’s access point to the international marketplace.

Massport’s investments in its family of airports are consistent with the *Regional Airport System Plans*, including:

- Acquiring and modernizing Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region.
- Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. Because of this collaboration, jetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013.

- Massport recently started construction on Worcester Regional Airport’s

Instrument Landing System to enhance operational conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport’s all-weather reliability, a long-standing impediment to greater utilization of this airport.

- Hanscom Field continues to maintain its role as a reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. Hanscom Field is a full-service general aviation airport and popular choice for business executives to Eastern Massachusetts and “America’s Technology Region” situated along the Route 128/Interstate 95 and Interstate 495/US 3 corridors.

As described in Chapter 2, *Purpose and Need*, the ongoing growth in international market demand is occurring at Logan Airport without significant terminal improvements.



Massport has not added any gates at Terminal E since the initial 12 gates were constructed in 1974, yet international travel has increased dramatically over that period of time. This demonstrates that international service demand at Logan Airport is driven by the economic, regional, and market factors, not airport improvements or availability of facilities.

For the reasons outlined above, provision of international service at the other regional airports is not practicable. Therefore, this analysis focuses on various concepts that enhance the existing international Terminal E at Logan Airport.

3.4 Planning Metrics, Facility Requirements, and Design Guidelines

To meet the space requirements for the projected demand, the terminal facility must present an efficient layout of program elements including gates, holdrooms, and intuitively placed passenger processing and amenities. The following section describes the planning tools and metrics used to guide the alternatives development for the modernization of Terminal E. Key elements considered in the sizing of the alternatives include gating, ticketing, checkpoints, concession areas, baggage claim, outbound bag rooms, passenger holdrooms and amenities, Customs and Border Protection services, and restrooms. The alternatives developed followed guidance from the FAA, Transportation Security Administration, and Department of Homeland Security. Massport also followed industry standards as well internal requirements for the facility including Massport's Sustainable Design Standards and Guidelines and Leadership in Energy and Environmental Design (LEED®) guidelines. Conceptual layouts undertaken to date were based on a set of requirements sufficient to assess alternatives.

3.4.1 Terminal E Gates

Gate requirements were generated using a peak month/average day hourly schedule from the forecast information. A gate model is then used to determine gate requirements based on the forecast flight schedule. To calculate the number of additional needed gates, certain assumptions were made including:

- Aircraft size and passenger count;
- Time to “turn” an aircraft at the gate including arrival and docking, off-loading passengers, cleaning and preparing the aircraft for departure (including fueling), boarding passengers, and departure maneuvers, among others;
- Earliness or lateness (ahead/behind schedule) profile for arriving international aircraft; and
- Reasonable time between an aircraft departing and the next aircraft arriving.

Based on 2030 forecast passenger levels, the gating analysis for Terminal E indicated the need for an additional seven gates to operate during future peak periods.



3.4.2 Terminal Programming

Massport undertook a terminal space programming effort to establish gross size requirements for various functional components of the Terminal E facilities, necessary for efficient future airport operations (**Table 3-1**). Over the past several decades, specific planning metrics have evolved within the airport planning industry and FAA that define various terminal functions, including: the number of ticketing positions and queuing; throughput rates and passenger screening requirements at security checkpoints; the loading factor of gated aircraft and their impact on holdroom sizing and number of seats provided; and baggage claim frontage and queuing. Airlines have also developed their own specific planning metrics based on their business models. Specifically, the FAA *Advisory Circular 150/5360-7, Planning and Design Considerations for Airport Terminal Building Development*, provides guidance in the design of airport terminals, specifically for origin and destination airports such as Logan Airport.² The guidelines for origin and destination airports are general in nature and the principles apply to terminal development; these guidelines are used for general planning parameters in the proposed alternatives described below.

In 2000, Massport also adopted its own Terminal Improvement Design Guidelines.³ Massport followed these guidelines for the design and construction of Terminal A for Delta Airlines, and the recent Terminal E Renovation and Enhancements project. These guidelines, in conjunction with standard industry practices and airline standards, have directed terminal planning at Logan Airport since their adoption and are expected to guide all future terminal design and improvements. While not prescriptive in every area of terminal programming and planning, they offer qualitative guidelines and metrics for the gate holdrooms. The guidelines also allow for the development of efficient, flexible facilities that are able to adapt to changes in aircraft types, technology, or security requirements.

Table 3-1 summarizes the key aircraft gate and passenger terminal area facility program requirements for the Terminal E Modernization Project to address current deficiencies as well as meet the needs for future anticipated aircraft and passenger handling. The Terminal E Renovation and Enhancements project, currently under construction, is specifically being built to accommodate the anticipated larger Group VI aircraft such as the Airbus A380 and Boeing 747-8. The proposed modernization of Terminal E would be designed to accommodate Group V (such as Boeing 747, Boeing 777, MD-11, and Airbus A-340) and Group IV (Boeing 757, Boeing 767, and Airbus A-300) aircraft also used for international flights. The facility would also have the flexibility to accommodate Group III aircraft if necessary.

² Federal Aviation Administration, Advisory Circular 150/5360-7, *Planning and Design Considerations for Airport Terminal Building Development*, April 22, 1988.

³ Industry standards and Massport Design Guidelines



Table 3-1 Terminal E Modernization- Space Program Terminal Facility Requirements¹

Element	Existing 12 Gates (sq ft)	Requirements for 8 Million Air Passengers (MAP)	
		19 Gates (sq ft) ²	Needed (sq ft)
Check In	27,500	41,800	14,300
Outbound Baggage Screening	49,800	75,800	26,000
Outbound Baggage Make Up	47,700	69,600	21,900
Airline Cargo Handling	0	15,000	15,000
Passenger Screening	7,200	27,300	20,100
Concessions	31,500	55,200	23,700
Restrooms	21,600	34,100	12,500
Passenger Holdrooms	52,000	84,900	32,900
Holdrooms Corridor	37,000	74,500	37,500
Airline Clubs	44,800	72,800	28,000
Customs & Border Protection	147,300	252,500	105,200
Mechanical/Electrical/Plumbing	110,000	161,000	51,000
Meeter/Greeter Area	9,900	14,900	5,000
Support, Circulation, Other	212,000	315,000	103,000
Contingency		68,000	68,000
Total (sq ft)	798,300	1,362,400	564,100

Source: Massport; LeighFisher; AECOM

1 Includes enhancements associated with the Terminal E Renovation and Enhancements project, which Massport anticipates to be complete in 2021, prior to construction commencing on the Terminal E Modernization Project.

2 Represents the total projected future space requirements for Terminal E.

3.4.3 Design Guidelines - Sustainability Design Standards and Guidelines/Resiliency

Massport is planning to build the Terminal E Modernization Project to meet LEED Silver or higher and Massachusetts LEED Plus standards. In addition to considering LEED guidelines, the Project design team consulted Massport’s Sustainable Design Standards and Guidelines.⁴ The Project would be consistent with Massport’s overall sustainability program, which includes diverse sustainability initiatives ranging from facilities maintenance to innovative partnerships and public incentives. The standards are tailored to Massport’s operations, facilities, and geography, and are intended to be used by architects, engineers, and planners working on capital projects for Massport. The standards apply to both new construction and rehabilitation projects (building and non-building) of any square footage or monetary value. The Project has also been developed to comply with Massport’s Floodproofing Design Guidelines⁵ to make the terminal infrastructure and operations more resilient to anticipated flooding threats and other climate events.

4 Massachusetts Port Authority. *Logan Airport Sustainable Design Standards and Guidelines – Version 1*, June 2009.

5 Massachusetts Port Authority *Floodproofing Design Guide – March 2015*

3.5 Project Alternatives

The following sections describe and evaluate the Proposed Action Alternatives for each Project component and, as required by NEPA/MEPA, include the No-Action/No-Build Alternative. The Action Alternatives include the following elements:

- Terminal E modernization to provide a concourse with seven additional gates, airside (ramp/apron) modifications, and terminal support functions such as passenger holdrooms, concessions, and passenger processing;
- Landside reconfiguration of roadways and curbs in the vicinity of Terminal E to accommodate the new terminal configuration; and
- Direct weather protected pedestrian connection from the MBTA Blue Line Station to Terminal E.

These are each described in turn in the following sections. Massport evaluated alternatives according to their ability to meet the Project purpose and need, considerations such as internal space requirements, total new square footage of building, layout efficiency, impact to airfield operations, ability to buffer noise, traffic operations, cost, and constructability. The following sections detail and illustrate the components of the alternatives considered and the screening process to identify the Proposed Action.

3.5.1 No-Action/No-Build Alternative

The No-Action/No-Build Alternative (see **Figure 3-1**) assumes that growth in passengers and aircraft operations would continue without Massport making any significant physical improvements, to accommodate the current and future projected volumes of international operations and passengers. The No-Action/No-Build Alternative (henceforth the referred to as the No-Action Alternative) could include routine management or operational shifts without constructing new facilities.

As discussed in Chapter 2, *Purpose and Need*, Terminal E as it currently exists has inadequate facilities to accommodate current as well as forecasted growth in international travel and associated passenger activity levels. The No-Action Alternative illustrates how the present Terminal E configuration would operate under the increased volumes of airline and passenger traffic projected for 2030. Airlines would continue to offer seats to meet demand and increased aircraft operations would take place, but no physical and only managerial changes to the Airport would occur to accommodate this increased demand.

Under the No-Action Alternative, Massport anticipates that in 2030 Terminal E would be seven gates short of the projected demand during the peak months. All aircraft that do not have an available gate would either hold on a taxiway awaiting a gate or “hardstand” at remote areas of the North Apron and Massport would have to bus passengers to and from the aircraft to board and deplane for flights. Without additional gates to service the aircraft, apron operations would become increasingly congested and inefficient. Extensive use of hardstands would disrupt aircraft movements, as buses would shuttle passengers between hardstands and the terminal. The hardstands also require remote servicing by ground support equipment and vehicles. While aircraft are positioned away from the gate, they use auxiliary power units to run on-board services such as power, heating, and cooling.



Within the terminal under the No-Action Alternative, passenger-processing facilities would also be inadequate to meet the future demand. Delays in deplaning passengers reaching the curbside due to a lack of available gates and delays at passenger processing within the terminal, would result in increased recirculation time of traffic arriving for passenger pick-up. The impact analysis of the No-Action Alternative is discussed in Chapter 5, *Environmental Consequences*.

3.5.2 Action Alternatives - Terminal Configuration

Early conceptual designs developed to support the Terminal E Modernization Project evaluated different configurations of the new terminal area and North Apron area. All Action Alternatives developed would add the required seven new gates (three previously permitted but never constructed plus four additional gates).

The key differences among the terminal configuration alternatives relate to efficiency of interior operations, frontage on the adjacent roadway to provide curbside access to the terminal for passengers, disruption to existing terminal and apron operations, and cost. With the exception of ability to buffer ground noise from ground operations, there is very little difference among the alternatives from an environmental perspective.

3.5.2.1 Action Alternative A - Separate Core Terminal

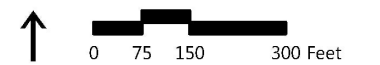
Action Alternative A (**Figure 3-2**) would create a new linear concourse and terminal core, with a new separate curb frontage. While connected to the existing terminal, the new facility would operate essentially as a separate terminal facility. The new concourse would be connected to the Gate 12 area of the existing terminal via a secure side connection. The new terminal core would include ticketing, airline offices, bag screening, and bag make-up facilities. The new core would also house separate satellite Customs and Border Protection facilities including Immigration Control and Bag Claim/Customs facilities. Action Alternative A would provide the necessary gates and amenities within the new terminal area including holdrooms, new club space, and new passenger processing.



FIGURE 3-1 No-Action/No-Build Alternative

Terminal E Modernization Project

Existing Terminal Building





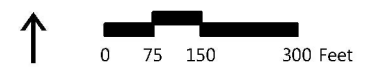
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FIGURE 3-2 Terminal Alternative A - Separate Core Terminal

Terminal E Modernization Project

- Proposed Terminal Building
- Existing Terminal Building
- MBTA Connector





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The new terminal frontage area would be directly accessed from the Airport roadway system. A new ramp at the Departures Level and a new at-grade road at the Arrivals Level, could link the existing frontages to the new frontage. Under Alternative A, the new facility would be three levels with ticketing, departures concourse, and airline clubs at the third level. The sterile corridor connecting gates to the Customs and Border Protection facilities would be at the second level, along with most mechanical, electrical, and plumbing facilities. Customs and Border Protection facilities would be at the first (grade) level, as would baggage screening and make-up rooms.

This alternative would be configured to include a partial dual taxilane on the apron. This partial dual taxilane allows arriving aircraft to taxi to the new gates while other aircraft are departing. The provision of a partial dual taxilane would increase operational efficiency on the airside. This alternative provides separate functionality of the terminal extension and was found to lack other efficiencies of operation that a more integrated design would provide, such as curbside efficiencies or shared processing.

3.5.2.2 Action Alternative B - Concourse Extension

Alternative B (**Figure 3-3**) would provide seven new gates as an extension of the existing concourse extending westward from the Gate 12 area at the west side of Terminal E. The concourse would provide gates, holdrooms, and concessions. The functional requirements needed for passenger processing and amenities would require expansion and reconstruction of the existing Terminal E interior space including the Customs and Border Protection facilities, requiring disruption within the terminal during construction. The existing arrivals frontage would be reconfigured but with no significant expansion of frontage at the terminal.

The new facility would be four levels with airline clubs at the fourth level and the departures concourse at the third level. The sterile corridor connecting gates to the Customs and Border Protection facilities would be at the second level, along with most mechanical, electrical, and plumbing facilities. The first level would have some enclosed storage areas and otherwise open to the airside.

For this alternative to meet all the facility requirements for operational efficiency, significant expansion and disruption of the existing terminal would be needed. For these reasons, this alternative was dropped from consideration.

Alternative B would include a partial dual taxilane on the airside for access to the new gates.

3.5.2.3 Action Alternative C - Satellite Concourse

Action Alternative C (**Figure 3-4**) would position the new portion of the terminal as a separate two-sided concourse structure with an underground passageway connecting the new gates to the existing terminal spaces. The new double sided satellite terminal area would include gates and holdrooms only and would not provide new passenger processing or Customs and Border Protection services. The non-gate related amenities and passenger processing required to meet future needs would need to be upsized within the existing Terminal E space resulting in significant disruption to services within the terminal during construction.

Under Alternative C, the new satellite facility would be three levels with airline clubs at the third level and the departures concourse at the second level. The sterile corridor connecting to the underground passageway would be located at the first level. The first level would also have mechanical, electrical, plumbing facilities, and some enclosed storage areas, and could provide baggage make-up close to the aircraft.



Because the new building area would be located entirely on the apron and not located between the apron and the adjacent neighborhood, Alternative C would not provide the noise buffering potential of the other terminal configurations. There would be no significant expansion of terminal frontage on the adjacent roadway and, therefore, no increase in efficiencies of passenger pick-up and drop-off. This configuration would require relocation of the jetBlue Airways hangar, and would not allow for a partial dual taxilane on the apron. However the satellite configuration would eliminate dead-end taxilanes and would allow for better aircraft movements on the North Apron.

Alternative C was dropped from consideration due to the disruption within Terminal E to provide additional processing in the existing terminal area, the lack of noise buffering potential offered by this configuration, and lack of additional frontage space for passenger pick-up and drop-off.

3.5.2.4 Action Alternative D - Extended Core Terminal (Proposed Action)

Alternative D (**Figure 3-5**) would create a new extension of the existing concourse, terminal core, and terminal frontages. The new concourse would be connected to the Gate 12 area of the existing terminal via a secure side connection. The new extension of the terminal core would include additional ticketing, airline offices, bag screening, and bag make-up facilities. The extension has the potential to allow separate Customs and Border Protection facilities including Immigration Control and Bag Claim/Customs facilities.

The existing terminal frontages would be extended to serve the new terminal areas at both Departures and Arrivals Levels. The new facility would be four levels with airline clubs at the fourth level, and ticketing and departures concourse at the third level. The sterile corridor connecting gates to the Customs and Border Protection facilities would be at the second level, along with most mechanical, electrical, and plumbing facilities. Customs and Border Protection facilities would be at the first (grade) level, as would baggage screening and bag make-up rooms.

The configuration of Alternative D would allow for a partial dual taxilane on the airside to allow of more efficient operation on the remaining North Apron.

This alternative was selected as the Proposed Action because it provides the greatest operational efficiencies within the existing terminal and the extended terminal areas and provides space within the terminal and at the curbside to meet the Project operational and environmental goals.

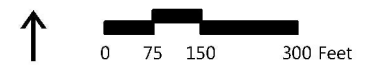


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-3 Terminal Alternative B - Concourse Extension

Terminal E Modernization Project

- Proposed Terminal Building
- Existing Terminal Building
- MBTA Connector



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Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-4 Terminal Alternative C - Satellite Concourse

Terminal E Modernization Project

- Proposed Terminal Building
- Tunnel Connector
- Existing Terminal Building
- MBTA Connector



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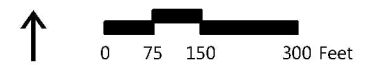


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-5 Terminal Alternative D - Extended Core Terminal (Proposed)

Terminal E Modernization Project

- Proposed Terminal Building
- Existing Terminal Building
- MBTA Connector



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Table 3-2 provides the rationale for identifying the preferred terminal configuration alternative.

Table 3-2 Terminal E Modernization: Comparison of Action Alternatives

	Alternative A	Alternative B	Alternative C	Alternative D
Terminal Configuration	Separate Core Terminal	Concourse Extension	Satellite Concourse	Extended Core Terminal
Size	560,000 square feet of new construction	275,000 square feet of new construction 235,000 square feet of interior expansion/renovation in existing terminal	275,000 square feet of new construction 235,000 square feet of interior expansion/renovation	560,000 square feet of new construction
Key Design Features/Differences	<ul style="list-style-type: none"> Creates a linear bar concourse to accommodate seven additional ADG-V capable gates Additional functional requirements provided in new unit terminal centered on new gates Potential for partial dual taxilane Frontages accessed from Terminal E frontage or directly from Airport roadways New ramps and flyovers required at western end of Airport roadway system to exit frontages 	<ul style="list-style-type: none"> Extends Terminal E concourse to accommodate seven additional capable ADG-V gates Additional non-gate related functional requirements incorporated within existing Terminal E footprint Potential for partial dual taxilane Existing frontages reconfigured – no significant expansion 	<ul style="list-style-type: none"> Double-loaded satellite concourse accommodates seven additional capable ADG-V Gates Satellite connected to Terminal E crescent via underground passageway Additional non-gate related functional requirements incorporated within existing Terminal E footprint Existing frontages reconfigured – no significant expansion 	<ul style="list-style-type: none"> Extends Terminal E concourse to accommodate seven additional capable ADG-V Gates Additional functional requirements provided in an extension of existing core terminal Connection to Terminal E via gate concourse and ticketing hall Potential for partial dual taxilane Existing frontage extended
Pros	<p>Meets Purpose & Need</p> <p>Provides good potential for further expansion beyond current planning horizon</p> <p>Provides physical barrier between airside operations and roadways and Memorial Park</p>	<p>Meets Purpose & Need</p> <p>Provides good potential to be phased implementation during planning horizon</p> <p>Provides physical barrier between airside operations and roadways and Memorial Park</p>	<p>Meets Purpose & Need</p> <p>Double loaded concourse provides efficient spatial configuration</p>	<p>Meets Purpose & Need</p> <p>Provides good potential for phased implementation during planning horizon</p> <p>Provides physical barrier between airside operations and roadways and Memorial Park</p>

Table 3-2 Terminal E Modernization: Comparison of Action Alternatives (Continued)

	Alternative A	Alternative B	Alternative C	Alternative D
Cons	<p>Separate facilities require duplication of existing functions in new core terminal</p> <p>Requires extensive new ramps and flyovers in constrained location at western end of Airport roadways</p> <p>Dual frontage may be confusing for passenger drop-off</p> <p>Phased implementation difficult as duplicate facilities must be constructed in first phase</p>	<p>Major disruption to existing Terminal E during construction</p>	<p>Does not provide physical barrier between airside operations and roadways and Memorial Park</p> <p>Major disruption to existing Terminal E during construction</p> <p>Major disruption to North Apron</p>	<p>Separate facilities require duplication of existing functions in new core terminal</p> <p>Frontage roadway exits constrained spatially</p>
Rationale for Elimination	<p>Phased implementation difficult</p> <p>Extensive construction in space constrained western end of roadway system</p>	<p>Disruption to ongoing operations during construction</p>	<p>Disruption to ongoing operations during construction</p>	<p>Proposed Action</p>

Source: Massport; LeighFisher; AECOM

3.5.3 Build Options - Terminal E Roadways

With an extension of the terminal building to accommodate seven new gates, the terminal roadways would need to be reconfigured to provide connections between the frontages for the new terminal and realigned ramps to access Route 1A, the Ted Williams Tunnel (Interstate 90) and the internal Airport roadway system. Massport developed three options, based on the preferred terminal configuration Alternative D, which would extend the roadway frontage to facilitate drop-off and pick-up along the new building area, and realign the roadway ramps servicing Terminal E. All build options would replicate traffic flow patterns to allow vehicles exiting the Terminal E area to access major highways and Airport recirculation roadways. As with building concepts, since all areas of roadway modification are fully developed, there is little difference from an environmental perspective.

At the Arrivals Level, the current configuration provides four lanes at the inner curb for high-occupancy vehicle use and three lanes at the outer curb for private vehicle use. During peak periods, the outer private vehicle curb becomes congested creating back-ups onto the airport interior roadway system. At the outer curb, the inner two lanes are used for loading of passengers, leaving only the third lane for vehicles waiting for an open spot to unload, and for vehicles exiting the terminal area. Provision of a fourth lane at the outer curb would alleviate this operational conflict and provide a through lane at the terminal for existing traffic. All Terminal E Roadway



build options include a fourth lane at the outer curb to allow for operations that are more efficient during curbside pick-up and drop-off by private vehicles.

The differences among the options mainly relate to differing weave patterns and distances for vehicle operator decision making. Massport also evaluated the roadway options based on how much additional space each would require in front of Terminal E. This area currently provides short-term parking for passenger pick-up as well as limousine and taxi pick-up areas. The roadway options described below have differing impacts to the “forecourt” area in front of the terminal that provides these parking options.

3.5.3.1 Roadway Option 1 - Bi-Level S-Curves

Option 1 is shown on **Figure 3-6**. Under this option, both the Arrivals and Departures Level roadways include tight S-curves. At the end of the upper level (departures) frontage, the roadway descends and splits either:

- Merging with Arrivals Level traffic and proceeding to the Airport exits; or
- Heading to the Service Road for on-Airport destinations.

A weave section at the end of the arrivals frontage allows the inner roadway (high-occupancy vehicles) and the outer roadway (private vehicles) to proceed either to the Airport exits or to the Service Road for on-Airport destinations. This option minimizes the amount of land utilization for roadways through tightening of the curve radii on the ramps, and maximizes the space available south of Terminal E for taxi hold and limousine waiting areas. This option has the disadvantage of forcing the driver to make a destination decision while on a downgrade from departures and, therefore, was dropped from consideration.

3.5.3.2 Roadway Option 2 - Single S-Curve (Proposed Action)

At the end of the upper level (departures) frontage, the roadway would split providing access to the Airport exit, Airport Exit Route 1A, or to the Airport Service Road for on-Airport destinations. This option is shown in **Figure 3-7**. A weave section at the end of the terminal Arrivals Level allows the inner roadway (high-occupancy vehicles) and the outer roadway (private vehicles) to proceed either to the Airport exits, or to the Service Road for on-Airport destinations. This option has a footprint that would minimize the land utilization for roadways and maximizes the potential utilization for taxi hold and limousine waiting areas adjacent to the terminal.

The advantage of this option is that only one level requires an S-curve and the curve radius is slightly larger. This configuration was selected as a component of the Proposed Action, because it provides operational efficiency and takes less space on the forecourt than Option 1.

3.5.3.3 Roadway Option 3 - Northern Loop Ramps

Option 3 is shown in **Figure 3-8**. Under this option, upper level departures frontage roadway descends to grade while curving to the south and swinging around the north side of the Central Heating and Cooling Plant and continuing through the taxi and limousine waiting areas. The roadway then merges with traffic proceeding to the Airport roadway system and Airport exits. A weave section at the end of the Arrivals Frontage allows the Inner Frontage (high-occupancy vehicles) and the Outer Frontage (Private Vehicles) to proceed either to the Airport exits, or to the Service Road for on-Airport destinations.



This option provides the greatest decision making distance of all three options and does not include any tight S-curve roadways. However, the distance required for the Arrivals Level roadway to make the movement around the Central Heating and Cooling Plant makes this the longest distance for travel and, therefore, the largest footprint of all options. The configuration of Option 3 would result in the greatest loss of short-term parking spots and would impact the taxi and limousine wait areas. The position of the new ramps would also constrain any major future expansion of the Central Heating and Cooling Plant. For these reasons, Option 3 was dropped from consideration.

3.5.3.4 Pedestrian Connection to the MBTA Blue Line Station

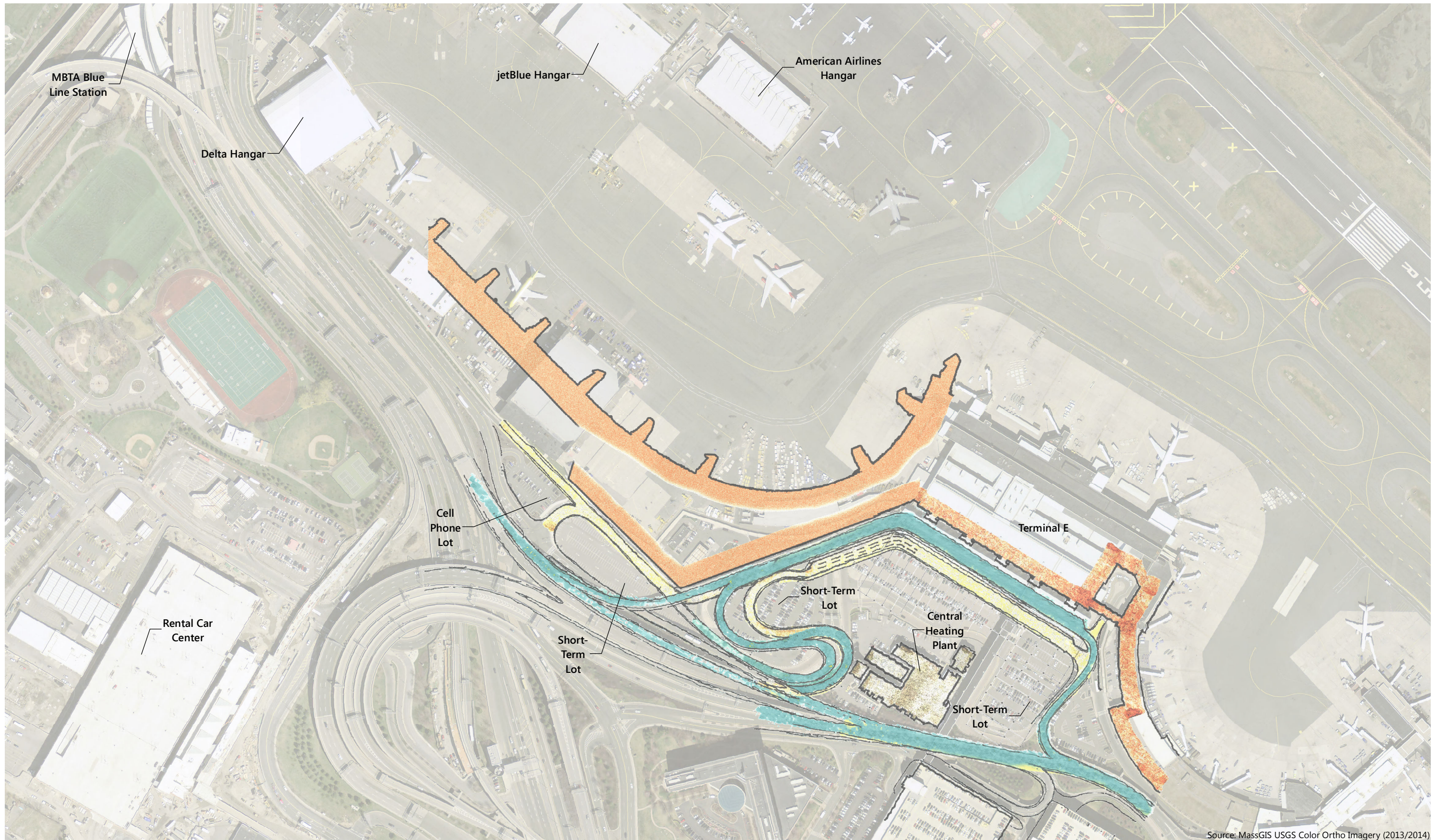
Massport is planning to provide a direct, weather-protected pedestrian connection as part of the full-build from the interior terminal area to the existing MBTA Airport Blue Line station. In order to provide this service, the connector path between Terminal E and the station must traverse the Airport roadway system. This crossing could be achieved via a structure bridging over the roadways, a crosswalk, or a tunnel under the roadway. Costs associated with tunneling options were found to be prohibitive. At-grade crosswalks were considered; however, traversing the roadway under the ramping system would only provide partial protection from the elements, which does not meet the Project purpose and need. To facilitate internal flow of pedestrians, pedestrian connection to the Blue Line would be provided via a bridging structure over the roadway.

3.6 Comparison of Terminal E Alternatives

The No-Action Alternative does not meet the purpose and need and would not mitigate any of the adverse operational, environmental, or customer service effects of future increased operations and passenger volumes. In the absence of additional gates, aircraft would be required to hold on taxilanes awaiting an available gate or hardstand and idle on the apron. Hardstands would require busing of passengers and service vehicles to and from the terminal to the aircraft. The No-Action Alternative would not provide the needed passenger service and waiting areas inside the terminal. The North Apron and Terminal E gating areas would be unable to efficiently support projected growth in international passenger operation volumes.

Each of the Action Alternatives considered would address the need for new gates to accommodate international passenger growth through the year 2030 and would provide seven new gates to support the increased demand. However Alternatives A, B, and C were found to lack the efficiency of operations, both within the existing terminal and the new facility areas, that Alternative D provides. Alternative D requires realignment of the terminal roadways to accommodate the new terminal building and frontage. The roadway options analyzed balanced the driver convenience with a desire to minimize overall footprint within the constrained space in the Terminal E forecourt. Option 2 was found to provide the best alignment for traffic operations and minimal footprint.

From an environmental perspective, there is very little difference among the Action Alternatives. All terminal improvements, roadway realignment, and relocations required to accommodate the new terminal space, would occur on previously developed impervious areas. Action Alternative D provides the greatest passenger processing efficiency, interior space, and noise buffering potential of the four alternatives.

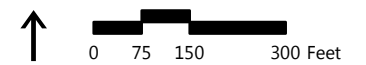


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

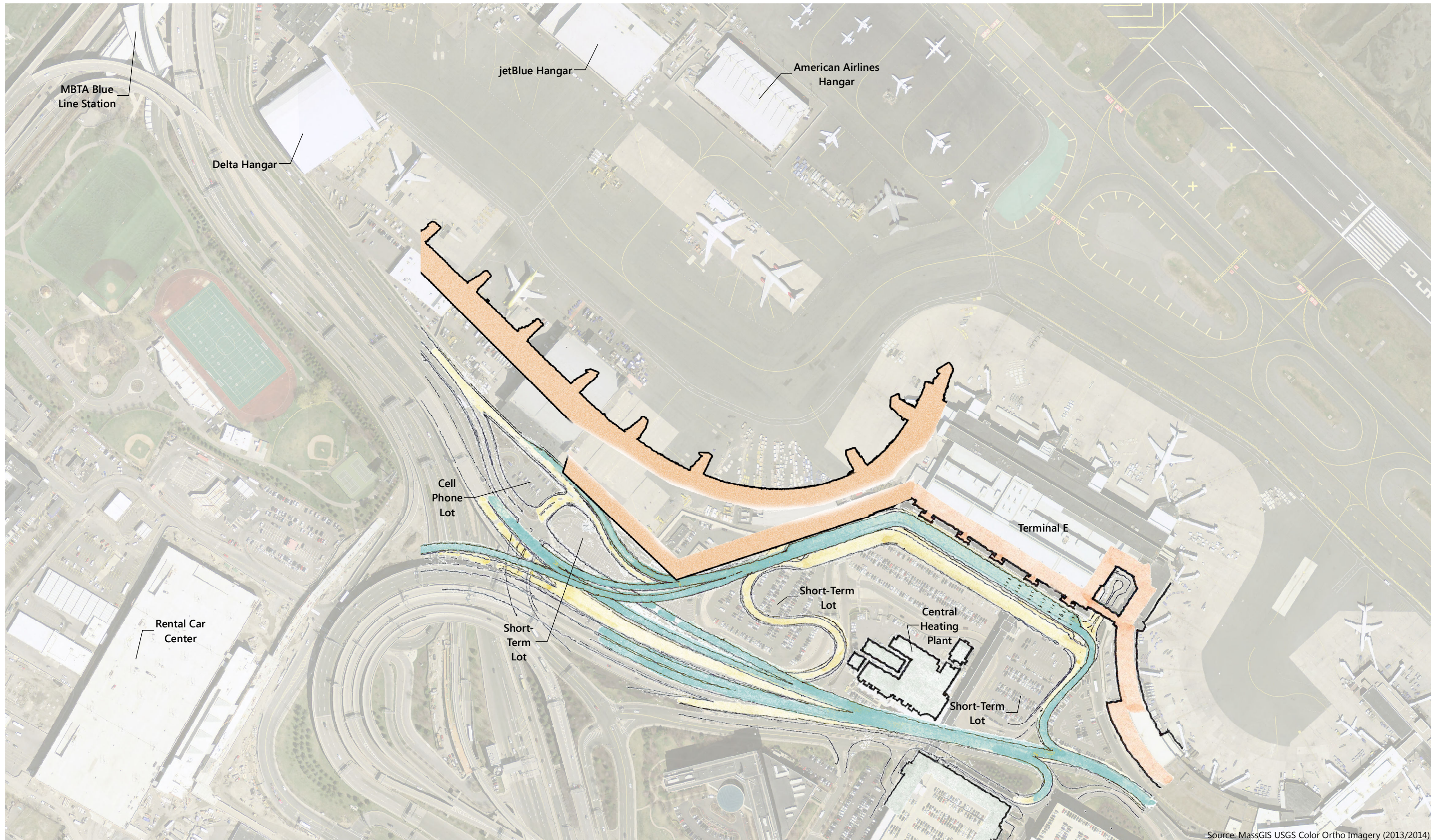
FIGURE 3-6 Roadway Option 1 - Bi-Level S-Curves

Terminal E Modernization Project

- Proposed Terminal Building
- Arrival Level Roadways
- Departure Level Roadways



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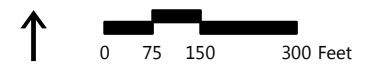


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

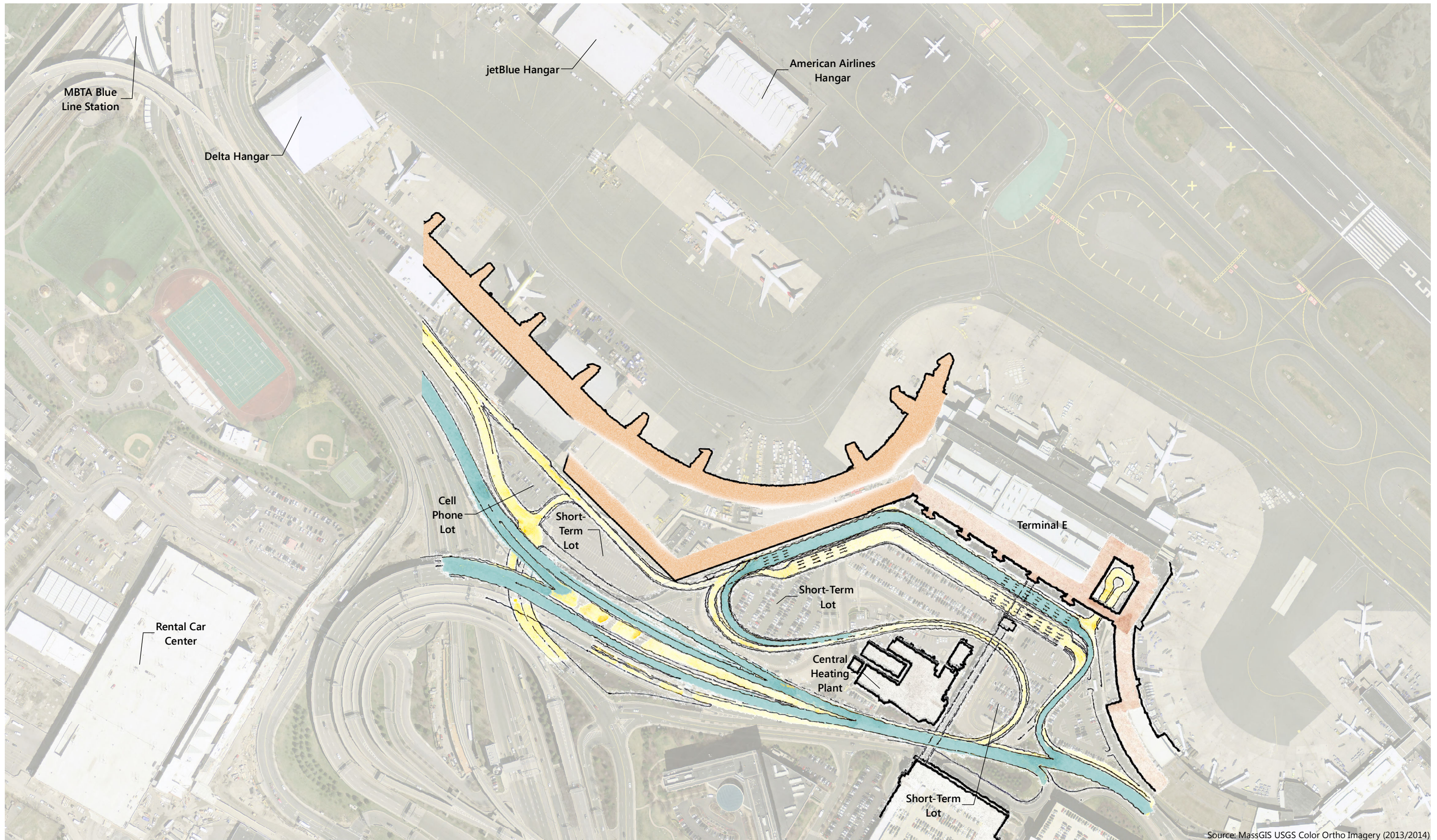
FIGURE 3-7 Roadway Option 2 - Single S Curve (Proposed Action)

Terminal E Modernization Project

- Proposed Terminal Building
- Arrival Level Roadways
- Departure Level Roadways



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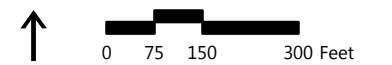


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-8 Roadway Option 3 - Northern Loop Ramps

Terminal E Modernization Project

- Proposed Terminal Building
- Arrival Level Roadways Departure
- Level Roadways



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3.7 Proposed Action

Massport selected Terminal Alternative D and Roadway Option 2 as the Proposed Action (see **Figures 3-9** through **3-13**). Alternative D addresses the passenger and operational needs for the entire Terminal E, including the accommodation of future passenger volumes and aircraft operations, improved connections to the MBTA Blue Line station, expanded passenger processing capability, and passenger amenities throughout. This configuration provides a physical barrier buffering noise from ground aircraft operations from the Airport roadways and East Boston Memorial Park beyond.

The proposed modernization aims to right-size the passenger processing facilities, enhance the passenger level of service, and provide environmental enhancements compared to the No-Action Alternative. Roadway Option 2 provides the smallest footprint on the Terminal E forecourt, while providing for efficient traffic operations along the new extended terminal frontage.

The Proposed Action would include the following components:

- Seven new gates, three of which have been previously approved, to accommodate Group V aircraft with capability to accommodate Group IV and III aircraft;
- New Customs and Border Protection Processing facilities;
- Concessions, holdrooms, and passenger processing facilities;
- Reconfigured roadways and exit ramps adjacent to Terminal E;
- One additional lane at the outer curb (to provide a total of four);
- New weather-protected direct pedestrian connection to the MBTA Blue Line subway station;
- Partial dual taxilane on the airside to allow operational flexibility;
- North Cargo Area and North Apron modifications to accommodate the new, larger terminal configuration;
- Relocation of the adjacent gas station and United Parcel Service (UPS) operations to on-Airport locations;
- New electrical substation to meet building demand;
- Jet fuel hydrants at new gates; and
- Adjustments to the stormwater system to allow for shift from paved apron to more roof runoff.

The new terminal configuration would require relocation of certain facilities and operations on the airside and landside that are currently occupying the space the new terminal would be built upon. UPS would move its operations from the North Cargo Area to the South Cargo Area, utilizing existing taxiways, roadways, and buildings to accommodate the shift. No new facilities would need to be built to achieve UPS relocation. The gas station located to the west of Terminal E would also need to be relocated to a previously developed parcel on the Airport. Parking areas, ground support equipment storage, and some overnight aircraft parking positions would also be shifted to maximize the space available on the existing paved areas of the apron and ramp. These



relocated activities and associated traffic operations are included in the analysis of environmental effects of the Project detailed in Chapter 5, *Environmental Consequences*.

The new portion of the extended Terminal E structure would be four stories in height with a height ranging from 45 feet to 70 feet, and approximately 560,000 square feet of total area. Within the terminal, space would be provided for passenger amenities to support future volumes, including additional ticket counters, new holdrooms at each of the seven new gates, the potential for a satellite Customs and Border Protection facility, four additional baggage carousels, restrooms, and club spaces, as well as retail space. The new terminal area would require additional heating and cooling requirements. These would be provided from the existing Central Heating and Cooling Plant by planned efficiency upgrades over the next few years.

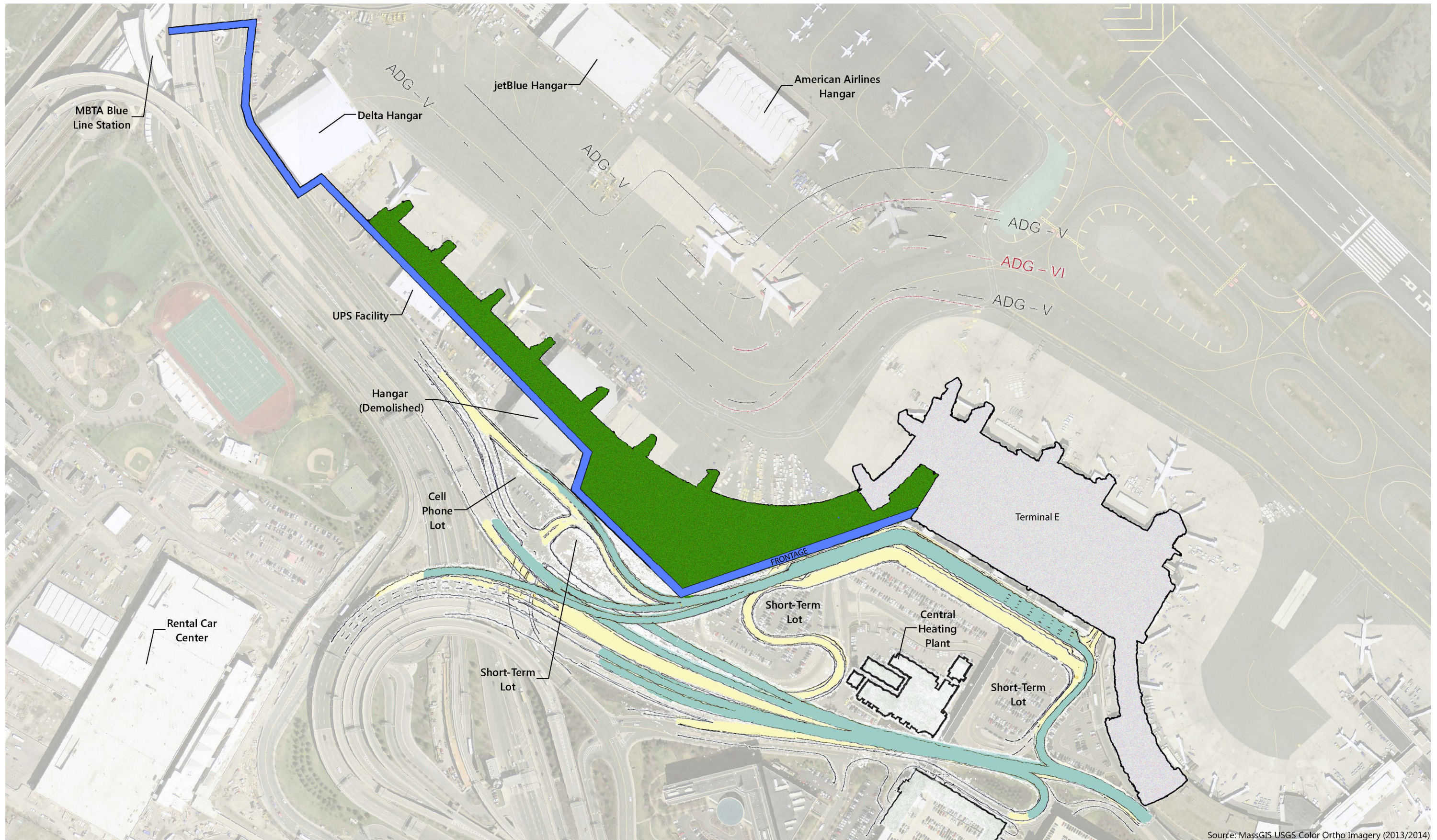
In addition to the above elements, Massport is also considering the installation of a new rooftop solar array on the extended terminal concourse.

3.7.1 Proposed Action - Project Phasing

Based on interim passenger and operational demand conditions and available budget, Massport is proposing that the Project be constructed in phases depending on funding availability. Construction of the Terminal E Modernization Project is planned to commence in 2018 with the first phase complete by 2022 and the second phase built by 2028. The projected demand for the year 2022 is estimated to be 7 million annual passengers.

Therefore, Phase 1 construction elements would not include all program elements proposed in the Proposed Action. Phase 1 would include the construction of four new gates accommodating Group V aircraft (or smaller) along with associated holdrooms, and elevators/escalators to relieve existing deficiencies and accommodate interim growth. A partial new concourse would be constructed and would allow for future expansion to a seven-gate facility. Relocation of ground facilities that conflict with the new concourse location, including the gas station, would be included in Phase 1. The first phase would not require roadway realignment, as the terminal footprint would not impact the current roadway alignments. The interim phase provides a measured approach to the terminal expansion, providing facilities as they are needed, to mitigate the effect of international passenger demand fluctuations.

The three additional gates and the MBTA connection would be provided in the second phase of the Project.



Source: MassGIS USGS Color Ortho Imagery (2013/2014)

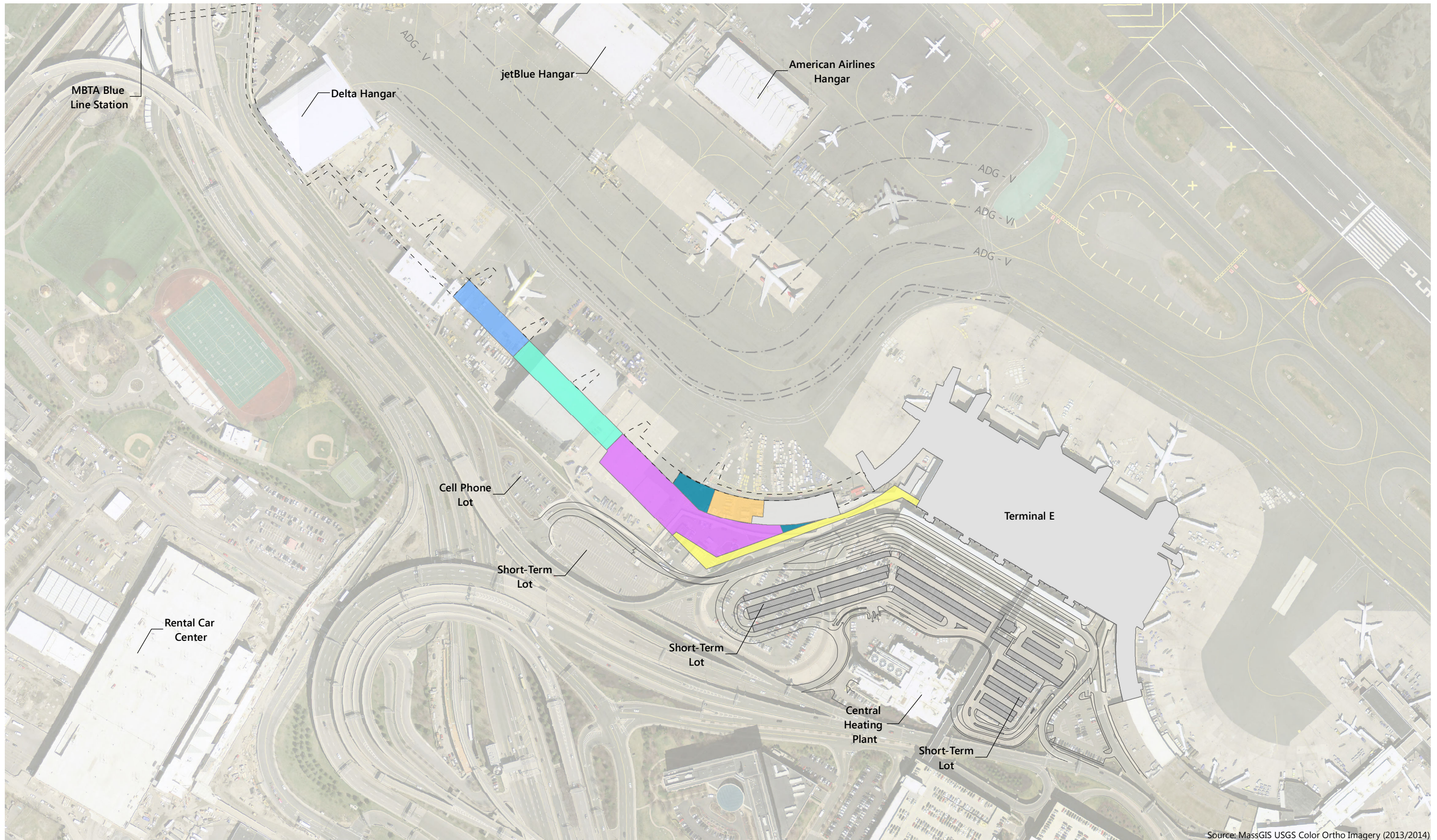
FIGURE 3-9 Proposed Action

Terminal E Modernization Project

- Proposed Terminal Building
- Arrival Level Roadways
- Existing Terminal Building
- Departure Level Roadways
- MBTA Connector



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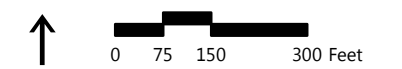


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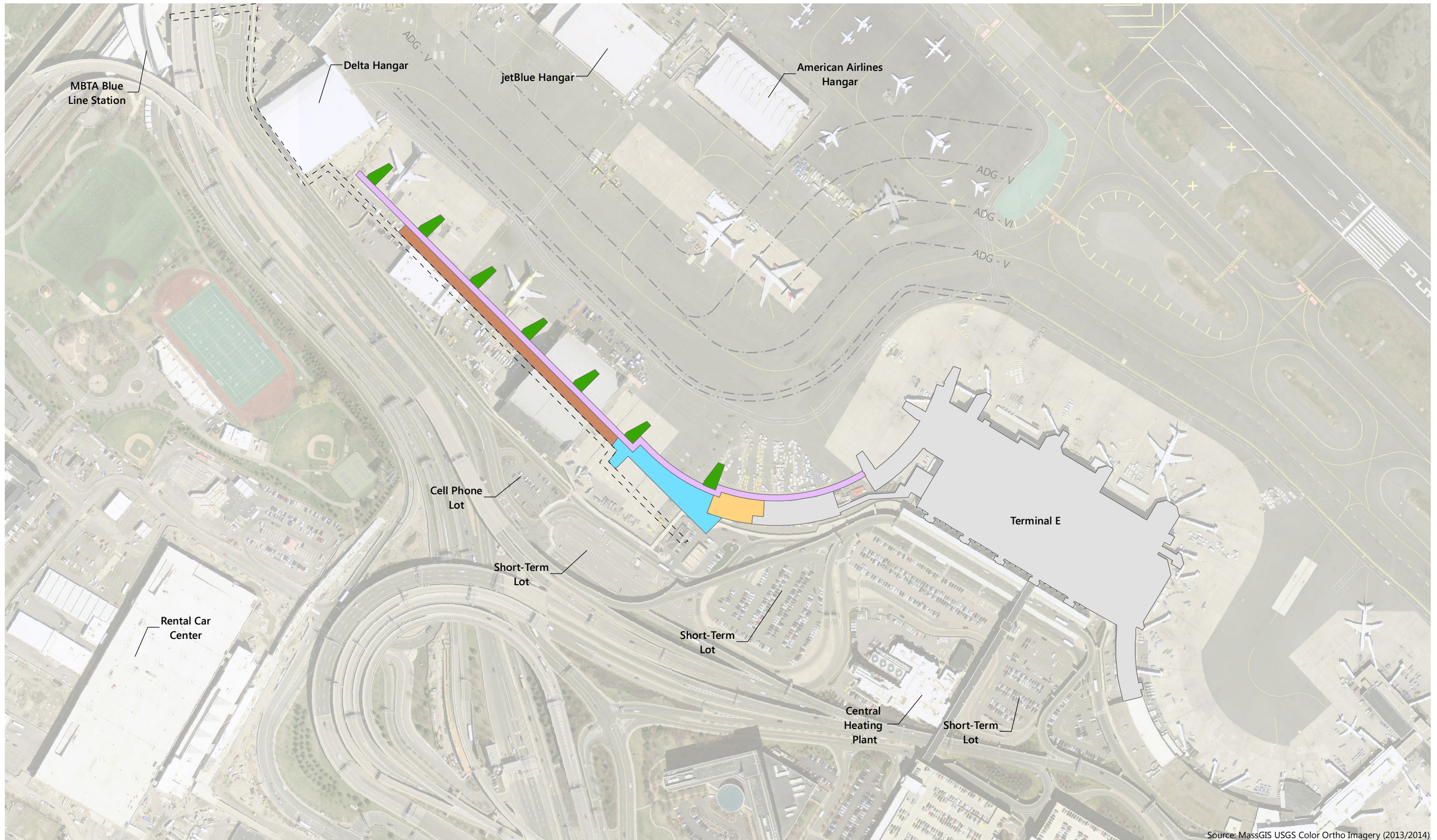
FIGURE 3-10 Proposed Action - Terminal Level 1 Detail

Terminal E Modernization Project

- Airline Cargo Handling
 - CBP - Bag Claim / Customs
 - Outbound Bag Make up
 - Existing Terminal Building
- Bag Ops and Support
 - Extend CBIS
 - Non-Secure Corridor
 - Building Footprint (Above)



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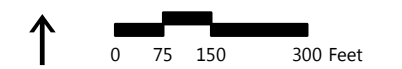


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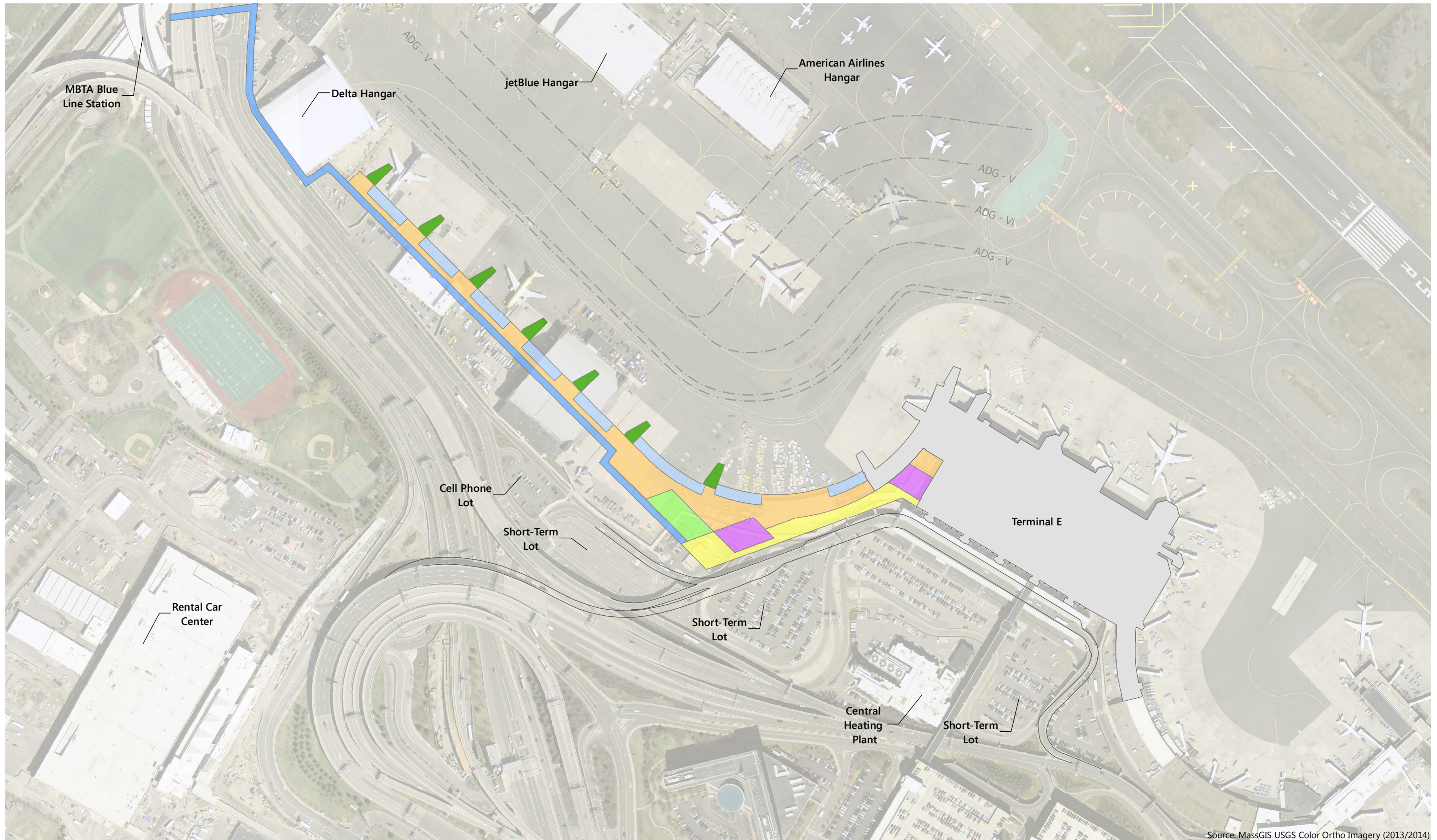
FIGURE 3-11 Proposed Action - Terminal Level 2 Detail

Terminal E Modernization Project

- CBP - Expanded Queue
- Gate Piers
- Sterile Corridor
- Existing Terminal Building
- Extended CBIS / Sort Matrix
- Mechanical
- Building Footprint (Above)



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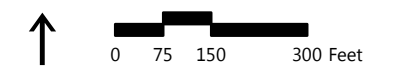


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-12 Proposed Action - Terminal Level 3 Detail

Terminal E Modernization Project

- Gate Piers
- Non-Secure Corridor
- MBTA Connector
- Secure Corridor / Concessions / Passenger Amenity
- Holdrooms
- Passenger Screening
- Ticketing/ ATO
- Existing Terminal Building



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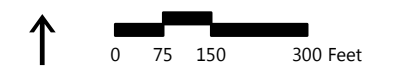


Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 3-13 Proposed Action - Terminal Level 4 Detail

Terminal E Modernization Project

- Clubs
- Existing Terminal Building
- Mechanical
- Building Footprint (Below)



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4

Affected Environment

4.1 Introduction

This chapter of the Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) describes the character of the environment in which the Terminal E Modernization Project (the Proposed Action or Project) would occur. It documents the affected environment for the Proposed Action relative to each applicable environmental resource category, as specified in Federal Aviation Administration (FAA) *Order 1050.1F*¹ and *Order 5050.4B*.² This chapter also fulfills the requirements specified in the Secretary's Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF);³ the Secretary requires the assessment of a focused set of topics in this DEIR and consideration of existing conditions. Consistent with the Certificate and with Massport practice, broader airport-wide environmental concerns are addressed in Massport's Environmental Status and Planning Report (ESPR) and Environmental Data Report (EDR), and not through the Terminal E project review.

This joint EA/DEIR provides context for understanding the potential impacts of the Terminal E Modernization Project. The Project Area consists of Terminal E and associated roadways, as well as the North Cargo Area and associated aircraft apron adjacent to Terminal E.⁴ The following sections describe the existing environmental conditions specific to the Project Area. **Figure 4-1** shows the physical setting of Logan Airport and **Figure 4-2** shows the Project Area and existing Airport uses.

4.2 Project Environmental Setting

The following section describes the general environmental characteristics of Logan Airport.

4.2.1 Physical Setting

The Airport boundary encompasses approximately 2,400 acres in East Boston and Winthrop, including 700 acres underwater in Boston Harbor. Logan Airport, as **Figure 4-1** shows, is one of the most land-constrained airports in the nation. The Airport is located primarily on filled land and water surrounds it on three sides.

Logan Airport is close to downtown Boston and is one of the nation's most accessible airports via public transit.

1 FAA. 2015. *Order 1050.1F: Environmental Impacts: Policies And Procedures*.

2 FAA. 2006. *Order 5050.4B: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

3 MEPA. 2015. *Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for Terminal E Modernization*. December 16, 2015.

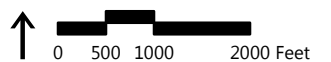
4 The Proposed Action also includes the relocation of several existing functions including the United Parcel Service (UPS) operations to the South Cargo Area and facilities that will be housed in an existing building in the South Cargo Area and the gas station, which be relocated to a site in the vicinity of Harborside Drive.



FIGURE 4-1 Logan Airport Physical Setting

Terminal E Modernization Project

— Select Roadways



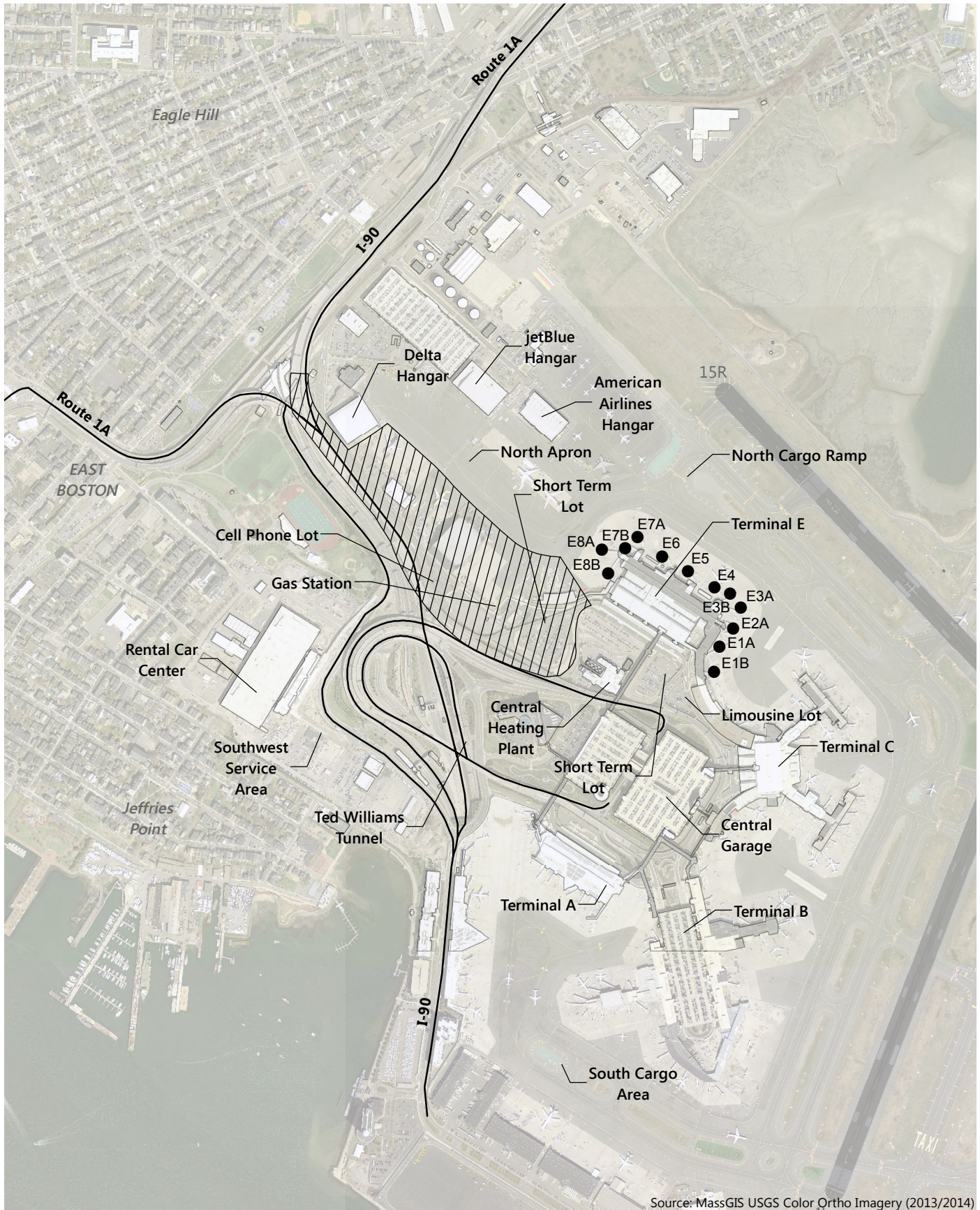







FIGURE 4-2 Terminal E Project Area

Terminal E Modernization Project

 Project Area	 Airport Buildings
 Terminal E Gates	
 Select Roadways	

Affected Environment 4-3 EA/DEIR





Logan Airport has four passenger terminals (Terminal A, B, C, and E), each with its own ticketing, baggage claim, and ground transportation facilities (**Figure 4-2**). The Airport is accessible by public transit and a well-connected roadway system; Terminal E is the terminal located closest to the Massachusetts Bay Transportation Authority's (MBTA) Blue Line Airport Station (**Figure 4-2**). The Proposed Action would be located on already fully developed land within the existing Airport footprint. Facilities in the Project Area include:

- Existing Terminal E with 12 gates (see description below);
- North Apron, taxiway, and apron areas;
- A United Parcel Service (UPS) support building;
- Aircraft hangars associated with Delta Air Lines and jetBlue Airways;
- Remain overnight aircraft parking spaces;
- Several aircraft maintenance buildings that Massport leases to ground handling companies;
- Equipment and ground support equipment storage areas on the apron;
- Bi-level terminal roadways and curbsides (Arrivals/Departures);
- Two short-term surface parking lots in front of Terminal E;
- A small surface limousine lot;
- Gas Station; and
- Cell Phone Lot.

The Terminal E Modernization Project would require relocation of activities that currently occupy portions of the North Apron area where Terminal E will be extended. Impacted facilities would be relocated on-Airport within previously developed parcels, including in the vicinity of Harborside Drive and the South Cargo Area (**Figure 4-2**). Terminal E, also known as the John A. Volpe International Terminal, named after a former Governor of Massachusetts and U.S. Secretary of Transportation, is the international terminal for Logan Airport. Massport constructed the original terminal in 1974 with 12 aircraft contact gates, and has not added any gates since that time. In 1997, Massport enhanced passenger facilities as part of the Terminal E Modifications Project. In 2002, Massport began work on the International Gateway Project, which expanded and upgraded the terminal to provide better service to international passengers. Massport developed that project in phases. Phase I, which Massport completed in 2004, included a new Ticketing Hall, Immigration Hall, Out Bound Bag Room, and weather-protected airside bus portico linking the ground floor with the second floor to accommodate passengers arriving from remotely parked aircraft. Phase II, which Massport completed in 2007, expanded the Federal Inspection Services Facility for U.S. Customs (now known as Customs and Border Protection) and improved the passenger meeter/greeter lobby. Massport upgraded the baggage handling facilities as part of an Airport-wide in-line baggage-screening project in 2004.

The International Gateway Project also included a concourse to be added to the west portion of Terminal E with additional international gates. Massport never constructed the three new gates approved for the "West Concourse" element of the project due to the economic downturn and decline in airline travel after the events of



September 11, 2001. The ongoing Terminal E Renovation and Enhancements Project, undertaken to enable Logan Airport to accommodate larger Group VI aircraft such as the Airbus A380, is currently under construction and will be complete by 2017.

Logan Airport Terminals A, B, and C occupy two levels; the upper level for departures and the lower level for arrivals. Terminal E, however, has three levels. At Terminal E, departures occupy the third level, arrivals and customs occupy the ground level, and passport control occupies the second level. Massport provides parking for Terminal E in the central parking complex, which connects to the terminal by a pedestrian bridge, and in two surface parking lots near the terminal entrance. Massport also provides short-term surface parking adjacent to Terminal E.

Terminal E is a common-use facility, which means that airlines share services and equipment such as ticketing facilities, but do not own spaces within the terminal. The existing Terminal E facilities include:

Terminal E Interior:

- Airline ticketing/baggage handling;
- Passenger holdrooms and restroom amenities;
- Airline clubs;
- Baggage screening and baggage claim;
- Passenger security checkpoint;
- Public space;
- Concessions; and
- Other uses include mechanical/electrical/utility space, non-public circulation areas, and janitorial/storage areas.

Terminal E Exterior on the airside:

- Twelve gates;
- Aircraft fueling locations; and
- Aircraft apron and parking areas.

Airfield:

- North Apron; and
- Taxilanes.

Roadways/parking/ground access:

- Bi-level roadway separated by lower (Arrivals) and upper (Departures);
- Frontage curbs for passenger pick-up (Arrivals) and drop-off (Departures);
- Two short-term parking lots;



- Taxi stand for pick-up at curbside;
- Small lot for limousine parking; and
- Cell phone lot for meeters and greeters to await arriving passengers.

4.3 Overview of Environmental Resource Categories Evaluated

FAA Order 1050.1F requires the evaluation of select impact categories. This EA/DEIR considers all impact categories and provides a detailed assessment of existing conditions, where applicable. The Secretary’s Certificate on the ENF⁵ also requires that the DEIR evaluate a focused set of categories that the Project has the potential to affect. **Table 4-1** identifies the National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) impact categories that this document evaluates, along with a description of the potential effects to these categories from any of the alternatives. It also provides a rationale for the categories that this document does not evaluate in detail due to their lack of applicability to the Terminal E Modernization Project.

Table 4-1 lists resources from FAA Order 1050.1F and documents the topics required to be evaluated in this EA/DEIR per the Secretary’s Certificate on the ENF. The categories are listed in order of relevance to the Proposed Action. Categories that are not applicable to the Terminal E Modernization Project and its Project Area are listed here but are not carried through the analysis.

Table 4-1 National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) Environmental Resources Evaluated in this EA/DEIR

Environmental Resource ¹	Explanation
Noise and Noise-Compatible Land Use (NEPA)	<p>The Project would not increase the number of aircraft operations or passenger activity levels; therefore, aircraft noise levels at or surrounding the Airport would not be expected to change compared to the No-Action Alternative. The Project would not affect runway use, but would alter airside ground operations in the North Apron area including location of aircraft parking, use of new gates and remote hardstands, and busing and ground support equipment.</p> <p>The Proposed Action involves activities and purposes consistent with and compatible with existing Airport operations. All work would take place within the Airport boundary and would not alter existing off-Airport land use. See Section 4.3.1, <i>Noise and Noise-Compatible Land Use</i> for additional information.</p>
Surface Transportation ² (MEPA)	<p>The Proposed Action would result in changes to the roadway network in the vicinity of Terminal E and would provide a direct pedestrian connection from the terminal to the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station. See Section 4.3.2, <i>Surface Transportation</i> for additional information.</p>

⁵ Massachusetts Executive Office of Energy and Environmental Affairs. 2015. *Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for the Terminal E Modernization Project*. December 16, 2015.



Table 4-1 National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) Environmental Resources Evaluated in this EA/DEIR (Continued)

Environmental Resource ¹	Explanation
Air Quality (NEPA/MEPA)	The Proposed Action would not affect the number of anticipated aircraft operations or generate any new ground access vehicle trips. The Project would not affect runway use, but would alter airside ground operations in the North Apron area including the location of aircraft parking, use of new gates and remote hardstands, and busing and ground support equipment. See Section 4.3.3, <i>Air Quality</i> for additional information.
Natural Resources and Energy Supply (NEPA)	Project construction, operation, and maintenance would cause additional demands on energy supplies and other resources. See Section 4.3.4, <i>Natural Resources and Energy Supply</i> for additional information.
Climate/GHG Emissions (NEPA/MEPA)	One of the Project goals is to reduce greenhouse gas (GHG) emissions by decreasing the number of instances when aircraft use auxiliary power units as well as ground support equipment and shuttle buses to carry out remote hardstands and passenger transport. See Section 4.3.5, <i>Climate/GHG Emissions</i> for additional information.
Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, Groundwater, and Wild and Scenic Rivers) (NEPA)	The Project would not create any new impervious areas. There are no wetlands, floodplains, or Wild and Scenic Rivers within the Project Area. ^{3,4} Massport would direct stormwater associated with the new structure and supporting facilities to the existing stormwater system, which discharges to Boston Harbor. The Project would most likely increase overall site wastewater generation. See Section 4.3.7, <i>Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)</i> for additional information.
Hazardous Materials, Solid Waste, and Pollution Prevention (NEPA)	The Proposed Action includes excavation for foundations and utilities including the aircraft hydrant fuel system, which may encounter contaminated soils. See Section 4.3.8, <i>Hazardous Materials, Solid Waste, and Pollution Prevention</i> for additional information.
Coastal Resources (NEPA)	The Proposed Action is limited to paved areas of the airfield and terminal that are already in use for aviation purposes, and would not change the manner of use or quality of land in the coastal zone. See Section 4.3.9, <i>Coastal Resources</i> for additional information.
Land Use (NEPA)	Massport would conduct all proposed work within the existing Airport footprint on land that is currently paved and in aviation-related use. All uses associated with the Proposed Project are airport- or aviation-related and compatible with existing land uses. See Section 4.3.10, <i>Land Use</i> for additional information.
Socioeconomics, Environmental Justice, and Children's Health and Safety Risks (NEPA)	Several Environmental Justice communities surround Logan Airport. Project goals include measures to reduce or avoid air emissions and community noise impacts. See Section 4.3.11, <i>Socioeconomics, Environmental Justice, and Children's Health and Safety Risks</i> for additional information.
Department of Transportation Act, Section 4(f) (NEPA)	Two known Section 4(f) parkland properties are adjacent to the Project Area: East Boston Memorial Stadium Park and Bremen Street Park. There are no significant historic features within the project footprint. See Section 4.3.12, <i>Department of Transportation Act, Section 4(f)</i> for additional information.



Table 4-1 National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) Environmental Resources Evaluated in this EA/DEIR (Continued)

Environmental Resource ¹	Explanation
Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	Route 1A and Interstate 90 ramps separate residents from the Project Area, which sits entirely on-Airport. Due to the configuration of the roadways and other existing on-Airport buildings, the proposed terminal changes would not be highly visible from nearby residential communities. Section 4.3.13, <i>Visual Effects (including Light Emissions)</i> for additional information.
Farmlands (NEPA)	No farmlands of statewide Importance, as the Farmland Protection Policy Act defines, exist within the Airport boundaries or within the vicinity of the Airport. ⁵ This resource is not applicable to the Project, and is therefore, not discussed in the narrative.
Historical, Architectural, Archaeological, and Cultural Resources (NEPA)	No known archaeological or cultural resources exist within the Project Area. This resource is not applicable to the Project, and is therefore, not discussed in the narrative.
Biological Resources (including fish, wildlife, and plants) (NEPA)	No biological resources are present within the Project Area. All Project elements are outside state Priority Habitats in the vicinity of the Airport. No federally listed species are likely to occur within the Project Area. This resource is not applicable to the Project, and is therefore, not discussed in the narrative.

- 1 Environmental resource categories as specified in FAA *Orders 1050.1F* and *5050.4B* as well as MEPA regulations under 301 CMR 11.00.
- 2 Surface transportation is typically addressed under socioeconomic considerations under FAA *Order 1050.1F*. For the purposes of this EA/DEIR surface transportation issues are addressed as a separate section in combination with the Secretary's Certificate focus area on the Terminal E Modernization Project ENF.
- 3 As defined by the Wild and Scenic Rivers Act of 1968, 16 U.S.C. section 1271 et seq.
- 4 Federal Emergency Management Agency (FEMA) flood insurance mapping.
- 5 United States Department of Agriculture. 1981. Farmland Protection Policy Act (7 U.S.C. 4201-4209).

This EA/DEIR evaluates the applicable impact categories listed in **Table 4-1**. These categories are discussed in order of relevance to the Proposed Action.

This Affected Environment chapter focuses on the Terminal E Modernization Project, not the entirety of Logan Airport and its operations. As directed in the Secretary's Certificate on the ENF, "...Cumulative impacts will continue to be addressed through the ESPR [Environmental Status and Planning Report] and EDR [Environmental Data Report], not through project-specific review of the Terminal E project."⁶ Thus, the *Logan Airport 2014 Environmental Data Report*,⁷ which provides a detailed assessment of Airport-wide conditions at Logan Airport in 2014, informs the overall Airport conditions, while this EA/DEIR is specific to the Terminal E Modernization Project. The analysis year for the Affected Environment documentation is primarily 2014, the year for which the most complete information is available, unless otherwise noted.

⁶ Massachusetts Executive Office of Energy and Environmental Affairs. 2015. *Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for the Terminal E Modernization Project*. December 16, 2015.
⁷ Massport. 2015. *Boston-Logan International Airport 2014 Environmental Data Report*. September 15, 2015.



4.3.1 Noise and Noise-Compatible Land Use

The Logan Airport EDRs/ESPRs, which are reviewed under the MEPA process and include the opportunity for public comment, provide a comprehensive annual public report on the overall noise levels at Logan Airport. The EDR/ESPR analyses consider noise associated with aircraft landing, taxiing, and taking-off from Logan Airport. Since the Terminal E Modernization Project would not affect either daily or annual aircraft operational levels, the analysis contained in this DEIR focuses on the change in aircraft operations in the immediate Project Area and potential Project noise benefits. The annual Logan Airport EDRs/ESPRs report on the overall noise levels caused by aircraft on the runways and in flight at Logan Airport. The ESPR documents include future planning contours such as the 2030 Day-Night Average Sound Level (DNL) contour published in the 2011 ESPR. The annual reports do not include localized noise caused by aircraft ground activity as the arrival and departure noise dominate the noise environment. The analysis continued in this DEIR evaluates noise levels only associated with activities on the ground on the North Apron and at Terminal E.

This section summarizes the baseline assessment of the current noise environment associated with aircraft ground operations in the Project Area. Terminal E serves passengers arriving from and departing to international locations. As described in Chapter 2, *Purpose and Need*, due to the limited number of gates at Terminal E, aircraft are sometimes forced to either wait for gates to become available or to park at a remote location on the North Apron and bus passengers to the terminal causing delays and increasing air emissions and noise that can be avoided through project implementation.

4.3.1.1 Noise Analysis Terminology

The following section introduces the noise terminology used in this chapter. Appendix D, *Noise Technical Appendix* provides detailed background information on the fundamentals of noise terminology, the effects of noise on humans, weather and distance effects, and noise-land use compatibility guidelines.

Noise is defined as unwanted sound. It may interfere with ordinary daily activities, such as communication or sleep. Noise is represented by a variety of metrics. Human hearing is more sensitive to medium and high frequencies than to low and very high frequencies, so it is common to use “A-weighted” metrics that account for this sensitivity. One basic measure of the loudness of a noise event is the Maximum A-Weighted Sound Level (L_{max}). It is simply the highest A-weighted sound level produced at a receiver by a particular source. While easy to understand, it neglects the effect of time on noise exposure. The Equivalent Sound Level (L_{eq}) is a measure of exposure resulting from the accumulation of A-weighted sound levels over a particular period of interest (e.g., an hour, an eight-hour school day, nighttime, or a full 24 hour day). Because the length of the period can differ, the applicable period should always be identified or clearly understood when discussing the metric. Such durations are often identified through a subscript, for example $L_{eq}(8)$ or $L_{eq}(24)$.

The effects of noise over a period of time depend upon the total noise exposure over extended periods so “cumulative” noise metrics are used to assess the impact of ongoing activities such as those that occur at an airport. The Day-Night Average Sound Level (DNL) describes the cumulative noise exposure from all noise events occurring during a 24-hour period. Noise events occurring between 10:00 PM and 7:00 AM are increased by 10 decibels (dB) to account for the intrusive nature of noise at night.

As described in the 2014 EDR, Massport strives to minimize the noise effects of Airport operations on its neighbors with a variety of noise abatement programs, procedures, and other tools. Logan Airport has an



extensive noise abatement program, which includes residential and school sound insulation programs; flight tracks designed to optimize over-water operations (especially during nighttime hours); and preferential runway use goals. The foundation of Massport's comprehensive noise abatement program is the *Logan Airport Noise Abatement Rules and Regulations*⁸ (the "Noise Rules") which have been in effect since 1986. Massport has implemented an extensive residential sound insulation programs that offer sound insulation to residences that are exposed to noise levels greater than a DNL of 65 dB in accordance with FAA requirements. As of 2014, all residents who have chosen to participate in Massport's residential sound insulation program have had their homes sound insulated by Massport. The opportunity to be included in the ongoing programs continues for homes within the established DNL 65 dB contour.

4.3.1.2 Regulatory Context

The noise analysis for this EA/DEIR was conducted in accordance with FAA *Order 1050.1F* and its associated Environmental Desk Reference.⁹ These documents specify a number of requirements for evaluating noise impacts. These include:

- Acceptable noise models to be used and the circumstances under which their use is required;
- The metrics to be used for characterizing the noise environment and quantifying impacts; and
- Thresholds of significance for determining whether the effects of an action would constitute a significant impact under NEPA.

For an action occurring on or in the vicinity of a single airport, the Environmental Desk Reference directs the use of the recently released Aviation Environmental Design Tool version 2b (AEDT 2b)¹⁰ for detailed noise modeling or another model, as approved by FAA. The model must be used to produce DNL 65 dB, DNL 70 dB, and DNL 75 dB contours and others as may be needed. Although AEDT 2b can model some types of noise for aircraft on the ground, its capabilities are rudimentary. In recognition of this, the FAA allows the use of other noise models for use in airport ground noise studies. For Terminal E Modernization, Massport used SoundPLAN.¹¹ The SoundPLAN computer model is a widely accepted tool for computing outdoor sound levels associated with ground-based noise sources. SoundPLAN computes sound levels at a distance from a specific noise source Section 4.3.1.4, *Noise Modeling Methodology* describes SoundPLAN in detail.

FAA *Orders 1050.1F* and *5050.4B* determine a significant noise impact to be a DNL increase of 1.5 dB or more at a noise-sensitive location with a DNL of 65 dB or higher. In general, FAA considers DNL 65 dB as the threshold below which all land uses are compatible. As documented in the *2014 EDR*,¹² the 2014 DNL 65 dB contour for aircraft flight operations at Logan Airport encompasses the Terminal E Project Area (**Figure 4-3**).

4.3.1.3 Existing Aircraft Ground Operations

A variety of aircraft ground activity occurs in the Project Area. Typically, when an aircraft arrives in the Terminal E area, it taxis to the terminal and shuts down its engines upon arrival at its assigned gate. The aircraft would then connect to 400 hertz power and pre-conditioned air if available to allow the aircraft to be

⁸ *Logan Airport Noise Abatement Rules and Regulations* are codified at 740 CMR 24.01 et seq.

⁹ FAA. 2015. *1050.1F Desk Reference*. FAA Office of Environment and Energy.

https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faq_nepa_order/desk_ref/media/desk-ref.pdf.

¹⁰ *AEDT* (version 2b). 2016. Windows. FAA.

¹¹ *SoundPLAN*. 2016. Windows. SoundPLAN GmbH.

¹² Massport. 2015. *Boston-Logan International Airport 2014 Environmental Data Report*. September 15, 2015.



temperature- controlled, and later serviced without needing on-board engines or auxiliary power units. Prior to departure, the aircraft would start its engines, and be pushed back from the gate by a tug to proceed to taxi to the runway.

During peak operating periods at Terminal E, when a gate is not available for an arriving aircraft, the aircraft may wait for a gate or park on the North Apron. Waiting for an assigned gate to become available up causes delays, consumes additional fuel, delays passenger arrival, and generates additional noise and emissions until the gate is open. Parking on the North Apron requires passengers to be bused to the terminal. This requires additional aircraft taxiing and also delays the unloading of passengers, consumes additional fuel, and generates additional noise and emissions.

Between aircraft arriving and departing, Massport may also move aircraft from a gate to a location on the North Apron or elsewhere to free the gate for use by another aircraft. This is typically achieved by towing the aircraft. The aircraft is disconnected from gate power requiring the aircraft's auxiliary power unit to operate while the aircraft is towed, consuming additional fuel, and generating additional noise. The aircraft would be towed back to the terminal to an assigned gate prior to boarding passengers for departure.

Other existing activity on the North Apron includes hangar and cargo activity. Delta Air Lines, American Airlines, and jetBlue Airways have hangars on the North Apron, and auxiliary power units or gate power may need to run while maintenance activities are being performed on their aircraft. UPS and DHL also operate cargo aircraft on the North Apron. These cargo aircraft taxi under engine power to and from the North Apron and proceed to run auxiliary power units for a period while cargo is unloaded and loaded.

The North Apron area is bounded on the southern side by a security wall that extends continuously from the western edge of existing Terminal E to the Delta Hangar and then from the Delta Hangar around to the Economy Garage, including the and State police buildings. The wall extends beyond the North Apron area from the Economy Garage along the northeast side of the Airport, wrapping around various maintenance areas and terminating at the shoreline (**Figure 4-3**). The wall acts as a visual shield for nearby pedestrians and parking lot areas. Due to its height and distance from nearest residential and recreational land uses, the wall provides minimal noise reduction from ground noise operations.

Massport commissioned a study for the Terminal E Modernization Project to verify typical operations to understand existing conditions in the Project Area and to support the noise analysis effort of this EA/DEIR. A schedule of typical existing conditions of aircraft group operations at Terminal E and on the North Apron was developed using field observations and Massport and FAA records. August was the peak month for aircraft activity at Terminal E based on data from FAA's OPSNET¹³. A three-day noise measurement program in August 2015, described further in Appendix D, *Noise Technical Appendix*, was conducted on the North Apron. Massport provided detailed records of Terminal E gate and North Apron activity for the week of the measurement program. Using these detailed gate records and data on typical operations from the OPSNET data, a representative day was selected for the schedule for noise modeling. Massport does not keep records of aircraft operations at the hangars on the North Apron. Some airlines did provide their usage of the hangars and the schedule was then supplemented with observed hangar operations from the August 2015 measurement program.

¹³ FAA. 2016. <https://aspm.faa.gov/opsnet/sys/main.asp>.

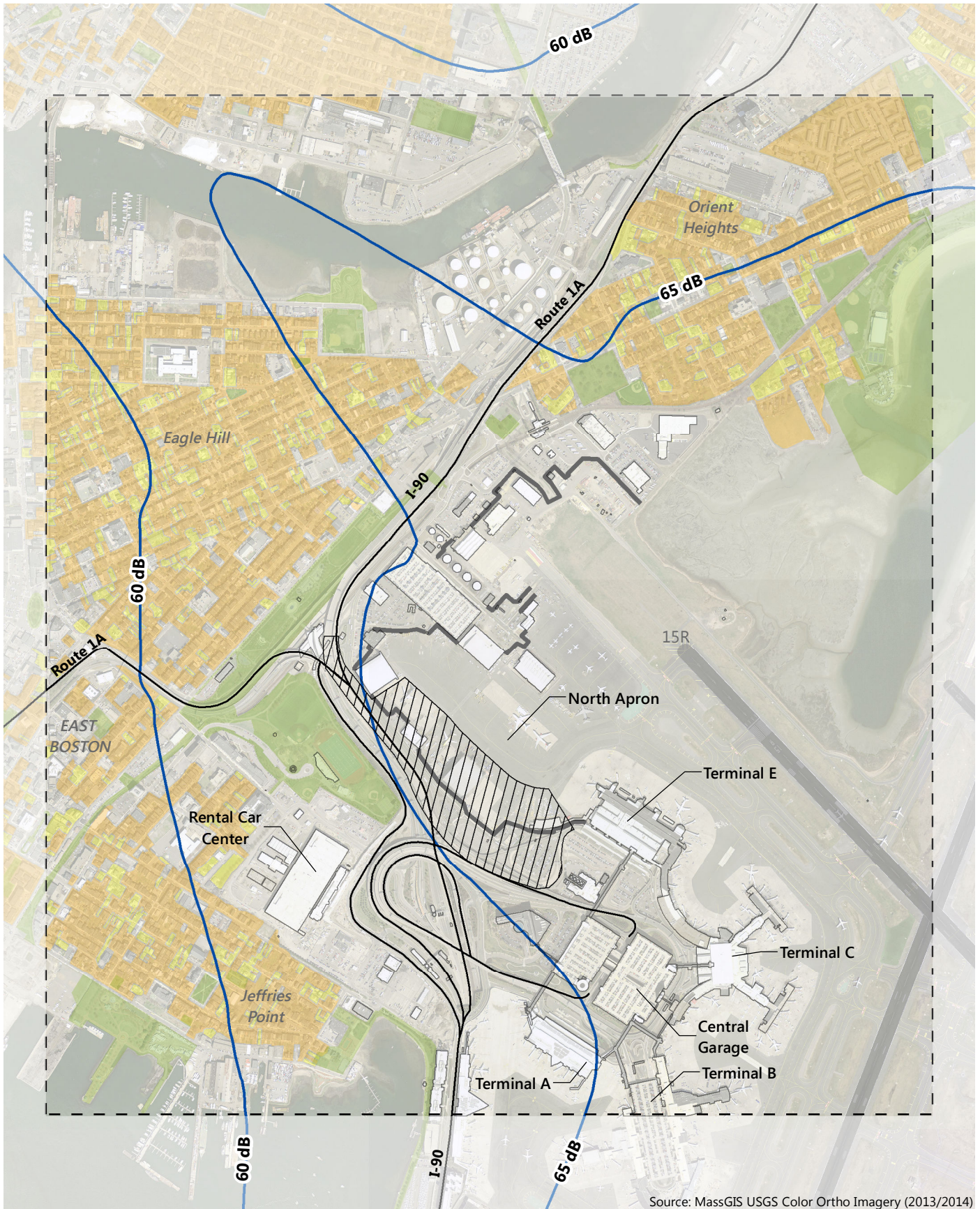


FIGURE 4-3 Project Area 2014 DNL Contours

Terminal E Modernization Project

- | | | |
|-------------------|-------------------|---------------------------|
| 2014 DNL Contours | Airport Buildings | Single Family Residential |
| Project Area | Noise Study Area | Multi-Family Residential |
| Security Wall | Select Roadways | Open Space |





The resulting operations are presented in Section 4.3.1.6, *Noise Modeling Inputs* and consist of the following:

- Aircraft type;
- Time of arrival;
- Time of departure;
- Gate or stand location;
- Aircraft movements to another location; and
- Estimated usage of the hangars.

4.3.1.4 Noise Modeling Methodology

To supplement the Airport-wide noise analyses presented in the annual EDR/ESPR process, SoundPLAN was used to perform noise calculations for the Project. The SoundPLAN computer model is a widely accepted tool for computing outdoor sound levels associated with ground-based noise sources. SoundPLAN computes sound levels at a distance from a specific noise source, or sources, taking into account:

- Specific characteristics of each noise source including its frequency spectrum and directivity characteristics;
- Terrain features including elevations of noise sources, receivers, and intervening objects;
- Ground effects due to areas of pavement, unpaved ground, and water;
- Shielding and reflections due to intervening buildings or other structures, including diffracted paths around and over structures; and
- Atmospheric effects on sound propagation.

SoundPLAN includes several different methods of accounting for these effects on sound propagation. For this evaluation, the analysis used the model's General Prediction Method. Originally developed for industrial noise sources, the General Prediction Method is also well suited for the evaluation of ground-based aircraft noise sources. The General Prediction Method assumes that receivers are downwind of noise sources. This provides a conservatively loud estimate of noise levels. For this reason, under many wind conditions, actual sound levels will be lower than are shown in the noise modeling results for this EA/DEIR.

Because of the features described above, the SoundPLAN model is more appropriate for evaluation of aircraft ground operations than the FAA's Integrated Noise Model^{14,15} or AEDT, which are intended primarily for the evaluation of aircraft flight operations. While the Integrated Noise Model or AEDT can be used to model ground-based aircraft operations, they are not intended primarily for this purpose and provide less precise results than specialized models such as SoundPLAN.

For other studies that focus on ground noise, the FAA has recognized that it is helpful to use a model that can account for the shielding effects of buildings, barriers, and terrain. Massport has previously used SoundPLAN at Logan Airport. Massport used the model for a similar project for Terminal A to evaluate the effectiveness of noise reduction from proposed buildings and barriers and for two taxiway noise studies.

¹⁴ FAA. 2016. *Integrated Noise Model (INM)*. https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/inm_model/. Accessed March 9, 2016.

¹⁵ Prior to the release of AEDT 2b, noise modeling at airports was typically conducted using the Integrated Noise Model.



4.3.1.5 Noise Measurement Program

To collect Project noise-modeling inputs and to collect measured noise levels for comparison to modeled noise levels, a noise measurement program was conducted over three days in August 2015. The program consisted of two days of community noise monitoring and one day of source level measurements on the North Apron (see **Figure D-12** in Appendix D, *Noise Technical Appendix*). The observer at Site 1 on the Economy Parking Garage collected noise level information as well as logs of aircraft activity on the North Apron. The observers at Sites 2 and 3, in East Boston Memorial Park and Bremen Street Park, respectively, collected noise level data and kept logs of observed aircraft and community noise. During the two days of community measurements, a range of aircraft ground operations were observed including auxiliary power unit usage, taxiing, and idling. Due to relatively high levels of community noise at Sites 2 and 3, including on and off-Airport truck and automobile traffic, MBTA trains, and recreational activity, and the relatively low levels of noise from period aircraft ground operations, the community measurement program did not yield much data for comparison to modeled aircraft ground noise levels. The primary conclusion of the community measurement program was that aircraft ground noise was sometimes audible, but generally lower in sound level than these other noise sources.

On the third day of the measurement program, close-in source level measurements of aircraft on the North Apron were collected. The measurements included a variety of aircraft taxiing and running their auxiliary power units. These measurements were processed to determine the frequency spectrum and directivity characteristics of the aircraft ground noise sources for use in the noise modeling. (See Appendix D, *Noise Technical Appendix* for detailed information on the observation and noise measurement program.)

4.3.1.6 Noise Modeling Inputs

Aircraft ground noise levels were computed for representative existing conditions operations at Terminal E and on the North Apron within the defined Noise Study Area. The Noise Study Area includes the nearest residential land use to Terminal E and the North Apron. **Figure 4-4** shows the Noise Study Area and nearby land uses.

Within the Noise Study Area, the following information was collected and refined:

- Terrain elevations;
- Building footprints and heights;
- Ground cover type (such as grass, pavement, water);
- Wall locations and heights; and
- Taxiway, ramp, and gate noise source positions.

Figure 4-4 shows these noise modeling inputs. Note that areas of pavement and water are both reflective, while grass or landscaped areas attenuate (absorbs) sound.

A representative schedule of existing daily aircraft ground activities for these locations was developed based on operations records for the Terminal E and the North Apron and observations of activity at the hangars on the North Apron during the three-day survey in August 2015.

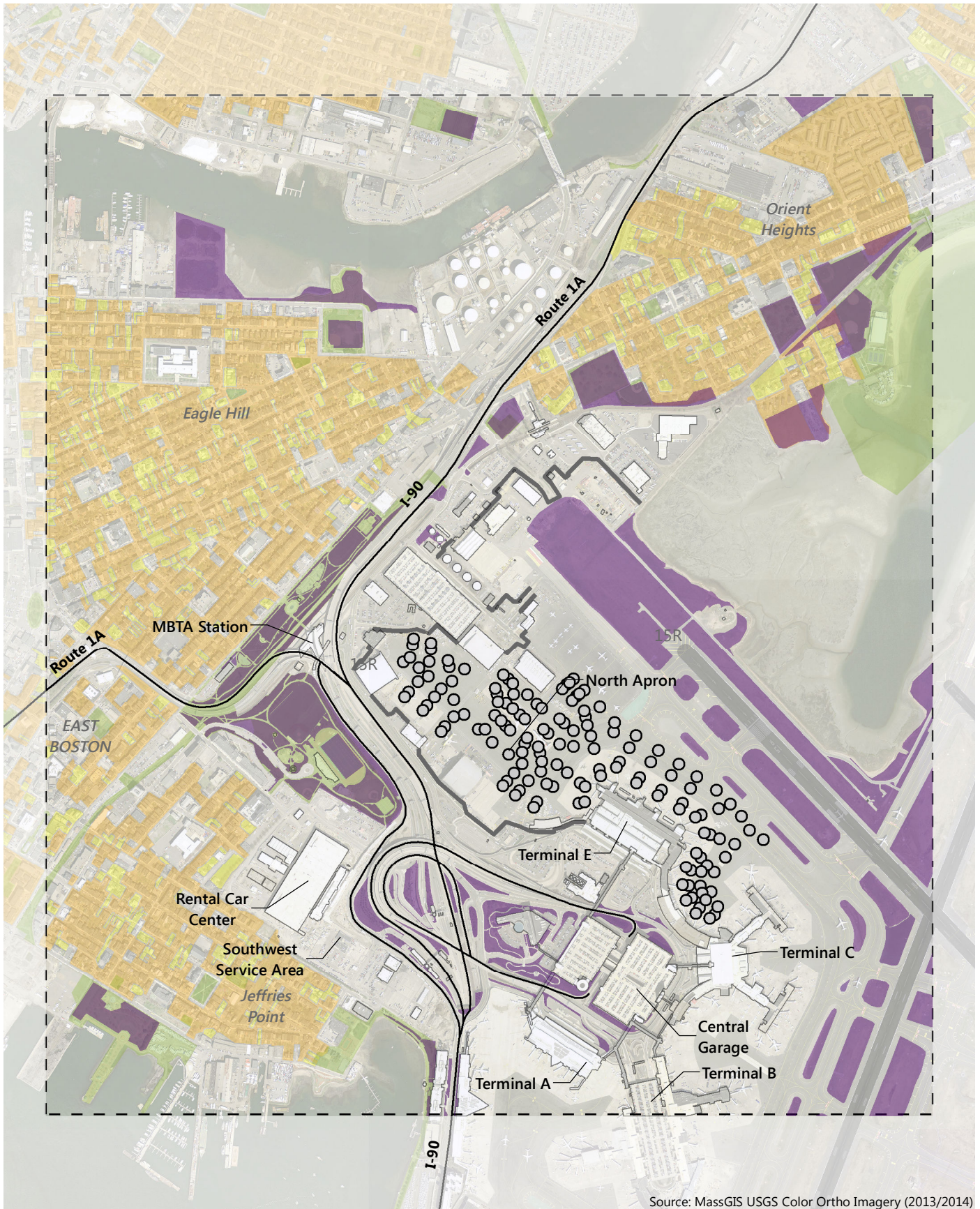


FIGURE 4-4 Noise Study Area and Modeling Inputs

Terminal E Modernization Project

- Noise Point Source
- Select Roadways
- Ground Absorption Areas
- Airport Buildings
- ▭ Noise Study Area
- ▬ Security Wall
- Single Family Residential
- Multi-Family Residential
- Open Space





Table 4-2 and Table 4-3 summarize this schedule of activity, which was used as inputs to the noise modeling. Table 4-2 lists the number of operations for aircraft traveling to or from various aircraft parking areas. Table 4-3 lists additional auxiliary power unit activity in minutes for parked aircraft.

Table 4-2 Existing Aircraft Ground Operations (Number - Representative Day)

Operation	Group	Terminal E Gates		North Apron		North Apron Hangars	
		Day	Night	Day	Night	Day	Night
Taxi-in	Jumbo	7	2	0	0	0	0
	Heavy	15	1	0	3	0	0
	Large	12	5	4	4	0	0
	Turbo	7	1	0	0	0	0
Taxi-out	Jumbo	6	2	0	0	0	0
	Heavy	13	4	2	2	0	0
	Large	13	2	4	5	0	0
	Turbo	7	1	0	0	0	0
Tug-in (auxiliary power unit on)	Jumbo	3	0	0	0	0	0
	Heavy	6	0	0	0	1	0
	Large	1	0	0	0	8	7
	Turbo	0	0	0	0	0	0
Tug-out (auxiliary power unit on)	Jumbo	3	0	0	0	0	0
	Heavy	6	0	0	0	1	0
	Large	2	0	0	0	8	7
	Turbo	0	0	0	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy – Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop Q400

Table 4-3 Auxiliary Power Unit Activity for Parked Aircraft (Minutes - Average Day Peak Month)

Operation	Group	Terminal E Gates		North Apron		North Apron Hangars	
		Day	Night	Day	Night	Day	Night
Other Auxiliary Power Unit Usage (minutes)	Jumbo	45	10	0	0	0	0
	Heavy	95	20	30	180	60	0
	Large	75	10	150	360	480	420
	Turbo	35	5	0	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy – Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop Q400

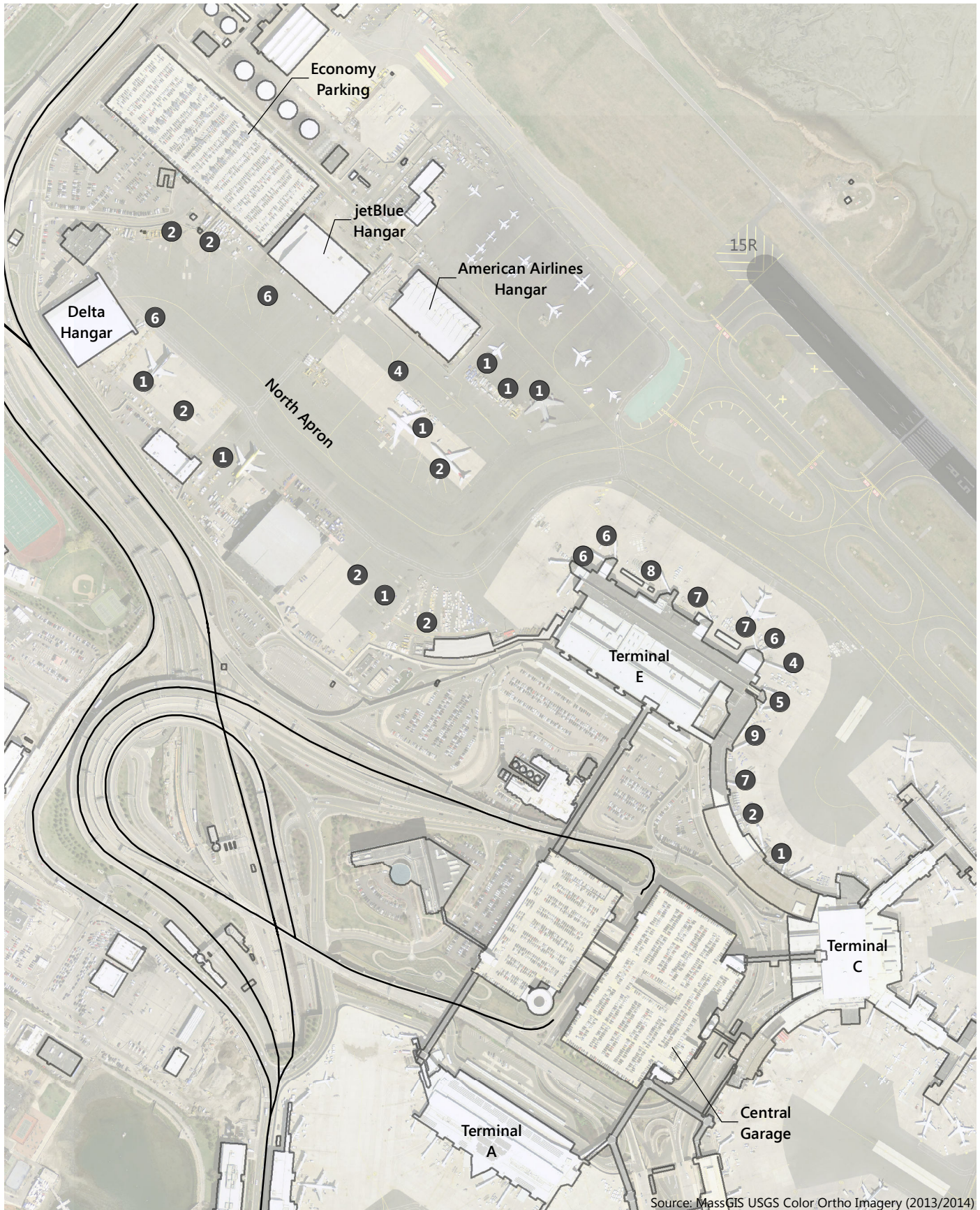


Figure 4-5 provides the locations and number of aircraft parked at various positions at Terminal E and on the North Apron during the day of operations used to model existing noise conditions.

A speed of 10 knots was used for all aircraft whether taxiing under their own power or being towed. Other noise modeling assumptions include aircraft in various locations with the following operational characteristics:

- Aircraft accessing Terminal E Gate:
 - Taxi from arrival runway to the gate and shut down engines;
 - Start auxiliary power unit five minutes prior to departure; and
 - Start engine, are pushed back, and taxi out to departure runway.
- Aircraft parking on the North Apron:
 - Taxi to parking position and shut down engines;
 - Run auxiliary power unit for 30 minutes after arrival to North Apron;
 - Run auxiliary power unit for 30 minutes prior to departure from North Apron; and
 - Taxi from parking positions.
- Aircraft using the North Apron Hangars:
 - Are towed to and from the hangars with their auxiliary power units on;
 - Run auxiliary power unit for 30 minutes after arrival to North Apron; and
 - Run auxiliary power unit for 30 minutes prior to departure from North Apron.

Representative aircraft taxi routes and times as well as auxiliary power unit noise data were used for each group listed in **Table 4-2** and **Table 4-3**. Much of these data were collected during field measurements on the North Apron in August 2015. Appendix D, *Noise Technical Appendix* describes this noise measurement program in detail. **Table 4-4** lists the noise source data used to model the existing aircraft ground activity.



Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 4-5 Number of Aircraft Parked under Representative Existing Conditions (August 2015) **Terminal E Modernization Project**

- # Aircraft Parking Locations
- Select Roadways
- Airport Buildings



Table 4-4 Representative Noise Sources by Aircraft Group

Aircraft Group	Aircraft	Source Type	Source Aircraft
Jumbo Jet (Group V)	74400, 74780, 772ER, 773ER, A3406	Auxiliary Power Unit	Boeing 747-200
		Taxi	Boeing 747
Heavy Jet (Group IV)	78780, 762ER, 7630F, 763ER, 763WL, 764ER, A306F, A3302, A3303, B764	Auxiliary Power Unit	Boeing 767-300ER
		Taxi	Boeing 767-34AF
Large Jet (Group III, IV)	75730, 7377W, 7378W, 753WL, 7572F, 7572W, A3202, A321, A3212, B712, B738, E190	Auxiliary Power Unit	Airbus A320-232
		Taxi	Boeing 757-200SF
Turboprop	DH840	Auxiliary Power Unit	De Havilland Canada DHC-8
		Taxi	De Havilland Canada DHC-8

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy – Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop Q400

4.3.1.7 Noise Baseline

Using SoundPLAN, computed noise levels were calculated for representative residential locations within the Noise Study Area for each sound source type and position. The activity levels described above were then used to determine the total noise exposure at each representative location. **Figure 4-6** shows the noise modeling receiver locations. Note that locations were selected to represent both the closest residential locations as well as more distant residences. Many locations were within areas of densely arranged buildings. To represent the full range of sound levels within a particular area, modeled receivers were spaced so that some fell in the middle of blocks and others fell in intersections where buildings would offer less shielding from sound from the Airport and aircraft-related noise. Note that these receivers were used for the computer modeling of aircraft ground noise and were not part of any measurement program.

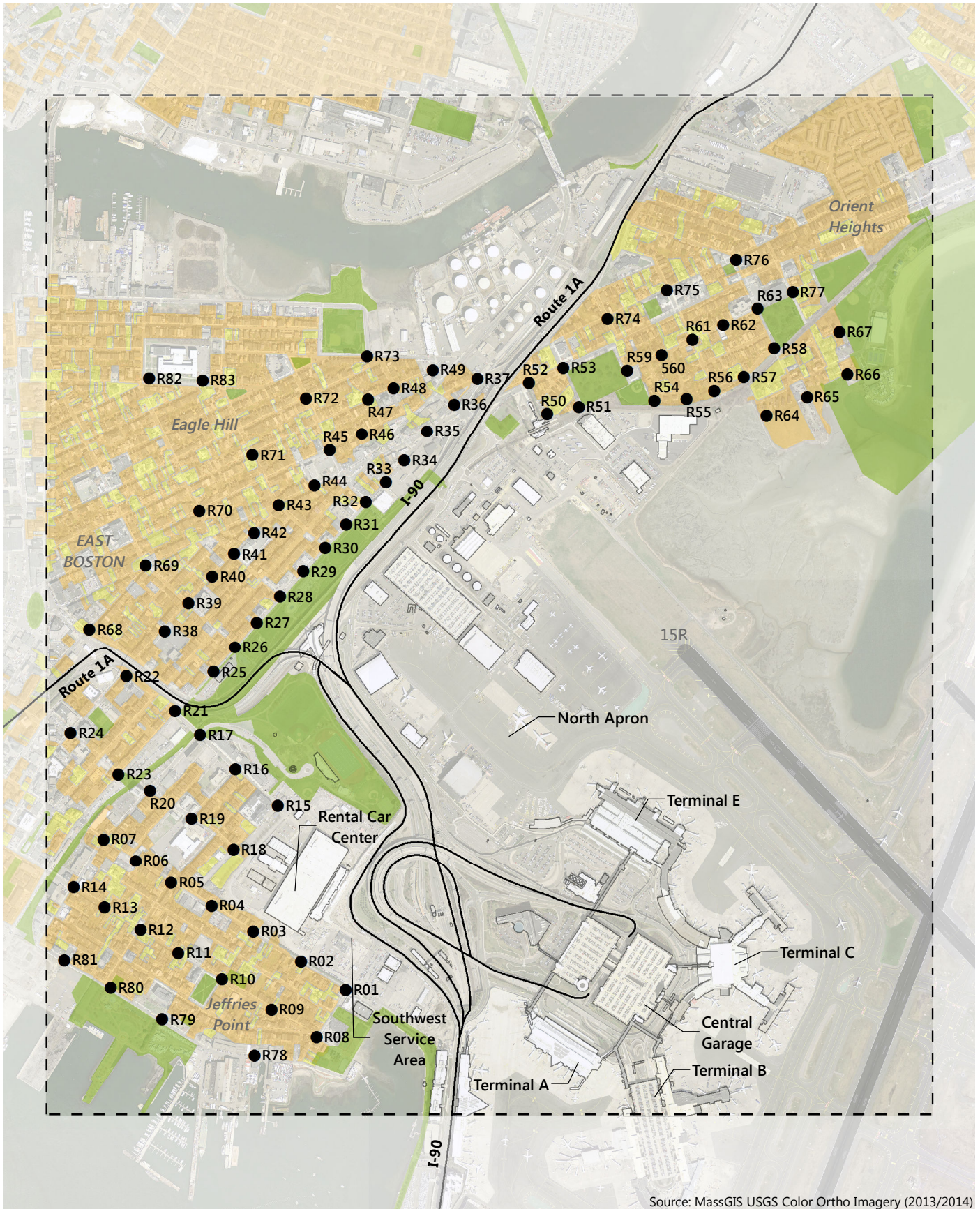


FIGURE 4-6 Noise Modeling Receivers

Terminal E Modernization Project

- Modeled Receiver Location
- Select Roadways
- ▭ Noise Study Area
- ▭ Airport Buildings
- ▭ Single Family Residential
- ▭ Multi-Family Residential
- ▭ Open Space





The noise baseline was developed to provide context for the environmental impacts analysis in Chapter 5, *Environmental Consequences*. To determine the positive or adverse impacts of the Project on ground noise, a comparison will be made between the future No-Action Alternative and Proposed Action conditions. That analysis calculates the future ground noise levels at selected locations around the Terminal E Project Area with the projected growth in passengers and aircraft operations. Results of the future No-Action Alternative will be compared with results of the Proposed Action. The differences between those future scenarios will highlight the environmental benefits or adverse effects of the proposed Terminal E Modernization Project on area ground noise.

Table 4-5 presents the computed average DNLs for the existing aircraft ground activity described above. These values account all aspects of aircraft taxi and auxiliary power unit operations including the number, duration, type, and time of day. As introduced in Section 4.3.1.1, *Noise Analysis Terminology* and further explained in Appendix D, *Noise Technical Appendix*, the DNL is a measure of the cumulative 24-hour noise exposure. Noise at night (10:00 PM to 7:00 AM) is weighted more heavily than noise during the day due to its intrusive nature.

Table 4-6 presents the computed Maximum A-weighted Sound Level (L_{max}) for the existing aircraft ground activity described above. As explained in Section 4.3.1.1, *Noise Analysis Terminology* and Appendix D, *Noise Technical Appendix*, these values account for the loudest individual aircraft taxi or auxiliary power unit operation regardless of the number, duration, or time of day.

The annual Logan Airport EDRs/ESPRs report on the overall noise levels caused by aircraft on the runways and in flight at Logan Airport. The ESPR documents include future planning contours, such as the 2030 DNL contour published in the 2011 ESPR. The annual reports do not include localized noise caused by aircraft ground activity as the arrival and departure noise dominate the noise environment. This study will evaluate noise levels only associated with activities on the ground on the North Apron and at Terminal E.



Table 4-5 Existing Day Night Average Sound Levels for Aircraft Ground Activity by Representative Locations¹

Receiver	Day Night Average Sound Level (dB)	Receiver	Day Night Average Sound Level (dB)	Receiver	Day Night Average Sound Level (dB)
R01	58.8	R31	62.1	R61	53.8
R02	59.1	R32	61.0	R62	46.2
R03	48.9	R33	63.0	R63	47.7
R04	59.5	R34	62.3	R64	55.0
R05	46.4	R35	60.1	R65	53.0
R06	45.6	R36	59.8	R66	54.8
R07	46.1	R37	58.7	R67	43.3
R08	53.9	R38	55.0	R68	56.5
R09	49.4	R39	54.7	R69	48.6
R10	55.9	R40	55.8	R70	52.7
R11	51.2	R41	59.7	R71	56.7
R12	51.3	R42	60.8	R72	55.9
R13	45.7	R43	60.7	R73	50.3
R14	48.1	R44	56.5	R74	49.8
R15	60.5	R45	57.2	R75	54.1
R16	42.7	R46	55.6	R76	47.6
R17	54.7	R47	55.4	R77	48.0
R18	58.0	R48	50.4	R78	44.1
R19	46.8	R49	48.8	R79	37.1
R20	47.8	R50	59.7	R80	47.2
R21	57.9	R51	56.8	R81	42.9
R22	55.9	R52	58.5		
R23	47.9	R53	57.8		
R24	46.5	R54	55.4		
R25	48.7	R55	47.8		
R26	55.2	R56	56.3		
R27	59.5	R57	54.5		
R28	64.4	R58	53.0		
R29	66.2	R59	56.9		
R30	60.0	R60	54.9		

Source: HMMH

¹ Refer to Figure 4-6 for the location of the representative receiver locations



Table 4-6 Existing Maximum A-weighted Sound Levels for Aircraft Ground Activity by Representative Locations¹

Receiver	Maximum A-weighted Sound Level (dB)	Receiver	Maximum A-weighted Sound Level (dB)	Receiver	Maximum A-weighted Sound Level (dB)
R01	67.8	R31	73.1	R61	60.7
R02	70.2	R32	71.5	R62	54.2
R03	58.7	R33	72.2	R63	56.1
R04	71.0	R34	70.5	R64	64.3
R05	59.4	R35	68.3	R65	61.3
R06	56.1	R36	65.9	R66	63.9
R07	56.6	R37	63.9	R67	53.5
R08	64.7	R38	63.7	R68	64.9
R09	63.3	R39	64.8	R69	60.9
R10	63.6	R40	60.0	R70	66.3
R11	62.1	R41	66.4	R71	65.1
R12	65.6	R42	72.1	R72	64.4
R13	59.7	R43	71.5	R73	58.8
R14	63.3	R44	66.0	R74	61.5
R15	72.7	R45	67.5	R75	60.3
R16	57.3	R46	65.6	R76	58.0
R17	65.2	R47	64.3	R77	57.8
R18	70.5	R48	56.4	R78	51.3
R19	56.1	R49	61.1	R79	46.6
R20	58.1	R50	61.8	R80	62.4
R21	66.1	R51	59.6	R81	52.6
R22	64.0	R52	64.7		
R23	56.0	R53	60.3		
R24	57.8	R54	65.6		
R25	60.7	R55	62.4		
R26	66.9	R56	63.8		
R27	58.0	R57	61.9		
R28	66.6	R58	60.9		
R29	75.9	R59	61.8		
R30	71.8	R60	60.7		

Source: HMMH

¹ Refer to Figure 4-6 for the location of the representative receiver locations



4.3.1.8 Vibration

Residents living near airports will occasionally comment about vibration or rattle, which they associate with aircraft noise events. When related to aircraft, these phenomena are normally caused by low frequency noise generated during takeoff roll or the application of reverse thrust that is often limited to locations near the airport. These portions of an aircraft operation involve high levels of thrust, which is not the case for aircraft movements in the terminal area. Aircraft activities in the Terminal E or North Apron generally involve idle thrust or auxiliary power units, and are not expected to induce vibration or rattle effects.

There is no generally accepted relationship between low frequency and annoyance. No studies have indicated a causal relationship between low-frequency noise generated by aircraft and structural damage to any buildings off of an airport, although the rattle generated by the low-frequency vibrations may be considered annoying by some persons.¹⁶

4.3.1.9 Noise Baseline Summary

As described in detail in the *2014 EDR*, the majority of the residential receivers modeled in this project-specific ground noise analysis are exposed to DNL 60 to 65 dB from aircraft flight noise. DNL from the Terminal E and North Apron aircraft ground noise-modeling range from the mid 40 dB to 66 dB. As mentioned in Section 4.3.1.4, *Noise Modeling Methodology* and further explained in Appendix D, *Noise Technical Appendix*, for ground-based noise sources, the levels of noise at a receiver are highly dependent on the wind conditions. The noise levels presented here for aircraft ground noise represent a conservatively high estimate.

Several residential modeling sites had maximum level events greater than 70 dB with only one site greater than 75 dB. These sites were primarily across from Bremen Street Park and south along the East Boston Memorial Park. The values vary due to the amount of shielding provided by buildings and elevated roadways between each site and Terminal E and North Apron areas. For example, in the Jeffries Point neighborhood, receiver R03 has a lower modeled maximum level and 24-hour DNL value due to its location behind the Rental Car Center building.

4.3.2 Surface Transportation

This section describes the roadway network within the Transportation Study Area in accordance with FAA *Order 1050.1F* and FAA *Order 5050.4B* paragraph 706(e). The FAA requires surface transportation to be considered when the proposed action has the potential to disrupt traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities. The Secretary's Certificate on the ENF provided direction to focus on Project-specific ground transportation, and associated infrastructure, impacts. Airport-wide ground transportation conditions are documented annually in Massport's EDR/ESPR filings.

4.3.2.1 Project Area Surface Transportation System

As described in detail in the *2014 EDR*, Logan Airport is proximate to downtown Boston and is accessible by two public transit lines (the MBTA's Blue and Silver lines) and a well-connected regional and interstate roadway system. Major gateways serving as Airport access points include Route 1A, the Ted Williams Tunnel

¹⁶ ACRP Report 15 – Aircraft Noise: A Toolkit for Managing Community Expectations, Airport Cooperative Research Program, Project 02-05, 2009



(Interstate 90), the Sumner/Callahan Tunnels, Frankfort Street/Neptune Road, and Maverick Street, which is gated to limit traffic to East Boston residents only.

The Airport is also served by several bicycle and pedestrian connections. Sidewalks along Harborside Drive and Hotel Drive connect to the terminals, where a series of overhead, enclosed walkways connect to the Central and West parking garages, as well as the Hilton hotel. The sidewalk along Harborside Drive, Transportation Way, North Service Road, Maverick Street, and the Harborwalk facilitate pedestrian access to the Airport water shuttle boat dock, the MBTA Blue Line Airport Station, and the pedestrian and bicycle pathways at Memorial Stadium Park, Bremen Street Park, and the East Boston Greenway, which provide more regional connections. From the MBTA Airport Station, passengers arrive at Terminal E via free Massport shuttle bus service.

Bicycle racks are provided at many landside facilities. While they primarily serve employees, they are open for use by air passengers. Bicycle parking is available at Terminals A and E, the Signature General Aviation Terminal, the Logan Office Center, Economy Parking, the Green Bus Depot, and Airport Station. The Rental Car Center has covered bicycle parking available for use by both employees and passengers. Regional bicycle connections are provided around Airport Station, Memorial Park, Bremen Street Park, and the East Boston Greenway.

Since the mid-1970s, Massport has been committed to increasing use of high-occupancy vehicle ground transportation modes for traveling to and from Logan Airport. Massport programs have encouraged use of various high-occupancy modes, including public transit, water taxis, and Logan Express bus service. Vehicle access in the terminal areas is focused on furthering this commitment by allocating a large portion of existing terminal curbside space for high-occupancy vehicles. Pedestrian access within the terminals is provided by a combination of marked crosswalks with flashing beacons, overhead walkways, and internal terminal walkways.

4.3.2.2 Terminal E Roadway Infrastructure

The Terminal E roadway infrastructure and curbside configuration is described in this section. The bi-level terminal area roadway system provides direct access to the Departures and Arrivals Level curbsides of Terminal E for both private and public transit vehicles. Two lanes of travel are provided entering and exiting the Terminal E curbside. Curbside 1 and Curbside 2 roadways expand to provide four lanes and three lanes of travel, respectively, through the terminal. The U-shaped taxi stand alignment to the east of the curbsides has two lanes of travel. The Terminal E parking lots are located south of the terminal curbsides and are accessed from the Terminal E roadways. **Figure 4-7** shows the Terminal E roadway network.

Massport's Ground Transportation Unit, in conjunction with the Massachusetts State Police, manages the operation and regulation of ground transportation services. The following list of curbside users demonstrates the wide variety of ground transportation modes serviced by the Terminal E curbsides:

- Passenger car active pick-up (Arrivals Level) and drop-off (Departures Level);
- Limousines and taxi pick-up (Arrivals Level) and drop-off (Departures Level);
- Logan Express bus service is provided to all Airport terminals from downtown Boston (Back Bay) as well as from four other locations in the surrounding Boston metropolitan area in Framingham, Braintree, Woburn, and Peabody;



- Massport courtesy shuttle buses provide service between all Airport terminals and the Rental Car Center, MBTA Blue Line Airport Station, and the Logan Airport ferry dock;
- Charter Buses;
- Scheduled Transit Buses – Peter Pan, P&B, Concord Coach, Vermont Transit, C&J Dartmouth Coach;
- MBTA Silver Line Bus Lines SL1 route services all Airport Terminals, including pick-up and drop-off at Terminal E (Arrivals Level only);
- MBTA Blue Line rail rapid transit service is provided at Airport Station immediately adjacent to the Terminal E Modernization Project Area. Massport shuttle bus Routes 33 and 55 provide connections between Airport Station and Terminal E;
- MBTA local bus Route 171 stops directly at Terminal E, while MBTA express bus Routes 448, 449, and 459 provide service to/from the adjacent Terminal C;
- Shared Van services pick-up (Arrivals Level) and drop-off (Departures Level);
- Hotel Courtesy and off-Airport parking Shuttle Buses pick-up (Arrivals Level) and drop-off (Departures Level);
- Rental Car and MBTA Blue Line Shuttle;
- Off-Airport Parking Shuttle Buses;
- Route 11: Massport Inter-terminal Shuttle Bus (Arrivals Level only);
- Route 33: Rental Car Center and Airport Station (Blue Line) – Terminals C & E Shuttle Bus;
- Route 55: Rental Car Center and Airport Station (Blue Line) – All Terminals Shuttle Bus;
- Route 66: Massport Water Transportation Dock, Airport Station (Blue Line), and Logan Office Center – All Terminal Shuttle Bus (Arrivals Level only);
- Route 77: Massport Off-Airport Employee Parking - All Terminals Shuttle Bus (Departures Level only); and
- Route 88: Massport Economy Parking - All Terminals Shuttle Bus (Arrivals Level only).

Additional information about the various transit routes can be found in Appendix E, *Surface Transportation Technical Appendix*. Given the compact layout of the Airport, roadway configuration, and proximity of terminals to one another, queues at one terminal have the potential to result in traffic congestion at other terminals.

Private vehicles picking up passengers at Terminal E are encouraged to utilize parking located adjacent to Terminal E or the Central Garage and meet passengers in the terminal. However, active passenger car pick-up does occur at the Terminal E Arrivals Level curbside.

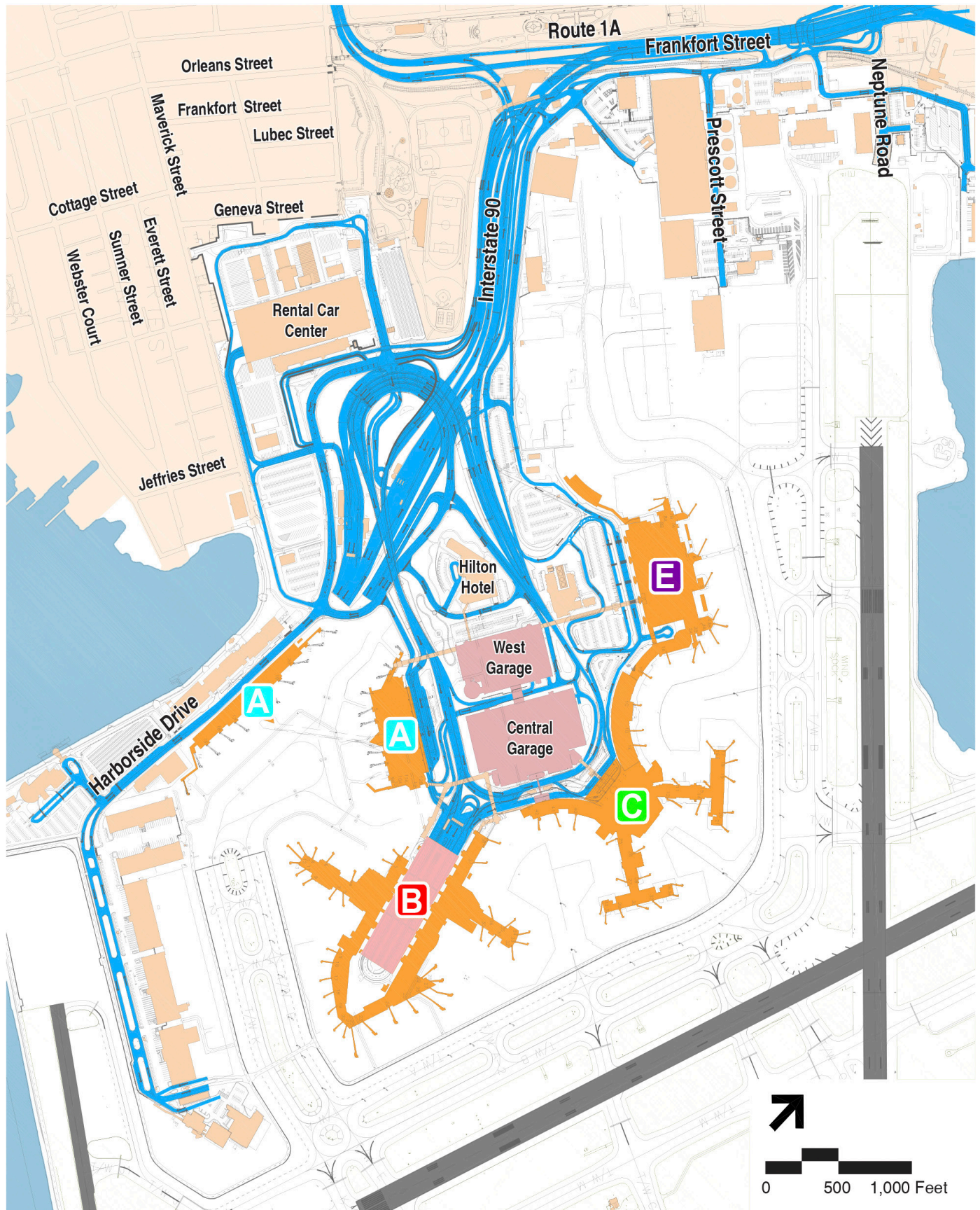






FIGURE 4-7 Logan Airport Roadway Network 2014

Terminal E Modernization Project

- | | |
|--|--|
|  Airport Roadways |  Parking Garages |
|  Terminal Buildings |  Other Facilities |



4.3.2.3 Surface Transportation Traffic Methodology

To verify the existing curb conditions at Terminal E and establish a baseline for comparison to future conditions, an analysis of curbside operations was performed using the Quick Analysis Tool for Airport Roadways (QATAR) spreadsheet model.¹⁷ Based on existing peak hour vehicle demands for each curbside zone, QATAR calculates a curbside zone utilization and level of service (LOS) as well as double and triple parking impacts on the adjacent roadway lanes. LOS is a measure used to rate how well the curbside zone is operating, with a rating of “LOS A” reflective of excellent operations and a rating of “LOS F” reflective of failing operations and substantial curbside congestion. Peak hourly arriving and departing passenger flows by each travel mode were developed using these hourly passenger numbers and mode split percentages from Massport’s 2013 Logan Airport Air Passenger Ground Access Survey.

Similar to the noise analysis, field observations and traffic data collection were conducted during the peak international arrival and departure periods in order to assess existing curbs and roadways congestion and circulation conditions at Terminal E. The type and number of vehicles using the curb, estimated travel speeds, estimated vehicle dwell times, and the extent of double lane activity were observed. This information was used in the development of the QATAR model to help accurately represent existing curbside operations and develop future conditions. It was particularly important in identifying the number of recirculating vehicles under existing curbside operations.

To estimate existing Airport-wide traffic circulation and on-Airport vehicle miles traveled during the Terminal E peak hour, Massport’s on-Airport VISSIM¹⁸ model was used. Specifically, the 2014 EDR base model was modified to reflect 2015 summer peak conditions at Terminal E and the surrounding Airport roadways. The VISSIM model accounts for a larger on-Airport Transportation Study Area from Lovell Street and the North Cargo Area to Harborside Drive and the South Cargo Area, and includes the Southwest Service Area. The VISSIM model not only estimates vehicle miles traveled associated with curbside activity and parking, but also with Logan Airport ground-side operations (e.g., cargo truck activity, employee vehicular movement), rental car activity, and hotel activity. The model was calibrated to existing evening peak hour volume data to improve the accuracy of the results. Adjustment factors were determined to calculate morning, highest 8-hour, and average weekday vehicle miles traveled from the updated VISSIM model. The adjustment factors for the vehicle miles traveled calculations were determined by using 2014 and 2015 gateway traffic volumes,¹⁹ Airport roadway, and parking volume averages.

The VISSIM modeling was further supplemented by traffic analysis at key on-Airport Transportation Study Area intersections using Synchro²⁰ analysis software. Synchro provides results similar to QATAR and VISSIM, but focuses specifically on signalized and unsignalized intersections rather than curbside and terminal roadway operations. Evening and Sunday conditions were analyzed in Synchro to correspond with the peak hours of Terminal E vehicle activity. For the purposes of all traffic analyses, it should be noted that the peak hour differs somewhat from the peak passenger activity. This is reflective of the requirement for passengers to arrive two hours in advance of a scheduled departure and the time it takes arriving international passengers to clear Customs and Border Protection and Immigration Services upon disembarking.

17 LeighFisher, Dowling Associates Inc., JD Franz Research Inc., and WILTEC. 2010. *Airport Cooperative Research Program, Report 40*. Transportation Research Board.

18 PTV America. (2011). *Verkehr In Städten Simulationsmodell- VISSIM version 5.40* [computer software]. Portland, OR.

19 Gateway roadways are defined as access points to/from Logan Airport, which include the Route 1A roadway ramps, Ted Williams Tunnel (Interstate 90) ramps, Frankfort Street/Neptune Road, and Maverick Street.

20 Trafficware LLC. 2013. *Synchro 8, Version 805, Traffic Signal Coordination Software*.



4.3.2.4 Existing Traffic Conditions

Traffic volume data were collected using Automated Traffic Recorders and Turning Movement Counts at the following locations in the vicinity of Terminal E over a three-day period from August 12 through August 14, 2015:

- Departures Level Terminal Area Roadway between Terminals C and E;
- Terminal E Departures Level Curbside;
- Arrivals Level Terminal Area Roadway between Terminals C and E;
- Connector Roadway between Terminals C and E (former Terminal D);
- Arrivals Level Terminal E Curbsides;
- Service Road (roadway between Prescott Street and Terminal E);
- Terminal E Recirculation Road;
- Gas Station;
- Terminal E Surface Parking lots (commercial parking and limousine pool);
- Cell Phone Lot; and
- UPS Driveway.

Additional traffic data at key on-Airport intersections were obtained through Massport's Automatic Traffic Monitoring System. This includes the following intersections:

- Frankfort Street at Lovell Street;
- Frankfort Street at Route 1A Northbound Off-ramp;
- SR-2 at Prescott Street;
- SR-2 at Cell Phone Lot;
- Hotel Drive at Ramp D-S;
- Hotel Drive at Airport Way;
- Hotel Drive at Harborside Drive;
- Harborside Drive at Jeffries Street;
- Harborside Drive at Porter Street; and
- Harborside Drive at Hyatt Drive.

Where August Automatic Traffic Monitoring System data were not available, December 2015 data were used and seasonally adjusted based on seasonal fluctuation at adjacent Automatic Traffic Monitoring System locations.

The peak hour of both the Arrivals and Departures Levels of Terminal E was 6:45 to 7:45 PM, when 875 vehicles were observed on the Terminal E Arrivals Level and 435 vehicles were observed on the Departures Level. Observed peak hour traffic volumes are illustrated in **Figures E-1** through **E-4** in Appendix E, *Surface*



Transportation Technical Appendix for the Arrivals Level, Departures Level, and key on-Airport intersections respectively. Weekday evening and Sunday peak hour conditions were evaluated.

Curbside Operations

The observed peak hour vehicle demand was entered into the QATAR model along with curb dimensional and usage information regarding curbside allocation. The detailed summary of volume development and QATAR analysis output is provided in Appendix E, *Surface Transportation Technical Appendix*. **Table 4-7** summarizes the results. The Terminal E Departures Level curbside currently operates at LOS C, with adjacent travel lanes operating at LOS A. With the exception of Charter Bus curbside, which operates at LOS E, all zones along Curbside 1 of the Terminal E Arrivals Level (serving scheduled bus, Logan Express, Silver Line, the consolidated rental car shuttle, and Airport shuttles) operate at LOS A. Curbside 2 zones (**Figure 4-8**) on the Terminal E Arrivals Level (serving courtesy bus and private automobiles) operate as follows:

- Active passenger car pick-up occurs within the first three zones along Curbside 2.
- The first zone, which is the longest of the three zones, has two travel lanes operating at LOS D and a curbside lane operating at LOS C.
- Due to the passenger vehicle demand and reduced curbside length, the adjacent travel lanes in the remaining two pick-up zones operate at LOS D. The curbside lanes also operate at LOS D.

Table 4-7 Summary of Existing Curbside Operations

Location	Curbside Demand (Vehicles)	Curbside Length (feet)	Curb Level Of Service	Roadway Demand (Vehicles)	Roadway Level Of Service
Arrivals Level – Curb 1²					
Airport Shuttles	23	115	A	275	A
Rental Car and MBTA Blue Line	15	115	A	275	A
MBTA Silver Line	6	115	A	275	A
Logan Express	7	115	A	275	A
Scheduled Bus Service	3	75	A	275	A
Charter Bus	3	50	E	275	A
Arrivals Level – Curb 2²					
Passenger Pick-up	83	190	C	600	D
Courtesy Bus	20	50	E	600	E
Departures Level²					
All Activity³	435	635	C	435	A

Source: VHB

1 Curb 1 on Arrivals and the Departures curb both have four lanes. Curb 2 on Arrivals has three lanes.

2 Curb 1 on Arrivals has five 20' crosswalks. Curb 2 on Arrivals has four 20' crosswalks. Departures have no crosswalks.

3 All Activity – All vehicle types intermingle at the Departures Level. As such, curbside demand is aggregated across all vehicle types.



Roadway Operations

In addition to operations at the curbside, Massport evaluated roadway operations along terminal area roads surrounding and within Terminal E as well as at key intersections throughout the Airport.

Terminal Road Operations

As discussed above, Massport's Airport-wide VISSIM model was used to evaluate existing traffic conditions at Terminal E and determine the effects of weaving segments, ramp merge, and ramp diverge areas associated with existing terminal operations for both the Arrivals and Departures Levels. These areas currently operate as follows:

- Under typical peak conditions, Airport roadways generally operate under free flow conditions and all existing vehicular traffic is adequately processed through the terminal area roadways. (Note: weather and operational delays are not considered typical and are not included in this analysis.)
- Under typical peak conditions, no queueing is observed on the Arrivals Level or Departures Level entry and exit ramps to Terminal E.
- During the peak hour, minor congestion occurs curbside on the Arrivals and Departures Levels. This congestion clears quickly and does not impact operations outside of the terminal.
- Locations where terminal area roadway ramps merge (join) or diverge (separate) are operating at acceptable levels of service as defined by the *2010 Highway Capacity Manual*.²¹
- Weaving segments along terminal area roadways and adjacent to Terminal E operate at levels of service nearing capacity and exceed capacity along the terminal area roadway between Terminals C and E on the Arrivals Level.

Table 4-8 summarizes ramp merge, ramp diverge, and weaving segment operations.

Intersection Operations

Analysis of traffic operations at Airport intersections using Synchro indicates that all intersections are currently operating at acceptable levels of service during the weekday evening peak hour and on Sunday (see **Table 4-9**).

²¹ Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington DC, 2010.



Table 4-8 Summary of Existing Ramp Merge, Diverge, and Weave Operations

Location	Analysis Type	Density1 (pc/mi/ln)	Level Of Service
Departures Level terminal area road between Terminal C and Terminal E	weave	16	B
Departures Level Entrance from terminal area road	diverge	8	A
Departure Exit from Curbside to Route 1A/SCT and Service Road/TWT/SCT/Route 1A	diverge	5	A
Departure Exit Ramp towards Arrivals Level to Service Road and TWT/SCT/Route 1A	diverge	4	A
Arrivals Level terminal area road between Terminal C and Terminal E	weave	31	D
Arrival Entrance Ramp from terminal area road	diverge	14	B
Arrivals Entrance from Terminal C/ Former Terminal D	merge	-- ²	B
Arrival Exit Merge with Exiting Service Road	weave	30	D
Service Road to Exit Ramp	merge	12	B
Arrival Exit Merge with Departure TWT/SCT/Route 1A Exit Ramp	merge	15	B
Arrival and Departure Exit to terminal area road	merge	30	D

Source: VHB

Notes: TWT = Ted Williams Tunnel; SCT= Sumner/Callahan Tunnels

1 Based on the HMC 2010 Methodology for merge, diverge, and weaving segment.

2 Due to the stop sign used to control the merging traffic at this location, the HCM 2010 methodology for unsignalized intersections was used.

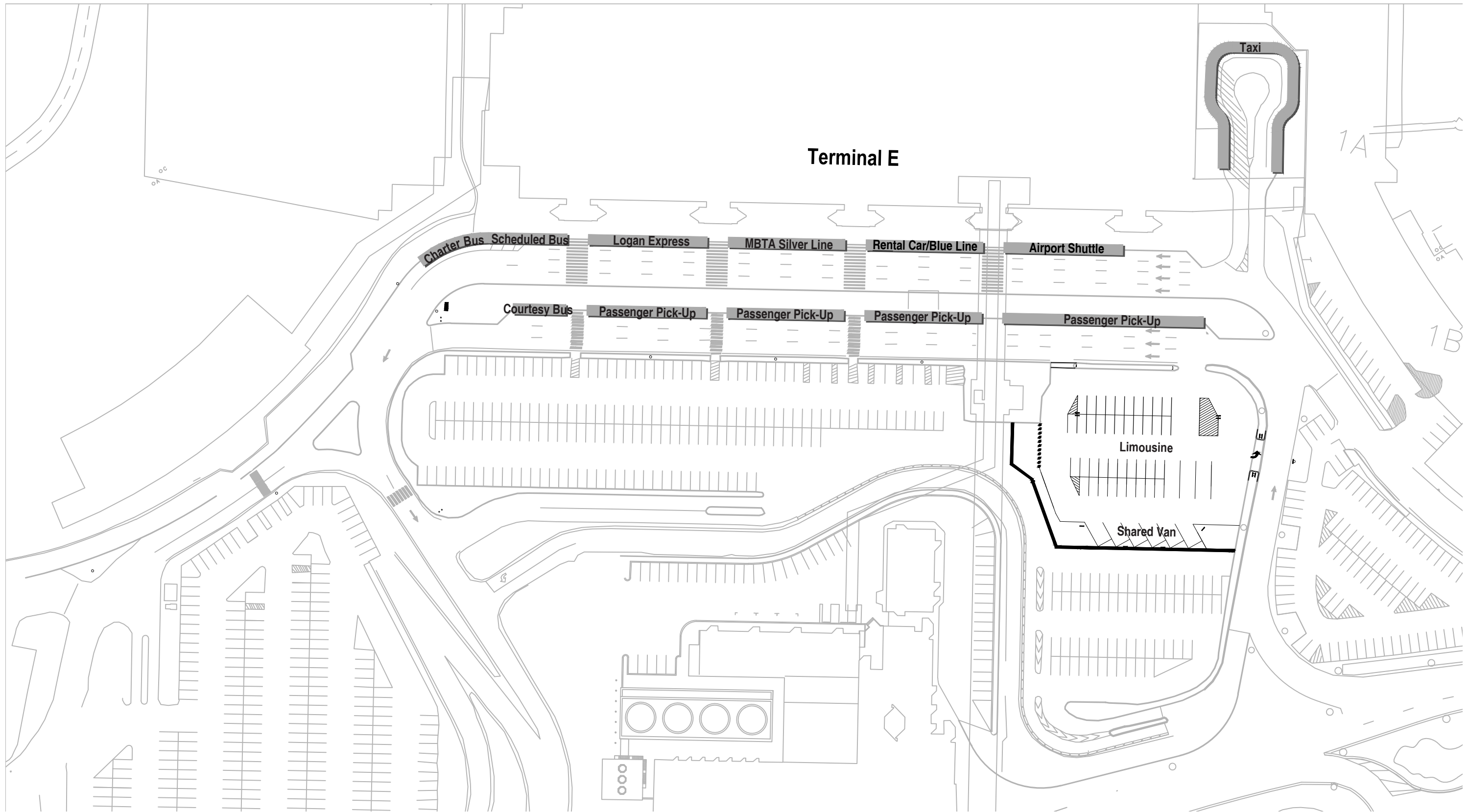


FIGURE 4-8 Existing Terminal E Curbside Allocation

Terminal E Modernization Project





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Table 4-9 Overall Traffic Operations at Key Intersections - Existing Conditions

Location	Period	2015 Existing Conditions		Level Of Service
		v/c	Delay	
Weekday Evening				
Frankfort Street at Lovell Street		0.40	12	B
Frankfort Street at Route 1A NB Off-Ramp		0.45	17	B
SR-2 at Prescott Street*		-	2	A
SR-2 at Cell Phone Lot*		-	2	A
Hotel Drive at Ramp D-S		0.66	20	C
Hotel Drive at Airport Way		0.62	21	C
Hotel Drive at Harborside Drive		0.44	28	C
Harborside Drive at Jeffries Street		0.70	34	C
Harborside Drive at Porter Street		0.60	32	C
Harborside Drive at Hyatt Drive		0.12	4	A
Sunday Evening				
Frankfort Street at Lovell Street		0.26	13	B
Frankfort Street at Route 1A NB Off-Ramp		0.25	12	B
SR-2 at Prescott Street*		-	3	A
SR-2 at Cell Phone Lot*		-	3	A
Hotel Drive at Ramp D-S		0.40	14	B
Hotel Drive at Airport Way		0.34	14	B
Hotel Drive at Harborside Drive		0.32	28	C
Harborside Drive at Jeffries Street		0.53	23	C
Harborside Drive at Porter Street		0.45	30	C
Harborside Drive at Hyatt Drive		0.06	4	A

Source: VHB

Notes: v/c - volume to capacity ratio
 delay - average intersection delay, measured in seconds
 *Unsignalized intersection



4.3.3 Air Quality

This section describes existing air quality conditions in the Boston metropolitan area, including the area surrounding Logan Airport, and provides information and data pertaining to air emissions Airport-wide, as well as those associated with Terminal E. Wherever possible, and for consistency, the air quality analysis conducted for the Terminal E Modernization Project was conducted similarly to the Logan Airport EDRs. The only exception is the use of the new FAA model, AEDT. AEDT replaces the FAA's Emissions and Dispersion Modeling System. It is important to note, however, that AEDT produces very similar results as the Emissions and Dispersion Modeling System when it comes to emissions from ground-based aircraft operations, auxiliary power unit use, and ground support equipment, so even though the two models are different, the outcomes from each one are expected to be the same. It is also worth noting that the same types of emissions and U.S. Environmental Protection Agency (EPA) MOVES and AP-42 databases used in the EDRs were used in this analysis for motor vehicle and stationary source emission factors, respectively.

As described in the 2014 EDR,²² the entire Boston metropolitan region is designated by the EPA as an "Attainment" area for the National Ambient Air Quality Standards (NAAQS)²³ - with only one exception. The area is now designated as Maintenance for carbon monoxide (CO) indicating that it meets the NAAQS for this pollutant and is in a long-term transition from Non-Attainment to Attainment.²⁴

In the past, the Boston metropolitan region was also designated as Non-Attainment for the former 1979 one-hour and the 1997 eight-hour NAAQS for the pollutant ozone (O₃). Both standards were revoked and replaced by a 2008 eight-hour standard for which the area had been designated as Attainment. However, in 2015, EPA promulgated a new, stricter, eight-hour O₃ standard, and the Attainment/Non-Attainment designation for the Boston area will be determined in 2017.

Because of these former Non-Attainment designations, and in accordance with the federal Clean Air Act, the Massachusetts Department of Environmental Protection (MassDEP) developed a State Implementation Plan (SIP), which describes the control measures and timeframes considered necessary to keep the Boston metropolitan region in compliance with the NAAQS. For CO, the SIP is aimed at controlling this pollutant. In the case of O₃, the SIP focuses on reducing nitrogen oxides (NO_x) and volatile organic compounds (VOCs) – the two primary precursors to O₃ formation. Notably, even though the Boston metropolitan region is designated Maintenance for CO and Attainment for the 2008 O₃ standard, the SIP still applies to prevent "back-sliding" into the Non-Attainment status.

Table 4-10 lists the current Attainment/Non-Attainment designations for the Boston metropolitan region and **Table 4-11** provides a summary of the applicable SIPs. The Boston metropolitan region SIPs do not call for the direct reduction or control of emissions associated with Logan Airport.

²² Massport. 2015. *Boston-Logan International Airport 2014 Environmental Data Report*. September 15, 2015

²³ NAAQS are established by the U.S. EPA and represent ambient (i.e., outdoor) concentrations of six types of air pollutants (i.e., the "criteria" pollutants) below which air quality is deemed to be acceptable. These pollutants (called the EPA criteria pollutants) comprise the following: CO – carbon monoxide, Pb – lead, NO₂ – nitrogen dioxide, O₃ – ozone, PM_{10/2.5} – particulate matter of 10 and 2.5 microns in diameter and SO₂ – Sulfur Dioxide. The NAAQS are listed on the U.S. EPA Website at <http://www3.epa.gov/ttn/naaqs/criteria.html>

²⁴ Violation of the NAAQS for CO has not occurred in the Boston areas for over 25 years.



Table 4-10 Attainment/Non-Attainment Designations for the Boston Metropolitan Region

NAAQS Pollutant	Designation
Carbon monoxide - CO	Attainment/Maintenance ¹
Nitrogen Dioxide - NO ₂	Attainment
Ozone – O ₃ (1979 One-hour & 1997 Eight-hour)	Non-Attainment ²
Ozone – O ₃ (Eight-hour, 2008 Standard)	Attainment ²
Particulate matter - PM ₁₀	Attainment
Particulate matter - PM _{2.5}	Attainment
Sulfur Dioxide - SO ₂	Attainment
Lead - Pb	Attainment

Source: U.S. EPA, www.epa.gov/air/oaqps/greenbk/

1 The Boston area was previously designated nonattainment for this pollutant but has since attained compliance with the NAAQS.

2 The 1979 one-hour and the 1997 and 2008 eight-hour NAAQS for O₃ have been revoked and replaced with a new 2015 NAAQS. The Boston areas Attainment/Non-Attainment designation for this standard will be determined in 2017.

Table 4-11 State Implementation Plans for Carbon Monoxide and Ozone

Standard	Title	Status	Comments
Carbon Monoxide			
1 & 8-Hour	Massachusetts State Implementation Plan (SIP) for CO - 1996	Approved	Re-designated Boston area from Non-attainment to Attainment.
Ozone			
One-Hour (1979)	One-hour Ozone Attainment Demonstration for the Massachusetts Portion of the Boston-Lawrence-Worcester, Massachusetts-New Hampshire Ozone Nonattainment Area.	Published December 6, 2002.	EPA approved this SIP revision and established an attainment date of 2007 for the entire multi-state nonattainment area. Called for reductions and controls of VOCs and NO _x .
Eight-Hour (1997)	Massachusetts State Implementation Plan for Boston-Lawrence-Worcester Area for Ozone	Demonstrated compliance with the NAAQS in 2012.	Called for the attainment of the 1997 eight-hour NAAQS by 2010 and focused on the control of NO _x and VOCs as precursors to ozone.

Source: U.S. EPA, www3.epa.gov/airquality/urbanair/sipstatus/reports/malembypoll.html#ozone-1hr 1979 9

4.3.3.1 Air Quality Regulations

With respect to the planned improvements to Terminal E, there are two principal air quality regulations that apply, namely the NAAQS and the General Conformity Rule of the Clean Air Act.

As stated above, the EPA has established the NAAQS to protect ambient (i.e., outdoor) air quality in the human and natural environments.²⁵ In Massachusetts, MassDEP has adopted the same (or similar) standards known as the Massachusetts Ambient Air Quality Standards (MAAQS).²⁶ In both cases, these are numerical thresholds and time frames by which air quality conditions are deemed regulatory acceptable or not.

²⁵ See footnote 24 for more information on the NAAQS.

²⁶ The MAAQS are listed on the MassDEP website at www.mass.gov/eea/agencies/massdep/air/regulations/310-cmr-6-00-ambient-air-quality-standards.html



The General Conformity Rule serves as a means of ensuring that federally-sponsored projects or actions are in alignment with the SIP. In summary, this requirement is met by demonstration that project/action-related emissions “conform” to the SIP.²⁷ For the Boston metropolitan region, the applicable SIPs are for the pollutants CO and O₃. Meeting this requirement is most commonly achieved by demonstrating that the emissions are within (i.e., below) pre-established *de minimis* thresholds or are adequately accounted for in the SIP.

4.3.3.2 Air Quality Management at Logan Airport

At Logan Airport, Massport has implemented a wide array of initiatives aimed at minimizing emissions associated with Airport activities (including those associated with the existing Terminal E). Select examples include, but are not limited to alternatively fueled fleets of transit buses and other motor vehicles; a new consolidated rental car facility; air-conditioning and power units at aircraft gates; Leadership in Energy and Environmental Design (LEED®) Certification for the new building; and solar panels for electrical generation. Other measures include the Logan Airport Air Quality Initiative – a voluntary program designed to keep Airport-related NO_x emissions below 1999 levels.

4.3.3.3 Existing Aircraft Ground Operations and Terminal E Vehicular Circulation and Parking

Operations currently associated with Terminal E (Section 4.3.1.6, *Noise Modeling Inputs*) apply to terminal-related air quality emissions. The principal sources of air emissions presently associated with Terminal E are:

- Aircraft engines;
- Aircraft auxiliary power units;
- Aircraft ground support equipment;
- Ground access vehicles traveling to, from, and moving about the site (these include automobiles [for example cars and vans], taxis and limousines, step-vans, shuttles, and transit buses); and
- Other, smaller, sources of emissions include back-up electrical generators, boilers, food-preparation services, and construction activities whenever they occur. However, these sources and their emissions are not segregated from the other Airport facilities or operations reported upon in the EDRs and ESPRs.

The next section discusses these emission sources as well as the types and amounts emitted under current conditions.

4.3.3.4 Emissions Inventory

Massport prepares a comprehensive and Airport-wide annual emissions inventory of the EPA criteria pollutants and their precursors for Logan Airport and publishes the results in the EDRs and ESPRs.²⁸ This inventory includes emissions associated with aircraft engines, auxiliary power units, ground support equipment, fuel facilities, and a number of stationary sources (such as boilers, generators). Overall, the EDR emission inventories reveal that air emissions from all sources associated with Logan Airport are significantly less than they were a decade ago. This continuous downward trend is consistent with Massport’s longstanding

²⁷ Information of the General Conformity Rule is available at www3.epa.gov/airquality/genconform/

²⁸ Boston-Logan Environmental Data Reports are available at www.massport.com/environment/environmental-reporting/.



objective to accommodate the demands of increasing passenger and cargo activity levels with fewer aircraft operations and less emissions.

For this Project-specific emissions inventory of Terminal E, the following data and information were used:

- Aircraft fleet mix and operations based on aircraft movements at Terminal E, as observed on August 27, 2015.
- Aircraft engine types based on the JP airline-fleets directory.²⁹
- Estimated aircraft taxi-time based on a taxi speed of 10 knots and the distance traveled between the Project Area boundary (taxiway separating Terminal E from Terminal C) and Terminal E.
- Ground support equipment fleet mix and operating times based on an on-site ground support equipment time-in-mode survey conducted in May 2012 at the Airport as part of the 2011 *ESPR*.³⁰ Ground support equipment fuel-types were based on the Airport's aerodrome permitting system.³¹ Additional aircraft tractor time was assigned for aircraft repositioning (such as from a gate to a pad).
- Auxiliary power unit operating times based on 5 minutes of operation prior to departure from a gate and 30 minutes upon arrival and 30 minutes prior to departure from a stand located in the North Cargo Area. Additional auxiliary power unit time was assigned for all aircraft repositioning, since it was observed that auxiliary power units are operating during this time.

Ground access vehicle emissions included those emissions from vehicles traveling on Airport roadways, vehicles idling at parking lots and terminal curbsides, and buses used to transport passengers from the stands to Terminal E. This emissions inventory is computed using FAA's new AEDT 2b model for aircraft, ground support equipment, and auxiliary power units, and the EPA's Motor Vehicle Emission Simulator, Version 2014a (MOVES2014a) model for ground access vehicles.

Reported upon in standard units of tons/year, the results of the emissions inventory are summarized in **Table 4-12** and are segregated by pollutant type and source type.

As shown, aircraft engines represent the largest source of VOCs, NO_x, SO_x, and PM_{2.5} emissions, and ground access vehicles represent the largest source of CO and PM₁₀. Ground support equipment and auxiliary power units comprise the smallest sources of all emissions. Stationary source emissions linked to Terminal E are limited to those associated with the Logan Airport Central Utility Plant. Massport reports the emissions from its Central Heating Plant in accordance with MassDEP's Operating Permit Program (310 Code of CMR 7.00 Appendix E, *Surface Transportation Technical Appendix*), which conforms to the federal Clean Air Act Title V Operating Permit Program.

²⁹ Flightglobal. JP Airline-Fleets International 2013/2014. 2013. Flightglobal, Sutton, UK.

³⁰ Massport. 2013. *2011 Environmental Status and Planning Report*.

³¹ All vehicles and equipment (including ground support equipment) that operate on the airfield must obtain a Logan Airport Vehicle Aerodrome Permit. The application form for this permit was modified in 2007 to request the fuel-type information (e.g., gasoline, diesel, etc.).



Table 4-12 Terminal E Emissions Inventory - Existing Conditions

Source	Emissions (tons/year)					
	VOC	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft	16	58	451	28	3	3
Ground Support Equipment/Auxiliary Power Units	3	40	18	1	1	1
Ground Access Vehicles	15	282	26	1	7	2
Totals	34	380	495	30	11	6

Sources: Massport and KBE.

Notes: VOC - Volatile Organic Compounds, CO - Carbon Monoxide, NO_x - Nitrogen Oxides, SO_x - Sulfur Oxides, PM_{10/2.5} - Particulate Matter

4.3.4 Natural Resources and Energy Supply

Logan Airport is a campus of interconnected buildings, transportation facilities, utility infrastructure, natural environments, and management systems. Because the proposed improvements will take place within areas of the Airport that are currently fully developed, there are no physical natural resources, including wetlands, coastal resources, and sensitive habitat, within the Project Area. **Figure 4-9** shows mapped state priority habitat at Logan Airport adjacent to, but outside the Project Area.

FAA *Orders 1050.1F* and *5050.4B* require that proposed projects employ principles of environmental design and sustainability. Massport is a national leader in airport sustainability with a two-decade long track record of implementing sustainability initiatives, including the first LEED terminal in the world. The *2014 EDR* and the *Logan Airport Sustainability Management Plan*³² provide comprehensive information on Massport’s efforts to conserve energy, generate energy from alternative sources, and reduce greenhouse gas (GHG) emissions, among other successful initiatives.

Massport is making strides in reducing energy use at the Airport. In Fiscal Year (FY) 2014, the year of the most complete available data, Logan Airport consumed nearly 185,000 MWh (megawatt hours) of electricity, about 53% of which supplied the terminals. In addition to electricity, Logan Airport also consumes natural gas and heating oil. When accounting for all energy types, including electricity, natural gas, and fuel oil numbers 2 and 6, buildings at Logan Airport consumed 1,146,282 MMBtu (million British thermal units) in FY2014. This represents an energy intensity of 88.2 kBtu (thousand British thermal units) per square foot in FY2014, a significant reduction from 110.6 kBtu per square foot in FY2011.³³ In FY2014, onsite renewable energy projects (non-power purchase agreement projects) at Logan Airport generated 581,171 kWh (kilowatt-hours) of electricity.

In 2009, Massport began developing a comprehensive Airport Energy Master Plan for all Massport facilities. In 2010, the Massport Board approved the Energy Master Plan.

³² Massport. 2015. *Logan Airport Sustainability Management Plan*.

³³ Arup Group. 2013. *Logan Energy Analysis*.



Source: ArcGIS Online Bing Aerial 2016

FIGURE 4-9 Logan Airport Priority Habitats

Terminal E Modernization Project

- Natural Heritage & Endangered Species Program Priority Habitats of Rare Species
- Select Roadways
- Project Area





4.3.5 Climate/GHG Emissions

Massport has adopted a GHG management and reduction policy that includes identifying and assessing measures to avoid, minimize, or mitigate GHG emissions.

4.3.5.1 GHG Emissions Inventory

As described above in Section 4.3.3, *Air Quality*, Massport prepares a comprehensive and Airport-wide emissions inventory for Logan Airport annually and publishes the results in the EDRs and ESPRs.³⁴ In addition to energy consumed by the Terminal E facility, the principal sources of GHG emissions presently associated with Terminal E are mobile sources including aircraft engines and their auxiliary power units, ground support equipment, and ground access vehicles traveling to, from, and moving about the site (these include automobiles [such as cars, trucks, and vans], taxis and limousines, step-vans, shuttles, and transit buses). Other, smaller sources of emissions include back-up electrical generators, food-preparation services, and construction activities whenever they occur. However, these sources and their emissions are not segregated from the other Airport facilities or operations reported upon in the EDRs and ESPRs. **Table 4-13** presents the 2014 GHG emissions inventory, reported in CO₂ equivalent values.³⁵

Table 4-13 Estimated Greenhouse Gas Emissions Inventory (in MMT of CO₂eq) at Logan Airport, 2014¹

Source	Category	Scope	CO ₂	N ₂ O	CH ₄	Totals
<i>Massport-Controlled Emissions</i>						
Ground Support Equipment ²	1	1	<0.01	<0.01	<0.01	0.01
Massport Shuttle Bus	1	1	<0.01	<0.01	<0.01	<0.01
Massport Express Bus	1	1	<0.01	<0.01	<0.01	<0.01
On-Airport Roadways ³	1	1	0.03	<0.01	<0.01	0.03
Off-Airport Roadways (Employees) ⁴	1	3	<0.01	<0.01	<0.01	<0.01
Parking Lots	1	1	<0.01	<0.01	<0.01	<0.01
Stationary Sources ⁵	1	1	0.03	<0.01	<0.01	0.03
Total Massport Emissions (13.0%)			0.08	<0.01	<0.01	0.08
<i>Tenant Emissions</i>						
Aircraft – Ground ⁶	2	3	0.19	<0.01	<.11	0.19
Aircraft – Ground to 3000 feet ⁷	2	3	0.17	<0.01	<0.01	0.17
Aircraft Engine Startup	2	3	<0.01	<0.01	<0.01	<0.01
Ground Support Equipment	2	3	0.01	<0.01	<0.01	0.01
Auxiliary Power Units	2	3	0.01	<0.01	.11	0.01
Off-Airport Roadways (Employees) ⁴	2	3	0.02	<0.01	<0.01	0.02
Total Tenant Emissions (67.8%)			0.40	<0.01	<0.01	0.41

³⁴ Boston-Logan Environmental Data Reports are available at www.massport.com/environment/environmental-reporting/.

³⁵ CO₂ equivalent values are based upon the Global Warming Potential values of 1 for CO₂, 25 for CH₄, and 298 for N₂O (based on a 100 year period), as presented in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report, 2007.



Table 4-13 Estimated Greenhouse Gas Emissions Inventory (in MMT of CO₂eq) at Logan Airport, 2014¹ (Continued)

Source	Category	Scope	CO ₂	N ₂ O	CH ₄	Totals
<i>Purchased Electricity Emissions⁸</i>						
Massport	1	2	0.01	<0.01	<0.01	0.01
Tenant and Common Area	2 and 3	2	0.06	<0.01	<0.01	0.06
Total Purchased Electricity Emissions (10.2%)			0.06	<0.01	<0.01	0.06
<i>Passenger Vehicle Emissions</i>						
Off-Airport Roadways ⁴	3	3	0.05	<0.01	<0.01	0.05
Total Passenger Vehicle Emissions (9.0%)			0.05	<0.01	<0.01	0.05
Total Logan Airport Emissions⁹			0.59	<0.01	<0.01	0.60
Percent of Statewide Totals¹⁰			<1.0%	<1.0%	<1.0%	<1.0%

Source: Massport

- 1 MMT - million metric tons of CO₂ equivalents (1 MMT = 1.1M Short Tons). CO₂ equivalents (CO₂eq) are bases for reporting the three primary GHGs (e.g., CO₂, N₂O, and CH₄) in common units. Quantities are reported as "rounded" and truncated values for ease of addition.
- 2 Ground Support Equipment include the Logan Airport fleet. Emissions were calculated based on fuel usage.
- 3 On-airport roadways based on on-site vehicle miles traveled and includes all vehicles.
- 4 Off-site roadways based on off-site Airport-related vehicle miles traveled and an average round trip distance of 60.5 miles (*2010 Passenger Ground Access Survey*).
- 5 Other sources include Central Heating and Cooling Plant, emergency generators, snow melters, and live fire training facility.
- 6 Aircraft – Ground emissions include taxi-in, taxi-out and ground-based delay emissions.
- 7 Aircraft – Ground to 3,000 feet include takeoff, climbout, and approach emissions up to a height of 3,000 feet (as specified by the ACRP guidance).
- 8 Emissions from electrical consumption occurs off-airport at power generating plants.
- 9 Total Emissions = Airport + Tenant + Public.
- 10 Percentage based on relative amount of total emissions to statewide total from World Resources Institute (cait.wri.org).
- 11 Contributions of CH₄ emissions from commercial aircraft are reported as zero. Years of scientific measurement campaigns conducted at the exhaust exit plane of commercial aircraft gas turbine engines have repeatedly indicated that CH₄ emissions are consumed over the full emission flight envelope [Reference: Aircraft Emissions of Methane and Nitrous Oxide during the Alternative Aviation Fuel Experiment, Santoni et al., Environ. Sci. Technol., July 2011, Volume 45, pp. 7075-7082]. As a result, the EPA published that: "...methane is no longer considered to be an emission from aircraft gas turbine engines burning Jet A at higher power settings and is, in fact, consumed in net at these higher powers." [Reference: EPA, Recommended Best Practice for Quantifying Speciated Organic Gas Emissions from Aircraft Equipped with Turbofan, Turbojet, and Turboprop Engines, May 27, 2009 [EPA-420-R-09-901], <http://www.epa.gov/otaq/aviation.htm>]. In accordance with the following statements in the 2006 IPCC Guidelines (IPCC 2006), the FAA does not calculate CH₄ emissions for either the domestic or international bunker commercial aircraft jet fuel emissions inventories. "Methane (CH₄) may be emitted by gas turbines during idle and by older technology engines, but recent data suggest that little or no CH₄ is emitted by modern engines." "Current scientific understanding does not allow other gases (e.g., N₂O and CH₄) to be included in calculation of cruise emissions." (IPCC 1999).

4.3.5.2 Resiliency

Massport is a national leader in airport resiliency planning. As noted on Massport’s website³⁶ – “Changing climate is real and the consequent disruptions (such as increased storms and fluctuations of extreme temperatures) will be more frequent in the future. This requires us to change the way we plan, design, and manage both our built and non-built environment – with the end goal of creating a resilient and sustainable future for ecosystems, human communities, and economic viability.” After the Superstorm Sandy event, Massport established a Resiliency Working Group to identify threats and hazards, likely scenarios, and current vulnerabilities.

³⁶ Massport. *Resiliency and Climate Change*. <https://www.massport.com/business-with-massport/resiliency/resiliency-and-climate-change/>. Accessed April 10, 2015.



A high-level evaluation of the resiliency of Massport's facilities to natural (hurricanes, storms, flooding, earthquakes), man-made (fires), and technological (data loss) threats was undertaken. In addition, Massport commissioned the *Disaster and Infrastructure Resiliency Planning Study*, which took a detailed look at resiliency at Logan Airport. The *Disaster and Infrastructure Resiliency Planning Study* assessed critical infrastructure and vulnerabilities that the Airport may face during future climate scenarios. Consideration was given to projected sea level rise and other environmental factors (e.g., high tide or low tide).

Massport's Resiliency Program has identified several goals including:

- Improve resiliency for overall infrastructure and operations;
- Restore operations during and after disruptive events in a safe and economically viable time frame;
- Create robust feed-back loops that allow new solutions as conditions change;
- Inform operations and policy, and implement design/build decisions, through the application of sound scientific research and principles that consider threats, vulnerabilities, and cost-benefit calculations;
- Become a knowledge-sharing exemplar of a forward-thinking, resilient port authority; and
- Work with key influencers and decision makers to strengthen understanding of the human, national, and economic security implications of extreme weather, changing climate, and man-made threats to Massport's facilities and the region.

4.3.6 Sustainability at Logan Airport

Massport is committed to a robust sustainability program. Sustainability has redefined the values and criteria for measuring organizational success by using a "triple bottom line" approach that considers economic, ecological, and social well-being. Applying this approach to decision-making is a practical way to optimize economic, environmental, and social capital. Massport is taking a broad view of sustainability that builds upon the triple bottom line concept, and considers the airport-specific context. Consistent with the Airports Council International - North America's definition of Airport Sustainability,³⁷ Massport is focused on a holistic approach to managing Logan Airport to ensure economic viability, operational efficiency, natural resource conservation, and social responsibility. Massport is committed to implementing environmentally sustainable practices Authority- and Airport-wide, and continues to make progress on a range of initiatives.

4.3.6.1 Logan Airport Sustainability Management Plan

Massport is committed to reducing local environmental impacts without sacrificing service level; Massport's robust sustainability program is indicative of this commitment. In 2013, Massport was awarded a grant by the FAA to prepare a Sustainability Management Plan for Logan Airport. The purpose of the plan is to enhance the efficiency and sustainability of Logan Airport's operations and to support the broader sustainability principles of the Commonwealth. This planning effort began in May 2013 and was completed in April 2015. The plan, which takes a broad, holistic view of sustainability, is intended to promote and integrate sustainability Airport-wide and to coordinate ongoing sustainability efforts across the Authority. The *Logan Airport Sustainability Management Plan* developed a framework and implementation plan, with metrics and targets,

³⁷ Airport Council International (ACI). *Airport Sustainability: A Holistic Approach to Effective Airport Management*. Undated. <http://www.aci-na.org/static/entransit/Sustainability%20White%20Paper.pdf>. Accessed July 17, 2013.



designed to track progress over time. Massport reports on its progress in an Annual Sustainability Report, the first of which was published in April 2016.

4.3.6.2 Sustainability in Planning, Design, and Construction

The U.S. Green Building Council's LEED Green Buildings rating system is the most widely recognized third-party green building certification system in North America. Massport is striving to achieve LEED Silver certification or higher for new and substantial rehabilitation of building projects over 20,000 square feet. Some recent examples of LEED certified buildings at Logan Airport are the Rental Car Center (LEED Gold) and the Green Bus Depot (LEED Silver).

For smaller building projects and non-building projects, Massport uses its Sustainable Design Standards and Guidelines to incorporate sustainability into capital improvement projects. These guidelines provide a sustainable building framework for design and construction of both new construction and rehabilitation projects for both building and non-building projects (for example, pavement projects). The guidelines apply to a wide range of project-specific criteria, such as site design, project materials, energy management and efficiency, air emissions, water management quality and efficiency, indoor air quality, and occupant comfort. These standards have been used to guide over \$200 million in capital projects Massport-wide between fiscal years 2010 to 2013, including over \$30 million for maritime projects.

4.3.7 Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

FAA *Order 1050.1F* lists several factors to consider for surface waters, which include an action's potential to adversely affect natural and beneficial water resource values, adversely affect surface waters, or create water quality impacts that make obtaining a permit or authorization difficult.

This section focuses on the existing conditions for stormwater, water use, and wastewater. The Project Area is located on previously developed land in Airport use, and does not include any wetlands or floodplains and is not located near or adjacent to a Wild and Scenic River. **Figure 4-10** shows the 1% and 0.2% flood zones near Logan Airport.

4.3.7.1 Stormwater

Massport's primary water quality goal is to prevent or minimize pollutant discharges, thus limiting adverse water quality impacts associated with Airport activities. Massport employs several programs to promote awareness of Massport and tenant activities that may impact surface and groundwater quality, thus improving water quality. Programs include implementing best management practices for pollution prevention by Massport, its tenants, and its construction contractors; training staff and tenants; and a comprehensive Stormwater Pollution Prevention Plan.

Massport is responsible for compliance with applicable state and federal environmental laws and regulations. Massport promotes appropriate environmental practices through pollution prevention and remediation measures, and works closely with Airport tenants and Airport operations staff to improve compliance.



Massport's environmental programs pertaining to water quality and environmental compliance and management include:

- Stormwater management;
- Water quality management;
- Fuel use and spills;
- Massachusetts Contingency Plan (MCP) compliance;
- Storage tank compliance;
- Compliance auditing and inspections;
- Environmental Management System implementation; and
- Clean State Initiative and Leading by Example Program participation.

The Project Area is adjacent to, and partially drains to Boston Harbor, which is a Category 5 impaired water body.^{38, 39}

4.3.7.2 Logan Airport Storm Drainage System

Logan Airport's storm drainage system consists of a network of stormwater inlets, drainpipes, manholes, and tide gates that make up the 48 independent drainage systems, each with a separate outlet into Boston Harbor. There are five major subsystems serving the terminal and support areas, which include areas of the Airport where refueling, maintenance, and support services occur. Within the Terminal E Project Area, three subsystems drain the Project Area. Refer to **Figure 4-11** for the Logan Airport drainage areas and outfalls. The Project Area is served by separate storm and wastewater systems.

The three major storm drainage subsystems within the Project Area are:

- West Outfall Area;
- North Outfall Area; and
- Porter Street Outfall Area.

The existing Terminal E facility and North Apron area drain to the North Outfall. The Project Area, to the west of existing Terminal E, drains predominantly to the West Outfall with a small portion of the Project Area draining to the Porter Street Outfall. Both the North and West Outfalls are equipped with end-of-pipe pollution control facilities that remove debris and floating oil and grease from stormwater prior to discharge into Boston Harbor.

North Outfall - 001

The drainage area contributing runoff to the North Outfall is approximately 152 acres and includes Terminal E; the apron and taxiway between Terminals C and E; a portion of the outer taxiway; the north taxiway area,

38 Category 5 water bodies are defined as waters requiring a "total maximum daily load" or TMDL.

39 Massachusetts Department of Environmental Protection. 2013. *Massachusetts Year 2012 Integrated List of Waters*. <http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf>. Accessed March 17, 2016.



including Hangar Building 9; and the North Cargo buildings. The main activities that take place in this drainage area are vehicle and aircraft fueling, vehicle and aircraft maintenance, fuel storage and distribution, aircraft lavatory waste handling, and during winter months, aircraft deicing and the deicing and sanding of roadways, taxiways, and runways.

West Outfall - 002

The drainage area contributing runoff to the West Outfall is currently approximately 403 acres and includes Terminals A, B, C and E; the apron and taxiways between Terminals B and C; a portion of the outer taxiway; taxiways P, E, S, and X; and the cargo areas. The main activities in this drainage area are aircraft fueling, aircraft maintenance at gates, fuel distribution, aircraft lavatory waste management, and during winter months, aircraft deicing and the deicing and sanding of roadways, taxiways, and runways.

Porter Street Outfall - 003

The Porter Street Outfall receives stormwater runoff from Logan Airport and a portion of East Boston. The drainage area is approximately 182 acres and includes the BOSFUEL fuel farm facility, Facilities II and III, rental car agencies, Hangar Building 8, Economy Parking Garage, and vehicle access roadways. The drainage area from East Boston includes multifamily residential units and light commercial industry. There is also a combined sewer overflow that originates in East Boston. At Logan Airport, the primary activities within the Porter Street drainage area are vehicle and aircraft maintenance within a hangar or indoor garage, fuel storage and handling, and aircraft deicing during the winter months.

Pollution Control Measures

Massport currently maintains pollution control equipment at Outfall 001-North Outfall and Outfall 002-West Outfall. The pollution control equipment includes a mechanically cleaned bar screen that operates daily in coordination with the outgoing tide and a skimmer that directs materials and water to a grinder pump, followed by a sedimentation tank and oil/water separator. Oil from the separator is pumped out by Massport's contractor and the underflow is circulated back to the outfall upstream of the bar screen. Absorbent floating booms are provided in the skimmer box as well as at each of the outfalls to capture floatables that may have passed through the bar screen and oil/water separator equipment. Solids collected by the bar screens and spent absorbent booms are containerized and disposed of off-site. The North Outfall is also equipped with a hard containment boom to ensure petroleum sheens, if present, are fully controlled. Conditions at the outfalls and the pollution control equipment are checked weekly and are maintained as necessary. Outfall 003-Porter Street Outfall is equipped with absorbent booms for the capture of floating materials, which are inspected and maintained regularly by Massport. Spent absorbent materials are handled and disposed of by Massport's contractor.⁴⁰

NPDES Permit and Sampling Requirements

The Clean Water Act requires permits for pollutant discharges into U.S. waters from point sources and for stormwater discharges associated with industrial activities. Massport holds permits under the EPA and National Pollutant Discharge Elimination System (NPDES) Program. The NPDES permit (No. MA0000787)

⁴⁰ Massport Dec 2015. *Logan Airport Operations Stormwater Pollution Prevention Plan*.

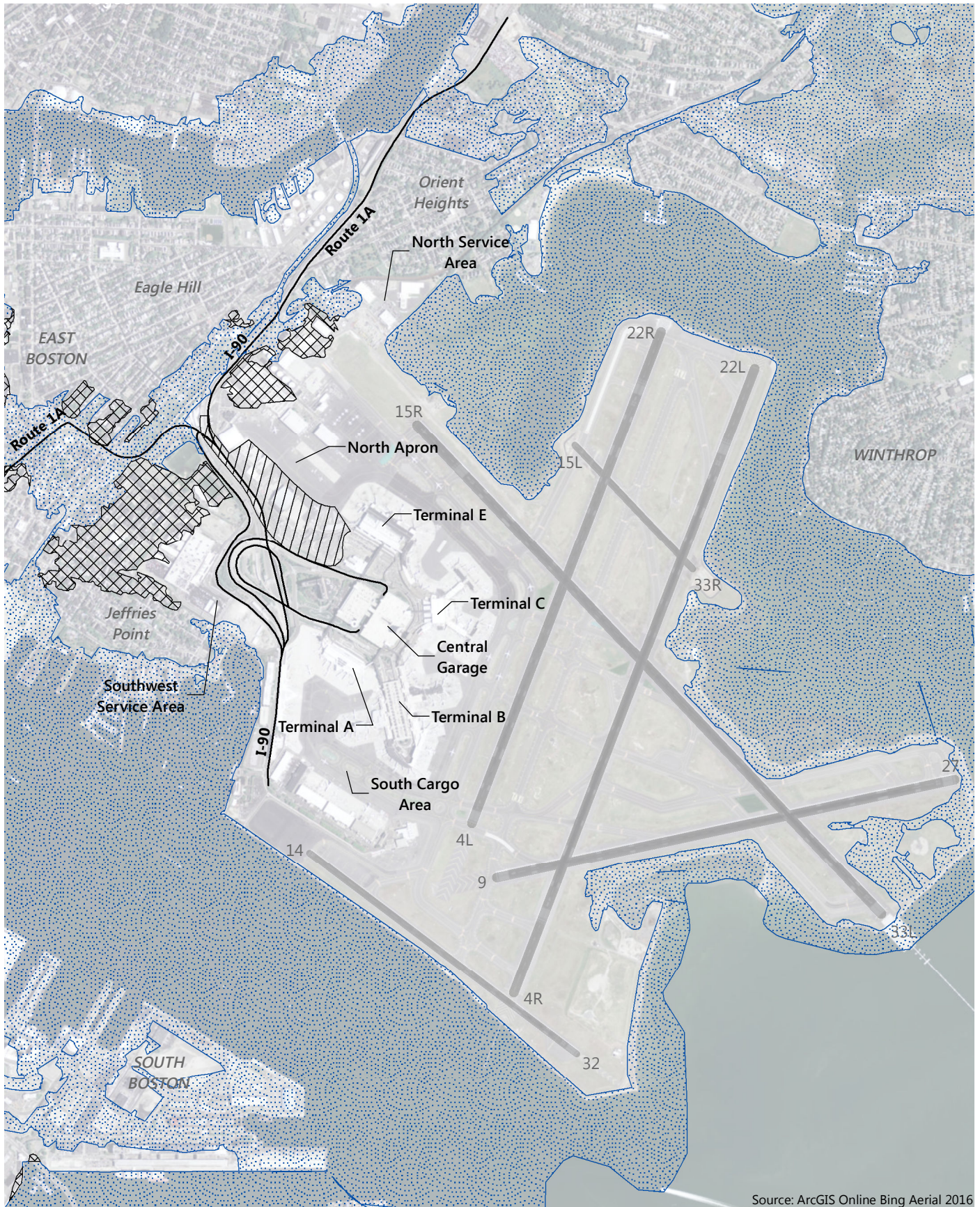


covers Massport and its co-permittees at Logan Airport. It establishes effluent limitations and monitoring requirements for discharges from specified stormwater outfalls.

On July 31, 2007, EPA and MassDEP issued an individual NPDES permit for Logan Airport (NPDES Permit No. MA0000787). The new permit became effective on September 29, 2007, replacing the previous NPDES Permit dated March 1, 1978. The NPDES permit is on EPA's website at: <https://www3.epa.gov/region1/npdes/logan/pdfs/finalma0000787rtc.pdf>. Massport holds a separate NPDES permit for the Fire Training Facility (NPDES Permit No. MA0032751).

The NPDES permit requires grab samples (single samples collected at a particular time and place) to be taken monthly from the North, West, Porter Street, and Maverick Street Outfalls. Samples are tested for pH, oil and grease, total suspended solids, benzene, surfactants, fecal coliform bacteria, and *Enterococcus* bacteria during both wet and dry weather. Grab samples are also taken quarterly from these four outfalls during wet weather to test for eight different polycyclic aromatic hydrocarbons. Additional sampling requirements of the NPDES permit include sampling for deicing compounds twice during the deicing season (October through April) at the North, West, and Porter Street Outfalls. The NPDES permit sets discharge limitations for pH, oil and grease, and total suspended solids from the North, West, and Maverick Street Outfalls and for pH from the Porter Street Outfall. The NPDES permit does not include any discharge limitations for the Northwest Outfall, airfield outfalls, or the deicing monitoring, and requires only that the sampling results be reported. The annual EDRs and ESPRs report on the results of this sampling. In 2014, 99% of samples tested complied with standards.⁴¹ In accordance with the NPDES Permit, Massport inspects the main outfalls on a monthly basis during wet and dry weather, and the airfield outfalls on an annual basis during wet weather.

⁴¹ Massport. 2015. *Boston-Logan International Airport Environmental Data Report*. <https://www.massport.com/environment/environmental-reporting/>. Accessed March 17, 2016.



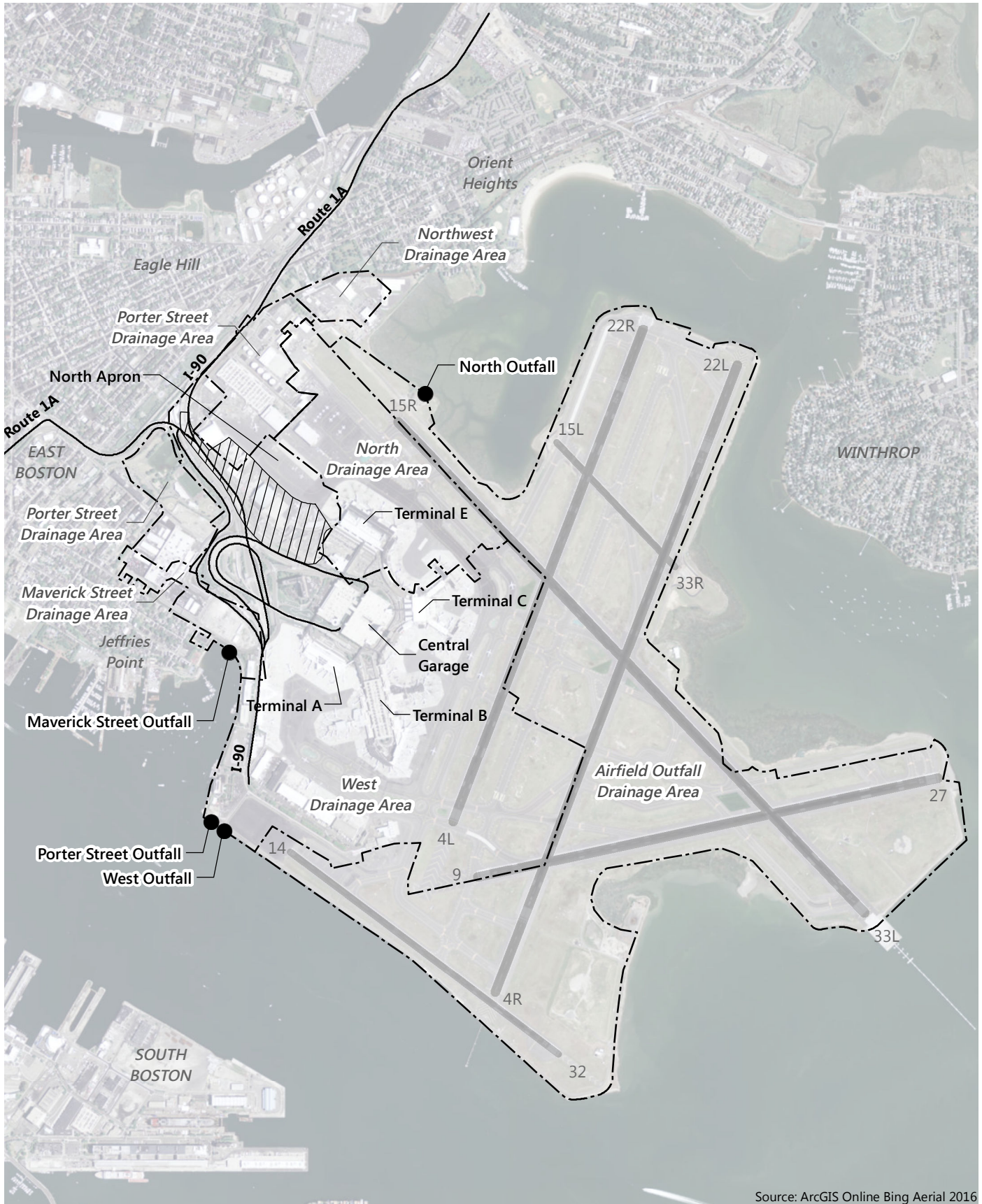
Source: ArcGIS Online Bing Aerial 2016

FIGURE 4-10 2016 FEMA Flood Map

Terminal E Modernization Project

- AE: 1% Annual Chance of Flooding, with BFE
- X: 0.2% Annual Chance of Flooding
- Project Boundary
- Select Roadways





Source: ArcGIS Online Bing Aerial 2016

FIGURE 4-11 Logan Airport Drainage Areas and Project Area Outfalls

Terminal E Modernization Project

- Outfalls
- Select Roadways
- - - Storm Drainage Areas
- ▨ Project Area





4.3.8 Hazardous Materials, Solid Waste, and Pollution Prevention

FAA *Order 1050.1F* identifies several factors to consider for a Proposed Action: potential to violate Federal, state, tribal, or local laws regarding hazardous materials and/or solid waste, involvement of a contaminated site, potential to produce hazardous waste, potential to generate a quantity of solid waste or exceed local capacity, or potential to adversely affect human health and the environment. This section discusses the potential presence of oil and/or hazardous materials and solid waste in relation to the Proposed Action and considerations for proper management during construction to prevent pollution.

Several state and federal regulatory programs govern the requirements for site remediation, transport of regulated hazardous materials, and potential spills during construction. Based on a search of the EPA online database, there are no National Priority List sites on Logan Airport.

In the Commonwealth of Massachusetts, the management of hazardous substance and petroleum products when released into the environment is generally governed by the MCP also known as 310 CMR 40.0000. Hazardous substances include oil, hazardous material, and hazardous waste and are defined as those substances that that may constitute a present or potential threat to human health, safety, welfare, or the environment. When a hazardous substance impacts (or potentially impacts) an environmental medium, then a release (or threat of release) of oil and/or hazardous materials is said to occur. As per the MCP, a "release" is defined as "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment." A threat of release "means a substantial likelihood of a release of oil and/or hazardous materials which requires action to prevent or mitigate damage of health, safety, public welfare or the environment which may result from the release." The MCP defines a "disposal site" as the place or area where an uncontrolled release of oil and/or hazardous materials has come to be located.

In accordance with the MCP process, Massport continues to assess, remediate, and bring to regulatory closure disposal sites. Massport leads the performance of a variety of response actions, including remediation at sites where Massport is the responsible party, where there are multiple responsible parties, and where no responsible party has been identified. Tracking of MCP activity is reported annually by Massport and can be found in the *Logan Airport 2014 EDR*.

As noted in the ENF, Massport is currently the Responsible Party conducting response actions at the former Robie Air Park property located approximately 250 feet north of the Project Area at 161 Prescott Street. Three disposal sites have been reported at the property:

- Release tracking number (RTN) 3-10027 was issued to the former Robie Air Park property in 1993 following the discovery of a fuel oil release during the removal of three underground storage tanks. Passive recovery of separate-phase petroleum at the property is ongoing and the disposal site is in MCP Phase V Remedy Operation Status with the most recent status report submitted in March 2015. Regulatory closure in the form of a Permanent Solution has not been achieved for RTN 3-10027.
- In 2004, polycyclic aromatic hydrocarbons and metals were found in soil samples collected at the former Robie Air Park property, constituting a reportable release that was assigned RTN 3-23493. A Class A-3 Response Action Outcome Statement was filed in January 2010, indicating that a Condition of No Significant Risk and regulatory closure was achieved that relies on the implementation of an Activity and Use Limitation. The Activity and Use Limitation restricts use of a portion of the property for residential, day care, or agricultural purposes.



- RTN 3-31490 was assigned to the property in 2013 to facilitate the installation of a new sewer connection at the property under a Utility Release Abatement Measure. The Utility Release Abatement Measure was completed that same year.

Although the former Robie Air Park property is the location of three disposal sites, the releases appear to be controlled and limited in extent to the property, which is not located within the Project Area.

Massport is also the Responsible Party for RTN 3-1287, which is characterized by petroleum releases from a former fuel distribution system located throughout Terminals B, C, and E that was reported to MassDEP in 1987. The releases were divided into ten areas of separate-phase petroleum and Massport has assumed responsibility for seven of these areas. Regulatory closure was achieved when a Partial Class A-2 Response and Outcome Statement was submitted for Areas 1, 2, and 6 in 2004, which indicates that residual contamination remains. Area 1, which abuts the Project Area to the south, is closest in proximity to the Project Area. Although regulatory closure has been obtained for Area 1, there is potential for residual petroleum contamination within the Project Area due to the close proximity of the release.

Numerous other releases have been documented within the greater Logan Airport area for which Massport is not considered the Responsible Party. The remaining active and closed disposal sites located within or abutting the Project Area include:

- RTN 3-777 was assigned to a release of separate-phase petroleum from a former tank farm southeast of American Airlines Hangar 16 in 1992. Regulatory closure was achieved when a Class A-3 Response Action Outcome Statement was submitted to MassDEP in 2003, which indicates an Activity and Use Limitation is present on the property, which is also a portion of the Project Area. The Activity and Use Limitation restricts use of a portion of the property for residential, day care, or agricultural purposes. In addition, proper soil management procedures must be followed for work that disturbs the concrete/paved surface within the Activity and Use Limitation area.
- A second release at Hangar 16 (within the Project Area) was reported to MassDEP in 2014 and assigned RTN 3-32351. Subsurface investigations to facilitate building demolition found polychlorinated biphenyls, petroleum constituents, and chlorinated VOCs beneath the building's concrete floor likely related to former vehicle maintenance and polychlorinated biphenyls-impacted caulking. A Permanent Solution Statement with Conditions was submitted in January 2016. A condition of the Permanent Solution is that no buildings shall be constructed at the Site without additional assessment of potential impacts to indoor air from Site soil and groundwater. A second condition is that best management practices be implemented for potential future non-commercial gardening at the Site in accordance with MassDEP Policy WSC# 14-910.
- RTN 3-16009 was assigned to a release of petroleum that occurred in 1998 as discovered during the decommissioning of a former gasoline filling station as part of the Central Artery/Tunnel construction. Approximately 1,200 tons of impacted soils were removed from the disposal site. An Immediate Response Action Completion Statement was submitted to MassDEP in 1999. The regulatory status of the disposal site is identified as "Response Action Outcome Not Required" per a MassDEP Memorandum of Understanding. Based on the files available online, it is not known whether a Permanent Solution was achieved for the disposal site, which is located just southwest of the former Hangar 16 building and within the Project Area.
- In 1990, RTN 3-2616 was also assigned to a release of petroleum constituents from the former gasoline filling station located southwest of Hangar 16. A Class A-2 Response Action Outcome Statement was filed



in 2007, which indicates that regulatory closure was achieved and residual contamination remains. It should also be noted that a modified risk assessment developed for the Central Artery/Tunnel project was used to evaluate risk at the Site. Furthermore, an Activity and Use Limitation was not required due to the presence of the disposal site within a roadway.

4.3.9 Coastal Resources

Logan Airport is located primarily on filled land within Boston Harbor, within the heavily urbanized Boston Harbor Watershed and is entirely located within the designated Coastal Zone of Massachusetts. FAA *Order 1050.1F* identifies several factors to consider for a proposed action: the potential to be inconsistent with the state coastal zone management plan, the potential impact on a coastal barrier resource system unit, the potential impact to coral reef ecosystems, the level of risk to human safety or property, or the potential for adverse impacts to the coastal environment that cannot be mitigated. The entire Project Area is currently on fully developed land, which includes paved areas of the airfield and terminal that are already in use for aviation purposes.

4.3.10 Land Use

The Project Area is within the existing Airport footprint on fully developed, paved, impervious land at Logan Airport's North Cargo Area and Southwest Service Area. Facilities within the Project Area include the Delta Air Lines and jetBlue Airways aircraft hangars, remain overnight aircraft parking spaces, apron areas and a building serving UPS, several aircraft maintenance support buildings leased to ground handling companies, and equipment and ground support equipment storage areas (**Figure 4-2**). The surrounding land uses include public parks and East Boston neighborhoods.

4.3.11 Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

FAA *Order 1050.1F* requires that a project consider the impacts of the alternatives on "the following broad indicators: economic activity, employment, income, population, housing, public services, and social conditions." Logan Airport is located in the East Boston neighborhood, in Boston Massachusetts. The following section describes the existing socioeconomic conditions, environmental justice considerations, and children's health and safety conditions.

4.3.11.1 Socioeconomic Factors

This assessment of socioeconomic conditions in the vicinity of the Project Area considers factors such as population, employment, housing, and public services. Socioeconomic factors provide a context for evaluating whether the Proposed Action's natural or physical environmental effects are interrelated with any economic or social effects. To understand the existing social and economic condition of the surrounding community, Massport assessed social and economic indicators of East Boston. Logan Airport is a primary economic engine for the New England region, the state, and the Boston metropolitan area. It supports nearly 95,000 direct and indirect jobs,⁴² while generating approximately \$13.3 billion per year in total economic activity. International passengers contribute a substantially higher share to the local and regional economy than domestic passengers

⁴² Massachusetts Aeronautics Commission. 2013. *Massachusetts Statewide Airport Economic Impact Study*. http://www.massdot.state.ma.us/portals/7/docs/mass_exec_summary_cml.pdf.



do. Approximately 1.4 million overseas visitors spent more than \$1 billion in 2014, or \$763, on average, per visit.⁴³ New international service in the last three years alone has contributed more than \$1.4 billion per year to the local economy and \$44 million in new incremental tax revenue through income and sales.⁴⁴

4.3.11.2 Environmental Justice

Environmental justice is the concept of fair treatment and involvement of all communities; the evaluation of “Environmental Justice” communities is to analyze whether a single community would be disproportionately affected by negative environmental consequences.⁴⁵ Indicators such as racial minorities, low-income, and language isolation typically define Environmental Justice populations.

The MassGIS Environmental Justice Populations data layer is derived from the 2010 U.S. Census and serves as an initial screening tool for identifying potential Environmental Justice populations. According to the data layer, several census block groups within East Boston fall within Environmental Justice criteria (**Figure 4-12**). Communities directly abutting Logan Airport qualify for Environmental Justice consideration as minority populations, low-income populations, and English isolation populations.⁴⁶

East Boston is home to approximately 44,000 residents.⁴⁷ According to the most recently available census information, approximately 61% of East Boston residents identify as White only, and approximately 23% identify as mixed White and Black (or African). Fifty-seven percent identify as Hispanic or Latino (of any race) in East Boston. East Boston is generally considered a minority community made up of primarily Hispanic or Latino residents.

4.3.11.3 Children’s Health and Safety Risks

The 15,500 households in East Boston support a median household income of approximately \$50,000 annually,⁴⁸ compared to the \$54,500 median household income of the 251,212 households in the larger City of Boston.⁴⁹ Of the 9,000 families in East Boston, approximately 16% were below the poverty level based on income during the 12 months prior to the survey. Similarly, 17% of the City of Boston’s 119,718 families were below the poverty level based on the same metric. East Boston is generally aligned economically with the City of Boston.

43 Greater Boston Convention and Visitors Bureau. 2016. *GBCVB, Massport Celebrate Record Number of International Visitors in 2014*. <http://www.bostonusa.com/partner/press/press-releases/view/GBCVB-Massport-Celebrate-Record-Number-of-International-Visitors-in-2014-1113/>.

44 InterVISTAS. 2015. *Economic Impact of Recent International Routes*. Unpublished Memorandum Prepared for Massport.

45 FAA. 2015. *Order 1050.1F: Environmental Impacts: Policies And Procedures*.

46 OLIVER: MassGIS’s Online Mapping Tool. http://maps.massgis.state.ma.us/map_ol/oliver.php. Accessed January 31, 2016.

47 U.S. Census Bureau, American Community Survey 5-year estimate (2010-2014) for zip code 02128 (East Boston). Table DP05

48 U.S. Census Bureau, American Community Survey 5-year estimate (2010-2014) for zip code 02128 (East Boston). Table DP03

49 U.S. Census Bureau, American Community Survey 5-year estimate (2010-2014) for the City of Boston, MA. Table DP03



Source: ArcGIS Online Bing Aerial 2016; MassGIS; US Census 2010

FIGURE 4-12 Environmental Justice Communities

Terminal E Modernization Project

Minority	Minority and English Isolation	Project Area	
Minority and Income	Minority, Income and English Isolation	Select Roadways	



4.3.12 Department of Transportation Act, Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966⁵⁰ protects publicly owned parks, recreation areas, wildlife or waterfowl refuges, or historic properties or archaeological sites on or eligible for the National Register of Historic Places. In accordance with FAA *Order 1050.1F* and the procedural requirements for compliance with Section 4(f),⁵¹ the FAA is the ultimate decision maker for Section 4(f) determinations. Under Section 4(f), a “use” is designated as either permanent, temporary, or constructive. A constructive use occurs when impacts from a project, such as noise, are so great that the activities, features, and attributes of the adjacent Section 4(f) property are substantially impaired.

There are no Section 4(f) properties in the Project Area or within the boundaries of the Airport. There are two Section 4(f) properties in the vicinity of the Airport: East Boston Memorial Stadium Park and Bremen Street Park (see **Figure 4-13**). The 17.7-acre East Boston Memorial Stadium Park is located adjacent to and north of the Southwest Service Area and includes former Massport land that was provided to the City of Boston in 2003 and was used to expand the park. The facilities include a baseball field, softball field, little league field, football/lacrosse/rugby field, play equipment/tot-lot, cricket, a passive area, and a running track. Pedestrian and vehicular access is at the southwest corner of the park, by a paved area. The park facilities are operated and maintained by the Boston Parks and Recreation Department.

Bremen Street Park is an 18-acre park located off-Airport between Bremen Street and Interstate 90/Route 1A. The park is operated and managed by Massport and is open to the public. The park is equipped with a shared use path, fountain, playground, community garden, and a new community dog park was recently added.

⁵⁰ 49 U.S.C. § 303

⁵¹ DOT Order 5610.1C

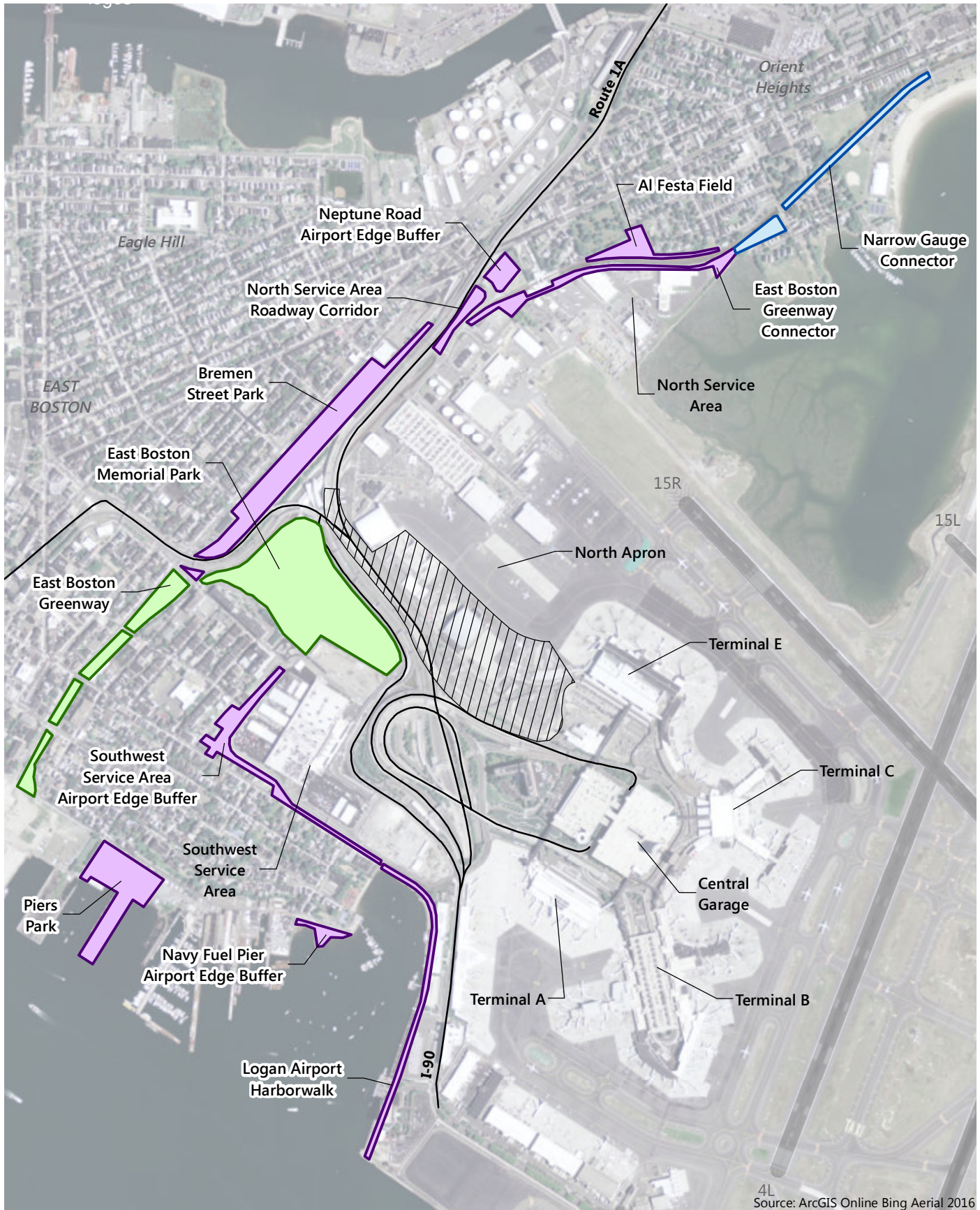


FIGURE 4-13 Section 4(f) Resources

Terminal E Modernization Project

- Massport Operated
- City of Boston Operated
- Future (Massport)
- Project Area
- Select Roadways





4.3.13 Visual Effects (Including Light Emissions)

The Project Area is in full aviation use, including existing facilities such as aircraft hangars and other Airport support buildings. The facilities in the Project Area are actively operated; outdoor flood lighting, indoor hangar and office lighting, and equipment lighting are used to enable the facilities to operate safely. Aircraft and other ground support equipment operating in the North Cargo Area use vehicle lights to operate safely during poor weather conditions and at night.

Residential areas in East Boston are in the vicinity of the Project Area; they are largely shielded from light emissions by the elevated Interstate 90, Route 1A ramps, and the MBTA Blue Line Airport Station, and are buffered by other at-grade roadways. The East Boston Memorial Park and the Bremen Street Park are shielded by the same structures and contain additional vegetative screening.

The existing character of the Project Area is aviation/industrial in nature; the site and surrounding land is fully used for Airport and Airport support facilities. The surrounding on-Airport facilities within the Project Area do not hold special aesthetic value.



5

Environmental Consequences

5.1 Introduction

According to the Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR 1500.2(f)), project proponents shall, to the fullest extent possible:

“Use all practicable means consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment.”¹

In accordance with the NEPA regulations, this chapter of the Environmental Assessment (EA) documents the potential impacts of the Terminal E Modernization Project (Project or Proposed Action) on each applicable environmental resource category, as specified in Federal Aviation Administration (FAA) *Order 1050.1F*² and *Order 5050.4B*.³ It also provides an analysis of whether an impact is significant, in accordance with FAA guidance on impact thresholds for significant adverse effects provided in FAA *Order 1050.1F*. Section 5.4.6, *Significance Thresholds* discusses the impact thresholds identified in FAA *Order 1050.1F*.

This document also serves as a Draft Environmental Impact Report (DEIR) in accordance with the Massachusetts Environmental Policy Act (MEPA) and the Secretary of Energy and Environmental Affairs (EEA) Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF) issued December 16, 2015. As stated by the Secretary, “Based on a review of the ENF, consultation with State Agencies and review of comment letters, I am requiring that Massport submit an EIR consisting of the EA and limited additional information identified in the Scope. The DEIR will consist of a project specific review of the Terminal E Modernization Project within the context of Airport-wide operations and impacts as a whole.”⁴ This DEIR focuses on the narrow list of topics, as required by the Secretary.

This DEIR discusses cumulative impacts of the Proposed Action. The Secretary notes, however, that this document “is not intended to address broad concerns associated with Airport operations and growth,” rather,

1 Council on Environmental Quality, Regulations for Implementing the National Environmental Policy Act (40 CFR 1500), http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm.

2 FAA. 2015. Order 1050.1F: Environmental Impacts: Policies And Procedures.

3 FAA. 2006. Order 5050.4B: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions.

4 MEPA. 2015. Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for Terminal E Modernization. December 16, 2015.



“the venue for addressing cumulative environmental impacts is through the Environmental Status Planning Reports (ESPRs) and Environmental Data Reports (EDRs).”⁵ Section 5.4.5, *Cumulative Impacts* provides more information on the EDRs/ESPRs.

Based on FAA Order 1050.1F and Order 5050.4B as well as the specific MEPA ENF Certificate Requirements, the categories evaluated in this chapter include:

- Section 5.5.1, *Noise and Noise-Compatible Land Use*;
- Section 5.5.2, *Surface Transportation*;
- Section 5.5.3, *Air Quality*;
- Section 5.5.4, *Natural Resources and Energy Supply*;
- Section 5.5.5, *Climate/GHG Emissions*;
- Section 5.5.6, *Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater)*;
- Section 5.5.7, *Hazardous Materials, Solid Waste, and Pollution Prevention*;
- Section 5.5.8, *Coastal Resources*;
- Section 5.5.9, *Land Use*;
- Section 5.5.10, *Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks*;
- Section 5.5.11, *Department of Transportation Act, Section 4(f)*; and
- Section 5.5.12, *Visual Effects (including Light Emissions)*.

To address the needs of current and future international air travelers, the Massachusetts Port Authority (Massport) proposes to modernize international Terminal E to accommodate existing and forecasted demand for international air service at Boston-Logan International Airport (Logan Airport). The proposed Terminal E Modernization Project would: construct three new aircraft contact gates originally approved by FAA and MEPA in 1995 (but never constructed); construct four additional gates, passenger holdrooms, concourse circulation, concessions, passenger processing, and expanded bag screening and make-up facilities; modify airside apron areas and taxilanes; reconfigure adjacent landside roadways, parking, and curbs; and provide a weather-protected direct pedestrian connection between Terminal E and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station.

5.2 Key Findings

Implementation of the Terminal E Modernization Project has the potential to improve environmental conditions compared to the No-Action Alternative. The extended concourse area would serve as an effective noise barrier, screening the community and neighborhood recreation areas from ground noise. Improved efficiency on the North Apron would improve air quality through the reduced need for aircraft taxi and idling, reduced use of aircraft auxiliary power units, and fewer busing operations shuttling passengers from remote hardstand locations to the terminal.

⁵ MEPA. 2015. Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for Terminal E Modernization. December 16, 2015.



Pedestrian access on the Airport would be enhanced with a pedestrian connection between the MBTA Airport Blue Line Station and Terminal E. Recirculation of traffic at Terminal E would be reduced with the reconfiguration of the curbside at Terminal E frontage, reducing overall vehicle miles traveled.

Table 5-1 summarizes the impacts, positive and negative, of the Terminal E Modernization Project on the applicable NEPA/MEPA environmental resource categories, as Chapter 4, *Affected Environment* identifies.

Table 5-1 National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) Environmental Resources Evaluated in this EA/DEIR

Environmental Resource ¹	Impacts
Noise and Noise-Compatible Land Use (NEPA)	By configuring the extended terminal sections to serve as a noise barrier to the community, the Terminal E Modernization Project <u>would significantly reduce noise levels from ground operations</u> as compared to the future No-Action Alternative. Any predicted noise level increases are below the levels that are perceptible to humans and in areas already eligible for sound insulation.
Surface Transportation ² (MEPA)	The same number of passengers would be accommodated with or without the proposed Terminal E Modernization Project. However, the Terminal E Modernization Project <u>would reduce overall on-Airport vehicle miles traveled</u> as compared to the future No-Action Alternative due to reduction in recirculation of traffic at the terminal curb. The Project would not result in any reduction in level of service at any Airport roadways. There is sufficient capacity on the MBTA Blue Line to support the projected increase in passenger loads.
Air Quality (NEPA/MEPA)	The Terminal E Modernization Project <u>would reduce criteria pollutant emissions</u> when measured against the No-Action Alternative through reduced usage of aircraft engines, auxiliary power units, and ground support equipment. The Terminal E Modernization Project would be in conformance with the General Conformity Rule, established under the Clean Air Act, as related emissions would be below <i>de minimis</i> thresholds.
Natural Resources and Energy Supply (NEPA)	The Terminal E Modernization Project would not have a significant adverse impact on natural resources or energy supplies because there is sufficient capacity available to support the operation of the new building systems.
Climate/GHG Emissions (NEPA/MEPA)	The Terminal E Modernization Project <u>would reduce greenhouse gas (GHG) emissions</u> by decreasing the number of instances when aircraft use auxiliary power units as well as ground support equipment and airside ground access vehicles.
Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, Groundwater, and Wild and Scenic Rivers) (NEPA)	No direct or indirect adverse water quality impacts are anticipated from the Terminal E Modernization Project. The Project Area is located on previously developed land in Airport use. The areas proposed for Terminal E modernization are already paved, and the Project would not result in increased impervious surfaces or pollutant-generating activities on the apron or ramp. Although the aggregate amount of stormwater would remain unchanged from the existing condition, the Project would result in a greater percentage of stormwater runoff from rooftops, which is generally cleaner than apron runoff. Deicing activities at Terminal E would be more controlled with the Project, as more of the activity would take place at gates, rather than hardstands.
Hazardous Materials, Solid Waste, and Pollution Prevention (NEPA)	The Terminal E Modernization Project would not have a significant adverse impact related to hazardous materials or solid waste. All on-site contamination encountered would be assessed and if necessary, remediated prior to and during construction activities as per the Massachusetts Contingency Plan.



Table 5-1 National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA) Environmental Resources Evaluated in this EA/DEIR (Continued)

Environmental Resource¹	Impacts
Coastal Resources (NEPA)	The Terminal E Modernization Project site is within paved areas of the airfield and terminal that are already in use for aviation purposes, and would not change the manner of use or quality of land in the coastal zone.
Land Use (NEPA)	The Terminal E Modernization Project would not result in an adverse impact to land use, as it would not change existing land uses on- or off-Airport. Massport will conduct all proposed work within the existing Airport footprint on land that is currently paved and in aviation use.
Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks (NEPA)	The Terminal E Modernization Project would occur entirely within the Airport boundary, and would have no adverse environmental impacts accordingly. The Project would not cause a disproportionately adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as Environmental Justice communities. The Project would not change any land uses, and would include measures to reduce air emissions and community noise impacts.
Department of Transportation Act, Section 4(f) (NEPA)	The Proposed Action would not result in a direct or constructive use of a Section 4(f) property. The Project is located entirely within the Airport boundary, and no construction activities would take place outside the Airport property.
Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	The Terminal E Modernization Project would not adversely impact the visual character of the Project Area or surrounding areas. The Project would be consistent with the existing architectural character of the existing Terminal E building, and would not be highly visible from nearby residential communities due to the positioning of adjacent roadways and other existing on-Airport buildings. Massport would shield lighting associated with the Proposed Action, where feasible, to limit light pollution.

¹ Environmental resource categories as specified in FAA Orders 1050.1F and 5050.4B as well as MEPA regulations under 301 CMR 11.00.

5.3 Description of the Alternatives

The following sections provide descriptions of the Terminal E Modernization Project as well as the No-Action/No-Build Alternative. Chapter 3, *Alternatives and Proposed Action* provides additional detail on these alternatives. As described in Chapter 2, *Purpose and Need*, Logan Airport has seen unprecedented growth in the international market even without the addition of any new gates at Terminal E. Massport anticipates that this trend will continue into the future. Forecasts indicate that seven new international gates are needed in 2030 or sooner to allow aircraft to park at a gate and minimize apron idling time and associated environmental impacts. The No-Action and Proposed Action anticipate that this international passenger demand will continue with or without the Terminal E Modernization Project.

5.3.1 No-Action/No-Build Alternative

The No-Action/No-Build Alternative (henceforth referred to as the “No-Action Alternative”) assumes that Massport would not make any physical improvements to accommodate the future projected volumes of international operations and passengers. Although Massport may make operational changes as part of the No-Action Alternative, such as management or operational shifts, these changes alone would not adequately address the increased congestion and operational inefficiency at Terminal E.



As described in Chapter 2, *Purpose and Need*, by 2030 Massport anticipates that Terminal E needs an additional seven gates to meet peak-period demand. Without these gates, the amount of aircraft “hardstands” at remote areas of the North Apron would increase. These hardstands generate noise and would disrupt aircraft movements due to buses shuttling passengers between the hardstands and the terminal. The hardstands would also cause otherwise avoidable air emissions from ground support equipment and vehicles serving aircraft and the use of auxiliary power units to run on-board services such as power and heating/cooling.

The No-Action Alternative would also result in increased delays within the terminal from passenger processing facilities that would be inadequate to meet demand during the peak period. Passenger processing delays would increase the recirculation time of vehicles arriving for passenger pick-up.

Included in the No-Action Alternative is the ongoing Terminal E Renovation and Enhancements Project, which is scheduled to be complete prior to construction beginning on the Terminal E Modernization Project. The Terminal E Renovation and Enhancements Project includes some airfield modifications and interior, exterior, and airfield improvements at Terminal E. The project aims to improve Airport flexibility and accommodate Group VI aircraft by converting three existing gates at Terminal E to be capable of accommodating A380 or other large aircraft.

5.3.2 Terminal E Modernization Project (Proposed Action)

The Terminal E Modernization Project would create a new concourse by extending the existing Terminal E concourse, terminal core, and terminal frontages. The new concourse areas would connect to the Gate 12 area of the existing terminal by way of both a secure and non-secure side connection. Extension of the terminal core would include seven new gates, additional ticketing, airline offices, bag screening, and bag make-up facilities. The extension would also house separate satellite Customs and Border Protection facilities, including Immigration Control and Bag Claim/Customs facilities.

Massport would extend the existing terminal frontages to serve the new terminal areas at both departures and arrivals levels. The new facility, which would potentially range in height from 45 feet to nearly 70 feet, would be four levels with airline clubs at the fourth level and a ticketing and departures concourse at the third level. The sterile corridor connecting gates to the expanded Customs and Border Protection queue would be at the second level, along with most mechanical, electrical, and plumbing facilities. Remaining Customs and Border Protection facilities would be at the first (grade) level, as would baggage screening and make-up rooms. The terminal building would serve as a physical noise barrier between airside operations and nearby residences and parks.

To enhance its sustainability performance, Massport will build the Project to Leadership in Energy and Environmental Design (LEED®) and Massachusetts LEED Plus standards to achieve LEED Silver or higher certification.

The Proposed Action would allow for a partial dual taxiway on the North Apron to allow more efficient operational flexibility and aircraft operations. Reduced frequency of remote hardstands would lessen airside conflicts between aircraft/ground support equipment and buses shuttling passengers from the apron to the terminal building. To accommodate the extended concourse, the gas station adjacent to Terminal E would be relocated to a developed site in the Southwest Service Area. United Parcel Service (UPS) operations would be relocated to an existing building in the Airport’s South Cargo Area.



Landside reconfiguration of roadways and curbs to accommodate the Terminal E Modernization Project would involve a roadway split at the end of the Departures Level frontage to provide access to the Airport exit, or to the Airport Service Road for on-Airport destinations. A weave section at the end of the terminal Arrivals Level roadway would allow the inner roadway (high-occupancy vehicles) and the outer roadway (private vehicles) to proceed either to the Airport exits or to the Service Road for on-Airport destinations.

Based on interim passenger and operational demand conditions and available budget, Massport is proposing that the Project be constructed in two phases. Phase 1 would consist of four new gates (including three approved in 1996 but never constructed), and Phase 2 would include three additional gates for a total of seven new gates and additional passenger processing functions. Phase 2 would also include the pedestrian connection to the MBTA Blue Line Airport Station.

5.4 Methodology

This section defines the methods used to evaluate direct, indirect, secondary, and cumulative impacts of the No-Action Alternative and the proposed Terminal E Modernization Project.

5.4.1 Analysis Year

In accordance with NEPA and MEPA, this document compares the Terminal E Modernization Project to the No-Action Alternative in the same analysis year. As Chapter 3, *Alternatives and Proposed Action* identifies, 2030 is the year for which the Terminal E Modernization Project is scheduled to be complete, and therefore, represents the future build year. Forecasts conducted by Massport indicate that passenger volumes for international travel will reach 8 million annual passengers by the year 2030 or sooner.⁶ Forecasting passenger volumes is based on the best available data and modeling. The design of the Terminal E Modernization Project, as described in more detail in Chapter 3, *Alternatives and Proposed Action*, is based primarily on accommodating the anticipated international passenger volumes associated with an 8 million annual passenger volume being processed through Terminal E, which Logan Airport may realize somewhat sooner or somewhat later than the anticipated Project completion date of 2030.

5.4.2 Direct Impacts

NEPA defines direct impacts as impacts caused by a project that occur at the same place and at the same time. Project proponents must consider such impacts when determining an action's significance. Based on FAA *Order 1050.1F*, examples of direct impacts could include:

- Noise generated by a project or its alternatives that adversely impacts noise-sensitive land uses; and
- The conversion of vegetated land to pavement (impervious surfaces).

5.4.3 Indirect Impacts

Indirect impacts are those impacts that a project could cause later in time or at another location, but are still reasonably foreseeable. Indirect impacts from a project could occur elsewhere on the project site or in nearby

⁶ InterVISTAS. 2016. Updating BOS Long Range Forecast Summary.



neighborhoods. Indirect impacts may include induced impacts related to changes in noise and/or vibration levels, land use changes, population density or growth rate, and impacts to air and water quality as well as the quality of other natural systems. Induced development of growth would also be considered.

5.4.4 Temporary Construction-Related Impacts

Temporary impacts occur on a short-term basis during construction. Factors that influence the existence and extent of temporary construction impacts include construction methods, duration, materials, and equipment.

For the Terminal E Modernization Project, the assessment of temporary construction impacts includes a qualitative assessment that considers other on-Airport construction activities that are scheduled to coincide with the Terminal E Modernization Project's construction duration. Each environmental resource section of this chapter identifies and assesses key projects and associated impacts during construction of the Project.

5.4.5 Cumulative Impacts

FAA's NEPA regulations describe cumulative impacts as the incremental impact of a proposed project when added to the past, present, and reasonably foreseeable future projects undertaken by any agency or person.

Logan Airport is a dynamic facility that must respond to the changing needs of the airline industry, the regulatory environment, and the traveling public, as well as regional socioeconomic trends. The sections that follow describe the major past, present, and reasonably foreseeable projects within the Project Area.

For nearly three decades, Massport has had in place an industry-leading state environmental review process that assesses Logan Airport's cumulative environmental impacts. This public process was developed to provide a context against which individual Airport projects meeting state and federal environmental review thresholds can be evaluated on a project-specific basis. Massport prepares an EDR annually, and a more comprehensive ESPR approximately every five years. The EDRs/ESPRs are reviewed under the MEPA process, which includes the opportunity for public comment. The ESPR provides a long-range analysis of projected operations and passengers, while the EDR reviews environmental conditions for the reporting year compared with the previous year.

The *2011 ESPR*, filed in early 2013, reported on calendar year 2011 and updated passenger activity levels and aircraft operations forecasts through 2030. The *2014 EDR*, filed in September 2015, provides a comprehensive, cumulative analysis of the effects of all Logan Airport activities based on actual passenger activity and aircraft operation levels in 2014 and presents environmental management plans for addressing areas of environmental concern. All planned airport projects, including the Terminal E Modernization Project are described in Chapter 3, *Airport Planning*, of the *2014 EDR*.⁷

5.4.5.1 Recently Completed Projects

Past and recently completed projects at Logan Airport are described in detail in the *2014 EDR*, and include:

- Southwest Service Area Redevelopment Program (new rental car facility);
- Logan Airport Runway Safety Area Improvements Project at Runway Ends 33L and 22R;

⁷ Massport. 2015. *Boston-Logan International Airport 2014 EDR*. <https://www.massport.com/environment/environmental-reporting/>. Accessed April 28, 2016.



- Terminal B Renovations and Improvements;
- Terminal B Garage Improvements;
- Runway 15L-33R Runway Safety Area Improvement Project;
- Parking Garage Consolidation;
- Terminal C to E Connection; and
- Hangar Building Number 16 (former American Airlines hangar) Demolition Project.

5.4.5.2 Projects Underway

Other than the Terminal E Renovation and Enhancements Project and routine maintenance activity, Massport does not currently have any projects under construction at Logan Airport. This EA/DEIR includes the Terminal E Renovation and Enhancements Project as part of the No-Action Alternative, since this project is expected to be complete before Massport begins construction of the Terminal E Modernization Project. Massport does not anticipate the construction schedules of these two unrelated projects to overlap.

The Terminal E Renovation and Enhancements Project, currently under construction, includes interior, exterior, and airfield improvements at Terminal E. The project aims to improve airport flexibility and accommodate Group VI aircraft by modifying three existing gates at Terminal E to accommodate A380 and other large aircraft. These gates are E10 (7B), E11 (8A), and E12 (8B). All other gates at Terminal E will also be renumbered as part of this project. On the airfield, limited runway shoulder and taxiway fillet modifications will be made to accommodate Group VI ground operations. The project will provide new passenger holdrooms, an extended public concourse, vertical circulation cores, three new passenger clubs, and new restrooms. It will also include a renovated security checkpoint to improve passenger throughput and an enhanced concessions program.

5.4.5.3 Reasonably Foreseeable Logan Airport Projects

While the impacts of the below projects are not yet determined, the cumulative impacts of the Terminal E Modernization Project will be addressed in those projects' environmental reviews.



Table 5-2 Reasonably Foreseeable Logan Airport Projects

Project	Construction Period
<p>Gate 37/38 Connector</p> <p>Post security connector between the Terminal B food court and the B37-38 holdrooms. This project includes heating, ventilation, and air conditioning distribution replacement within the footprint of the new connector.</p>	Construction to start in 2016 and carry through to 2018
<p>Runway 4R Light Pier Replacement</p> <p>Replacement of the existing approach light pier at Runway 4R and rehabilitation of Runway 4R-22L</p>	Construction anticipated 2017 following project design and permitting
<p>Central Heating and Cooling Plant Upgrade</p> <p>Massport intends to replace existing equipment elements at the Central Heating and Cooling Plant as they reach the end of their useful life. Such replacements will likely improve Airport-wide energy efficiency and reduce air quality pollutants from stationary sources.</p>	2017 and beyond
<p>Trip Reduction/New Parking Garage Project</p> <p>Consistent with its Long-term Parking Management Plan to reduce vehicle miles traveled, Massport is considering building up to 5,000 new on-Airport commercial parking spaces at Logan Airport in one or more locations.</p>	Project and potential construction schedule dependent on a regulatory amendment to the Logan Airport Parking Freeze

Source: Massport

Airfield Improvements

Massport maintains and rehabilitates existing runways, taxiways, taxilanes, and ramp areas at Logan Airport on an as-needed basis to comply with FAA design standards. Airfield maintenance ensures that the airfield operates efficiently and reliably. Massport is continuously working with the FAA to improve safety through compliance with current FAA *Advisory Circular 150/5300-13A* on the airfield, including improvements such as runway, taxiway, and taxilane design enhancements. Taxiway and runway projects are phased to minimize disruption to aeronautical operations and to avoid cumulative impacts from other projects advancing at the same time.

Runway 4R Light Pier Replacement

Massport has selected a consultant to plan, design, and permit the rehabilitation of Runway 4R-22L and the replacement of the approach light pier at Runway 4R. This will likely be a replacement of the existing wooden light pier with concrete pier/pilings similar to the design used for the Runway 33L approach light pier in 2012. Massport plans to design and obtain permits for this project in 2016, and start construction in 2017.

Trip Reduction/New Parking Garage Project

This Project is in the conceptual planning phase and is predicated on the approval of a draft regulatory change by the Massachusetts Department of Environmental Protection (MassDEP) to amend the Logan Airport Parking Freeze Regulation, 310 CMR 7.30, to allow for additional commercially parked vehicles at Logan Airport. This project is being considered as part of a Massport’s comprehensive strategy to reduce environmentally undesirable drop-off/pick-up trips.



Consistent with its Long-term Parking Management Plan, first published in the 2012/2013 EDR, Massport strives to reduce vehicle miles traveled. Subject to an amendment of the Logan Airport Parking Freeze, Massport proposes to build up to 5,000 new on-Airport commercial parking spaces at Logan Airport. The new spaces would be accommodated in one or more locations on Airport, and may not be built all at one time. The new parking spaces would reduce regional air passenger-related vehicle miles traveled and associated vehicle air emissions. Massport is currently evaluating six potential on-Airport locations for the garage(s). Each of these six sites is currently operating as surface parking lots. Once the parking freeze is amended, Massport will identify a preferred siting location(s) as the process moves through the conceptual planning, design, and subsequent public environmental review process.

The potential additional parking at Logan Airport would be subject to MEPA review under 301 CMR 11.03 (6)(a), through preparation of an Environmental Impact Report for “Construction of 1,000 or more new parking spaces at a single location.”⁸ Massport will coordinate with the FAA on the level of any review required under NEPA. The level of NEPA review will depend on the chosen alternative and location.

5.4.6 Significance Thresholds

For each applicable environmental resource category (such as air quality, land use, or natural resources and energy supply), the Terminal E Modernization Project was compared to the No-Action Alternative in the same year (2030) to determine the impact (beneficial or adverse), if any. This section provides an analysis of whether that impact is significant, based on FAA guidance for significant adverse effects provided in FAA *Order 1050.1F*.

Table 5-3 summarizes significance thresholds for environmental resource categories relevant to the Proposed Action.

**Table 5-3 Impact Thresholds for Significant Adverse Effects¹
National Environmental Policy Act (NEPA), FAA *Order 1050.1F*
Massachusetts Environmental Policy Act (MEPA) Environmental Resources**

EA/DEIR Section Number	Environmental Resource Category	NEPA/MEPA Applicability	FAA <i>Order 1050.1F</i> Threshold for Significant Adverse Impacts
5.5.1	Noise and Noise-Compatible Land Use	NEPA	When an action would increase noise by DNL ¹ 1.5 decibels (dB) or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the No-Action Alternative for the same timeframe.
5.5.2	Surface Transportation	MEPA	Not Applicable
5.5.3	Air Quality	NEPA/MEPA	When an action exceeds one or more of the National Ambient Air Quality Standards (NAAQS), as established by the U.S. Environmental Protection Agency under the Clean Air Act, for any of the times analyzed, or to increase the frequency or severity of any such existing violations.
5.5.4	Natural Resources and Energy Supply	NEPA	No established significance threshold.

⁸ MEPA. (2016). 11.03 *Review Thresholds*.

**Table 5-3 Impact Thresholds for Significant Adverse Effects¹
National Environmental Policy Act (NEPA), FAA Order 1050.1F
Massachusetts Environmental Policy Act (MEPA) Environmental Resources (Continued)**

EA/DEIR Section Number	Environmental Resource Category	NEPA/MEPA Applicability	FAA Order 1050.1F Threshold for Significant Adverse Impacts
5.5.5	Climate/GHG Emissions	NEPA/MEPA	No established significance threshold.
5.5.6	Water Resources	NEPA	See specific resources below.
	Surface Waters		When an action exceeds water quality standards established by federal, state, local, and tribal regulatory agencies. When an action contaminates public drinking water supply such that public health may be adversely impacted.
	Groundwater		When an action exceeds groundwater quality standards established by federal, state, local, and tribal regulatory agencies. When an action contaminates an aquifer used for public water supply such that public health may be adversely impacted.
5.5.7	Hazardous Materials, Solid Waste, and Pollution Prevention	NEPA	No established significance threshold.
5.5.8	Coastal Resources	NEPA	No established significance threshold.
5.5.9	Land Use	NEPA	No established significance threshold.
5.5.10	Socioeconomics, Environmental Justice, and Children's Health and Safety Risks	NEPA	No established significance threshold.
5.5.11	Department of Transportation Act Section 4(f)	NEPA	When an action involves more than a minimal use of a Section 4(f) resource or constitutes a "constrictive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.
5.5.12	Visual Effects (including Light Emissions)	NEPA	No established significance threshold.

Source: FAA. 2015. *Order 1050.1F: Environmental Impacts: Policies and Procedures*.

Note: Excludes environmental resource categories that the No-Action Alternative and Proposed Action would not affect and/or those resources are not present in the Project Area.

¹ DNL refers to the Day-Night Average Sound Level, the metric required in FAA Order 1050.1F for the consideration of aircraft noise exposure in NEPA documents. The DNL represents the average annual aircraft noise exposure reflecting a cumulative A-weighted sound level over a 24-hour period, including a sound level weighting for aircraft events between 10:00:00 PM and 6:59:59 AM.



5.5 Project Environmental Consequences

Project-related impacts are described below for each impact category, as listed in **Table 5-3**. The analysis of impacts includes consideration of direct, indirect, construction (temporary), and cumulative impacts. This section also identifies measures that would avoid and/or minimize impacts, where applicable.

5.5.1 Noise and Noise-Compatible Land Use

Under FAA *Order 1050.1F* and *Order 5050.4B*, a significant adverse effect occurs when the proposed action, compared to the No-Action Alternative in the same timeframe, would cause noise sensitive areas located at or above the Day-Night Average Sound Level⁹ (DNL) 65 decibels (dB) to experience a noise increase of at least DNL 1.5 dB. Noise is evaluated in terms of any changes in noise sources associated with the future Terminal E Modernization Project when compared to the No-Action Alternative.

The following provides a brief summary of the results of this analysis:

- The extension of Terminal E is designed to act as a noise barrier to the community. The terminal building would wrap around the North Apron to the existing Delta Hangar with the MBTA connector extending a solid barrier behind and around the hangar parallel to the MBTA station.
- This design would reduce noise levels at Jeffries Point, East Boston Memorial Park, and most residential areas in East Boston west of the ramp areas between Route 1A and Putnam Street. Specifically, the Proposed Action would:
 - Reduce noise from aircraft ground operations near Terminal E by 5 to 18 dB and from single event¹⁰ maximum noise levels by 2 to 15 dB¹¹ in the Jefferies Point area.
 - Reduce noise from aircraft ground operations near Terminal E by 3 to 15 dB and from single event maximum noise levels by 1 to 11 dB in the Bremen Street area south of Putnam Street to Route 1A.
- The Proposed Action would result in no significant noise increase within the DNL 65 dB.
- At sites greater than DNL 60 dB, 100% of the modeled sites show no perceptible increase in DNL noise levels.
- One-hundred percent of the modeled sites show no perceptible increase in single event maximum levels.
- Single event maximum levels at some modeled sites are reduced by up to 17 dB.

The annual Logan Airport EDRs/ESPRs report on the overall noise levels caused by aircraft on the runways and in flight at Logan Airport. The Terminal E Modernization Project would not result in any changes to the number and type of aircraft operations that will occur at Logan Airport in the future, thus overall Airport noise levels would not change because of the Project. However, the Project would result in changes in how Terminal E and

⁹ DNL refers to the Day-Night Average Sound Level, the metric required in FAA *Order 1050.1F* for the consideration of aircraft noise exposure in NEPA documents. The DNL represents the average annual aircraft noise exposure reflecting a cumulative A-weighted sound level over a 24-hour period, including a sound level weighting for aircraft events between 10:00:00 PM and 6:59:59 AM.

¹⁰ A single event refers to the noise level from a single portion of an operation (for example, a Boeing 747 at Gate 12 with its Auxiliary Power Unit on for 10 minutes will generate a consistent noise level for the duration the unit is operating)

¹¹ In general, only changes equal to or greater than 3 dB or more are noticeable outside a laboratory environment.



the North Apron operate and thus would affect the ground noise levels from those activities. Annual changes to Airport-wide noise levels will continue to be reported in the annual EDR/ESPR reporting.

The noise analysis in this section evaluates the DNL changes at discrete receptors in the nearest residential land uses to the Terminal E Modernization Project as a result of aircraft ground movements at Terminal E and the North Cargo Area. The majority of the future aircraft fleet operating at Logan Airport and evaluated in this analysis are certificated Stage 4.¹² Stage 4-certified aircraft have a cumulative 10 dB less than the Stage 3 aircraft operating today. Overall, the Stage 4 aircraft generate lower noise levels on a per flight basis than many of the aircraft assessed in the existing conditions (Affected Environment) analysis. Primarily Group IV and Group V aircraft will use the new gates built as part of the Terminal E Modernization Project. Group VI aircraft, such as the Airbus A380 and the Boeing 747-800, will be accommodated at the three gates currently being renovated as part of the Terminal E Renovation and Enhancements Project. The Airbus A380 and the Boeing 747-800, which are forecasted to be in use at the existing Terminal E, are included in this analysis.

Table 5-4 presents the activities and evaluations included in the noise analysis for this project.

Table 5-4 Noise Assessment: Activities Considered and Evaluated

Activity Considered	Change from No-Action Alternative	Reason
Aircraft Fleet Mix and Schedule	None	No Evaluation needed, as the No-Action Alternative and Terminal E Modernization Project are the same. Annual changes evaluated through EDR/ESPR process.
Aircraft Runway Use	None	No Evaluation needed, as the No-Action Alternative and Terminal E Modernization Project are the same. Annual changes evaluated through EDR/ESPR process.
Aircraft ground movements at Terminal E and in the North Apron	Aircraft will use the Terminal E gates and hardstands in the North Apron differently between the No-Action Alternative and the Terminal E Modernization Project	Evaluation to determine if Project-related changes are greater than 1.5 dB at any noise sensitive receptor with a DNL > 65 dB ¹

Source: HMMH

¹ FAA Order 1050.1F: Environmental Impacts: Policies And Procedures, Appendix B, Section B-1.5

The No-Action Alternative and Terminal E Modernization Project include the same passenger aircraft flight schedule and aircraft types with the only difference being how the aircraft use the available gates and hardstands in the North Cargo Area. Details of the schedule development can be found in Appendix D, *Noise Technical Appendix*. In both the No-Action and the Proposed Action, aircraft would arrive to a Terminal E gate under power, shut down engines, and connect to power at the gate. Upon departure, the aircraft would be pushed back from the gate by a tug and then would taxi out under their own power. The differences between the ramp and gate operations for the No-Action Alternative and the Proposed Action are described in detail below.

¹² Currently over 97% of the aircraft fleet are Stage 4 aircraft. Massport, 2015. *Logan Airport 2014 Environmental Data Report*. p 6-11.



As documented in the 2011 *ESPR*,¹³ and shown in **Figure 5-1**, the 2030 DNL 65 dB contour for aircraft arrival and departure flight operations at Logan Airport encompasses the Terminal E Modernization Project Area. The predicted 2030 operations include many of the newer Stage 4 aircraft in the fleet and an increase in international flights. The 2030 DNL contours include an anticipated increase at night of 28 operations per day. The runway use was developed from simulation modeling. The simulation modeling included the higher level of operations, larger aircraft, and the different flight schedule associated with future conditions, with or without the Terminal E Modernization Project. The 2030 DNL contours from the 2011 *ESPR* provide a good reference as to the annual exposure from arrival and departure operations during the future conditions of this EA/DEIR. The nearest residential areas lie to the northwest across from Route 1A along Bremen Street and southeast of the Project Area behind East Boston Memorial Park and are located within the DNL 60 dB contour.

This section presents a discussion of anticipated future noise conditions, including the characteristics of the future noise sources under the No-Action Alternative and Proposed Action. Noise related to construction activities is discussed in Section 5.5.1.7, *Temporary Construction-Related Impacts - Noise*. The current noise environment in the Noise Study Area is described in Chapter 4, *Affected Environment*.

¹³ Massport. 2013. *Boston-Logan International Airport 2011 Environmental Status and Planning Report*. April 12, 2013. <https://www.massport.com/environment/environmental-reporting/>. Accessed April 28, 2016.

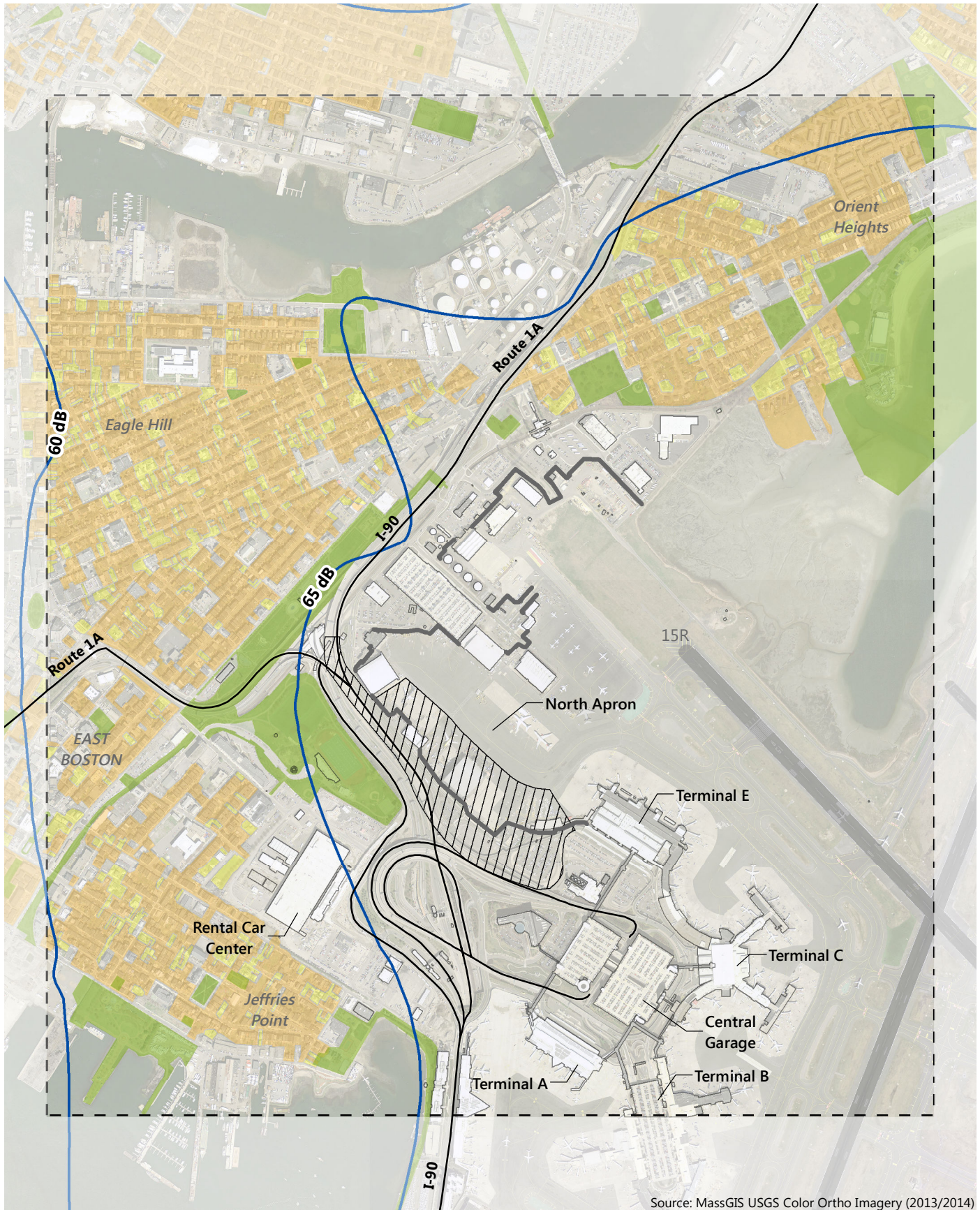


FIGURE 5-1 Project Area and 2030 DNL Contours

Terminal E Modernization Project

- | | | |
|-------------------|------------------------|---------------------------|
| Project Area | Existing Security Wall | Single Family Residential |
| Select Roadways | Noise Study Area | Multi-Family Residential |
| 2030 DNL Contours | Airport Buildings | Open Space |





5.5.1.1 Methodology

The noise analysis for this EA/DEIR was conducted in accordance with FAA *Order 1050.1F* and *Order 5050.4B*; and NEPA as specified in the CEQ *Regulations for Implementing the National Environmental Policy Act* (40 CFR 1500-1508). In addition to the NEPA-required analysis, other supplemental noise studies were conducted to provide additional information to the reviewers.

FAA *Order 1050.1F* specifies a number of requirements for the noise analyses, including which noise models are acceptable under various circumstances, what constitutes significant impact, and when supplemental noise analyses are needed. The Aviation Environmental Design Tool (AEDT) or the Department of Defense Noisemap model must be used to determine the significance of changes in exposure from flight operations; and the AEDT and/or Noisemap must be used to produce DNL 75 dB, DNL 70 dB, and DNL 65 dB contours and others as needed.

For some noise analyses, it may be necessary to evaluate only noise sources other than aircraft departures and arrivals in the noise analysis such as engine run-ups, aircraft taxiing, and construction noise. If engine run-ups or aircraft taxiing noise are analyzed as part of the study, an FAA-approved model must be used. If an alternative model or methodology is desired, prior FAA Office of Environment and Energy approval is needed (see Appendix D, *Noise Technical Appendix* for request and approval for model used for Terminal E Modernization). Analysis of other impacts, including construction noise, must also be conducted using accepted methodologies such as the Federal Highway Administration (FHWA) construction noise model.

Since the primary differences between the No-Action Alternative and the Terminal E Modernization Project are the usage of the gates at Terminal E and the North Cargo Area, and there are no proposed changes in the fleet mix or level of operations, no aircraft flight noise modeling was required for this analysis. However, a detailed ground noise model of the usage of Terminal E gates, the North Cargo Area, and construction noise was conducted to evaluate potential changes between the No-Action Alternative and the Terminal E Modernization Project.

There are two useful rules of thumb to remember when comparing noise levels: (1) most of us perceive a 10 dB increase in the noise level to be an approximate doubling of loudness; and (2) changes in noise level of less than about 3 dB are not readily detectable outside of a laboratory environment.

5.5.1.2 Regulatory Context

For an action occurring on or in the vicinity of a single airport, the Environmental Desk Reference directs the use of the recently released AEDT version 2b (AEDT 2b)¹⁴ for detailed noise modeling or another model, as approved by FAA. The model must be used to produce DNL 65 dB, DNL 70 dB, and DNL 75 dB contours and others as may be needed. Although AEDT 2b can model some types of noise for aircraft on the ground, its capabilities are rudimentary. In recognition of this, the FAA allows and approves the use of other noise models for use in airport ground noise studies. This study uses SoundPLAN for supplementary analysis to support what FAA requires under NEPA.¹⁵ Section 4.3.1.4, *Noise Modeling Methodology* describes SoundPLAN in detail.

¹⁴ AEDT (version 2b). 2016. Windows. FAA.

¹⁵ Soundplan. 2016. Windows. SoundPLAN GmbH.



FAA *Orders 1050.1F* and *5050.4B* determine a significant noise impact to be a DNL increase of 1.5 dB or more at a noise-sensitive location with a DNL of 65 dB or higher. FAA considers all land uses to be compatible with aircraft noise levels below DNL 65 dB.¹⁶

FAA *Order 1050.1F* and *Order 5050.4B* identify the threshold of “significant impact” based on the yearly DNL. If a location of incompatible land use is exposed to a project-related increase in noise level of DNL 1.5 dB or more, and that location is greater than or equal to DNL 65 dB for a proposed action, then the location is considered to be significantly impacted by noise and must be identified as such in environmental evaluations.¹⁷ The *2011 ESPR* indicates that annual DNL in 2030 do not result in a significant impact.¹⁸

In 1992, the Federal Interagency Committee on Noise recommended that in addition to significant impacts, less-than-significant noise level changes (defined as reportable) be identified for noise-sensitive locations exposed to project related increases. The Federal Interagency Committee on Noise recommended reporting any changes in DNL of 3 dB or more between DNL 60 and 65 dB, and increases of 5 dB or more between DNL 45 and 60 dB. The FAA’s subsequent Air Traffic guidance further emphasized the importance of these changes in DNL, so that they are also now included in FAA *Order 1050.1F*. These recommendations only apply to cases where the significance threshold (increase of 1.5 dB or more within the DNL 65 dB contour) is met or exceeded. Levels of significance for noise sensitive locations are summarized below.

Significant noise impact:

- DNL increase of 1.5 dB or more in areas of DNL 65 dB and higher.

Less than significant impact and reportable:

- DNL increase of 3 dB or more in areas between DNL 60 and 65 dB; and
- DNL increase of 5 dB or more in areas between DNL 45 and 60 dB.

Since there are no differences in aircraft or aircraft operations between the No-Action Alternative and the Terminal E Modernization Project other than how the aircraft use the Terminal E gates and move about the North Apron, there would not be an increase of DNL 1.5 dB in any noise sensitive areas greater than or equal to DNL 65 dB near the terminal.

5.5.1.3 No-Action Alternative and Proposed Action Aircraft Ground Operations

In the future condition, a variety of aircraft ground activity would occur at Terminal E and on the North Apron. Typically, when an aircraft arrives, it taxis to the terminal and shuts down its engines upon arrival at its assigned gate. At this point, the aircraft would then connect to gate power to allow the aircraft to be temperature controlled, and later serviced. Prior to departure, the aircraft would run its auxiliary power unit, start its engines, and be pushed back from the gate by a tug to proceed to taxi to the runway.

¹⁶ 14 CFR Part 150, *Appendix A to Part 150 Noise Exposure Maps, Sec. A150.101(d)*

¹⁷ FAA, 2015. *Order 1050.1F: Environmental Impacts: Policies And Procedures*, Appendix B, Section B-1.5

¹⁸ Massport, 2013. Logan Airport 2011 Environmental Status and Planning Report, p 6-54



No-Action Alternative Aircraft Ground Operations

In the No-Action Alternative, due to the availability of only the 12 existing gates, aircraft would arrive under power and taxi to a hardstand along the North Apron. The engines would be shut down and the aircraft would switch to the aircrafts' auxiliary power unit that would run while the plane is being serviced. Parking the aircraft on the North Apron requires passengers to be bused to the terminal. Under the No-Action Alternative, an estimated 17 flights per day would need to use buses to move passengers to and from the terminal. This would require additional aircraft taxiing and also delays the disembarkation of passengers, consumes additional fuel, and generates additional noise.

Between the times aircraft arrive and depart, aircraft may also be moved from a gate to a location on the North Apron or elsewhere in order to free the gate for use by another aircraft. This is typically achieved by towing the aircraft. The aircraft is disconnected from gate power requiring the aircraft's auxiliary power unit to operate while the aircraft is towed, again consuming additional fuel, and generating additional noise. The aircraft would be towed back to the terminal to an assigned gate prior to boarding passengers for departure.

Other activity on the North Apron includes hangar and cargo activity. Delta Air Lines, jetBlue Airways, and American Airlines have hangars on the North Apron, and auxiliary power units may need to run while maintenance activities are being performed on their aircraft. In the No-Action Alternative, UPS would continue to operate cargo aircraft on the North Apron. These cargo aircraft taxi under engine power to and from the North Apron and run auxiliary power units for a period while cargo is unloaded and loaded.

For the No-Action Alternative, the North Apron area would remain encompassed by a security wall that extends continuously from the western edge of existing Terminal E to the Delta Hangar and then from the Delta Hangar around to the Economy Garage. The wall extends beyond the North Apron area from the Economy Garage along the northeast side of the Airport wrapping around various maintenance areas and terminating at the shoreline. Due to its height, the wall provides limited shielding of noise levels, primarily benefitting nearby pedestrians and parking lot areas. The wall only provides minimal noise reduction from ground noise operations due to the height of the wall and the distance between the wall and the nearest residential and recreational land uses.

Proposed Action Aircraft Ground Operations

With the Terminal E Modernization Project, the extended terminal building would replace a portion of the security wall between the existing Terminal E and the Delta Hangar, and would add a direct weather-protected pedestrian connection to the MBTA Blue Line Airport Station along the south side of the North Cargo Area. The remaining security wall would remain. UPS operations would move to the South Cargo Area.

Table 5-5 provides a summary of the future operational levels and the differences in the use of the gates, hardstands, and busing between the No-Action Alternative and Proposed Action. With the Terminal E Modernization Project, only two operations would use a hardstand and require busing, whereas under the No-Action Alternative, 17 flights (arrival and departure) per day would need to use buses to move passengers to and from the terminal. The No-Action Alternative has eight additional operations than the Terminal E Modernization Project due to the UPS cargo operations remaining at its current location on the North Apron.



Table 5-5 Summary of Modeled Future Terminal E and North Cargo Area Representative Day Operations

Aircraft	No-Action Alternative				Proposed Action			
	Operations (Arrivals & Departures)	Uses Gate	Uses Hardstand	Requires Busing	Operations (Arrivals & Departures)	Uses Gate	Uses Hardstand	Requires Busing
7572F (UPS)	2	0	2	0	0	--	--	--
7630F (UPS)	2	0	2	0	0	--	--	--
A306F (UPS)	4	0	4	0	0	--	--	--
A-319	1	1	0	0	1	1	0	0
A-320	12	12	0	0	12	12	0	0
A-321	4	0	4	4	4	4	0	0
A-330-200	8	6	2	2	8	8	0	0
A-330-300	24	20	4	4	24	24	0	0
A-350-900	2	2	0	0	2	2	0	0
A-380-800	8	8	0	0	8	8	0	0
B-737-800	3	2	1	0	3	3	0	0
B-737-Max8	16	8	8	8	16	16	0	0
B-747-8	4	4	0	0	4	4	0	0
B-757-200WL	8	6	2	2	8	8	0	0
B-777-200LR	2	2	0	0	2	2	0	0
B-777-300ER	17	12	5	5	17	17	0	0
B-787-8	8	6	2	2	8	8	0	0
B-787-9	10	8	2	2	10	10	0	0
Q400	16	12	4	4	16	14	2	2
Grand Total	151	109	42	33	143	141	2	2

Source: HMMH

Note: Some aircraft remain overnight resulting in only one operation.



The following assumptions were used for both the No-Action Alternative and the Proposed Action. Aircraft in various locations, depending on the condition, have the following operational characteristics:

A speed of 10 knots was used for all aircraft whether taxiing under their own power or being towed.

- Aircraft accessing a Terminal E Gate
 - ❑ Taxi from arrival runway to the gate and shut down engines
 - ❑ Start auxiliary power unit 5 minutes prior to departure
 - ❑ Start engine, are pushed back, and taxi out to departure runway
- Aircraft parking at a hardstand
 - ❑ Taxi to parking position and shut down engines
 - ❑ Run auxiliary power unit for the length of time at the hardstand for a Turboprop aircraft
 - ❑ Run auxiliary power unit for 45 minutes after arrival to the hardstand for a Narrow Body aircraft
 - ❑ Run auxiliary power unit for 60 minutes after arrival to the hardstand for a Wide Body aircraft
 - ❑ Run auxiliary power unit for 75 minutes prior to departure from the hardstand for a Narrow Body aircraft
 - ❑ Run auxiliary power unit for 90 minutes prior to departure from the hardstand for a Wide Body aircraft
 - ❑ Taxi out from parking positions
- Aircraft re-positioned to a parking spot
 - ❑ Are towed to and from the gate with their auxiliary power units on
 - ❑ Run auxiliary power unit for 30 minutes after arrival to parking spot
 - ❑ Run auxiliary power unit for 30 minutes prior to departure from parking spot
- Aircraft using the North Cargo Area hangars
 - ❑ Are towed to and from the hangars with their auxiliary power units on
 - ❑ Run auxiliary power unit for 30 minutes after arrival to North Apron
 - ❑ Run auxiliary power unit for 30 minutes prior to departure from North Apron
- Only in the No-Action Alternative: Upon arrival each aircraft taxi time includes an average delay of 2.5 minutes to account for additional delay to account for time spent idling due to an insufficient number of gates.



5.5.1.4 No-Action Alternative Noise Modeling Inputs

Aircraft ground noise levels were computed for the No-Action Alternative operations at Terminal E and on the North Apron within the defined Noise Study Area. The Noise Study Area includes the nearest residential land use to Terminal E and the North Apron. **Figure 5-2** shows the Noise Study Area and nearby land uses.

Within the Noise Study Area for the No-Action Alternative, the following information was collected and refined:

- Terrain elevations;
- Building footprints and heights;
- Ground cover type (i.e., grass, pavement, water);
- Wall locations and heights; and
- Taxiway, ramp, and gate noise source positions.

Figure 5-3 shows these noise model inputs. Note that areas of pavement and water are both reflective, while grass attenuates (absorbs) sound. Areas of grass are shown in green. All other portions of the Noise Study Area were coded as hard (reflective) ground.

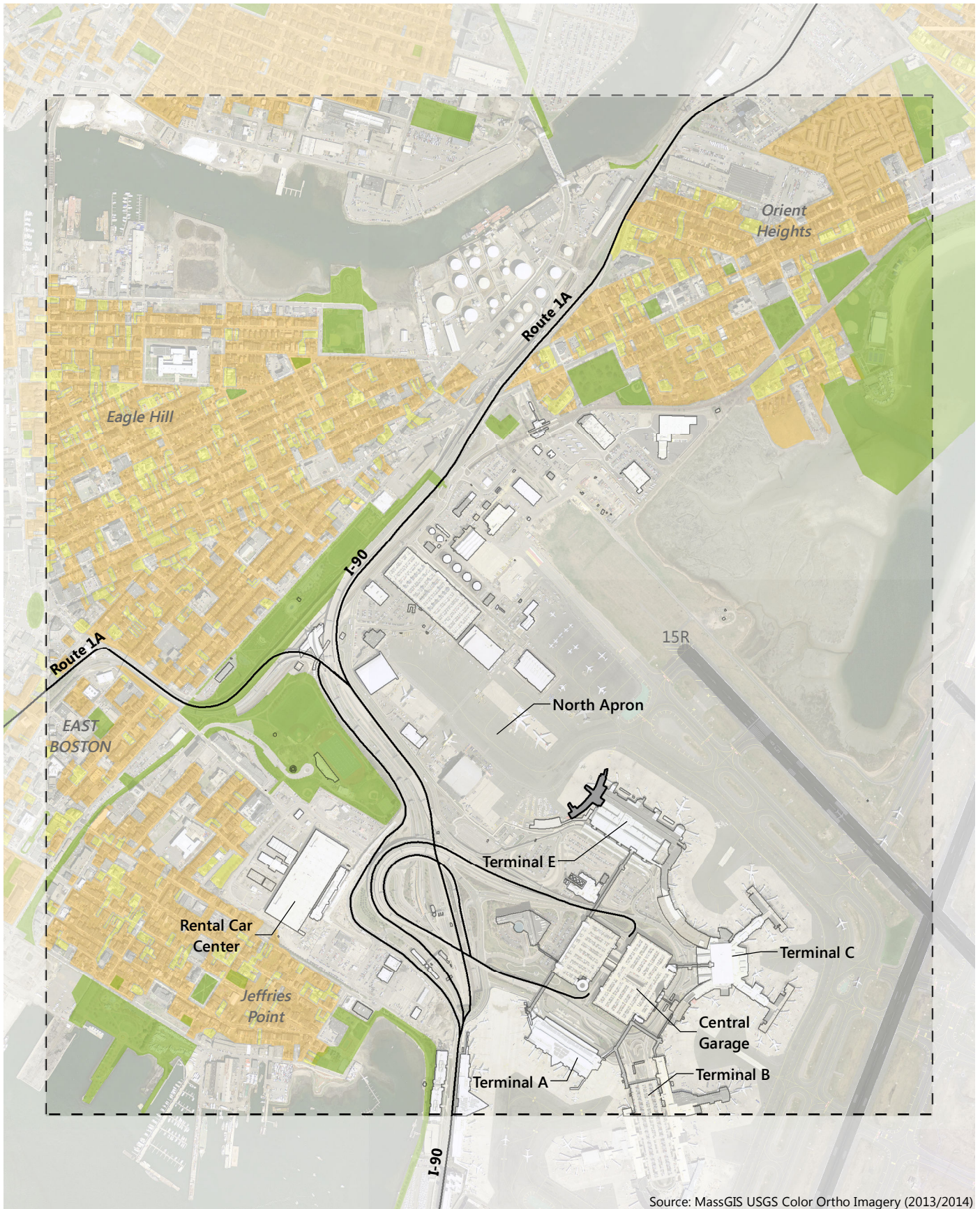


FIGURE 5-2 No-Action Alternative with Surrounding Land Use Terminal E Modernization Project

- Terminal E Renovation
- Airport Buildings
- Single Family Residential
- Select Roadways
- Noise Study Area
- Multi-Family Residential
- Open Space



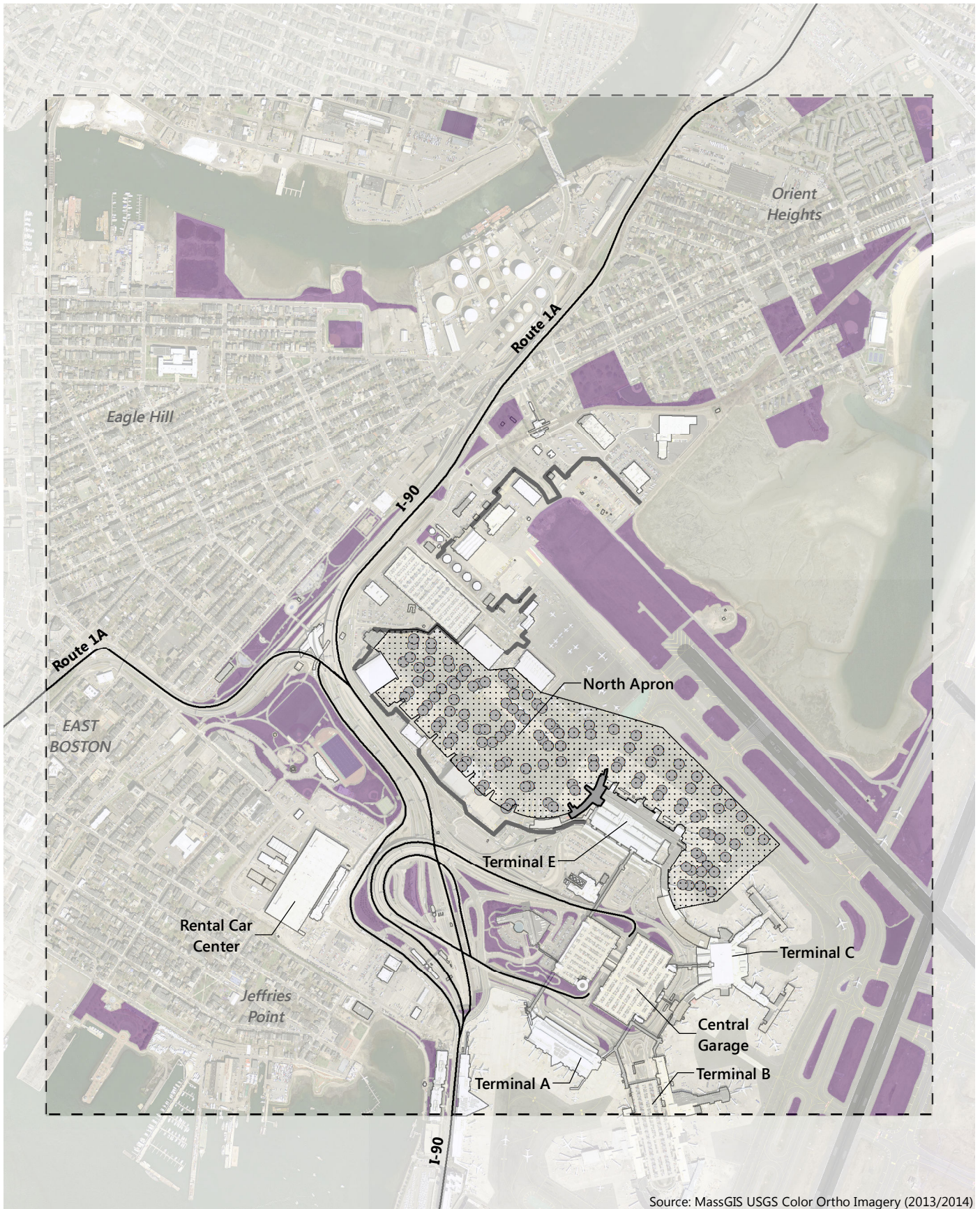


FIGURE 5-3 No-Action Alternative - Noise Model Inputs

Terminal E Modernization Project

- Noise Point Source Area
- Existing Ground Absorption Areas
- Airport Buildings
- Noise Study Area
- Existing Security Wall
- Terminal E Renovation
- Select Roadways





For the future No-Action Alternative aircraft ground operations, the summarized fleet mix provided in **Table 5-6** was used. The operations were assigned to modeling groups to be input into the noise model. **Tables 5-6** and **5-7** were used as inputs to the noise modeling. **Table 5-6** lists the number of operations for aircraft traveling to or from various aircraft parking areas. **Table 5-7** lists additional auxiliary power unit activity in minutes for parked aircraft.

**Table 5-6 No-Action Alternative Aircraft Ground Operations
(Number of Aircraft - Representative Day)**

Operation	Group	Terminal E Gates		North Apron		North Cargo Hangars	
		Day	Night	Day	Night	Day	Night
Taxi in	Jumbo	12	1	3	0	0	0
	Heavy	19	2	5	3	0	0
	Large	13	2	7	1	0	0
	Turbo	6	0	2	0	0	0
Taxi out	Jumbo	9	4	1	1	0	0
	Heavy	18	3	6	2	0	0
	Large	13	1	9	0	0	0
	Turbo	5	1	2	0	0	0
Tug in (APU on)	Jumbo	3	0	5	0	0	0
	Heavy	7	0	9	1	1	0
	Large	0	0	1	0	8	7
	Turbo	0	0	0	0	0	0
Tug out (APU on)	Jumbo	3	0	5	0	0	0
	Heavy	7	1	9	0	1	0
	Large	1	0	0	1	8	7
	Turbo	0	0	0	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy- Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop- Q400



Table 5-7 Future No-Action Alternative Auxiliary Power Unit (APU) Activity for Parked Aircraft (Minutes - Representative Day)

Operation	Group	Terminal E Gates		North Apron		North Cargo Hangars	
		Day	Night	Day	Night	Day	Night
Other APU Usage (minutes)	Jumbo	60	20	450	150	0	0
	Heavy	125	20	1,180	155	60	0
	Large	70	5	915	55	480	420
	Turbo	25	5	90	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy- Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop- Q400

Figure 5-4 provides the locations and number of aircraft parked at various positions at Terminal E and on the North Apron during the day of operations used to model existing noise conditions. Representative taxi routes and times, as well as auxiliary power unit noise data were used for each group listed in Table 5-6 and Table 5-7.

5.5.1.5 Proposed Action Noise Modeling Inputs

Aircraft ground noise levels were computed for the Proposed Action operations at Terminal E and on the North Apron within the defined Noise Study Area. The Noise Study Area includes the nearest residential land use to Terminal E and the North Apron. Figure 5-5 shows the Proposed Action within the Noise Study Area and with nearby land uses.

Within the Noise Study Area for the Proposed Action, the following information was modified from the No-Action Alternative:

- Building footprints and heights;
- Wall locations and heights; and
- Taxiway, ramp, and gate noise source positions.

Figure 5-6 shows these noise model inputs. Note that areas of pavement and water are both reflective, while grass attenuates (absorbs) sound. Areas of grass are shown in green. All other portions of the Noise Study Area were coded as hard (reflective) ground.

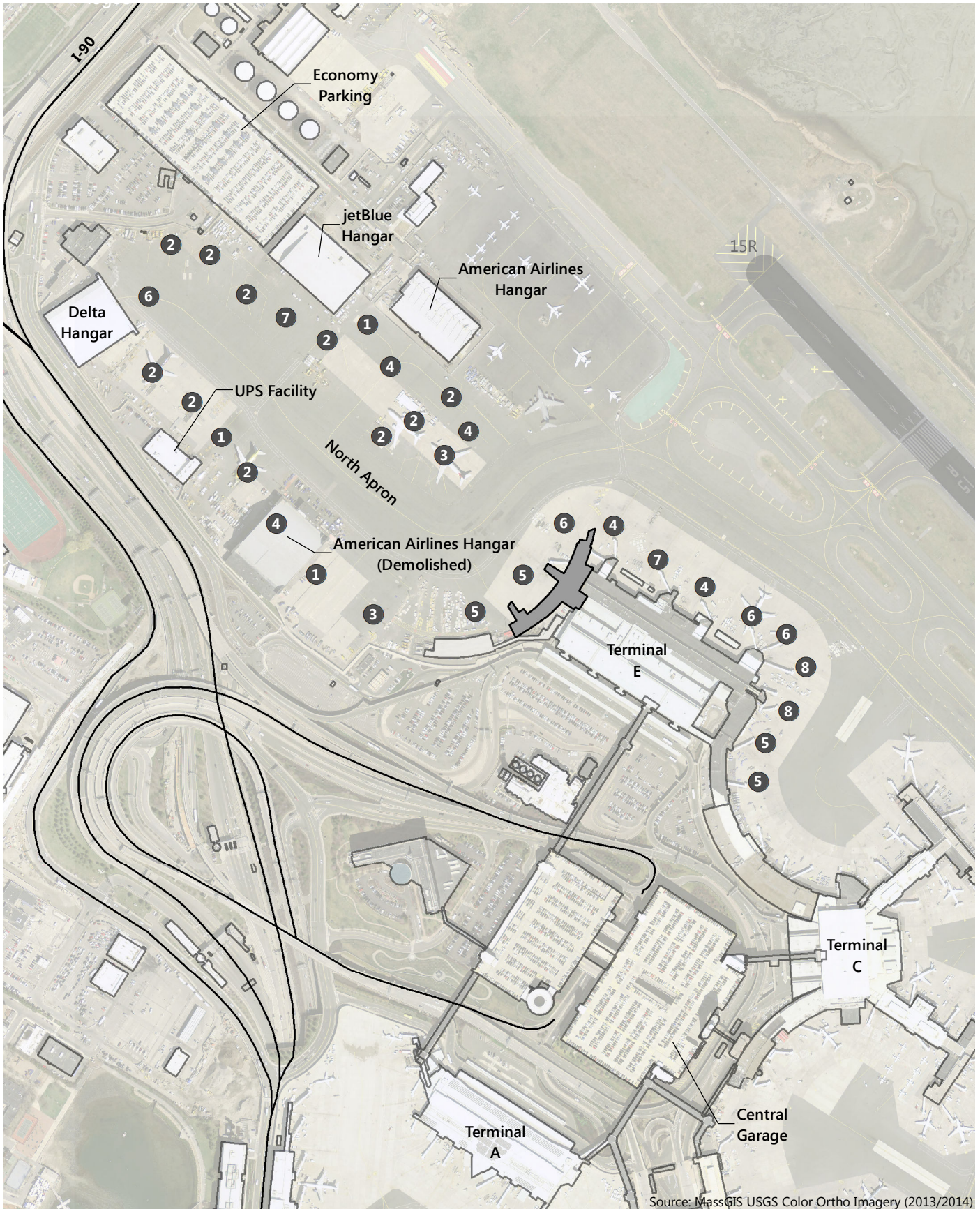


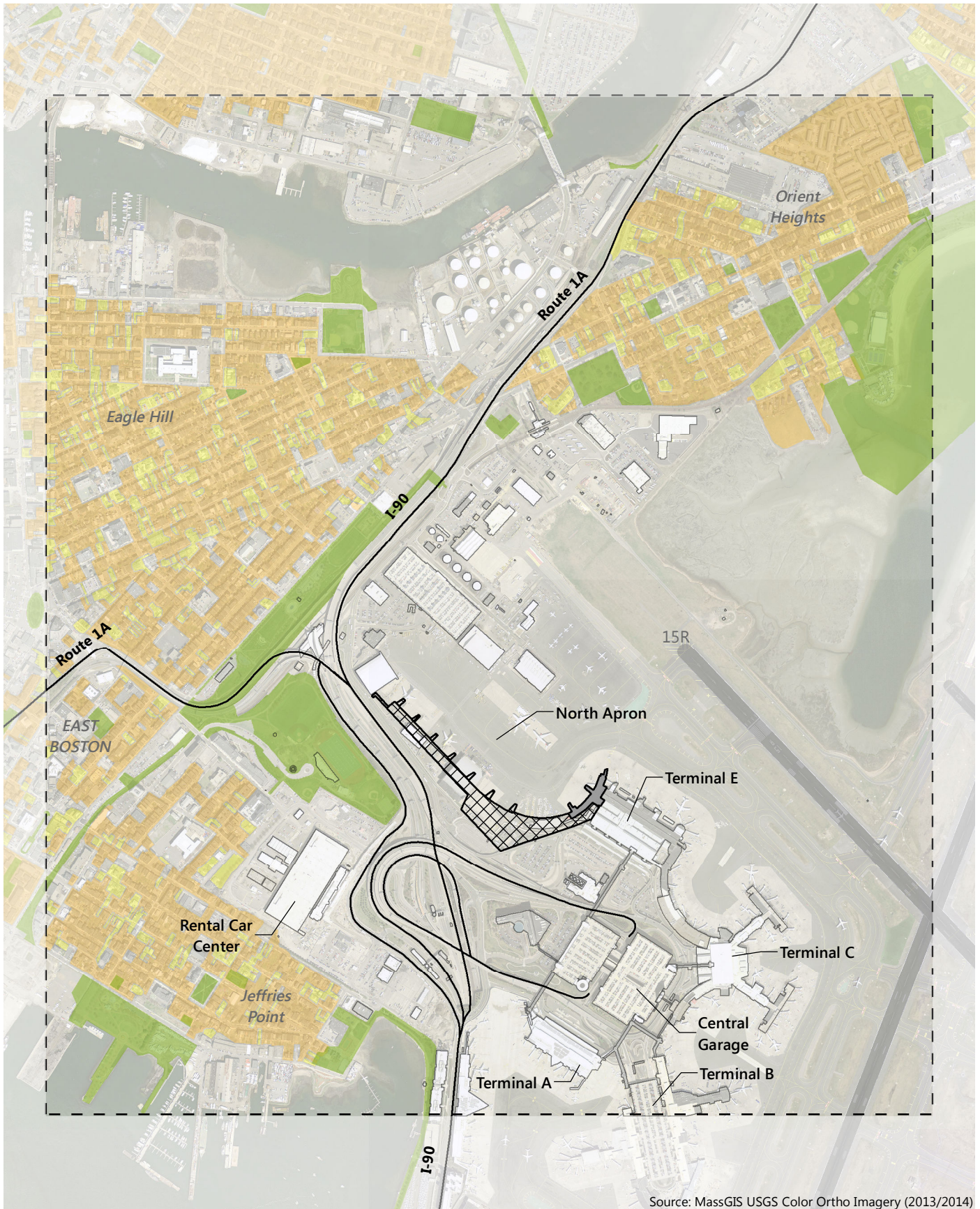
FIGURE 5-4 No-Action Alternative - Aircraft Parking Locations (Representative Day) **Terminal E Modernization Project**

Location and Number of Aircraft Parked — Select Roadways

Terminal E Renovation

Airport Buildings

0 137.5 275 550 Feet



Source: MassGIS USGS Color Ortho Imagery (2013/2014)

FIGURE 5-5 Proposed Action with Surrounding Land Use

Terminal E Modernization Project

- Terminal E Renovation
- Airport Buildings
- Single Family Residential
- Terminal E Modernization
- Noise Study Area
- Multi-Family Residential
- Select Roadways
- Open Space



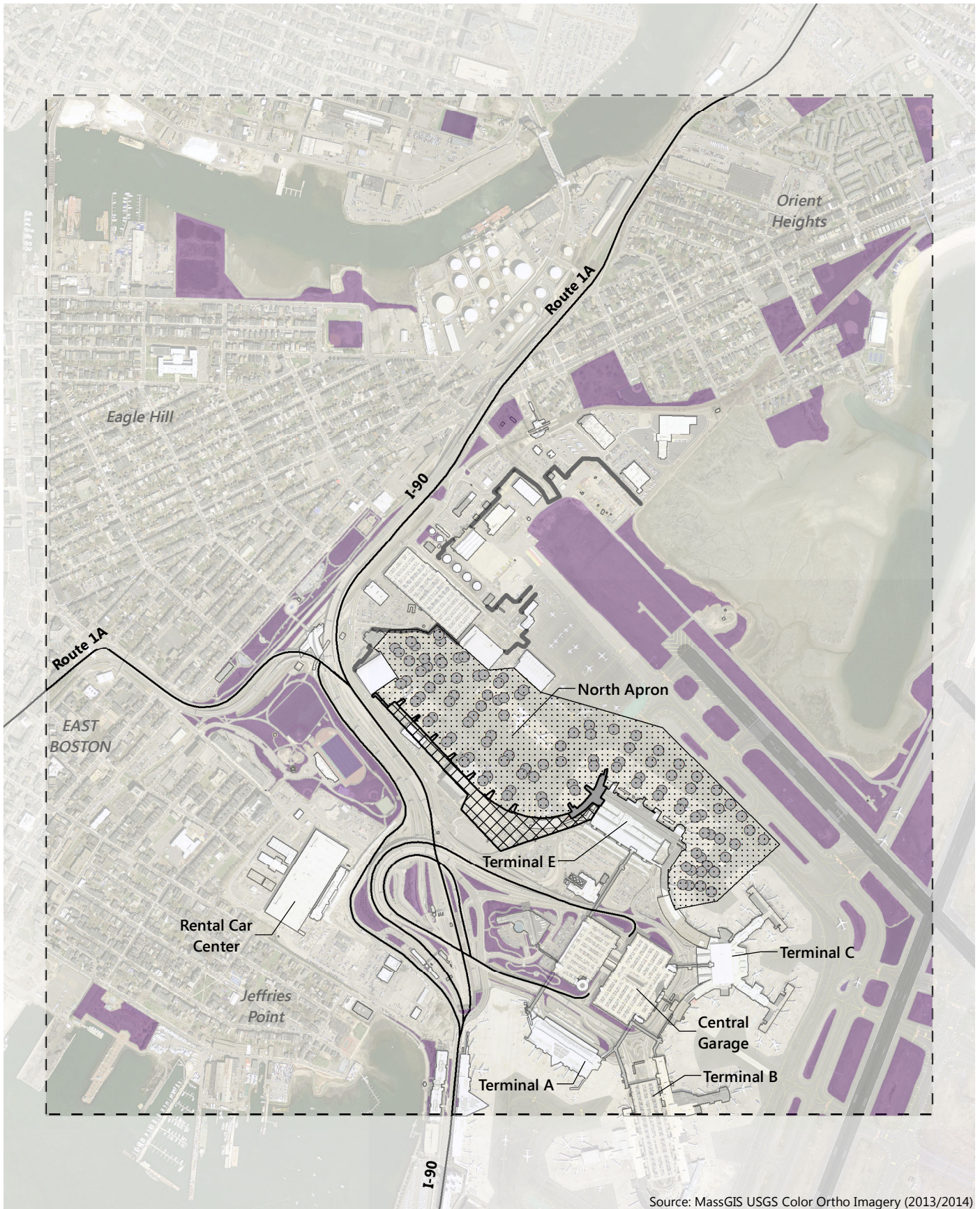


FIGURE 5-6 Proposed Action - Noise Modeling Inputs

Terminal E Modernization Project





For the noise modeling of the future Proposed Action, the aircraft ground operations schedule that **Table 5-5** provides was used. **Table 5-8** lists the number of operations for aircraft traveling to or from various aircraft parking areas. **Table 5-9** lists additional auxiliary power unit activity in minutes for parked aircraft.

Table 5-8 Future Proposed Action Aircraft Ground Operations (Number of Aircraft- Representative Day)¹

Operation	Group	Terminal E Gates		North Apron		North Cargo Hangars	
		Day	Night	Day	Night	Day	Night
Taxi in	Jumbo	15	1	0	0	0	0
	Heavy	24	2	0	0	0	0
	Large	20	2	0	0	0	0
	Turbo	7	0	1	0	0	0
Taxi out	Jumbo	10	5	0	0	0	0
	Heavy	23	3	0	0	0	0
	Large	20	2	0	0	0	0
	Turbo	6	1	1	0	0	0
Tug in (APU on)	Jumbo	4	0	4	0	0	0
	Heavy	7	0	7	1	1	0
	Large	0	0	1	0	8	7
	Turbo	0	0	0	0	0	0
Tug out (APU on)	Jumbo	4	0	4	0	0	0
	Heavy	7	1	7	0	1	0
	Large	1	0	0	1	8	7
	Turbo	0	0	0	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380

Heavy- Group IV type aircraft: Boeing 767-300, Airbus A330

Large – Group III, IV, type aircraft, Boeing 757, Airbus A320

Turbo – Turboprop- Q400

¹ Eight UPS aircraft movements not included from the No-Action Alternative due to facility relocation to the South Cargo Area



Table 5-9 Future Proposed Action Auxiliary Power Unit (APU) Activity for Parked Aircraft (Minutes - Representative Day)

Operation	Group	Terminal E Gates		North Apron		North Cargo Hangars	
		Day	Night	Day	Night	Day	Night
Other APU Usage (minutes)	Jumbo	70	25	240	0	0	0
	Heavy	150	20	470	10	60	0
	Large	105	10	35	25	480	420
	Turbo	30	5	0	0	0	0

Source: HMMH

Notes: Jumbo – Group V, VI type aircraft: Boeing 747, Airbus A380
 Heavy- Group IV type aircraft: Boeing 767-300, Airbus A330
 Large – Group III, IV, type aircraft, Boeing 757, Airbus A320
 Turbo – Turboprop- Q400

Figure 5-7 provides the locations and number of aircraft parked at various positions at Terminal E and on the North Apron during the day of operations used to model existing noise conditions.

5.5.1.6 Direct Impacts - Noise

Using SoundPLAN, computed noise levels were calculated for representative residential locations within the Noise Study Area for each sound source type and position. The activity levels described above were then used to determine the total noise exposure at each representative location. Figure 5-8 shows the noise modeling receiver locations for both the No-Action Alternative and Proposed Action. Locations were selected to represent both the closest residential locations as well as more distant residences. Many locations were within areas of densely arranged buildings. In order to represent the full range of sound levels within a particular area, modeled receivers were spaced so that some fell in the middle of blocks and others fell in intersections where buildings would offer less shielding from Airport and aircraft-related noise. Note that these receivers were used for the computer modeling of aircraft noise and were not part of any measurement program.

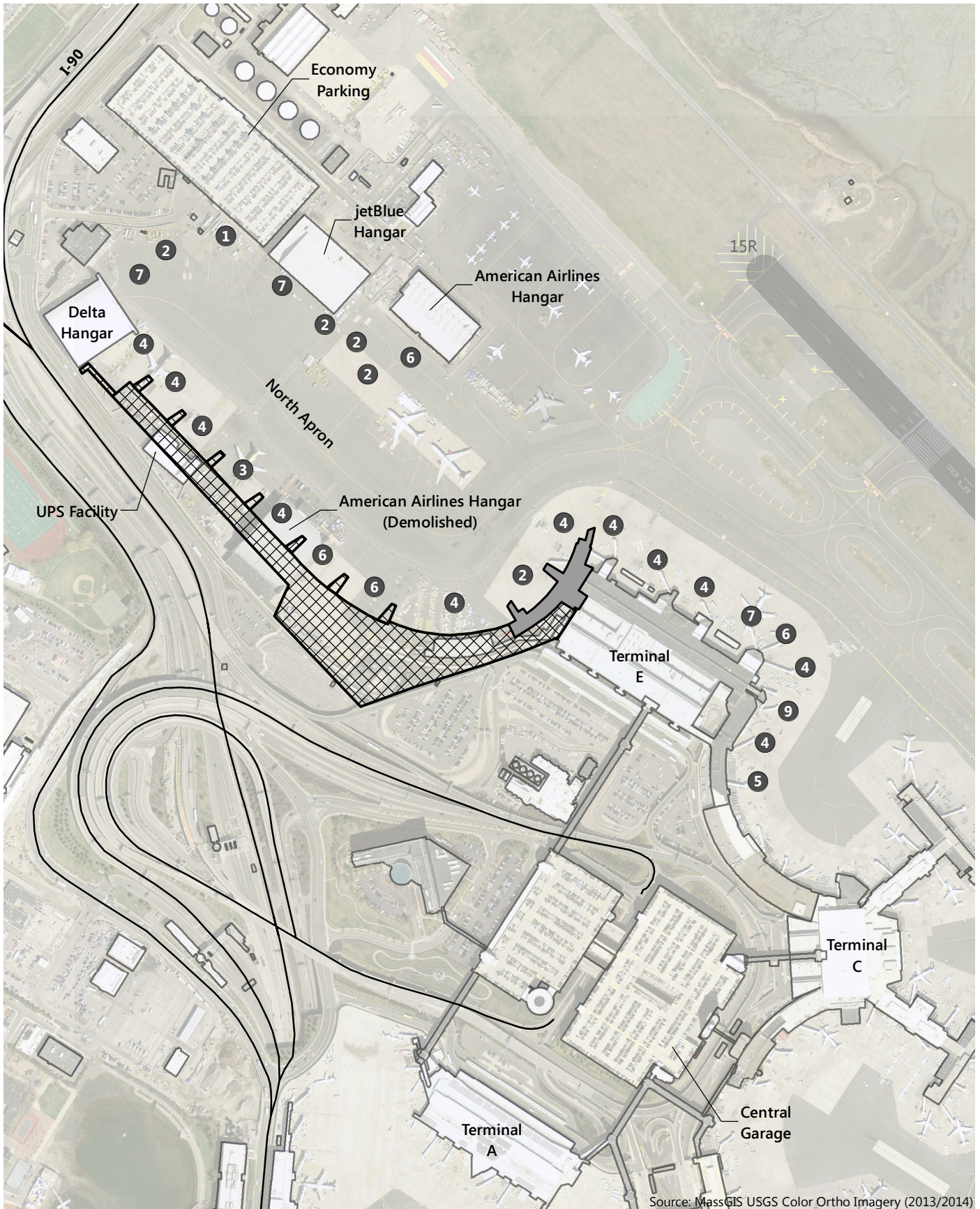
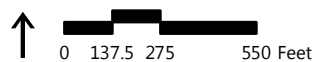


FIGURE 5-7 Proposed Action - Aircraft Parking Locations (Representative Day)

Terminal E Modernization Project

- # Location and Number of Aircraft Parked
- Select Roadways
- ▣ Terminal E Modernization
- ▣ Airport Buildings
- ▣ Terminal E Renovation



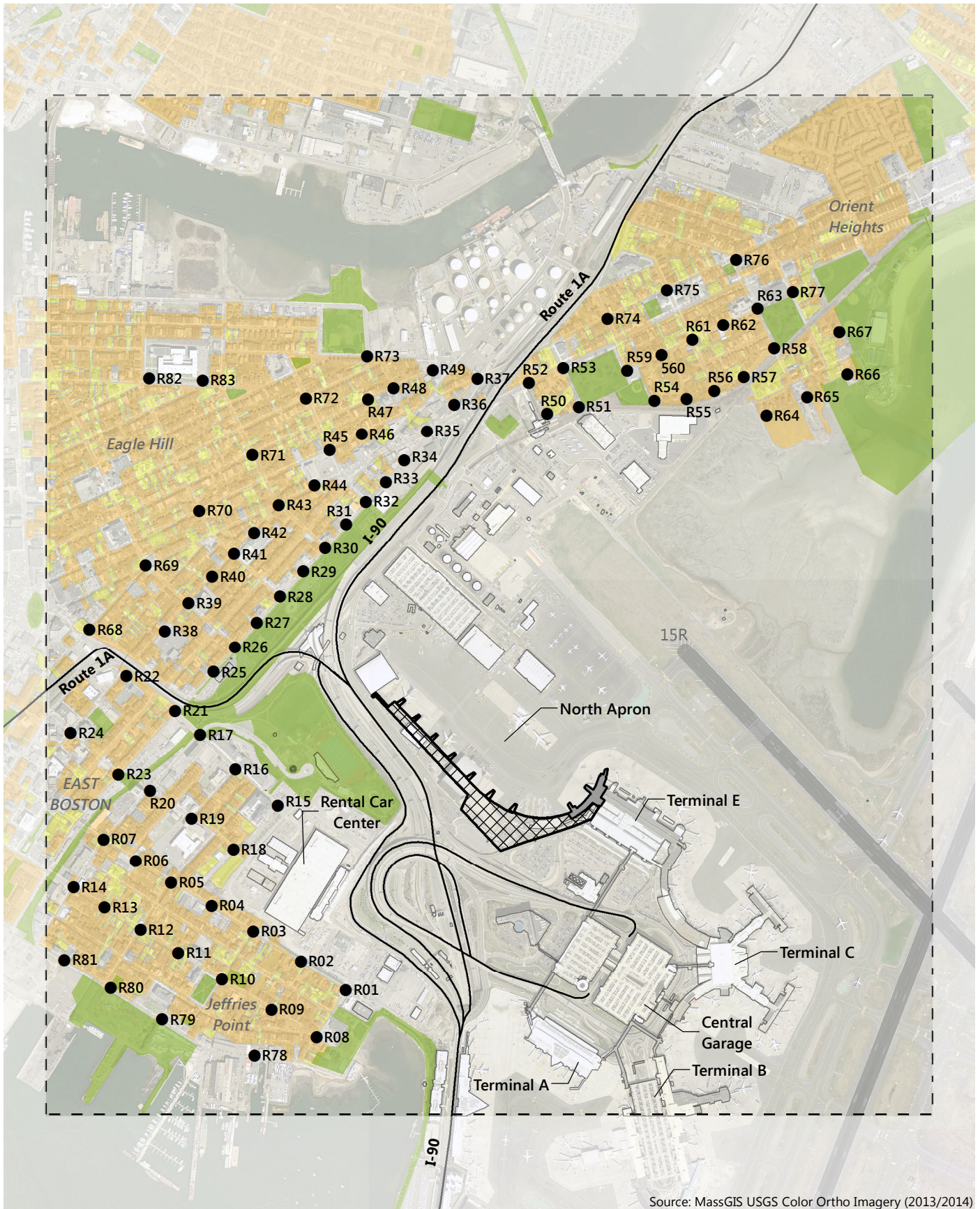


FIGURE 5-8 Proposed Action - Modeled Noise Receiver Locations

Terminal E Modernization Project

- Modeled Receiver Location
- ▭ Terminal E Renovation
- ▭ Single Family Residential
- ▭ Noise Study Area
- ▭ Airport Buildings
- ▭ Multi-Family Residential
- ▭ Terminal E Modernization
- ▭ Select Roadways
- ▭ Open Space

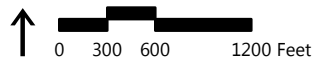




Table 5-10 presents the computed DNLs greater than or equal to DNL 60 dB for the future No-Action Alternative and Proposed Action from aircraft ground activity. The full table of results for all receivers is in Appendix D, *Noise Technical Appendix*. These values account for all aspects of aircraft taxi and auxiliary power unit operations including the number, duration, type, and time of day. As described in Chapter 4, *Affected Environment*, and further explained in Appendix D, *Noise Technical Appendix*, the DNL is a measure of the cumulative 24-hour noise exposure. Due to its intrusive nature, noise at night (10:00 PM to 7:00 AM) is weighted more heavily than noise during the day.

In general, the Terminal E Modernization Project would result in lower noise levels at the receivers especially south of the Project Area and to the west. To the north and northwest in East Boston there are a few small imperceptible increases due to different activity at the gates and ramp and some reflections from the new terminal building. Unless otherwise noted, all changes are due to the building shielding/noise barrier effect of the proposed seven-gate extension of the terminal and the MBTA connector. **Table 5-10** shows that:

- The Terminal E Modernization Project would reduce DNL noise levels in the Jeffries Point Area by 5 to 18 dB from aircraft ground operations near Terminal E.
- The Terminal E Modernization Project would reduce DNL noise levels in the Bremen Street area south of Putnam Street to Route 1A by 3 to 15 dB from aircraft ground operations near Terminal E.
- The Proposed Action would result in no significant noise increase within the DNL 65 dB.
- At sites greater than DNL 60 dB, 100% of the modeled sites show no perceptible increase in DNL noise levels (equal to or greater than 3 dB).



Table 5-10 No-Action Alternative and Proposed Action Day Night Average Sound Levels Greater than or Equal to DNL 60 dB for Aircraft Ground Activity by Representative Locations¹

Receiver	No-Action Alternative Day Night Average Sound Level (dB)	Proposed Action Day Night Average Sound Level (dB)	Difference (Decrease in Bold)
R01	61.3	43.7	-17.6
R02	62.1	48.5	-13.6
R04	61.9	49.8	-12.1
R15	62.6	45.0	-17.7
R18	60.4	44.9	-15.5
R27	60.4	48.9	-11.5
R28	65.0	62.2	-2.8
R29	65.3	62.5	-2.8
R30	61.8	55.0	-6.8
R31	62.2	62.4	0.2
R32	62.2	61.8	-0.4
R33	64.7	64.0	-0.8
R34	63.8	62.7	-1.1
R35	61.6	60.9	-0.8
R36	61.5	58.3	-3.2
R37	61.5	57.3	-4.1
R41	60.1	57.4	-2.6
R42	60.8	58.2	-2.6
R43	61.5	58.0	-3.5
R52	60.1	57.7	-2.3

Source: HMMH

¹ See Figure 5-8 for modeled noise receiver locations.

Table 5-11 presents the computed Maximum A-weighted Sound Level (L_{max})¹⁹ at receivers with noise levels greater than or equal to 65 dB for the existing aircraft ground activity. L_{max} values are reported for sites greater than or equal to 65 dB because for levels greater than this speech interference may occur. As FAA *Order 1050.1F* defines the significance threshold for noise, a significant impact would occur if analysis shows that a proposed action would cause noise sensitive areas to experience an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB. The complete table with results for all receivers is in Appendix D, *Noise Technical Appendix*. As explained in Section 4.3.1.1, *Noise Analysis Terminology* and Appendix D, *Noise Technical Appendix*, these values account for the loudest individual aircraft taxi or auxiliary power unit operation regardless of the number, duration, or time of day.

¹⁹ L_{max} is the maximum A-weighted Sound level that represents the maximum level reached during a noise event



The analysis shows that:

- The Terminal E Modernization Project would reduce single event²⁰ maximum noise levels in the Jeffries Point Area by 5 to 18 dB from aircraft ground operations near Terminal E.
- The Terminal E Modernization Project reduces single event maximum noise levels in the Bremen Street area south of Putnam Street to Route 1A by 1 to 11 dB from aircraft ground operations near Terminal E.
- One-hundred percent of the modeled sites show no perceptible increase (equal to or greater than 3 dB) in single event maximum levels.
- Single event maximum levels at some modeled sites are reduced by up to 17 dB.

Table 5-11 No-Action Alternative and Proposed Action Maximum A-weighted Sound Levels Greater than or Equal to 65 dB for Aircraft Ground Activity by Representative Locations¹

Receiver	No-Action Alternative Maximum A-weighted Sound Level (dB)	Proposed Action Maximum A-weighted Sound Level (dB)	Difference (Decrease in Bold)
R01	69.7	57.3	-12.4
R02	71.6	60.6	-11.0
R04	70.7	55.8	-14.9
R08	66.2	57.6	-8.6
R09	66.4	53.7	-12.7
R10	65.8	60.2	-5.6
R12	65.6	55.0	-10.6
R15	72.7	62.1	-10.6
R18	70.2	53.1	-17.1
R21	65.5	62.4	-3.1
R26	67.5	56.4	-11.1
R28	69.6	67.4	-2.2
R29	73.4	73.6	0.2
R30	72.4	71.6	-0.8
R31	72.6	73.8	1.2
R32	70.4	71.0	0.6

²⁰ A single event refers to the noise level from a single portion of an operation (e.g., A Boeing 747 at Gate 12 with its Auxiliary Power Unit on for 10 minutes will generate a consistent noise level for duration that the unit is operating).



Table 5-11 No-Action Alternative and Proposed Action Maximum A-weighted Sound Levels Greater than or Equal to 65 dB for Aircraft Ground Activity by Representative Locations¹
(Continued)

Receiver	No-Action Alternative Maximum A-weighted Sound Level (dB)	Proposed Action Maximum A-weighted Sound Level (dB)	Difference (Decrease in Bold)
R33	71.3	70.9	-0.4
R34	69.3	69.7	0.4
R35	67.7	68.3	0.6
R36	65.6	64.3	-1.3
R37	64.1	65.0	0.9
R42	71.5	70.3	-1.2
R43	71.9	69.5	-2.4
R44	65.6	66.0	0.4
R45	66.5	66.7	0.2
R46	65.5	66.7	1.2
R47	64.7	65.7	1.0
R50	65.5	64.9	-0.6
R51	66.6	64.2	-2.4
R52	65.0	62.3	-2.7
R68	65.6	63.2	-2.4
R70	66.6	66.2	-0.4
R71	66.0	60.1	-5.9

Source: HMMH

¹ See Figure 5-8 for modeled noise receiver locations.



Interim Condition (Phase 1) Noise Impacts

Massport would construct the terminal extension in two phases. Phase 1 would consist of four gates and include a concourse extension from the existing Terminal E building, while Phase 2 would construct the remaining three gates and the MBTA Blue Line connector. Prior terminal studies and the findings of this analysis demonstrate that the Phase 1 terminal building would result in some reduction in noise primarily to residents south of the Project Area in Jeffries Point, the east end of East Boston Memorial Park, and along the east end of the Porter Street area. The Proposed Action did not result in any significant noise increases compared to the No-Action Alternative and thus no significant noise increases would be expected due to the Phase 1 development.

Vibration

An assessment of potential perceptible noise-induced vibration in the homes nearest the proposed Terminal E apron area was conducted. Given that aircraft taxi operations produce the maximum event sound levels and more low-frequency energy than auxiliary power unit operations, the assessment addressed the potential for low-frequency noise from aircraft taxi events closest to the nearest homes to induce perceptible vibration in the windows, walls, or floors of those homes. There are no FAA-defined criteria for vibration. The vibration criteria used are widely cited from an article published by H. Hubbard in the peer-reviewed Noise Control Engineering Journal in 1982.²¹ Separate criteria for noise-induced vibration are given for windows, walls, and floors, with window vibration being the most perceptible and floor vibration the least. The assessment of expected future noise levels at the closest homes was based on readily available data on the low-frequency bands from spectral data of taxi operations of a Boeing 747. The one-third octave bands centered from 12.5 hertz (Hz) to 80 Hz were evaluated and compared to the perceptibility criteria. There are three perceptibility criteria, one for window, floor, and wall vibration. The window criterion, which is the lowest, ranges from about 60 dB to 75 dB depending on the frequency evaluated. Sound levels from taxi operations were developed using two approaches: matching the source level to the maximum A-weighted sound level computed in the SoundPLAN model for the Terminal E Modernization Project, and adjusting the source data for the distance between the taxi locations on the proposed apron closest to the nearest homes. Both methods produced similar results. At most frequencies, the expected maximum sound levels from aircraft taxi events are 10 dB or more below the lowest perceptibility criterion for window vibration. Therefore, no perceptible vibrations are expected from the Proposed Action. Appendix D, *Noise Technical Appendix* provides a graph showing the vibration criteria and computed Boeing 747 taxi sound levels for the different frequencies.

5.5.1.7 Temporary Construction-Related Impacts - Noise

The construction of the Terminal E Modernization Project would generate short-term noise. Construction equipment is expected to be used intermittently throughout the Project's construction, only during daytime hours. Normal flight operations would continue to function during Project construction.

City of Boston Construction Noise Criteria

The City of Boston has established regulations for evaluating sound levels associated with construction activities. The Air Pollution Control Commission of the City of Boston, acting under the authority granted in Chapter 40, Section 21 of the General Laws of the Commonwealth of Massachusetts, and by the City of Boston

²¹ Hubbard, Harvey H., "Noise Induced House Vibrations and Human Perception," Noise Control Engineering Journal, Vol. 19, No.2, Sept-Oct. 1982.



Code, Ordinances, Title 7, Section 50, has adopted regulations for the Control of Noise in the City of Boston. Regulation 3: “Restrictions on Noise Emitted from Construction Sites” establishes maximum allowable sound levels based upon the land use impacted by the construction of a proposed project. Even though Massport (as a state agency) is not subject to these requirements, the noise criteria provided in the regulations were used to evaluate whether or not the Terminal E Modernization Project would generate sound levels that result in adverse impacts. Massport is voluntarily disclosing these construction noise impacts.

The City of Boston noise control regulation considers construction sound levels to be an impact if operation of construction devices exceeds the L_{10}^{22} sound levels shown in Table 5-12.

Table 5-12 City of Boston Construction Noise Limits, dB(A)

Land Use	L_{10} Sound Level	L_{max} Maximum Noise Level
Residential or Institutional	75	86
Business or Recreational	80	--
Industrial	85	--

Source: Regulations for the Control of Noise in the City of Boston, City of Boston, Air Pollution Control Commission.

If the existing background L_{10} sound level already exceeds the limits referenced in **Table 5-12**, the L_{10} sound level during construction must not exceed the background L_{10} sound level by 5 dB(A) or greater. Unless exempt, such as impact devices, no individual piece of construction equipment can generate a noise level exceeding 86 dB(A) at a distance of 50 feet from the device.

Construction Noise Methodology

The noise analysis used the FHWA’s Roadway Construction Noise Model 1.1²³ to calculate the sound levels associated with construction equipment at the closest receptor locations, typically residential areas.

The noise analysis evaluated sound levels of construction activities associated with the Terminal E Modernization Project. Construction sound levels are a function of the types of equipment being used, the number of each type of equipment, and the distances between the construction equipment and the sensitive receptor locations. Overall construction sound levels are governed primarily by the noisiest pieces of equipment operating at a given time. The Roadway Construction Noise Model contains both equipment specification reference sound level data and actual measured sound level data. The noise analysis used the highest value for all equipment, and used the default equipment usage factor from the model.

The type and units for each piece of equipment vary depending on the construction phase. During any particular activity, multiple pieces of equipment may operate simultaneously and for various durations throughout the construction period. **Table 5-13** presents the construction equipment and the reference sound levels associated with the various types of construction equipment for terminal area North Apron, and roadway areas.

The Noise Study Area includes on- and off-Airport areas in the vicinity of the Airport and in proximity to Terminal E and the airfield improvement areas. The noise analysis identified nine sensitive receptor locations in

²² L_{10} level is the A-weighted sound level exceeded 10% of the time, as defined by the Regulations for the Control of Noise in the City of Boston, Regulations for the Control of Noise in the City of Boston, City of Boston, Air Pollution Control Commission.

²³ FHWA Roadway Construction Noise Model (RCNM): User’s Guide Federal Highway Administration, FHWA-HEP-05-054, January 2006.



the Noise Study Area. These sensitive receptors representative of the closest residential or recreational areas were evaluated for noise impacts resulting from construction activities associated with the Project.

These receptor locations included:

- Receptor 1 – East Boston Memorial Park (Tennis Court) – Boston;
- Receptor 2 – East Boston Memorial Park (Football Field) – Boston;
- Receptor 3 – Intersection of Bremen Street and Putnam Street – Boston;
- Receptor 4 – Swift Terrace – Boston;
- Receptor 5 – Intersection of Short Street and Coleridge Street – Boston;
- Receptor 6 – Porter Street - East Boston; and
- Receptor 7 – Maverick Street – East Boston.

These receptor locations were selected based on land use considerations and represent the closest, most sensitive locations (residential and recreational uses) in the Noise Study Area that are likely to experience changes in sound levels due to the Proposed Action. **Figure 5-9** presents the receptor locations used in the construction noise analysis.

Table 5-13 Construction Equipment Reference Sound Levels, dB(A)

Equipment	Usage Factor (%)	L _{max} at 50 feet	Unit per day for landside activities ¹	Unit per day for airside activities ¹
Aerial Lift	20	85	0 - 1	0 - 0
Asphalt Paver	50	85	0 - 1	0 - 1
Auger	20	85	0 - 1	0 - 0
Backhoe	40	80	0 - 1	0 - 1
Bulldozer	40	85	0 - 1	0 - 1
Concrete Paver	50	85	0 - 1	0 - 0
Concrete Pump Truck	20	82	0 - 1	0 - 0
Concrete Transit Mixer	40	85	0 - 5	0 - 0
Mobile Crane	16	85	0 - 1	0 - 1
Dump Trailer ²	40	84	0 - 2	0 - 1
Dump Truck	40	84	0 - 3	0 - 3
Dumpster ³	40	84	1	1
Excavator	40	85	0 - 1	0 - 2
Front End Loader	40	80	0 - 1	0 - 1



Table 5-13 Construction Equipment Reference Sound Levels, dB(A) (Continued)

Equipment	Usage Factor (%)	L_{max} at 50 feet	Unit per day for landside activities¹	Unit per day for airside activities¹
Grader	40	85	0 - 1	0 - 2
Material Handler⁴	40	80	0 - 2	0 - 1
Pile Vibrator	20	101⁷	0 - 1	0 - 0
Primer Truck ³	40	84	0 - 1	0 - 0
Dirt Roller	20	85	0 - 1	0 - 1
Pavement Roller	20	85	0 - 1	0 - 3
Sweeper	10	82 ⁷	0 - 1	0 - 1
Tack Truck ³	40	84	0 - 1	0 - 1
Truck and High Bed Trailer ⁴	40	84	1 - 3	0 - 1
Utility Truck ⁶	40	75 ⁷	0 - 1	0 - 1
Vibratory Plate Compactor	20	83 ⁷	0 - 1	0 - 1
Water Pump	50	81 ⁷	0 - 1	0 - 0
Water Truck ³	40	84	0 - 1	0 - 1
Welding Machine	40	74 ⁷	0 - 1	0 - 0

Source: Reference sound level data based on equipment specifications, Federal Highway Administration, Roadway Construction Noise Model, Version 1.1, December 2008.

Note: L_{max} = Maximum sound level

- 1 Represents range of equipment in operation per day.
- 2 Assumed reference sound level is equivalent to a dump truck.
- 3 Assumed reference sound level is equivalent to a flatbed truck.
- 4 Assumed reference sound level is equivalent to a front-end loader.
- 5 Assumed reference sound level is equivalent to a pick-up truck.
- 6 Reference sound level is based on actual measurements obtained from the Roadway Construction Noise Model.

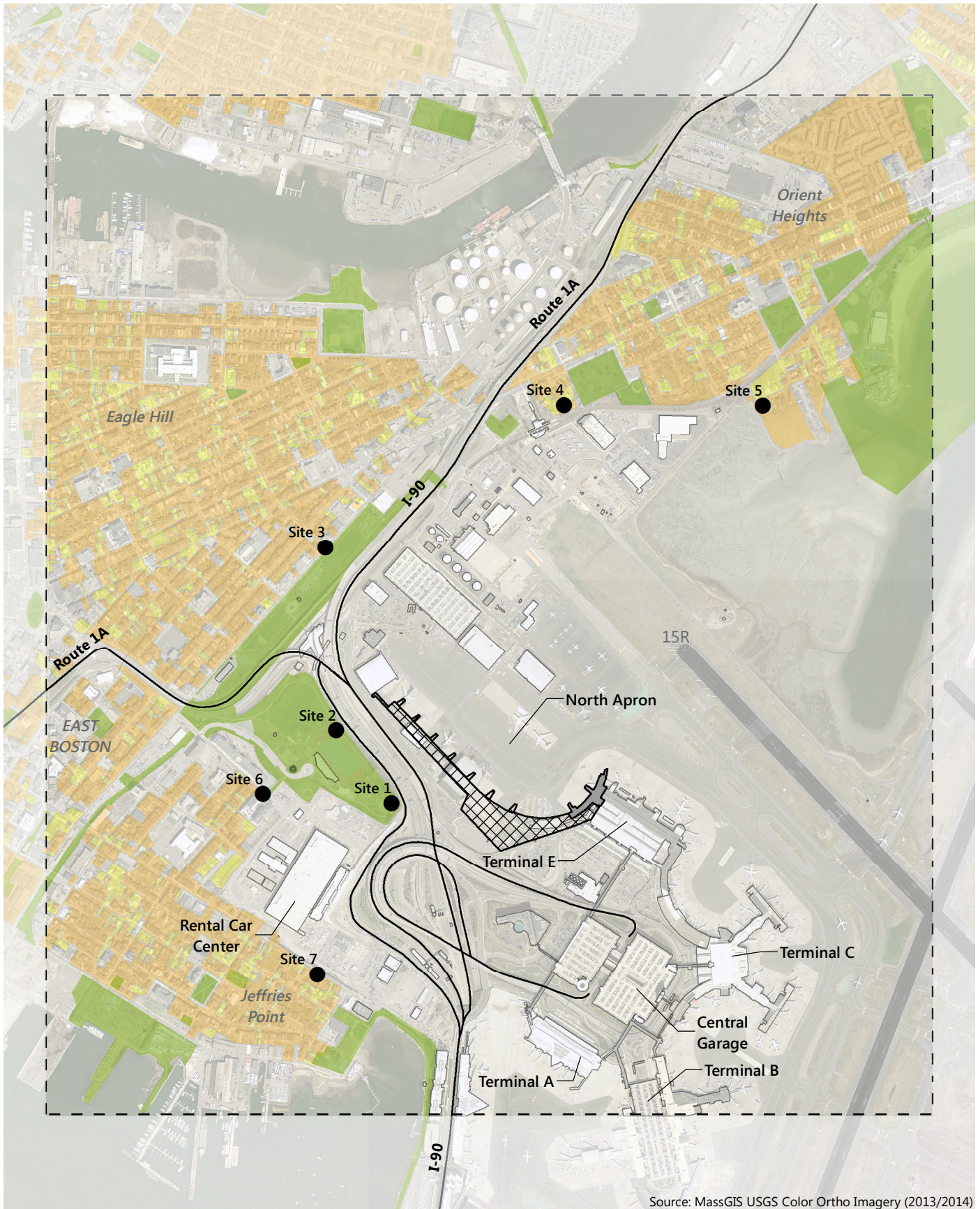


FIGURE 5-9 Proposed Action - Modeled Construction Noise Sensitive Receptors

Terminal E Modernization Project

- Modeled Receptor Location
- ▭ Airport Buildings
- ▭ Single Family Residential
- ▭ Terminal E Renovation
- ▭ Noise Study Area
- ▭ Multi-Family Residential
- ▭ Terminal E Modernization
- ▬ Select Roadways
- ▭ Open Space





Construction Noise Levels

Massport strives to minimize the noise effects of Logan Airport operations on its neighbors with a variety of noise abatement procedures and tools. Massport’s Noise Abatement Office is responsible for implementing the noise abatement actions.

Terminal E Modernization Project construction is expected to generate typical sound levels associated with construction activities, including use of heavy equipment operations for excavation, material transport, and pile driving. Heavy machinery would be used intermittently throughout construction and these activities would occur during normal weekday working hours. The type of equipment and number of units of equipment would vary between the different construction phases. Most of the construction activities would occur on the airfield side of the terminal. **Table 5-14** presents the projected range of sound levels associated with construction activities. All receptor locations evaluated are below the City of Boston’s noise criteria. The highest L₁₀ value in a recreational land use area is 78 dB(A), which is below the City’s criterion of 80 dB(A), and the highest value in a residential land use area is 67 dB(A), below the 75 dB(A) criterion. The highest projected residential L_{max} of 72 dB(A) is also below the City’s criterion of 86 dB(A).

Table 5-14 Construction Equipment Sound Levels, dB(A)

Receptor Locations	Project Sound Levels		City of Boston Criteria ¹	
	L ₁₀ ²	L _{max} ³	L ₁₀	L _{max}
Receptor 1 - East Boston Memorial Park (Tennis Court) – Boston	51 - 78	46 - 81	80	N/A
Receptor 2 - East Boston Memorial Park (Football Field) – Boston	52 - 74	45 - 77	80	N/A
Receptor 3 - Intersection of Bremen Street and Putnam Street – Boston	55 - 67	50 - 69	75	86
Receptor 4 - Swift Terrace – Boston	48 - 61	43 - 64	75	86
Receptor 5 - Intersection of Short Street and Coleridge Street – Boston	51 - 60	46 - 63	75	86
Receptor 6 – Porter St – East Boston	43 - 69	38 - 72	75	86
Receptor 7 – Maverick St – East Boston	42 - 67	37 - 69	80	N/A

Source: HMMH

Notes:

1 City of Boston’s noise criteria for residential or recreational use.

2 L₁₀ represents total sound level of all equipment.

3 L_{max} represents sound level of noisiest piece of equipment.

The noise analysis demonstrated that the sound levels from construction activities associated with the Terminal E Modernization Project would comply with the City of Boston’s noise criteria. The methodology (FHWA’s Roadway Construction Noise Model) used in the noise analysis was conservative because it used the highest available sound level for all equipment between the specification reference level and actual measured level in the Roadway Construction Noise Model. Construction-related sound levels at Memorial Stadium Park, located across the Airport Roadway from Terminal E, would comply with City noise criteria.

The construction noise analysis evaluated the potential cumulative impacts associated with the construction activities of the Terminal E Modernization Project and the other Logan Airport construction projects. Since sound levels decrease with distance it is expected that the Terminal E Modernization Project would have minimal additive noise effect in combination with other ongoing construction projects.



Construction Noise Mitigation

Sound levels from activities associated with the construction of the Terminal E Modernization Project comply with the City of Boston’s noise criteria; therefore, no noise mitigation is required. However, construction equipment would use noise-reduction measures such as the use of proper mufflers for construction equipment, measures to limit noise from truck traffic, and keeping construction activities between 7:00 AM and 7:00 PM.

5.5.1.8 Cumulative Impacts - Noise

The DNL results at each receiver location from the No-Action Alternative and Proposed Action modeling were combined with the 2030 DNL contour (documented in the 2011 *ESPR*) results at each of the same locations. This analysis is conducted to ensure that there is no DNL 1.5 dB increase within the DNL 65 dB area when the cumulative effects of the aircraft flight noise and ground operations are combined. The DNL from the aircraft flight noise is the dominant source, and at many sites, the ground noise levels did not change the DNL level. Almost all sites result in a decrease in the DNL value between the No-Action Alternative and the Proposed Action. The maximum increase at sites above DNL 65 is at Site 31 (0.2 dB) and at Site 32 (0.1 dB) and both of these locations are within the Massport sound insulation areas. Therefore, when considered cumulatively, the Terminal E Modernization Project would not result in adverse noise impacts.

Table 5-15 Cumulative DNL levels - No-Action Alternative and Proposed Action DNL Sound Levels for Aircraft Ground Activity Combined with the 2030 DNL Aircraft Flight Sound Levels by Representative Locations¹

Receiver	No-Action Alternative Combined (DNL)	Proposed Action Combined (DNL)	Difference (DNL) (Decrease in Bold)
R1	66.0	64.2	-1.7
R2	66.0	63.8	-2.2
R3	63.2	63.1	-0.2
R4	65.2	62.7	-2.5
R5	62.2	62.0	-0.3
R6	61.8	61.5	-0.3
R7	61.5	61.1	-0.4
R8	64.4	63.6	-0.8
R9	63.5	63.0	-0.5
R10	63.5	62.5	-1.0
R11	62.4	61.8	-0.6
R12	62.1	61.4	-0.7
R13	61.2	60.8	-0.4
R14	60.7	60.5	-0.2
R15	66.5	64.3	-2.2
R16	63.7	63.6	0.0



Table 5-15 Cumulative DNL levels - No-Action Alternative and Proposed Action DNL Sound Levels for Aircraft Ground Activity Combined with the 2030 DNL Aircraft Flight Sound Levels by Representative Locations¹ (Continued)

Receiver	No-Action Alternative Combined (DNL)	Proposed Action Combined (DNL)	Difference (DNL) (Decrease in Bold)
R17	63.7	63.2	-0.6
R18	65.0	63.2	-1.8
R19	62.8	62.6	-0.2
R20	62.2	62.0	-0.2
R21	64.2	63.1	-1.1
R22	62.9	62.0	-0.9
R23	61.8	61.5	-0.3
R24	61.0	60.8	-0.2
R25	63.6	63.4	-0.3
R26	64.5	63.8	-0.7
R27	65.6	64.2	-1.4
R28	67.7	66.4	-1.3
R29	68.0	66.7	-1.3
R30	66.3	64.9	-1.4
R31	66.3	66.4	0.1
R32	66.4	66.3	-0.1
R33	67.7	67.4	-0.4
R34	67.6	67.1	-0.4
R35	67.3	67.1	-0.2
R36	67.6	67.0	-0.6
R37	67.2	66.5	-0.8
R38	63.6	62.8	-0.8
R39	64.0	62.9	-1.0
R40	63.2	63.5	0.3
R41	64.9	64.2	-0.7
R42	65.2	64.4	-0.8
R43	65.4	64.3	-1.1
R44	64.7	64.1	-0.5
R45	65.0	64.7	-0.3
R46	65.5	65.5	0.0
R47	65.6	65.6	-0.1
R48	65.8	65.8	0.0



Table 5-15 Cumulative DNL levels - No-Action Alternative and Proposed Action DNL Sound Levels for Aircraft Ground Activity Combined with the 2030 DNL Aircraft Flight Sound Levels by Representative Locations¹ (Continued)

Receiver	No-Action Alternative Combined (DNL)	Proposed Action Combined (DNL)	Difference (DNL) (Decrease in Bold)
R49	66.0	66.1	0.0
R50	67.1	66.7	-0.4
R51	66.9	66.8	-0.1
R52	66.9	66.5	-0.4
R53	66.5	66.2	-0.2
R54	69.2	69.2	0.0
R55	69.5	69.5	0.0
R56	69.7	69.7	0.0
R57	69.4	69.3	-0.1
R58	68.7	68.7	-0.1
R59	67.8	67.8	-0.1
R60	68.1	68.1	0.0
R61	68.1	68.0	-0.1
R62	67.9	67.8	0.0
R63	67.7	67.7	0.0
R64	70.5	70.4	-0.1
R65	69.9	69.9	-0.1
R66	69.9	69.8	-0.1
R67	68.7	68.7	0.0
R68	62.9	61.8	-1.0
R69	62.4	62.0	-0.3
R70	63.3	62.5	-0.7
R71	63.8	63.0	-0.8
R72	64.8	64.6	-0.2
R73	65.6	65.5	0.0
R74	66.2	66.2	-0.1
R75	66.9	66.9	-0.1
R76	66.7	66.7	0.0
R77	67.6	67.6	0.0
R78	62.8	62.6	-0.2
R79	61.4	61.3	0.0
R80	60.9	60.7	-0.2



Table 5-15 Cumulative DNL levels - No-Action Alternative and Proposed Action DNL Sound Levels for Aircraft Ground Activity Combined with the 2030 DNL Aircraft Flight Sound Levels by Representative Locations¹ (Continued)

Receiver	No-Action Alternative Combined (DNL)	Proposed Action Combined (DNL)	Difference (DNL) (Decrease in Bold)
R81	60.3	60.1	-0.1
R82	61.7	61.5	-0.2
R83	62.7	62.3	-0.4

Source: HMMH

Note:

¹ See Figure 5-8 for modeled noise receiver locations.

5.5.2 Surface Transportation

In accordance with FAA *Order 1050.1F* and FAA *Order 5050.4B* paragraph 706(e), this section describes the roadway network within the Transportation Study Area and the analysis conducted to determine if the Terminal E Modernization Project generates any potential impacts. The FAA requires surface transportation be considered when a proposed action has the potential to disrupt traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities. The Terminal E Modernization Project would result in a minor reconfiguration of the roadway network in the vicinity of Terminal E, and would provide a direct pedestrian connection from the terminal to the MBTA Blue Line Airport Station. The Terminal E Modernization Project would not result in any off-Airport changes to the roadway system. The Secretary’s Certificate on the ENF focuses on ground transportation as it relates to Terminal E and the associated infrastructure, with the direction to identify project-specific impacts. Cumulative impacts and Airport-wide ground transportation conditions are documented annually in Massport’s EDR/ESPR filings.

Table 5-16 summarizes the potential impacts of the Terminal E Modernization Project on surface transportation. The analysis assesses the impact of the Terminal E Modernization Project on the level of service (LOS) for intersections, roadways, and curbs. LOS D and above are considered acceptable.



Table 5-16 Summary of Potential Effects of the Terminal E Modernization Project on Surface Transportation

Area of Impact	Existing Conditions	No-Action Alternative	Terminal E Modernization Project (Proposed Action)
Intersection Operations	LOS C or better	LOS D or better ¹	LOS D or better ¹
Terminal Roadway Operations	LOS D or better	LOS degradation at four locations	No direct comparison possible
Curbside Operations	Curb 1 – LOS A, except for the Charter Bus curb area (LOS E) Curb 2 – LOS D or better, except for the Courtesy Bus curb area and roadway (LOS E)	Curb 1 – LOS A, except for the Charter Bus curb area (LOS E) and roadway (LOS B) Curb 2 - between LOS E and F	Curb 1 – LOS A Curb 2 – LOS D or better
Transit Capacity	Sufficient Capacity	Sufficient Capacity	Sufficient Capacity

Source: VHB

Note:

1 With Massport intervention in keeping with its long-standing policy that traffic operations along roadways will be maintained or enhanced to accommodate passenger levels.

5.5.2.1 Direct Impacts - Surface Transportation

This section presents the surface transportation traffic assessment as it relates to the effects of the Terminal E Modernization Project with respect to curbside, roadways, and intersection traffic operations in the Transportation Study Area. Several analysis conditions are considered and presented below. This section also includes the methodology used to analyze each scenario and the results of the analysis, organized by scenario.

Methodology

This section provides a summary of the methods used to identify the direct impacts related to vehicular traffic at Terminal E curbside, terminal area roads, and on-Airport intersections. Methods used for this study follow standard transportation planning industry practices for the evaluation of transportation systems and infrastructure.

Assuming a design year of 2030, terminal area roadway vehicle volumes were grown at a rate of 1.5% per year. The on-Airport vehicle growth rate was based on rates from Terminal E projected passenger forecasts for 2030 and application of the increases to on-Airport existing traffic volumes. Volumes were redistributed with respect to changes in the roadway system, relocation of on-Airport traffic generators related to the Proposed Action, and the addition of the new parking spaces on-Airport (for those specified conditions).

Several standard industry tools were used to analyze roadway and intersection conditions. These tools include:

- *Synchro* – Intersection network modelling software used to analyze key on-Airport Transportation Study Area signalized and unsignalized intersections.
- *VISSIM* – Traffic modelling software used to analyze Airport-wide traffic circulation and changes in vehicle miles traveled.
- *QATAR* – Spreadsheet model used to analyze curbside operations.



Analysis Conditions

The Terminal E transportation network was analyzed for the No-Action Alternative and for the Proposed Action, in 2030. The No-Action Alternative assumes minimal changes to the Airport transportation infrastructure, but does include the relocation of the taxi and limousine loading areas at Terminal E. The lost parking resulting from this change would be replaced in a similar location.

As discussed previously (see Chapter 4, *Affected Environment*), due to the nature of international travel, peak on-Airport travel conditions at Terminal E occur during the weekday and Sunday evening peak hours. The analysis of potential traffic impacts related to the Proposed Action is therefore limited to these peak hours. The Airport-wide peak hour (for ground access) also occurs during the evening peak hour.

Both the No-Action Alternative and Proposed Action conditions include anticipated minor changes to the Airport transportation infrastructure; however, reasonably foreseeable projects of significant scale are analyzed in Section 5.5.2.4, *Surface Transportation*. The analysis presented in this section includes other on-going/concurrent specific projects that are in the physical or temporal vicinity of the Terminal E Modernization Project. This analysis presents a prospective, future on-Airport condition and the potential net effect of the Terminal E Modernization Project.

Traffic volumes were estimated based on the methodology discussed in the previous section with any additional volume modification discussed in the analysis section respectively. Estimated 2030 vehicular volumes are illustrated in **Figures E-5 through E-16** in Appendix E, *Surface Transportation Technical Appendix*. Additional vehicle volumes are distributed throughout the existing roadway network based on existing travel patterns. However, certain modifications are anticipated for the roadway network directly in front of Terminal E, with some to be implemented under the No-Action Alternative while others only under the Proposed Action (see below). **Table 5-17** presents the overall on-Airport vehicle miles traveled for each of the scenarios analyzed.

Table 5-17 On-Airport Vehicle Miles Traveled

Condition	Analysis Scenario			
	AM Peak	PM Peak	High 8-Hour	AWDT
No-Action Alternative	11,300	12,200	94,300	216,500
Terminal E Modernization Project (Proposed Action)	10,800	11,700	90,200	207,000

Source: VHB

Note: AWDT – Average Weekday Traffic

Air passenger growth has a compound effect on Airport roadway volumes. It is anticipated that the number of drop-off/pick-up vehicles on terminal area roadways would increase at a rate faster than the anticipated air passenger growth rate due to the inability for would-be parkers to park on-Airport due to constrained parking conditions. This anticipated traffic volume increases are accounted for in the roadway volume analyses presented below.

It should be noted that Massport is in the conceptual planning phase for adding additional parking at Logan Airport. This action is predicated on the approval of a draft regulatory change, issued by MassDEP to amend the Logan Airport Parking Freeze Regulation, 310 CMR 7.30, to allow for additional commercially parked vehicles at Logan Airport.



Assumed Roadway/Operations Changes

The No-Action Alternative and the Proposed Action will include modifications to the terminal area roadway network and curbside operations. **Table 5-18** presents the assumed roadway and operational changes used in the analysis of the No-Action Alternative and Proposed Action, assuming no additional on-Airport parking spaces.

Table 5-18 Assumed Roadway and Operations Changes

Condition	Category	Change
No-Action Alternative	Roadway Infrastructure and Configuration	Departures Level improvement project expanding the roadway between Terminal B and Terminal C to a three-lane cross-section Phasing, timing, and geometric improvements at Harborside Drive at Jeffries Street and Harborside Drive at Porter Street Limousine and Taxi Stand relocated to the vicinity of Terminal E parking lot 1 <ul style="list-style-type: none"> ■ Entrance on Arrivals Entry Ramp ■ Exit on Arrivals Exit Ramp ■ Terminal E Parking lots 1 and 2 relocated in immediate vicinity
Terminal E Modernization Project (Proposed Action)	Roadway Infrastructure and Configuration	Departures Level improvement project expanding the roadway between Terminal B and Terminal C to a three-lane cross-section Modifications to the existing terminal ramp infrastructure and elimination of the Recirculation Road Elimination of Service Road connection to/from Terminal E Additional entrance from Service Road into Cell Phone Lot Modifications to the intersection of Hotel Drive/Service Road/Ramp D-S, which require Arrivals Level traffic, destined to the Southwest Service Area and South Cargo Area to access via Transportation Way.
	Operations	New Terminal E Parking Area – Access/Egress from Arrivals Level only Curbside 1 – increased length - L shape extension Curbside 2 – increased length – L shape extension Curbside 2 – expanded to provide 4 lanes Shared Vans and Courtesy Bus pick-up relocated to in horseshoe in front of the east entrance to existing Terminal E

Source: AECOM, VHB

Intersection Operations

As discussed in Chapter 4, *Affected Environment*, analysis of existing traffic operations at Airport intersections using Synchro indicates that all intersections are currently operating at acceptable levels of service during the weekday evening peak hour and on Sunday. **Table 5-19** presents traffic operations at Airport intersections under the No-Action Alternative and Proposed Action conditions.



Table 5-19 Overall Traffic Operations - 2030 No-Action Alternative and Terminal E Modernization Project (Proposed Action) Conditions

Location	Period	2015 Existing			2030 No-Action Alternative ¹			2030 Terminal E Modernization Project (Proposed Action)		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
<i>Weekday Evening</i>										
Frankfort Street at Lovell St		0.40	12	B	0.57	17	B	0.57	17	B
Frankfort Street at Route 1A NB Off-Ramp		0.45	17	B	0.60	20	C	0.60	20	C
SR-2 at Prescott Street*		-	2	A	-	3	A	-	3	A
SR-2 at Cell Phone Lot*		-	2	A	-	2	A	-	3	A
Hotel Drive at Ramp D-S		0.66	20	C	0.88	44	D	0.73	24	C
Hotel Drive at Airport Way		0.62	21	C	0.85	47	D	0.74	29	C
Hotel Drive at Harborside Drive		0.44	28	C	0.55	35	C	0.48	31	C
Harborside Drive at Jeffries Street		0.70	34	C	0.84	33	C	0.93	34	C
Harborside Drive at Porter Street		0.60	32	C	0.69	35	C	0.77	47	D
Harborside Drive at Hyatt Drive		0.12	4	A	0.13	5	A	0.13	5	A
<i>Sunday Evening</i>										
Frankfort Street at Lovell St		0.26	13	B	0.37	14	B	0.37	14	B
Frankfort Street at Route 1A NB Off-Ramp		0.25	12	B	0.34	13	B	0.33	13	B
SR-2 at Prescott Street*		-	3	A	-	4	A	-	4	A
SR-2 at Cell Phone Lot*		-	3	A	-	3	A	-	3	A
Hotel Drive at Ramp D-S		0.40	14	B	0.48	16	B	0.46	14	B
Hotel Drive at Airport Way		0.34	14	B	0.43	16	B	0.41	16	B
Hotel Drive at Harborside Drive		0.32	28	C	0.40	28	C	0.32	30	C
Harborside Drive at Jeffries Street		0.53	23	C	0.66	26	C	0.73	27	C
Harborside Drive at Porter Street		0.45	30	C	0.54	27	C	0.63	29	C
Harborside Drive at Hyatt Drive		0.06	4	A	0.08	4	A	0.08	4	A

Source: VHB

Notes:

1 It should be noted that intersection operations at Harborside Drive at Jeffries Street and Harborside Drive at Porter Street degrade below LOS D without intervention. It is assumed under 2030 conditions (both No-Action and Proposed Action) that phasing, timing, and geometric improvements to these intersections will be applied as necessary and prior to the 2030 horizon year.

v/c: Volume to capacity ratio

Delay: Average intersection delay, measured in seconds

LOS: Level-of-service

* Unsignalized intersection

Green LOS A or B, Yellow = LOS C or D, Red= LOS E or F



The No-Action Alternative assumes any necessary traffic signal timing, phasing, or land geometry changes that would be necessary to maintain acceptable traffic operations are in place. This is in keeping with Massport's long-standing policy that traffic operations along Airport roadways will be maintained or enhanced to accommodate passenger levels. Traffic signal modifications are assumed to be made at four intersections:

- Hotel Drive at Ramp D-S;
- Hotel Drive at Airport Way;
- Harborside Drive at Jeffries Street; and
- Harborside Drive at Porter Street.

Under the Proposed Action, the results of the analyses indicate that all intersections would operate at LOS D or better during the weekday evening peak hour and on Sunday. In addition to standard traffic signal timing modifications at various intersections, the intersection of Harborside Drive at Porter Street would require phasing modifications in order to maintain an acceptable level of service.

Curbside Operations

To analyze curbside operations, the observed and projected peak hour vehicle demands were entered into the QATAR model along with curb dimensions and curb allocation and usage information. The detailed summary of volume development and QATAR analysis output is provided in Appendix E, *Surface Transportation Technical Appendix*. The Terminal E Departures Level curbside currently operates at LOS C, with adjacent travel lanes operating at LOS A. With the exception of Charter Bus curbside, which operates at LOS E, all zones along Curbside 1 of the Terminal E Arrivals Level (serving scheduled bus, Logan Express, Silver Line, the consolidated rental car shuttle, and Airport shuttles) operate at LOS A. Curbside 2 zones (**Figure 5-10**) on the Terminal E Arrivals Level (serving courtesy bus and private automobiles) operate as follows:

- Active passenger car pick-up occurs within the first three zones along Curbside 2.
- The first zone, which is the longest of the three zones, has two travel lanes operating at LOS D and a curbside lane operating at LOS C.
- Due to the passenger vehicle demand and reduced curbside length, the adjacent travel lanes in the remaining two pick-up zones operate at LOS D. The curbside lanes also operate at LOS D.

Compared to Existing Conditions, under No-Action Alternative, Departures Level LOS for both curbside and roadway operations would drop from LOS C and LOS A to LOS D and LOS B, respectively. Operations at the Arrivals Level Curbside 1 are expected to remain the same, with the exception of roadway LOS in the Charter Bus zone, which drops to LOS B. Curbside 2 zones (see **Figure 5-11**) on the Terminal E Arrivals Level (serving courtesy bus and private automobiles) experience a substantial decrease in LOS. All curbside zones drop to a LOS E, with the exception of the courtesy bus zone, which was already operating at LOS E. Roadway LOS drops to F for all zones except one. This is due to an increase in demand at both the curbside and on the roadway at Curbside 2 in the future No-Action Alternative.

In addition to the changes at Curbside 2, taxis and limousines will be served in a taxi and limousine holding area to be constructed within the footprint of the current surface parking lot E1. The taxi and limousine zone



will be designed appropriately to accommodate peak hour demands for these modes and is not expected to negatively affect traffic operations.

Table 5-20 Summary of Curbside Operations - Existing and 2030 No-Action Alternative

Location	2015 Existing Condition ¹					No-Action Alternative ²				
	Curbside Demand	Curbside Length (ft)	Curb LOS	Roadway Demand	Roadway LOS	Curbside Demand	Curbside Length (ft)	Curb LOS	Roadway Demand	Roadway LOS
Arrivals – Curb 1										
Airport Shuttles	23	115	A	275	A	23	115	A	115	A
Rental Car and MBTA Blue Line	15	115	A	275	A	15	115	A	115	A
MBTA Silver	6	115	A	275	A	6	115	A	115	A
Logan Express	7	115	A	275	A	7	115	A	115	A
Scheduled Bus Service	3	75	A	275	A	3	70	A	115	A
Charter Bus	3	50	E	275	A	3	70	E	115	A
Arrivals – Curb 2										
Passenger	83	190	C	600	D	112	190	D	554	C
	51	115	D	600	D	67	115	E	554	D
	51	115	D	600	D	67	115	E	554	D
	51	115	D	600	D	67	115	E	554	D
Courtesy Bus	20	50	E	600	E	30	50	F	554	F
Departures ³										
All Activity	435	635	C	435	A	600	635	D	600	B

Source: VHB

1 Curb 1 on Arrivals and the Departures curb both have four lanes. Curb 2 on Arrivals has three lanes.

2 Curb 1 on Arrivals has five 20' crosswalks. Curb 2 on Arrivals has four 20' crosswalks. Departures have no crosswalks.

3 All Activity – All vehicle types intermingle at the Departures Level. As such, curbside demand is aggregated across all vehicle types.

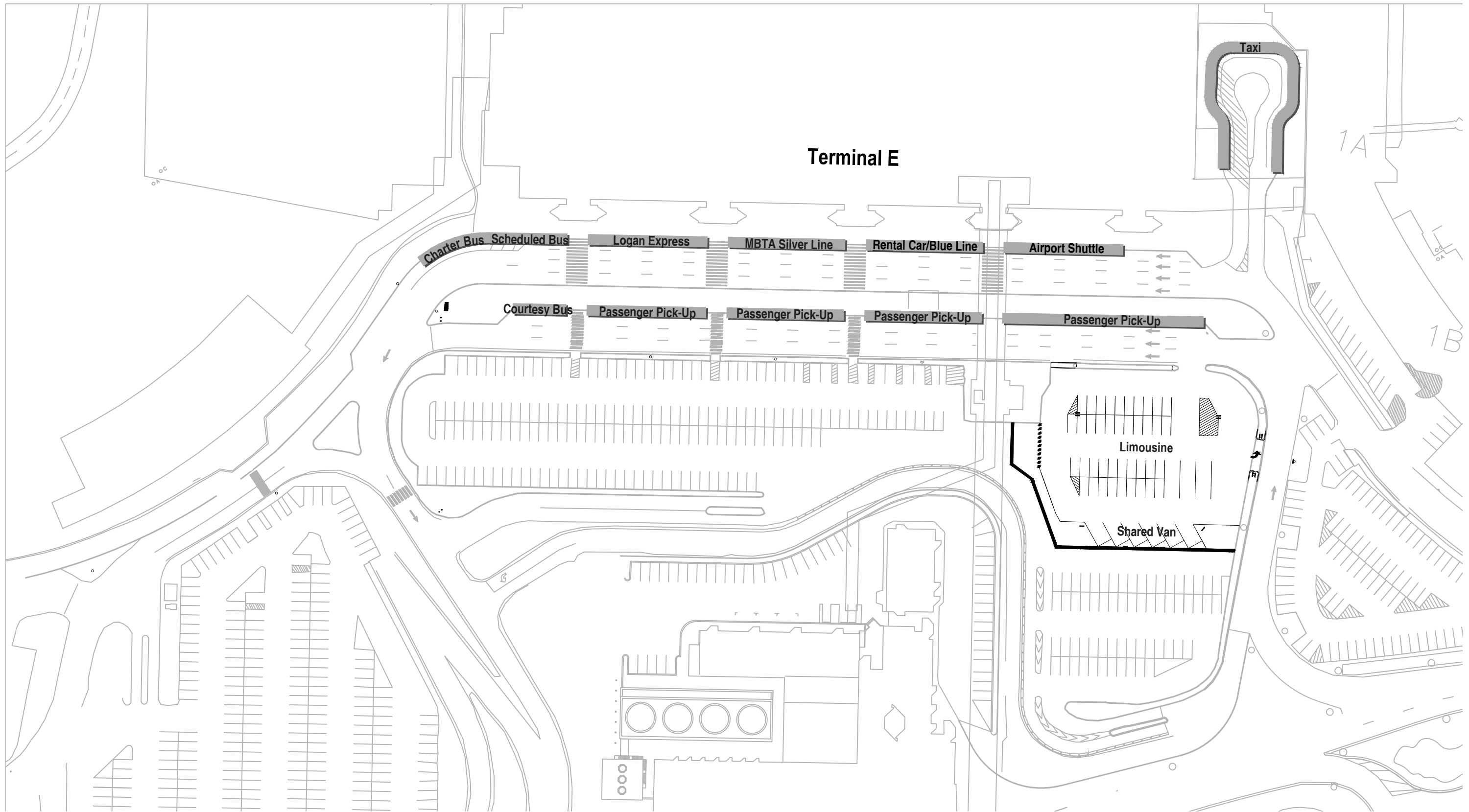


FIGURE 5-10 Existing Terminal E Curbside Allocation

Terminal E Modernization Project



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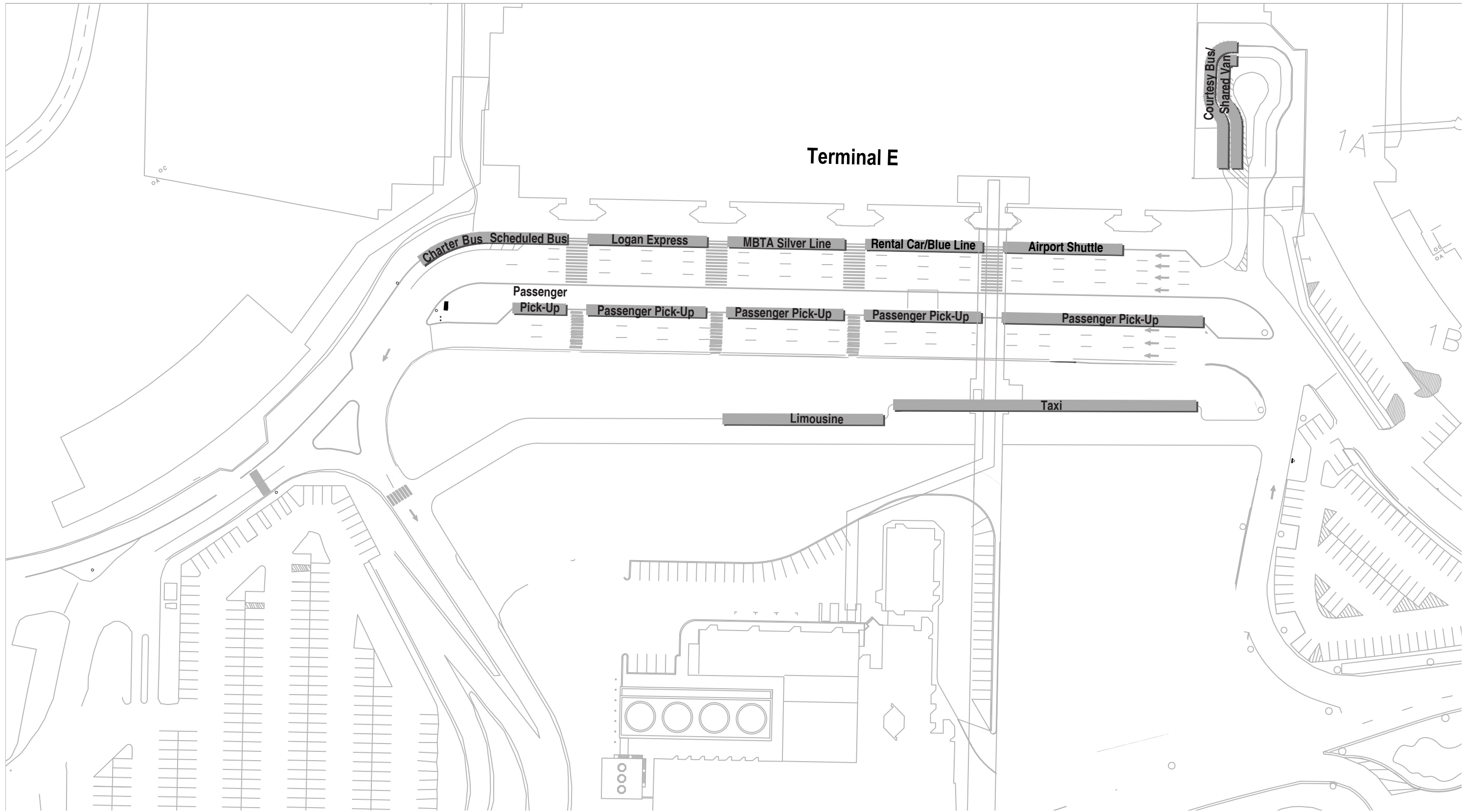


FIGURE 5-11 No-Action Alternative Curbside Allocation

Terminal E Modernization Project



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With the Proposed Action, Departures Level LOS for both curbside and roadway operations are expected to remain the same. Operations at the Arrivals Level Curbside 1 are expected to remain the same, with the exception of the Charter Bus zone, which would experience an improvement in LOS at both the curbside and adjacent roadway once the zone is relocated. The Curbside 2 LOS would improve from LOS E to LOS A, while the Roadway LOS would improve from LOS B to LOS A. Several factors contribute to the operational improvements at Curbside 2, including an additional travel lane adjacent to Curbside 2, relocation of the taxi and limousine holding area from the Terminal E influence area, and reallocation of curbside zones (**Figure 5-12**).

The Terminal E Arrivals Level would experience the following changes:

- Courtesy Bus would no longer operate at this curbside and two crosswalks would be eliminated. As a result, one large zone would be created serving private automobiles.
- All zones would experience improvements in both curbside and roadway LOS.
- Both curbside and roadway LOS are C for the first two zones, with the exception of the curbside LOS for the middle zone, which is LOS D.
- Both curbside and roadway LOS would be LOS B for the new large zone.
- There would be a slight decrease in demand due to the elimination of recirculating traffic.



Table 5-21 Summary of Curbside Operations - 2030 No-Action Alternative and Terminal E Modernization Project (Proposed Action)

Location	No-Action Alternative ¹					Terminal E Modernization Project (Proposed Action) ²				
	Curbside Demand	Curbside Length (ft)	Curb LOS	Roadway Demand	Roadway LOS	Curbside Demand	Curbside Length (ft)	Curb LOS	Roadway Demand	Roadway LOS
Arrivals – Curb 1										
Airport Shuttles	23	115	A	115	A	23	115	A	115	A
Rental Car and MBTA Blue	15	115	A	115	A	15	115	A	115	A
MBTA Silver	6	115	A	115	A	6	115	A	115	A
Logan Express	7	115	A	115	A	7	115	A	115	A
Scheduled Bus Service	3	70	A	115	A	3	115	A	115	A
Charter Bus	3	70	E	115	A	3	115	A	115	A
Arrivals – Curb 2										
Passenger Pick-up	112	190	D	554	C	78	190	C	554	A
	67	115	E	554	D	47	115	D	554	A
	67	115	E	554	D	218	530	B	554	A
	67	115	E	554	D	-	-	-	-	-
Courtesy Bus	30	50	F	554	F	-	-	-	-	-
Departures³										
All Activity	600	635	D	600	B	600	1,075	B	600	A

Source: VHB

1 Curb 1 on Arrivals has five 20' crosswalks. Curb 2 on Arrivals has four 20' crosswalks. Departures have no crosswalks.

2 Curb 2 has four lanes.

3 All Activity – All vehicle types intermingle at the Departures Level. As such, curbside demand is aggregated across all vehicle types.

Figure 5-13 presents a summary of results comparing the No-Action Alternative and the Proposed Action for the Arrivals–Curb 1, Arrivals-Curb 2, and Departures curbside area.

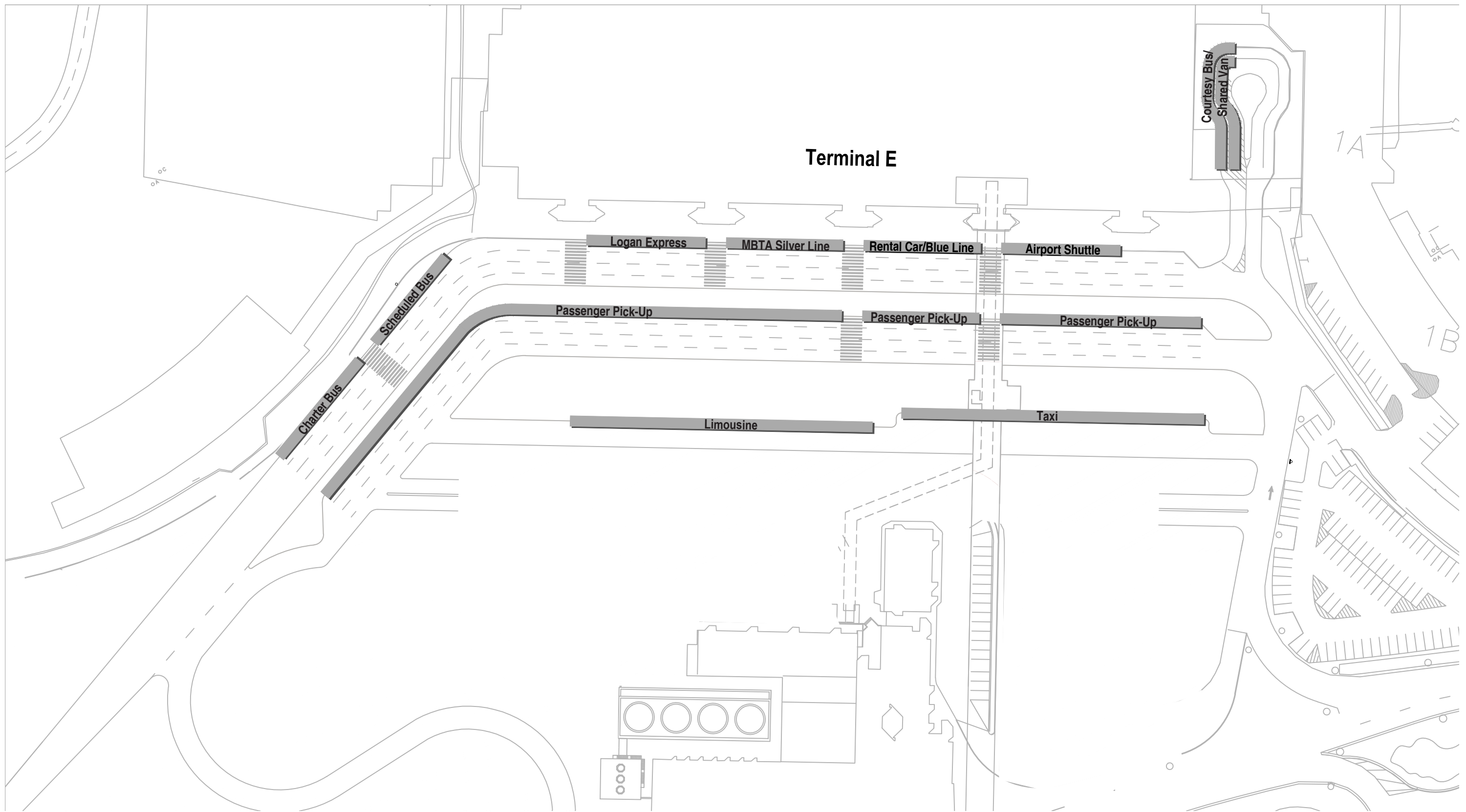


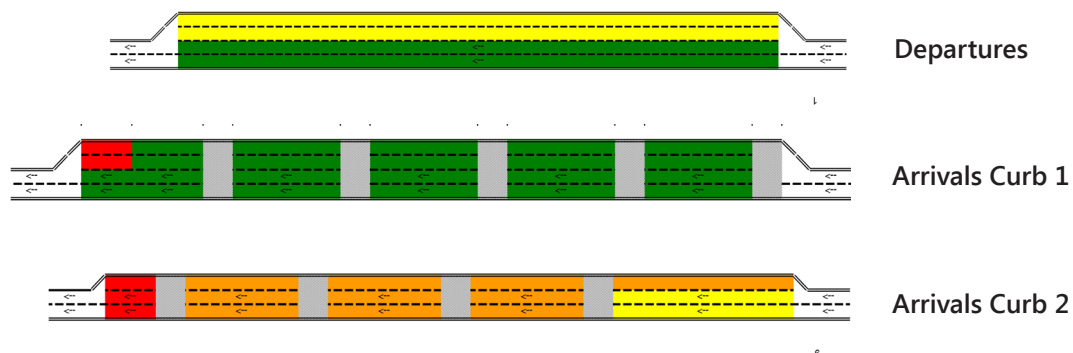
FIGURE 5-12 Proposed Action Curbside Allocation

Terminal E Modernization Project

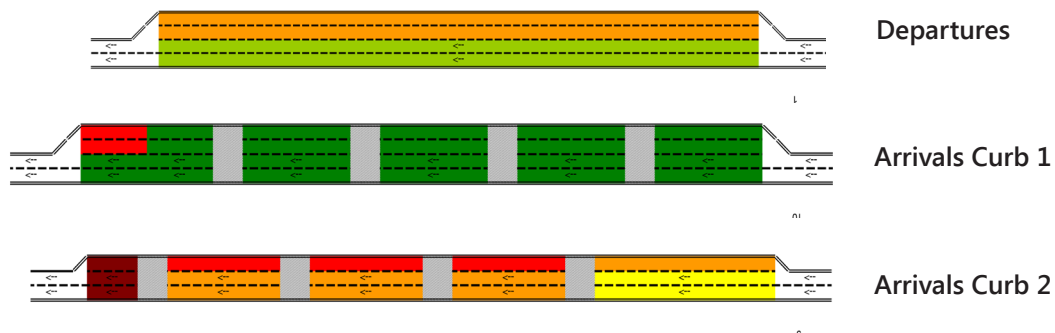


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Existing Conditions



No Build/No Action



Preferred Alternative

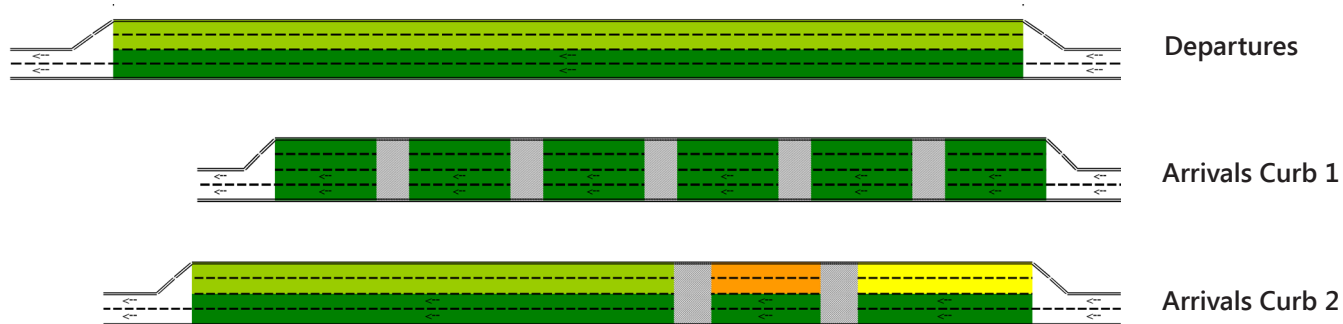


FIGURE 5-13 Terminal E Curbside Analysis

Level-of-service (LOS) key (A = Best, F = Worst):





Interim Condition (Phase 1) Transportation Impacts

As discussed in Chapter 3, *Alternatives and Proposed Action*, construction of the Terminal E Modernization Project is expected to occur in two phases. The impact analysis presented in the above sections considers the completion of both phases. A qualitative assessment of interim (or Phase 1) impacts shows that:

- The proposed roadway system would be similar to the No-Action Alternative discussed above, as the Terminal E ramp system would not be reconstructed.
- Minor signal timing adjustments, as identified in the No-Action Alternative may be required to occur as part of the interim condition. These adjustments are generally performed as part of Massport's ongoing traffic operations maintenance, but may require further action to facilitate the interim condition.
- The addition of enhanced baggage claim facilities in the interim condition would allow for better processing of passengers through the terminal and to the curbside. While the total number of passengers expected is the same with or without the Proposed Action, the ability for them to reach the curbside in an expedited manner has two implications:
 - Recirculating vehicle movements through Terminal E is reduced. Associated congestion and vehicle miles traveled would be similarly reduced, creating immediate overall emissions benefits.
 - There would be a need to expand curbside loading space, as more passengers are able to reach the curb in a shorter amount of time. Curbside 2 would therefore be expanded from three to four lanes as part of the construction of the interim condition.

5.5.2.2 Indirect Impacts - Surface Transportation

Changes to the transportation infrastructure including improved connections and access to the Airport can have indirect impacts on travel behavior. As part of its effort to improve transit connections to the Airport, Massport anticipates building a direct, weather-protected connection between MBTA Blue Line Airport Station and Terminal E. As such, there is potential for that connection to have an indirect impact on travel behavior including mode choice (i.e., increasing the percentage of air passengers accessing the Airport via transit). Massport has engaged a consultant to evaluate the potential impacts of direct connection between MBTA Blue Line Airport Station and Terminal E on MBTA ridership. Factors that influence modal choice within the context of air passenger ground transportation include:

- Travel Time
 - "In-vehicle" travel time
 - Wait time
 - Walk time
- Transfers
 - Number of Transfers
 - Quality of Transfer (for example, vertical movement/accommodations)



Given the potential for a direct pedestrian connection between the MBTA Airport Station and Terminal E to increase use of transit, it is important to understand whether the Blue Line can provide enough capacity to support new air passengers using transit if the pedestrian connections result in a mode shift. An analysis of existing and future Blue Line capacity was completed to determine the ability for the service to accommodate future Airport growth.

Existing Blue Line Capacity

The MBTA currently runs Blue Line trains at a 5-minute headway during the peak period, or approximately 12 trains per hour. Each trainset consists of six cars and each car has a service policy capacity²⁴ of 95 passengers per car and a crush capacity²⁵ of 145 passengers per car. The Blue Line has a peak service policy capacity of 6,840 passengers per hour or peak crush capacity of 10,440 per hour.

Future Blue Line Demand

Existing boarding and alighting counts²⁶ were used to estimate passenger loads between stations in the inbound and outbound direction. These passenger loads were grown by 1.5% per year to approximate future background growth to arrive at an estimate of 2030 Blue Line demand. Future estimated demand is presented in **Table 5-22**.

Table 5-22 Estimated Future Blue Line Passenger Loads (2030)

Stations	Westbound/Inbound Total PM Peak Load Leaving...(read down)			Stations	Eastbound/Outbound Total PM Peak Load Arriving at...(read up)		
	3PM to 4PM	4PM to 5PM	5PM to 6PM		3PM to 4PM	4PM to 5PM	5PM to 6PM
Wonderland	271	282	261	Wonderland	693	1,220	1,473
Revere Beach	485	503	465	Revere Beach	1,097	1,715	1,898
Beachmont	626	616	612	Beachmont	1,484	2,242	2,534
Suffolk Downs	663	668	669	Suffolk Downs	1,577	2,356	2,668
Orient Heights	863	880	852	Orient Heights	2,107	3,006	3,399
Wood Island	978	1,030	937	Wood Island	2,370	3,297	3,651
Airport	1,519	1,551	1,490	Airport	2,976	4,016	4,289
Maverick	2,144	2,182	2,016	Maverick	4,165	5,248	5,476
Aquarium	2,192	2,339	2,233	Aquarium	3,980	4,760	4,751
State Blue	1,294	1,212	1,118	State Blue	2,335	2,834	2,761
Govt Ctr Blue	41	27	50	Govt Ctr Blue	329	461	420
Bowdoin	0	0	0	Bowdoin	0	0	0

Source: MBTA

²⁴ The MBTA Service Delivery Policy establishes vehicle load standards for each type of subway car, commuter rail vehicle and bus, and varies by mode and time period. According to the MBTA, these standards "establish the average maximum number of passengers allowed per vehicle to provide a safe and comfortable ride." This number is often referred to as the "service policy" capacity.

²⁵ A vehicle loading standard used by the MBTA calculated by the number of seated passengers plus 1.5 square feet per standing passenger (2 square feet on buses).

²⁶ 2012 counts, CharlieCard Trip Paths Phase 2 Study



As shown in **Table 5-23**, the highest passenger loads are during the 5:00 to 6:00 PM peak hour in the Outbound direction. This peak hour was used in the analysis.

Future Airport Blue Line Demand

Existing Airport Blue Line demand was estimated using Logan Airport terminal shuttle bus activity at Airport Station as a proxy for hourly Blue Line ridership to/from the Airport. **Table 5-23** presents the existing Logan Airport terminal shuttle bus activity at Airport Station.

Table 5-23 Existing Logan Airport Terminal Shuttle Bus Activity at Airport Station

Activity	3PM to 4PM	4PM to 5PM	5PM to 6PM
Shuttle Bus Boardings	218	164	128
Shuttle Bus Alightings	183	149	131

Source: MBTA

Note: Shading denotes peak hour.

As shown in **Table 5-23**, Logan Airport Terminal Shuttle Bus Activity peaks during the 3:00 to 4:00 PM hour. The boarding and alighting counts during this peak hour were used to represent the existing Blue Line demand at Airport Station.

A sensitivity analysis was conducted, using a range of air passenger transit user growth factors, to estimate the potential Airport-related demand on the Blue Line. The net additional transit riders were distributed across the Blue Line based on station distribution of existing Logan Airport air passenger origin and destinations to and from the Airport, respectively.²⁷ The additional transit riders were loaded on the estimated future Blue Line demand. The results are presented below in **Table 5-24**.

²⁷ Using data from the Logan Airport Passenger Ground Access Mode Choice Model. From CTPS for the South Boston Transportation Study, 2015.



Table 5-24 Reserve Capacity by MBTA Blue Line Airport Station Growth

Eastbound/Outbound % Reserve Capacity Arriving at...(read up)								
Stations	Percent Airport Blue Line Growth							
	0%	10%	20%	30%	40%	50%	75%	100%
Wonderland	78%	78%	78%	78%	78%	78%	78%	78%
Revere Beach	72%	72%	72%	72%	72%	72%	72%	72%
Beachmont	63%	63%	63%	63%	63%	63%	63%	63%
Suffolk Downs	61%	61%	61%	61%	61%	61%	61%	61%
Orient Heights	50%	50%	50%	50%	50%	50%	50%	50%
Wood Island	47%	47%	47%	46%	46%	46%	46%	46%
Airport Station	37%	37%	37%	36%	36%	36%	35%	35%
Maverick	20%	20%	19%	19%	19%	19%	18%	17%
Aquarium	31%	30%	30%	30%	29%	29%	28%	28%
State Blue	60%	59%	59%	59%	59%	59%	59%	58%
Govt Center Blue	94%	94%	94%	94%	94%	94%	94%	94%
Bowdoin	-	-	-	-	-	-	-	-

Source: MBTA

5.5.2.3 Temporary Construction Related Impacts - Surface Transportation

In accordance with FAA *Order 1050.1F* and *Order 5050.4B*, Massport has analyzed potential construction-related impacts, including construction noise; dust and noise from heavy equipment traffic; disposal of construction debris; and air and water pollution. Temporary, construction-related impacts occur on a short-term basis during the construction period based on construction methods, duration, materials, and equipment. Construction impacts alone are rarely significant pursuant to NEPA; however, Massport has identified best practices that would minimize the likelihood of negative impacts on the natural and built environments.

For the purposes of the EA/DEIR analysis, Phase 1 construction activities are assumed to begin during the first quarter of 2018 and be completed by the fourth quarter of 2020. Phase 2 construction activities are assumed to occur between the first quarter of 2026 and the fourth quarter of 2028. The actual timing of the phasing may differ subject to funding and other factors.



The following section provides an overview of the construction methods, equipment, and likely durations for the terminal improvement elements of the Proposed Action. Each construction phase includes the following elements:

Phase 1

- Four new gates accommodating Group V aircraft (or smaller), with associated holdrooms, toilet rooms, and elevators/escalators;
- Aircraft electrical connections for pre-conditioned air, 400 Hz power, and potable water;
- New secure concourse connecting new gates with existing terminal;
- New concession areas adjacent to new concourse;
- Expansion of ticket counters with associated queue and kiosk areas;
- Expansion of the passenger screening area;
- New airline clubs;
- Expansion of the Check Bag Inspection Service and Checked Bag Resolution Area facilities;
- Relocation of the baggage sort equipment;
- Relocation and expansion of the west bag make-up room;
- New sterile concourse connection from new gates to Customs and Border Protection facilities in exiting Terminal E;
- Expanded baggage claim facilities;
- New mechanical, electrical, plumbing, and fire protection rooms to support new facilities;
- New electrical substation to support new facilities;
- Reconstructed aircraft apron area with associated fuel pits;
- New utility connections for sewer, storm, chilled water, and high temperature hot water;
- Addition of a belly cargo storage facility; and
- Construction of a fourth lane along curbside 2 on the Arrivals Level.

Phase 2

- An additional three new gates accommodating Group V aircraft (or smaller), with associated support facilities;
- New secure concourse with associated support areas connecting new gates with Phase 1 facilities;
- Expansion of ticket counters with associated queue and kiosk areas;
- New sterile concourse connection from new gates to satellite Customs and Border Protection facilities;



- New mechanical, electrical, plumbing, and fire protection rooms to support new facilities;
- Direct, weather protected pedestrian connection between the MBTA Blue Line Airport Station and the terminal;
- New terminal frontage at Departures and Arrivals Levels – including new ramps to Airport exit and other on-Airport destinations; and
- Reconfigured taxi and limousine ground transportation facilities.

The following section provides an overview of the construction methods, equipment, and likely durations for the terminal improvement elements of the Proposed Action.

Phase 1 Construction Elements

To facilitate Phase 1 Construction, a Transportation Security Administration-approved temporary Security Identification Display Area fence would be constructed as part of the Terminal E Modernization Project to allow construction activities to occur outside of secured areas, to avoid airside security issues during the terminal building construction. Construction laydown areas would be located in the construction zone within the approved Security Identification Display Area fence.

Large construction equipment, major material deliveries, demolition materials, and trash hauling would use the North Gate. Once at the construction site, contractor staff would access the building area through a contractor's construction entrance door/corridor within the terminal. Massport strives to complete all work during daytime hours to avoid construction noise impacts on the surrounding communities. New terminal foundations would be comprised of deep pilings, pier caps, grade beams, and structural slabs. All superstructure is anticipated to be structural steel. Construction cranes would be used for steel erection and precast panel installation.

Table 5-25 presents the anticipated construction equipment for the terminal building.



Table 5-25 Terminal E Modernization Project - Phase 1 Construction Equipment

Equipment Estimate	2018				2019				2020			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Aerial Lift	1	2	2	2	2	2	2	1	1			
Asphalt Paver												
Auger	1	1	1									
Bulldozer				1	1	1	1					
Concrete Paver										1	1	
Concrete Pump Truck	1	1	1	1	1	1	1					
Concrete Transit Mixer	2	3	4	4	4	3	2			4	4	
Crane- Mobile	1	2	2	3	3	3	3	3	2	1		
Dump Trailer	1	2	2	2	2	2	2	1	1			
Dump Truck	1	3	3	3	3	3	3	1	1	1		
Dumpster	1	2	2	3	3	3	3	2	2	2	2	2
Excavator	1	2	2	2	2	2	2					
Front End Loader		1	1	1	1	1	1					
Material Handler	1	3	3	4	4	4	4	4	4	2	1	1
Pile Vibrator	1	1	1									
Roller- Dirt										1	1	
Roller- Pavement										1	1	
Sweeper	1	1	1	1	1	1	1	1	1	1	1	1
Truck And High-Bed Trailer	3	3	3	6	6	6	5	5	4	3	3	3
Utility Truck	1	3	3	5	5	5	5	5	5	3	3	3
Vibratory Plate Compactor	1	1	1									
Water Pump	1	1	1									
Water Truck	1	1	1									
Welding Machine		2	2	2	2	2	2	2	2	2	2	2
TOTAL	20	35	36	40	40	39	37	25	23	22	19	12

Source: AECOM

Note: Numbers denote average equipment per daily shift

Phase 2 Construction Elements

Construction conditions under Phase 2 would be the same as under Phase 1. In addition, elevated frontage and exit ramps would be comprised of deep foundations, pier caps, with concrete columns and roadway spans.

Table 5-26 presents the construction equipment requirements for the terminal building, associated exit roadways, and parking deck.



During construction there would be limited short-term impacts from added vehicle trips to and from the site by construction equipment, fugitive dust, and noise. Demolition materials and other routine construction wastes would be appropriately recycled and disposed.

Table 5-26 Terminal E Modernization Project - Phase 2 Construction Equipment

Equipment Estimate	2026				2027				2028			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Aerial Lift	1	2	2	2	2	2	2	1	1			
Asphalt Paver								1	1			
Auger	1	1	1									
Bulldozer				1	1	1	1					
Concrete Paver										1	1	
Concrete Pump Truck	1	1	1	1	1	1	1					
Concrete Transit Mixer	2	3	4	4	4	5	4			4	4	
Crane- Mobile	1	2	2	3	3	3	3	3	2	1		
Dump Trailer	1	2	2	2	2	2	2	1	1			
Dump Truck	1	3	3	3	3	3	3	1	1	1		
Dumpster	1	2	2	3	3	3	3	2	2	2	2	2
Excavator	1	2	2	2	2	2	2					
Front End Loader		1	1	1	1	1	1					
Material Handler	1	3	3	4	4	4	4	4	4	2	1	1
Pile Vibrator	1	1	1	1	1							
Roller- Dirt										1	1	
Roller- Pvmt										1	1	
Sweeper	1	1	1	1	1	1	1	1	1	1	1	1
Truck And High-Bed Trailer	3	3	3	6	6	6	5	5	4	3	3	3
Utility Truck	1	3	3	5	5	5	5	5	5	3	3	3
Vibratory Plate Compactor	1	1	1									
Water Pump	1	1	1									
Water Truck	1	1	1									
Welding Machine		2	2	2	2	2	2	2	2	2	2	2
TOTAL	20	35	36	41	41	41	39	26	24	22	19	12

Source: AECOM

Note: Numbers denote average equipment per daily shift



Coordination with Other Construction Activities

The projects presented in **Table 5-27** are anticipated to be ongoing during construction of the Terminal E Modernization Project.

Table 5-27 Ongoing and Foreseeable Logan Airport Projects

Project	Construction Period	Peak Construction Quarters	Peak Equipment Usage (trucks, dozers, etc.)
Gate 37/38 connector	2016-2018	NA	Trucks, mobile cranes, excavators, concrete pump trucks, pavers, and miscellaneous equipment
Central Heating and Cooling Plant upgrade	2017 and beyond	NA	Trucks, mobile cranes, excavators, concrete pump trucks, pavers, and miscellaneous equipment
Installation of Airfield Wide Snowmelters	Through 2019	Q2/Q3 each year	Trucks, excavators

Source: Massport

NA Not Available

Construction Surface Transportation Impacts

Short-term construction impacts are expected to be limited to the roadways that provide direct access to the Airport's entrances (Service Road, Frankfurt Street, and Prescott Street) and on-Airport roadways (Transportation Way, Harborside Drive, and Terminal Area roadways). As documented in Massport's construction management specifications, construction vehicles are restricted from using local roads.

Project construction would be primarily undertaken from a defined work area on the airfield. All materials and workers would be delivered to the Terminal E construction area with secure escort from the North Gate. Materials to be delivered by truck to the Airport would primarily include asphalt pavement, concrete, granular base and sub base materials, structural steel, Mechanical/Electrical/Plumbing equipment, terminal fit-out/furnishings, and miscellaneous metals. Construction workers would not be allowed to drive or park at the Airport (with the exception of limited supervisory personnel). The majority of workers would be transported to the site by shuttle bus from a remote contractor lot or arrive on existing Airport shuttles.

Construction Traffic Methodology

The estimated numbers of pieces of construction equipment associated with the construction schedule are provided in **Tables 5-25** and **5-26** for each quarter from 2018 through 2020 and 2026 through 2028. Estimates of the types and numbers of pieces of heavy equipment required for the Terminal E Modernization Project construction per work shift were developed based on these equipment schedules.

Construction Truck Traffic

Peak construction activity related to the Terminal E Modernization Project elements occurs at different times. The combined peak is anticipated to occur from October 2018 to March 2019 during Phase 1 and October 2026 to March 2027 during Phase 2. This peak is generally associated with completing utility connections, foundation work, steel erection, slab construction, building envelope, and building services. The construction equipment schedules indicate that a maximum of 40 pieces of construction equipment would be required each day during



the peak period of Phase 1 construction (2018/2019) and 41 pieces of equipment would be required each day during the same period during Phase 2 (2026/2027). For the purposes of this traffic analysis, the peak period construction period is the fourth quarter (October to December) of 2026, with a combined anticipated 41 pieces of construction equipment required each day.

Most of the heavy construction equipment, including some mobile cranes, excavators, concrete pump trucks, pavers, and miscellaneous equipment (welders, compressors, vibro-compactors) would be stored on the Airport during non-work hours. This equipment would be used during most workdays; however, this equipment would not enter or leave the Airport as a daily construction trip. The following types of equipment would enter and leave the Airport for each work shift:

- Concrete Transit Mixers;
- Dump Trucks;
- Dump Trailers;
- Truck/High-bed Trailers; and
- Utility Trucks.

The projected daily need for these types of heavy and light trucks was used to estimate the daily number of total truck trips (arrivals plus departures) to the Airport, as presented in **Table 5-28**. Cumulatively, the Proposed Action construction would generate approximately 22 to 59 total truck trips per weekday, depending on the project phase. Construction is expected to take place primarily during the day shift, approximately 7:00 AM to 7:00 PM. Most light duty trucks, such as escort trucks and pick-up trucks associated with supervisory workers, are assumed to all arrive to the Project Area during the morning peak hour and exit during the evening peak hour.

Table 5-28 Total Daily Construction Trips - Phase 1

Year	2018				2019				2020			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Daily Trips (Terminal Building)	17	31	33	45	45	43	39	29	27	25	23	15
Daily Trips (Misc.)	5	9	10	14	14	13	12	9	8	8	7	5
Total Daily Trips	22	40	43	59	59	56	51	38	35	33	30	20

Source: AECOM



Table 5-29 Total Daily Construction Trips - Phase 2

Year	2026				2027				2028			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Daily Trips (Terminal Building)	17	31	33	45	45	43	39	29	27	25	23	15
Daily Trips (Misc.)	5	9	10	14	14	13	12	9	8	8	7	5
Total Daily Trips	22	40	43	59	59	56	51	38	35	33	30	20

Source: AECOM

Construction Truck Routes

Massport requires that the contractor use direct construction truck traffic access to Terminal E and that all airside construction sites be through the Airport’s North Gate for the duration of construction (see **Figure 5-14**). Airport access by the contractor would be limited to federal or state highways and segments of local roadways that provide direct access to the Airport’s entrances. As noted previously, construction vehicles are restricted from using local roadways through East Boston. Truck trips directly to the Project Area are anticipated to come from all directions and would be routed in any of the following ways:

- Access via McClellan Highway (Route 1A) southbound, Transportation Way, Hotel Drive, Service Road (SR-2), and Prescott Street; egress via Prescott Street, SR-2, and the Airport Exit ramp from Terminal E to Route 1A northbound.
- Access via Callahan Tunnel, Route 1A Northbound, Frankfort Street off-ramp, Frankfort Street southbound and Prescott Street; egress via Prescott Street, SR-2, the Airport Exit ramp from Terminal E, Route 1A Southbound to the Sumner Tunnel.
- Access via Ted Williams Tunnel, Ramp T-S, Hotel Drive, SR-2 and Prescott Street; Egress via Prescott Street, SR-2, and the Airport Exit ramp from Terminal E to Ted Williams Tunnel.

Construction Traffic Management

Vehicular traffic flow on the Airport roadway network during construction would be managed to maintain acceptable levels of service. If necessary, Massport has the ability to modify contractor schedules and access routes to minimize impacts.

Based on the maximum of 59 total daily construction truck trips and the access restrictions described above, the Terminal E Modernization Project would have minimal impact on Airport or regional roadways. The Airport roadway infrastructure accommodates over 119,000 daily trips each weekday and can accommodate the anticipated 59 additional daily construction truck trips associated with the Proposed Action’s construction without further impacting capacity or delay.

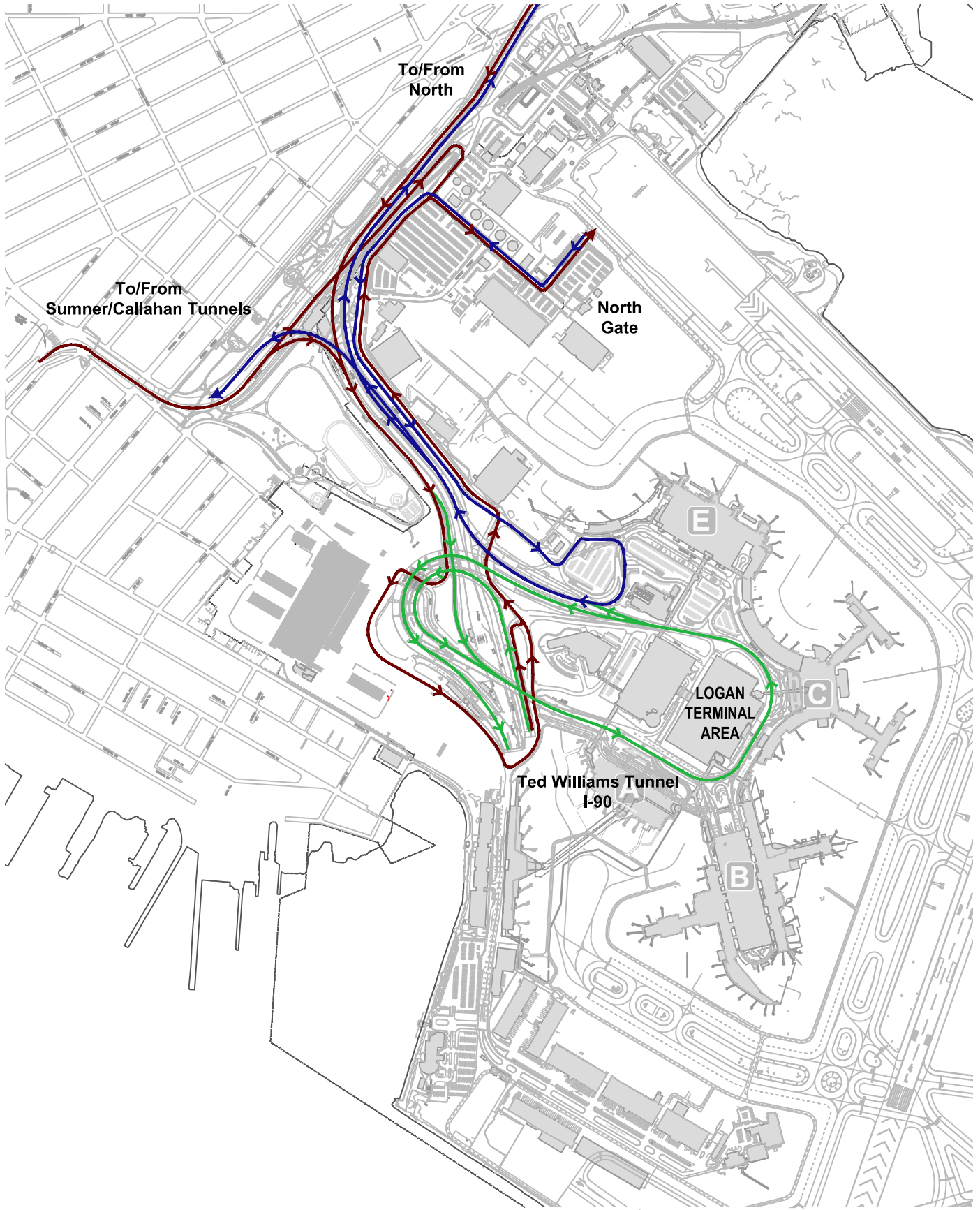


FIGURE 5-14 Temporary Construction Access/Egress Routes | **Terminal E Modernization Project**

- Access Routes
- Small Vehicle Contractor Access
- Egress Routes





Due to the minimal impact of the Proposed Action's construction on the roadways and the distance from other construction activities (shown in **Table 5-27**) in different areas of the Airport, the concurrent construction of the other ongoing and reasonably foreseeable projects can be adequately accommodated by the Airport and regional roadway systems.

Construction Traffic Mitigation

The Airport roadways can support the anticipated construction-related traffic; therefore, no specific mitigation is proposed and no Project-specific transportation access plan is proposed. Massport requires all contractors to limit construction-related traffic to access and egress through the North Gate using only state and federal highways and the Airport roadway network, prohibiting construction-related traffic on the local East Boston roadways.

Massport requires contractors to implement construction worker vehicle trip management, including requiring off-Airport parking and high-occupancy vehicle transportation modes for employees.

5.5.2.4 Cumulative Impacts - Surface Transportation

The transportation analysis is, by nature, cumulative because it takes into consideration background and current conditions as well as future actions. The transportation effects of multiple on-going projects Airport-wide are discussed annually in Massport's EDR/ESPR filings.

Reasonably Foreseeable Projects

Logan Airport operates under the Logan Airport Parking Freeze²⁸ (the Parking Freeze), which is an element of the Massachusetts State Implementation Plan (SIP) under the Federal Clean Air Act. The Parking Freeze regulates the number of commercial and employee parking spaces allowed at Logan Airport. Logan Airport is the only airport in the United States that is subject to a commercial parking freeze.

The original intent of the Logan Airport Parking Freeze was to reduce emissions by shifting air passengers to high-occupancy vehicle travel modes over time. The Parking Freeze has contributed to severely constrained parking conditions at the Airport. Surveys conducted regularly at Logan Airport by Massport have consistently shown that constrained parking has resulted in the unintended consequence of shifting air passengers to travel modes with a higher number of vehicle trips, despite Massport's extensive efforts to dampen parking demand and provide and encourage the use of high-occupancy vehicle travel modes. This drop-off/pick-up phenomena was confirmed by the U.S. Environmental Protection Agency (EPA) in its 1993 approval of the 1989 amendment to the Logan Airport Parking Freeze: "The existing parking freeze has had the unanticipated effect of vastly increasing passenger drop-off and pick-up, resulting in twice as many vehicle trips as would occur if each passenger drove to the airport."²⁹ Additionally, approximately 75% of all "parkers" at Logan Airport would divert to a drop-off/pick-up mode, if parking were not available.³⁰

²⁸ 310 Code of Massachusetts Regulations 7.30 and 40 Code of Federal Regulations 52.1120.

²⁹ U.S. Environmental Protection Agency. 2003, March. *Approval and Promulgation of Air Quality Implementation Plans; Massachusetts; Amendment to the Massachusetts Port Authority/Logan Airport Parking Freeze and City of Boston/East Boston Parking Freeze*. 58 Federal Register 14153.

³⁰ Massport. 2014, May. *2013 Logan International Airport Air Passenger Ground-Access Survey*. Retrieved from <https://www.massport.com/media/263543/2013-Logan-APS-FINAL-Report-1-.pdf>



Massport is currently investigating the potential to increase the Parking Freeze cap in an attempt to reduce the number of ground access vehicle trips to and on the Airport caused by drop-off and pick-up, potentially alleviating roadway congestion and reducing ground access emissions. Given the uncertainty of an amendment to the Parking Freeze, the analysis conducted for the Terminal E Modernization Project analyzes the future conditions with and without the addition of 5,000 additional on-Airport commercial parking spaces. The Trip Reduction/New Parking Garage Project is separate and independent from the Terminal E Modernization Project and is described in more detail above in Section 5.4.5.2, *Projects Underway*.

Cumulative Impacts Analysis

This section describes the transportation impacts considering the potential introduction of an additional 5,000 on-Airport commercial parking spaces by 2030. Under the current Parking Freeze, no additional commercial parking spaces can be constructed within the Airport footprint. However, given the 15-year analysis timeframe, it is possible that the Parking Freeze regulation will be amended to allow for construction of additional commercial parking on-Airport and decrease in vehicle miles traveled. For the purposes of this analysis, it was assumed that a portion of the additional parking spaces would be accommodated in front of Terminal E and the remainder would be accommodated near the existing Economy Garage/North Cargo Area.

Assumed Roadway/Operations Changes

The No-Action Alternative and the Proposed Action would result in changes to the terminal area roadway network and curbside operations. **Table 5-30** presents the assumed roadway and operational changes used in the analysis of the No-Action Alternative and Proposed Action, assuming 5,000 additional on-Airport commercial parking spaces.

Localized Benefits

There are localized benefits to increasing the parking supply by an assumed 5,000 spaces relative to reduced vehicle miles traveled and related improvements in air quality. Although the model output in this analysis is general in nature and, therefore, does not reflect these localized benefits, the vehicle miles traveled output from the model shows reductions in on-Airport vehicle miles traveled with construction of the Terminal E Modernization Project and an additional reduction with the provision of additional on-Airport parking. This is largely a reflection of the reduced drop-off/pick-up activity associated with the constrained parking supply. **Table 5-31** presents the overall on-Airport vehicle miles traveled, for the No-Action Alternative and Proposed Action with and without the additional 5,000 on-Airport parking spaces.

As shown in **Table 5-31**, the Terminal E Modernization Project decreases the average weekday on-Airport vehicle miles traveled by approximately 9,500 vehicle miles. The addition of 5,000 on-Airport parking spaces coupled with the Terminal E Modernization Project further reduces the average weekday on-Airport vehicle miles traveled by an additional 2,000 vehicle miles traveled.

Off-Airport changes to vehicle miles traveled and overall benefits of the Trip Reduction/New Parking Garage Project will be reported in the upcoming environmental filings for that project, if MassDEP and EPA approve the Parking Freeze amendment.



Table 5-30 Assumed Roadway and Operations Changes (Proposed Action with Additional 5,000 On-Airport Parking spaces)

Condition	Category	Change
Terminal E Modernization Project (Proposed Action)	Roadway Infrastructure and Configuration	Departures Level improvement project expanding the roadway between Terminal B and Terminal C to a three-lane cross-section
		Recirculation Road eliminated
		Exit Ramp System Geometric Changes
		Elimination of Service Road to and from Terminal E
		Additional entrance from Service Road into Cell Phone Lot
		Modifications to the intersection of Hotel Drive/Service Road/Ramp D-S, which require Arrivals Level traffic, destined to the Southwest Service Area and South Cargo to access via Transportation Way
	Operations	Possible Terminal E Garage (subject to Parking Freeze amendment) <ul style="list-style-type: none"> ■ Entrance on Arrivals Entry Ramp ■ Exit on Departures Exit Ramp
		Curbside 1 – increased length - L shape extension
		Curbside 2 – increased length – L shape extension
		Curbside 2 – expanded to provide 4 lanes
		Limousine and Taxi Stand move to first floor of garage <ul style="list-style-type: none"> ■ Entrance on Arrivals Entry Ramp ■ Exit on Arrivals Exit Ramp
		Shared Vans and Courtesy Bus pick-up relocated to horseshoe

Source: VHB

Table 5-31 On-Airport Vehicle Miles Traveled

Condition	On-Airport Vehicle Miles Traveled			
	AM Peak	PM Peak	High 8-Hour	AWDT
No-Action Alternative	11,300	12,200	94,300	216,500
Terminal E Modernization Project	10,800	11,700	90,200	207,000
Terminal E Modernization Project (with additional 5,000 on-Airport parking spaces)	10,800	11,600	89,300	205,000

Source: VHB

Note: AWDT – Average Weekday Traffic

Intersection Operations

As discussed in Chapter 4, *Affected Environment*, analysis of existing traffic operations at Airport intersections using Synchro indicates that all intersections are currently operating at acceptable levels of service during the weekday evening peak hour and on Sunday. **Table 5-32** presents traffic operations at Airport intersections for



the No-Action Alternative, the Proposed Action, and the Proposed Action with the cumulative effects of the additional parking on-Airport.

Table 5-32 Overall Traffic Operations - No-Action Alternative and Proposed Action Conditions (with Additional 5,000 On-Airport Parking spaces)

Location	Period	2030 No-Action Alternative ¹			2030 Terminal E Modernization Project (Proposed Action)			2030 Proposed Action/with 5,000 spaces		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Frankfort Street at Lovell St	Weekday Evening	0.57	17	B	0.57	17	B	0.57	17	B
Frankfort Street at Route 1A NB Off-Ramp		0.60	20	C	0.60	20	C	0.60	20	C
SR-2 at Prescott Street*		-	3	A	-	3	A	-	4	A
SR-2 at Cell Phone Lot*		-	2	A	-	3	A	-	3	A
Hotel Drive at Ramp D-S		0.88	44	D	0.73	24	C	0.75	29	C
Hotel Drive at Airport Way		0.85	47	D	0.74	29	C	0.76	30	C
Hotel Drive at Harborside Drive		0.55	35	C	0.48	31	C	0.48	25	C
Harborside Drive at Jeffries Street		0.84	33	C	0.93	34	C	0.91	32	C
Harborside Drive at Porter Street		0.69	35	C	0.77	47	D	0.79	47	D
Harborside Drive at Hyatt Drive		0.13	5	A	0.13	5	A	0.13	5	A
Frankfort Street at Lovell St	Sunday Evening	0.26	13	B	0.37	14	B	0.37	14	B
Frankfort Street at Route 1A NB Off-Ramp		0.25	12	B	0.34	13	B	0.34	13	B
SR-2 at Prescott Street*		-	3	A	-	4	A	-	6	A
SR-2 at Cell Phone Lot*		-	3	A	-	3	A	-	3	A
Hotel Drive at Ramp D-S		0.40	14	B	0.48	16	B	0.45	16	B
Hotel Drive at Airport Way		0.34	14	B	0.43	16	B	0.44	17	B
Hotel Drive at Harborside Drive		0.32	28	C	0.40	28	C	0.33	30	C
Harborside Drive at Jeffries Street		0.53	23	C	0.66	26	C	0.72	27	C
Harborside Drive at Porter Street		0.45	30	C	0.54	27	C	0.64	30	C
Harborside Drive at Hyatt Drive		0.06	4	A	0.08	4	A	0.08	4	A

Source: VHB

Notes:

1 It should be noted that intersection operations at Harborside Drive at Jeffries Street and Harborside Drive at Porter Street degrade below LOS D without intervention. It is assumed under 2030 conditions (both No-Action and Proposed Action) that phasing, timing, and geometric improvements to these intersections will be applied as necessary and prior to the 2030 horizon year.

v/c: Volume to capacity ratio

Delay: Average intersection delay, measured in seconds

LOS: Level-of-service

* Unsignalized intersection

Green LOS A or B, Yellow = LOS C or D, Red= LOS E or F



The No-Action Alternative assumes that any necessary traffic signal timing, phasing, or land geometry changes that would be necessary to maintain acceptable traffic operations will have been installed or made. This is in keeping with Massport's long-standing policy that traffic operations along Airport roadways will be maintained or enhanced to accommodate passenger levels. Traffic signal modifications are assumed to be completed at four intersections:

- Hotel Drive at Ramp D-S;
- Hotel Drive at Airport Way;
- Harborside Drive at Jeffries Point; and
- Harborside Drive at Porter Street.

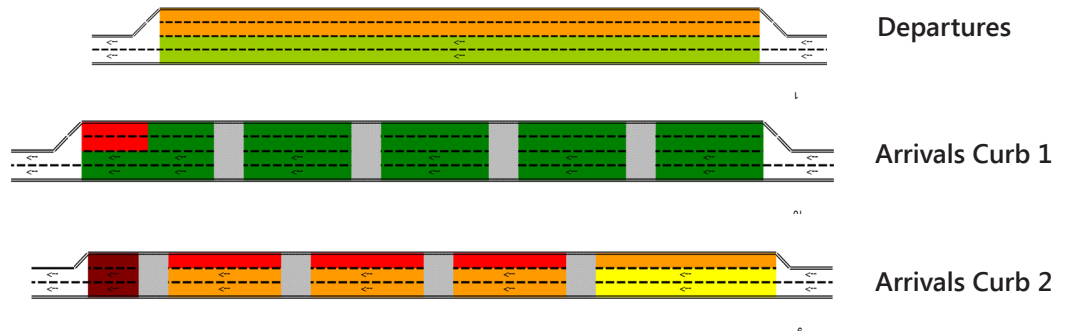
Under the Proposed Action conditions, the analyses indicate that all intersections would operate at a level of service LOS D or better during the weekday evening peak hour and on Sunday. In addition to standard traffic signal timing modifications at various intersections, the intersection of Harborside Drive at Porter Street would require phasing modifications in order to maintain an acceptable level of service. The addition of 5,000 on-Airport parking spaces results in marginal differences on Airport intersection operations, even reducing intersection delay at some locations.

Curbside Operations

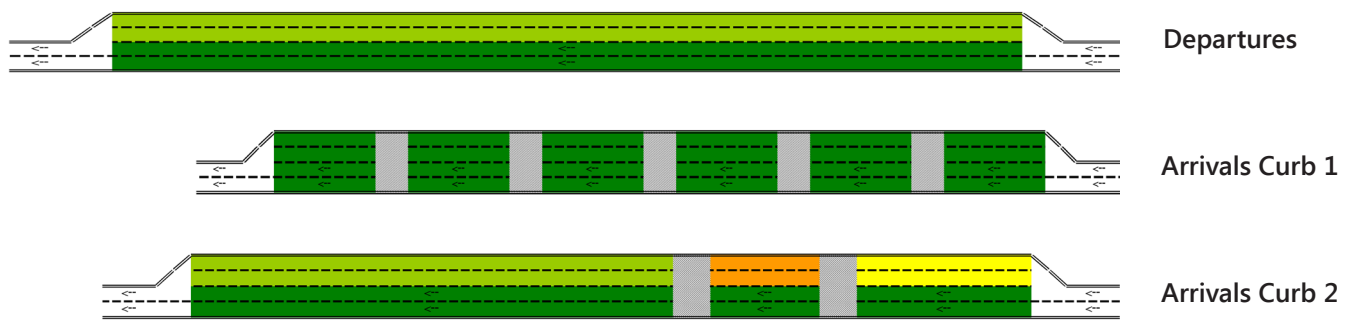
To analyze curbside operations, the anticipated peak hour vehicle demands were entered into the QATAR model along with curb dimensional and usage information regarding curbside allocation. The detailed summary of volume development and QATAR analysis output is provided in Appendix E, *Surface Transportation Technical Appendix*; **Figure 5-15** summarizes these results. While there are significant geometric changes to the Terminal E curbside between the No-Action Alternative and the Proposed Action, there are no proposed geometric changes between the Proposed Action and the Proposed Action with the additional on-Airport parking spaces. If a parking facility is constructed in front of Terminal E as part of the increased parking capacity condition, it is anticipated that access and egress to the parking facility would occur prior to and after, respectively, the Terminal E curbside. As such, there is no difference in Terminal E curbside operations between the Proposed Action and the Proposed Action with the additional on-Airport parking spaces.

The provision of additional parking spaces on-Airport should have the anticipated consequence of reduced vehicular activity, particularly at terminal curbsides, due to the reduction of drop-off/pick-up operations. Those "would-be" parkers who are unable to park on-Airport due to constrained parking conditions are 75% more likely to choose drop-off/pick-up modes if parking was not available; thus, provision of additional on-Airport parking would reduce curbside demand.

No Build/No Action



Preferred Alternative



Preferred Alternative w/ 5,000 Additional On-Airport Parking Spaces

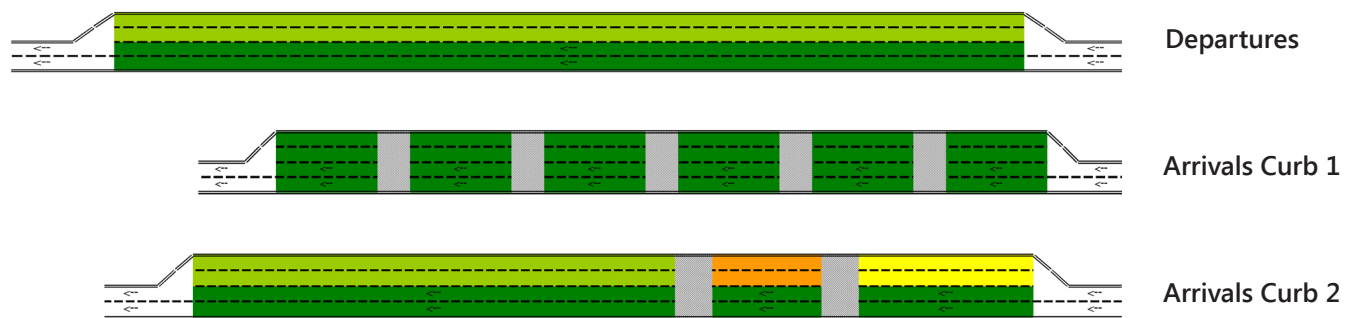


FIGURE 5-15 Terminal E Curbside Analysis - (With Additional On-Airport Parking Spaces)

Terminal E Modernization Project

Level-of-service (LOS) key (A = Best, F = Worst):





5.5.3 Air Quality

This section provides an overview of the methodologies and results of the air quality impact analysis associated with the Terminal E Modernization Project. This includes the calculation of operational emissions of the EPA “criteria pollutants”³¹ (and their precursors) and the estimation of greenhouse gases (GHGs).

Construction-related emissions of the criteria pollutants associated with the Proposed Action are also provided. The criteria pollutant results are used to demonstrate consistency with the General Conformity Rule of the federal Clean Air Act and the GHG emissions are provided in accordance with the MEPA Greenhouse Gas Emission Policy and Protocol (MEPA GHG Policy), which is focused on climate change.

From the standpoint of air quality, the Terminal E Modernization Project provides the following benefits when compared to the No-Action Alternative:

- Reduced aircraft taxi-delay time due to less congestion in the terminal area;
- Less use of aircraft auxiliary power units by alleviating the “hardstanding” of aircraft;
- Reduction of buses and other ground support equipment used to move people and cargo from the aircraft at hardstands to the terminal;
- Less curbside motor vehicle idle time attributable to improved traffic conditions and less congestion in the terminal area; and
- Fewer vehicle miles traveled due to the reduction of vehicles circulating on the internal Airport roadways.

Because of these measures and based on the results of this analysis, the following air quality benefits associated with the Terminal E Modernization Project are demonstrated when compared to the No-Action Alternative:

- With respect to the criteria pollutants, carbon monoxide (CO) emissions decrease by 9%, nitrogen oxide (NO_x) emissions decrease by 44%, and sulfur oxides (SO_x) emissions decrease by 33%. Volatile organic compounds (VOCs) emissions decrease by 6% and particulate matter (PM₁₀ and PM_{2.5}) emissions decrease by 9% and 25%, respectively.
- With respect to climate change emissions, airside operational-related (i.e., aircraft, ground support equipment, and ground access vehicles) carbon dioxide (CO₂) emissions decrease by 15%.
- Terminal building design features are shown to decrease CO₂ emissions by approximately 12% when compared to conventional, code-compliant building methods and materials.

Based upon these outcomes of the air quality assessment, the Terminal E Modernization Project achieves the following benchmarks:

- Meets the requirements of the Clean Air Act General Conformity Rule by demonstrating that criteria pollutant emissions associated with both the construction and operational phases are below (i.e., within) the applicable “*de minimis*” thresholds; and

³¹ National Ambient Air Quality Standards (NAAQS) are established by EPA and represent ambient (i.e., outdoor) concentrations of six types of air pollutants (i.e., the “criteria” pollutants) below which air quality is deemed to be acceptable. These pollutants (called the EPA criteria pollutants) comprise the following: CO – carbon monoxide, Pb – lead, NO₂ – nitrogen dioxide, O₃ – ozone, PM_{10/2.5} – particulate matter of 10 and 2.5 microns in diameter and SO₂ – Sulfur Dioxide. The NAAQS are listed on the EPA Website at <http://www3.epa.gov/ttn/naaqs/criteria.html>



- Meets the requirements of the MEPA GHG Policy by demonstrating reductions in GHG emissions during the operational stage and associated with the terminal building design.

As total aircraft operations and motor vehicle volumes at Logan Airport do not change between the No-Action Alternative and the Terminal E Modernization Project, these and other sources of air emissions generated elsewhere on the Airport also remain unchanged. Therefore, the air quality assessment of the Terminal E Modernization Project is centered on the Terminal E and the North Apron areas of the Airport.

5.5.3.1 Regulatory Background Information

As discussed in Sections 4.3.3, *Air Quality*, the NEPA and the federal Clean Air Act are the two primary regulations that apply to assessment of air quality impacts attributable to the Terminal E Modernization Project. NEPA requires the disclosure of a proposed action's impacts on the human environment, including air quality. The Clean Air Act requires that a proposed action does not cause, or contribute to, a violation of the NAAQS.

With respect to the NAAQS Attainment/Non-attainment designations for the Boston metropolitan area, Section 4.3.3, *Air Quality*, reports that the area is currently in Attainment for CO, but because of past violations, it is still designated as Attainment/Maintenance for this pollutant. Similarly, although the Boston area now meets the former 8-hour standard for ozone, it is also still subject to the SIP for this pollutant under the "Anti-Backsliding"³² provision of the Clean Air Act. Importantly, VOCs and NO_x are used as surrogates for ozone as this pollutant is formed from these precursors.

Because of these designations, projects and actions involving federal agencies (including the FAA) must demonstrate compliance with the General Conformity Rule of the Clean Air Act. This is achieved when project-related emissions are within prescribed numerical thresholds (called *de minimis* levels) indicating that violations of the NAAQS are not expected and compliance with the SIP is assured. The Boston metropolitan area is in Attainment for the other five criteria pollutants including lead, SO₂, NO₂ and PM_{10/2.5}.

With respect to climate change, the MEPA GHG Policy aims to reduce GHGs associated with projects and/or actions the agency reviews under its jurisdiction. This is accomplished by ensuring that all efforts are undertaken to reduce and manage these emissions during the planning stage and carried forward to the design, construction, and operation of the project(s).

5.5.3.2 Approach and Methodology

The overall approach to the assessment of air quality impacts attributable to the Terminal E Modernization Project addresses both the NEPA and Clean Air Act requirements discussed above. In this regard, estimations of future-year emissions of both operational-related and short-term construction emissions are computed and disclosed for NEPA purposes. Emissions associated with the No-Action Alternative are compared to the Proposed Action as required under the General Conformity Rule of the Clean Air Act and NEPA.

For this analysis, emissions of the criteria pollutants and precursors (CO, VOC, NO_x, SO_x, and PM_{10/2.5}) are calculated using FAA- and EPA-required models. These include FAA's newly released AEDT³³ model and

³² EPA, Implementation of the 2008 National Ambient Air Quality Standards (NAAQS) for Ozone: State Implementation Plan (SIP) Requirements, <https://www.epa.gov/ozone-pollution/implementation-2008-national-ambient-air-quality-standards-naaqs-ozone-state>.

³³ FAA, Aviation Environmental Design Tool (AEDT), version 2b, https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aedt/.



EPA’s MOVES³⁴ and NONROAD³⁵ models. The sources of emissions associated with the long-term operation of the Terminal E Modernization Project, and therefore included in the analysis, involve aircraft engines, auxiliary power units and ground support equipment, and airside vehicles, as well as airport passenger and employee motor vehicles.³⁶ During the construction periods, emissions from the movement of construction vehicles and equipment, the delivery and assembly of construction materials, and the transportation of construction workers to and from the site are also included.

Consistent with the planning and development timeframes for the Terminal E Modernization Project – Phase 1 (2018 to 2020) and Phase 2 (2026 to 2028) conditions were analyzed for construction-related impacts and year 2030 conditions were analyzed for operational-related impacts. Further details of the air quality assessment are presented in Appendix F, *Air Quality Technical Appendix*.

5.5.3.3 No-Action Alternative - Air Quality

Compared to existing conditions and the Proposed Action, the No-Action Alternative would require an increased number and utilization of aircraft hardstands, attributable to the shortage of gates at Terminal E and a corresponding increase in ground support equipment/auxiliary power unit usage during periods of passengers enplaning and deplaning. These inefficiencies are expected to result in the excess generation of air emissions associated with these sources and actions.

The results of the Operational Emissions Inventory for the No-Action Alternative are summarized and presented **Table 5-33**. As discussed above, these results are presented for disclosure purposes under NEPA and for comparison to the Proposed Action under the Clean Air Act General Conformity Rule.

Table 5-33 Terminal E Emissions Inventory - No-Action Alternative

Source	Emissions (tons/year)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft	106	25	25	6	1	1
GSE/APUs	32	2	30	3	2	2
GAV	156	8	4	<1	8	1
Totals	294	35	59	9	11	4

Source: KBE

Notes: CO - Carbon monoxide, VOC - Volatile Organic Compounds, NO_x - Nitrogen Oxides, SO_x - Sulfur Oxides, PM_{10/2.5} – Particulate Matter
GSE - Ground Support Equipment, APUs - Auxiliary Power Units, GAV - Ground Access Vehicles

As shown, CO represents the largest amount of emissions associated with Terminal E ramp activities, by pollutant type, followed by NO_x, VOCs, PM₁₀, SO_x, and PM_{2.5}. Depending on the pollutant, aircraft and ground access vehicles represent the largest sources of emissions followed by ground support equipment/auxiliary power units.

34 EPA, Motor Vehicle Emission Simulator (MOVES), version MOVES2014a, <https://www3.epa.gov/otaq/models/moves/>.

35 EPA, NONROAD, version NONROAD2008, <https://www3.epa.gov/otaq/nonrdmdl.htm#docs>.

36 Other common sources of airport-related air emissions such as stationary sources (e.g., boilers, emergency generators, etc.) were not included as these sources are permitted for operation by the MassDEP and therefore not subject to the NEPA or the General Conformity Rule of the Clean Air Act.



5.5.3.4 Direct Impacts - Air Quality

Under the Proposed Action, aircraft idle times would be significantly less due to better gate availability. Aircraft would plug into power units at the gate, which would greatly reduce the required usage of auxiliary power units compared to the No-Action Alternative. In addition, the use of buses and other ground support equipment for transporting passengers and cargo to and from the terminal would be eliminated.

These and other operational benefits to air quality associated with the Proposed Action are tabulated and presented **Table 5-34**.

Table 5-34 Terminal E Emissions Inventory - Proposed Action

Source	Emissions (tons/year)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft	86	23	20	5	1	1
GSE/APUs	27	2	9	1	1	1
Ground Access Vehicles	155	8	4	<1	8	1
Totals	268	33	33	6	10	3
Percent Change in Emissions Compared to No-Action Alternative	-9%	-6%	-44%	-33%	-9%	-25%
De minimis Levels	100	50	100	N/A	N/A	N/A
Within De minimis Levels	Yes	Yes	Yes	--	--	--

Source: KBE

Notes: CO - Carbon monoxide, VOC - Volatile Organic Compounds, NO_x - Nitrogen Oxides, SO_x - Sulfur Oxides, PM_{10/2.5} - Particulate Matter
GSE - Ground Support Equipment, APUs - Auxiliary Power Units, GAV - Ground Access Vehicles

De minimis levels are numerical thresholds established by the General Conformity Rule of the federal Clean Air Act. Emission totals within (i.e., below) these values conform to the State Implementation Plan (SIP).

As with the No-Action Alternative, CO comprises the largest amount of emissions associated with the Proposed Action, by pollutant type, followed by VOC and NO_x, PM₁₀, SO_x, and PM_{2.5}. Depending on the pollutant, aircraft, and ground access vehicles (e.g., passenger vehicles including cars, vans, and limousines) represent the largest sources of emissions followed by ground support equipment/auxiliary power units.

Under the Proposed Action, total emissions of all pollutants would decrease when compared to the No-Action Alternative. These reductions range from <1 to 26 tons/year (i.e., 6 to 44%) depending on the pollutant.

This air quality benefit is attributable to a number of design and operational characteristics associated with the Proposed Action. These largely include the availability and use of gate-furnished electricity and air conditioning for aircraft in place of using auxiliary power units while parked at hardstands; the reduced reliance on ground support equipment to transport passengers, baggage, and cargo from aircraft to the terminal; and improved aircraft operational conditions (e.g., less congestion and delay) on the taxiways and aprons.



More specifically, the Proposed Action could provide the following benefits that would directly translate to reductions in emissions:

- Average aircraft taxi-time, including idle time between landing and gate access, would decrease by 20%;
- Aircraft auxiliary power unit usage would decrease by 74%;
- Aircraft tractor usage for relocating aircraft between Terminal E gates and hardstands would decrease by 49%;
- Curbside idle time would decrease by 13%;
- Motor vehicle miles traveled would decrease by up to 4%; and
- The number of airside busing operations would decrease by 94% and airside busing vehicle miles traveled would decrease by 97%.

It is also significant that the changes in emissions total under the Proposed Action in comparison to the No-Action Alternative (i.e., the Project-related emissions) are well within (i.e., below) the applicable General Conformity Rule *de minimis* levels for CO, VOCs, and NO_x. This important outcome signifies that the Terminal E Modernization Project conforms to the SIP and will not cause, or contribute to, violations of any NAAQS. This determination of meeting the requirements of the General Conformity Rule is discussed further below in Section 5.5.3.7, *Applicability of the General Conformity Rule*.

5.5.3.5 Indirect Impact - Air Quality

The Terminal E Modernization Project is not expected to result in any indirect or secondary impacts to local or regional air quality conditions. As shown and discussed above, this is because total emissions associated with Terminal E are less with the Proposed Action when compared to the No-Action Alternative.

There are a wide assortment of other measures that Massport has undertaken to reduce air emissions and the Airport's impact on air quality. Described in the EDRs/ESPRs, these measures include, but are not limited to:

- The availability of pre-conditioned air and 400 Hz power for parked aircraft thereby minimizing the use of auxiliary power units;
- The purchase and operation of no- and low-emitting (i.e., electric and clean fuel) buses and other Massport fleet vehicles;
- The use of solar panels and wind generators for electricity;
- The reduction of rental car shuttle bus vehicle miles traveled and related emissions associated with the new Rental Car Center; and
- Adherence to the Air Quality Initiative designed to keep NO_x emissions below 1999 levels.



5.5.3.6 Temporary Construction-Related Impacts - Air Quality

For the purposes of assessing and computing construction-related emissions associated with the Terminal E Modernization Project, the Airport Construction Emissions Inventory Tool (ACEIT) was used.³⁷ ACEIT uses Project-specific construction plans and cost estimates to estimate construction-related emissions. For consistency with regulatory requirements, ACEIT also applies the most recent versions of EPA-emission factor models NONROAD and MOVES. NONROAD provides emission factors for off-road equipment/vehicles (e.g., dozers, tractors, loaders) and MOVES provides emission factors for on-road vehicles (e.g., construction worker vehicles, delivery trucks). For this application, MOVES was programmed using Massachusetts-based motor vehicle fleets and operating parameters (e.g., age, fuel types, and temperatures).

Construction-related emissions for the Terminal E Modernization Project are summarized and tabulated in **Table 5-35**, in tons/year, by pollutant and development phase. For ease of comparison, the applicable General Conformity thresholds are also provided.

Table 5-35 Construction Emissions

Year / Phase	Emissions (tons/year)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Phase 1						
2018	12	5	5	<1	1	<1
2019	12	5	5	<1	1	<1
2020	12	5	5	<1	1	<1
Phase 2						
2026	13	5	2	<1	<1	<1
2027	13	5	2	<1	<1	<1
2028	13	5	2	<1	<1	<1
De Minimis Levels	100	50	100	N/A	N/A	N/A
Within De Minimis Levels?	Yes	Yes	Yes	--	--	--

Source: KBE

Notes: CO - Carbon monoxide, VOC - Volatile Organic Compounds, NO_x - Nitrogen Oxides, SO_x - Sulfur Oxides, PM_{10/2.5} - Particulate Matter, NA - Not Applicable
De minimis Levels are numerical thresholds established by the General Conformity Rule of the federal Clean Air Act. Emission totals within (i.e., below) these values conform to the State Implementation Plan (SIP).

As shown, total emissions are estimated to range from less than one ton to 13 tons on an annual basis depending on the pollutant. Furthermore, emissions of CO, VOCs, and NO_x are well within the applicable General Conformity thresholds. This important outcome signifies that the Terminal E Modernization Project conforms to the SIP and would not cause, or contribute to, violations of any NAAQS. This determination of meeting the requirements of the General Conformity Rule is discussed further below in Section 5.5.3.7, *Applicability of the General Conformity Rule*.

³⁷ Transportation Research Board, ACRP Report 102, Guidance for Estimating Airport Construction Emissions, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_102.pdf.



Construction emissions will be reduced and controlled by contractor implementation of the following best management practices:

- Provisions for construction-worker site access/egress using dedicated buses and vans;
- Reduction of exposed erodible surface areas to the extent possible;
- Covering of exposed surface areas with pavement or vegetation in an expeditious manner and periodic watering;
- Reduction of equipment idling times;
- Reduction of onsite vehicle speeds;
- Ensuring contractor knowledge of appropriate fugitive dust and equipment exhaust controls;
- Use of low- or zero-emissions equipment to the extent possible; and
- Use of covered haul trucks during materials transportation.

5.5.3.7 Applicability of the General Conformity Rule

Compliance with the Clean Air Act General Conformity Rule must be demonstrated for actions involving FAA (including the Terminal E Modernization Project) and for those pollutants subject to a SIP. In this case, these pollutants are CO, VOCs, and NO_x. Compliance is achieved by comparing the emissions associated with the Terminal E Modernization Project to the applicable thresholds – called *de minimis* levels. The *de minimis* levels for CO, VOCs, and NO_x are 100 tons, 50 tons, and 100 tons, respectively, per year.

Consistent with this requirement, the operational emission inventory results shown above in **Table 5-34** demonstrate that total emissions of CO, VOCs, and NO_x associated with the Terminal E Modernization Project are within the *de minimis* thresholds. Similarly, construction-related emissions associated with the Terminal E Modernization Project, and listed in **Table 5-35**, are also within these limits.

Based on these results, both operational- and construction-related emissions of CO, VOC, and NO_x associated with the Terminal E Modernization Project comply with the requirements of the General Conformity Rule. This outcome signifies that the action conforms to the SIP and would not cause, or contribute to a violation of the NAAQS for these pollutants.

5.5.3.8 Cumulative Impacts - Air Quality

As a means of disclosing the air quality impacts associated with the potential additional on-Airport parking, emission inventories were also prepared for the Terminal E No-Action Alternative and Proposed Action with garage. For consistency, the same models, methods, and databases used for the Proposed Action were also used for this assessment. The results of this analysis are shown in **Table 5-36**.



Table 5-36 Terminal E Emissions Inventory - Proposed Action with Garage

Source	Emissions (tons/year)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft ¹	86	23	20	5	1	1
GSE/APUs ¹	27	2	9	1	1	1
On-Airport GAV	153	8	4	<1	8	1
Totals	266	33	33	6	10	3
Percent Change in Emissions With Action Alternative	-10%	-6%	-44%	-33%	-9%	-25%

Source: KBE

Notes: CO Carbon monoxide, VOC - Volatile Organic Compounds, NO_x - Nitrogen Oxides, SO_x - Sulfur Oxides, PM_{10/2.5} - Particulate Matter

GSE Ground Support Equipment, APUs - Auxiliary Power Units, GAV - Ground Access Vehicles

¹ Emissions reduction related to the Terminal E Modernization Project, not the addition of the garage.

As shown, aircraft and ground support equipment/auxiliary power unit emissions of all the criteria pollutants are reduced under the Proposed Action with garage when compared to the No-Action Alternative (see **Table 5-33**). As demonstrated and discussed above, this outcome is due to the improved terminal area efficiencies (and reduced emissions) associated with the Terminal E Modernization Project. It is also shown that CO emissions from ground access vehicle (e.g., cars, vans, buses, etc.) are further reduced under the Proposed Action with garage. This is due to the improved curbside operational efficiencies (e.g., less stop-and-go driving, less delay periods, etc.) with the Terminal E Modernization Project.

5.5.4 Natural Resources and Energy Supply

The FAA has not established a significance threshold for Natural Resources and Energy Supply; however, under *Order 1050.1F* and *Order 5050.4B*, it states that an action's construction, operation, and maintenance could cause demand to exceed available or future supplies of these resources. Accordingly, this section looks at the potential of the Terminal E Modernization Project to cause demand for natural resources, such as potable water, consumable materials, and energy, to exceed available and future supplies. The Proposed Action would not have a significant adverse impact on natural resources or energy supplies because there is sufficient capacity available to support the operation of the new building systems.

5.5.4.1 No-Action Alternative - Natural Resources and Energy Supply

Terminal E is currently undergoing an upgrade that Massport commenced in 2015. Separate and independent from the Terminal E Modernization Project, the Terminal E Renovation and Enhancements Project includes reconfiguration of three existing gates and associated passenger amenities to accommodate large aircraft such as the Airbus A380 and other Group VI aircraft. Massport anticipates that this project, which includes renovated and new building areas, will be complete by the end of 2017. This completion date is prior to the Build Year for the Proposed Action; therefore, the No-Action Alternative includes Terminal E, as it would exist after the completion of the Terminal E Renovation and Enhancements Project. Since actual energy consumption data under this future condition are not yet available, this EA/DEIR relies on a calibrated energy model to estimate energy consumption for Terminal E in the No-Action Alternative. This model draws from existing floor plans of



the current building; operational schedules; internal loads (occupants, lights, and equipment); external loads (lights, radiant heat); heating, ventilation, and air conditioning equipment; process loads; and historical weather data from 2014. Appendix G, *Energy Model* provides further details on this energy model, including assumptions.

Table 5-37 provides the estimated energy consumption for Terminal E under the No-Action Alternative. These estimates are conservative, as they do not include aspects of the Terminal E Renovation and Enhancements Project that will reduce energy consumption in the renovated portions of the existing Terminal E building. While Massport will build the newly constructed portion of the Terminal E Renovation and Enhancements Project to LEED and Massachusetts LEED Plus standards, to achieve LEED Silver or higher, it will outfit the renovated portion of the existing terminal building with efficient building systems, in accordance with Massport’s Sustainable Design Standards and Guidelines.

Table 5-37 Terminal E Energy Use Estimation - No-Action Alternative

Scope	Electric kWh	Natural Gas Therms	Total Energy MMBtu
Existing Terminal E	40,692,003	832,538	222,080.8
Terminal E Renovation and Enhancements Project	2,680,260	67,261	15,869.9
Total	43,372,262	899,798	237,950.7

Source: BR+A

Notes: Existing Terminal E energy does not reflect anticipated energy reduction as part of renovations included in the Terminal E Renovation and Enhancements Project.
 kWh = kilowatt hours
 MMBtu = Million British thermal units

Unrelated to the Terminal E Modernization Project, Massport has been reviewing the feasibility of installing cogeneration (combined heat and power) in the Central Heating and Cooling Plant at Logan Airport. Related studies have considered existing facilities, applicable technologies, capital and operating costs, and payback. The benefits of cogeneration could include:

- Greater energy reliability through distributed generation, which would allow Logan Airport to sustain close to full operation during an interruption in electrical utility service in combination with existing distributed emergency power generators;
- A reduction in the amount of fuel burned per unit of energy output by capturing the waste heat associated with electrical generation and using that heat for thermal energy production, thereby reducing emissions of pollutants and GHGs;
- Reducing demand for finite natural resources such as natural gas and oil through improved system efficiencies; and
- Lower energy costs through lower fuel and electricity costs as well as minimizing the need to replace or upgrade existing boilers.

If Massport were to incorporate cogeneration into the Central Heating and Cooling Plant, the system would have to meet defined objectives, including:



- Flexibility in operation;
- Ability to operate during periods of low thermal demands; and
- Ability to respond to outage and demand response situations.

Eversource, a New England energy provider, would continue to supply Massport with electricity externally. Eversource is committed to providing reliable energy service to its customers and, when needed, upgrades its electric system infrastructure (both the distribution and transmission networks) to address reliability within the system. National Grid would continue to supply natural gas to Massport for combustion at the Central Heating and Cooling Plant. Similar to Eversource, National Grid is committed to providing reliable energy service to its customers, and expands capacity to meet system demand when necessary.

Under the No-Action Alternative, due to increases in international air service at Logan Airport with or without upgrades to facilities, more passengers would utilize Terminal E than under current conditions. This increased passenger count would place limited additional demand on regional water sources, estimated to be about 1 gallon/per person per day. The Massachusetts Water Resources Authority (MWRA) has enough capacity to serve this additional demand. It expects future population and employment growth to add a conservative 17.8 million gallons per day to the average annual demand of its service area by 2035 for a total system demand of 235 million gallons per day, which is lower than the system safe yield (i.e., the amount of water that can be withdrawn without an adverse effect) of 300 million gallons per day.³⁸

5.5.4.2 Direct Impacts - Natural Resources and Energy Supply

Massport will build the Terminal E Modernization Project to LEED® and Massachusetts LEED Plus standards to achieve LEED Silver or higher certification. To meet this objective, Massport is incorporating numerous sustainable building features. Among these are a high efficiency building envelope, energy saving heating, ventilation, and air conditioning technologies such as variable chilled and hot water flow and demand control ventilation, and materials such a terrazzo flooring that minimize maintenance costs and waste generation. Electrical systems will employ newer technology lighting fixtures such as light emitting diode (LED) and lighting control systems to reduce energy usage. The lighting control system will use daylighting strategies that will reduce the output of lighting fixtures if the outdoor lighting is sufficient to maintain the desired lighting levels inside the building.

As designed, the Terminal E Modernization Project would add approximately 58,800 million British thermal units (MMBtu) to the energy demand of Terminal E, which is 24.7% higher than the No-Action Alternative. This proposal is 13.8% more efficient than the baseline case, defined as the minimum high standards required by ASHRAE 90.1-2010. Some of the energy conservation measures that Massport has adopted that make the proposed design more efficient than the baseline case include, but are not limited to, high-albedo/highly-reflective roofing material; daylighting dimming controls; heating, ventilation, and air conditioning zoning; unoccupied temperature setbacks, and low-flow water fixtures that reduce domestic hot water usage. Appendix G, *Energy Model* provides a full list of the measures that Massport has considered for the proposed design for the Project.

³⁸ Massachusetts Water Resources Authority. *Water System Master Plan*. 2013.



Massport considered, but ultimately rejected, several energy conservation measures that include automated reflective interior blinds to reduce solar heat gain, geothermal heat pumps, fan cycling based on occupancy load, and combined heat power (Section 5.5.4.1, *No-Action Alternative – Natural Resources and Energy Supply* provides more information on Massport’s efforts to determine the feasibility of combined heat power at Logan Airport). Massport dismissed these measures, as it determined that they are not viable for the Project for reasons that primarily concern constructability, ease of operations/maintenance, and cost.

Table 5-38 breaks down end uses and annual energy consumption of the baseline case and the proposed design for the Project.

Table 5-38 Annual Site Energy Consumption by Building System and Design Scenario

Energy Consumption	Source	Baseline		Proposed Action		Percent Savings
		Energy (MMBtu/Year)	Percent of Total	Energy (MMBtu/Year)	Percent of Total	
Space Cooling	Chilled Water	16,410	24%	12,620	21%	23%
Space Heating	Steam/Hot Water	8,430	13%	8,810	15%	-5%
Pumps	Electricity	1,480	2%	490	1%	67%
Fans	Electricity	4,500	7%	4,150	7%	8%
Equipment Loads	Electricity	18,870	28%	18,870	32%	0%
Domestic Hot Water	Electricity	4,930	7%	3,390	6%	31%
Interior Lighting	Electricity	12,920	19%	10,400	18%	20%
Exterior Lighting	Electricity	170	0%	100	0%	41%
Total Building Energy Consumption	--	68,200	100%	58,800	100%	14%

Source: BR+A

Note: MMBtu = million British thermal units

The proposed design is not final, as Massport intends to make refinements to improve energy efficiency to the greatest extent practicable. With additional energy conservation measures that are under further consideration, the Terminal E Modernization Project could be more efficient than the proposed design by as much as 23.7%.

Table 5-39 demonstrates the potential energy savings of these additional energy conservation measures, which include:

- Dual Box Minimum – allows for a terminal reheat box to have a minimum set-point for cooling and another for heating;
- Fin Tube Radiation – reduces heating at the primary fan system and places load on the more efficient hydronic system;
- Energy Recovery Wheel – recovers energy that would otherwise be exhausted out of the building;
- Dynamic V8 Filtration – reduces air handling unit fan power, while providing equivalent filtration; and



- Photovoltaic Array (solar PV) – produces approximately 3% of total electric energy through renewable means.

Table 5-39 Potential Energy Savings with Energy Conservation Measures

Current Design	Dual Box Minimum	Fin Tube Radiation	Energy Recovery Wheel	Dynamic V8 Filtration	Photovoltaic Array
13.8%	14.4%	14.6%	21.1%	21.5%	23.7%

Source: BR+A

Note: Findings are presented in cumulative numbers. For example, fin tube radiation would potentially save 14.6% in energy use when combined with the dual box minimum and the current design. Accordingly, individual energy conservation measure savings can be determined by comparing it to the previous model.

Although the Terminal E Modernization Project would increase energy demand at Logan Airport, the Central Heating and Cooling Plant will have adequate capacity to meet this demand with some modifications. Required modifications to the Central Heating and Cooling Plant include building a new mechanical pump room as well as upsizing and extending the existing chilled water and high temperature hot water systems.

Adequate energy capacity exists within the region to support the Proposed Action. Eversource would continue to supply Massport with electricity externally; however, the Proposed Action would require an additional substation on the Airport campus to support electricity distribution to Terminal E. National Grid would continue to supply natural gas to Massport for combustion at the Central Heating and Cooling Plant.

The Proposed Action would not create additional demand on regional water resources compared to the No-Action Alternative, as the Proposed Action would not be the impetus for additional international air passenger activity at Terminal E. Despite not having a direct impact, Massport would design the plumbing systems for the proposed new building addition to minimize domestic water use. High efficiency, low-flow plumbing fixtures in restrooms would also reduce potable water usage.

The design of the Proposed Action does not include unusual building materials or materials that are in scarce supply in the Boston metropolitan area or larger New England region; therefore, there would be no adverse impact to the supply of raw materials.

5.5.4.3 Indirect Impacts - Natural Resources and Energy Supply

The Terminal E Modernization Project would accommodate existing and projected international air service at Terminal E, and would not grow such demand. It would not induce additional development within or outside of Logan Airport. Massport does not anticipate any indirect impacts from the Proposed Action on natural resources and energy supply.

5.5.4.4 Temporary Construction-Related Impacts - Natural Resources and Energy Supply

Construction of the Terminal E Modernization Project would require additional energy supply to power construction vehicles and equipment, and construction activities would temporarily increase water demand for the purposes of controlling fugitive dust and stabilizing soil. Massport anticipates that adequate capacities of energy and water will be available to support these activities.



5.5.4.5 Cumulative Impacts - Natural Resources and Energy Supply

When added to past, present, and reasonably foreseeable future actions, the Terminal E Modernization Project would not result in an incremental impact to natural resources and energy supply. As previous sections establish, adequate capacities of energy, water, and raw materials will exist in the region to support all known projects.

5.5.5 Climate/GHG Emissions

GHGs associated with the Terminal E Modernization Project were calculated in support of NEPA review and the MEPA GHG Policy.

For the purposes of this assessment, GHG emissions associated with the operation of Terminal E under the No-Action Alternative and the Proposed Action are calculated and reported following FAA guidelines. As in the case of calculating operational emissions, GHGs were computed for aircraft engines, ground support equipment/auxiliary power units, and ground access vehicles using FAA’s AEDT and EPA’s MOVES and NONROAD models. Consistent with FAA’s conventions, the results of this analysis are presented in **Table 5-40** as carbon dioxide in units of tons/year.

Table 5-40 Terminal E CO₂ Emissions Inventory

Source	Emissions (tons/year)		
	No Action Alternative	Proposed Action Alternative	Change in Emissions
Aircraft	15,764	12,675	-20%
GSE/APUs	13,331	6,596	-51%
GAV	40,620	39,908	-2%
Totals	69,715	59,179	-15%

Source: KBE

Notes: CO₂ - Carbon dioxide, GSE - Ground Support Equipment, APUs - Auxiliary Power Units, GAV - Ground Access Vehicles

As shown, total GHGs associated with the long-term operation of Terminal E (i.e., aircraft, ground support equipment, and airside ground access vehicles) are expected to be 15%³⁹ less when compared to the No-Action Alternative. Again, this GHG benefit is attributable to a number of design and operational characteristics associated with the Terminal E Modernization Project. These largely include:

- The availability and use of gate-furnished electricity and air conditioning for aircraft in place of using auxiliary power units while parked at hardstands;
- Less reliance on ground support equipment and ground access vehicles to transport passengers, baggage, and cargo from aircraft to the terminal; and

³⁹ Does not include potential reductions from building energy performance.



- Improved aircraft operational conditions (e.g., less congestion and delay) on the taxiways and aprons.

5.5.5.1 MEPA EIR Greenhouse Gas Emissions Policy

For this assessment, GHG emissions associated with the design, construction, and operation of the Terminal E buildings and support facilities are calculated. This information is used to evaluate the facility’s consistency with MEPA’s GHG Policy.

Following MEPA’s guidelines, this assessment involves a three-step process:

1. Identify the project Baseline Conditions;
2. Calculate GHG emissions associated with the Baseline Conditions; and
3. Calculate GHG emissions reductions based on design, construction, and operational improvements applied to the Baseline Conditions.

Energy utilization associated with the Terminal E Modernization Project was computed using the MEPA-recommend model, EQUSET. This model takes into account the design and operational features of Terminal E that aid in the reduction of GHGs and are considered to be “above-and-beyond” those elements that are required by “code.” Again, consistent with MEPA guidelines, the outputs from EQUSET were applied to New England utility-specific CO₂ emission factors.

The results of the GHG emissions inventory for the Proposed Action are listed and provided in **Table 5-41** in units of CO₂ emissions/year. For ease of comparison, the Baseline conditions are also provided.

Table 5-41 Terminal E Building CO₂ Emissions Inventory

Source	Emissions (tons/year)		Total
	Electric (Indirect)	Natural Gas (Direct)	
Baseline	4,988	862	5,850
Proposed Action	4,301	864	5,165
Change	-687	2	-685

Source: KBE

As shown, GHGs associated with Terminal E under the Proposed Action would be reduced by 685 tons/year (or approximately 12%). This reduction is consistent with the MEPA GHG Policy.

The Proposed Action’s total net new GHG emissions from aircraft, ground support equipment, and airside ground access vehicles, as well as the additional energy demand of the Terminal E building, are lower than the No-Action Alternative by approximately 8%. **Table 5-42** illustrates this comparison.



Table 5-42 Logan Terminal E GHG Emissions with Proposed Building Conditions (tons/year)

Source	No Action	Proposed Action	Proposed Action Minus No Action	Percent Change
Operational				
Aircraft	15,764	12,675	-3,089	-20%
GSE/APU	13,331	6,596	-6,735	-51%
Ground Access Vehicles	40,620	39,908	-712	-2%
	69,715	59,179	-10,536	-15%
Building				
Building (Proposed)	0	5,165	5,165	0%
Total Operational + Building	69,715	64,344	-5,371	-8%

Source: KBE

It is also important to note that Massport prepares GHG emission inventories annually for stationary sources regulated by EPA and MassDEP; passengers traveling to, from, and moving about the Airport; and for the EDRs/ESPRs inclusive of aircraft, ground support equipment, auxiliary power units, ground access vehicles, and stationary sources. Future-year GHG emission inventories for the EDR will include the Terminal E Modernization Project.

5.5.6 Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater)

FAA Order 1050.1F lists several factors to consider for surface waters, which include an action’s potential to: adversely affect natural and beneficial water resource values; adversely affect surface waters; and create water quality impacts that make obtaining a permit or authorization difficult. FAA Order 1050.1F and Order 5050.4B require that the EA include sufficient description of a proposed action’s design and mitigation measures developed for non-point sources under Section 319 of the Clean Water Act, and construction controls to demonstrate that water quality standards and any permit requirements will be met.

The Project Area is located on previously developed land in Airport use. The Terminal E Modernization Project would not create any new impervious areas and would not impact wetlands, floodplains, or groundwater. Therefore, this section focuses on stormwater and surface water quality. No direct or indirect water quality impacts are anticipated from the Proposed Action. Under the No-Action Alternative, there would be no change to the Terminal Area or the airfield.

5.5.6.1 No-Action Alternative - Water Resources

The Project Area is served by separate storm and wastewater (sanitary) systems. The Logan Airport storm drains discharge to existing outfalls that drain directly to Boston Harbor and not into a combined sewer system.

There would be no effect on stormwater under the No-Action Alternative. The site would remain in active Airport use, the amount of impervious area would remain the same, the existing stormwater collection system would stay in place, and the existing end-of-pipe pollution controls would remain. Massport would continue



conducting outfall sampling according to its National Pollutant Discharge Elimination System (NPDES) permit. Massport would continue implementing best management practices for pollution prevention by Massport, its tenants, and its construction contractors.

5.5.6.2 Direct Impacts - Water Resources

As described in Chapter 4, *Affected Environment*, Massport holds a NPDES permit for stormwater discharge at the major outfalls within the Airport. In compliance with the NPDES permit, Massport monitors discharges and submits reports to the EPA and MassDEP. Massport's Stormwater Pollution Prevention Plan addresses stormwater pollutants in general, and addresses deicing and anti-icing chemical, potential bacteria, fuel and oil, and other sources of stormwater pollutants. Additionally, Massport has a Deicing Plan (2008) that guides best practices on the Airport and to satisfy the requirements in Section 1.D Water Quality Study in National Pollutant Discharge Elimination System (NPDES) Permit No. MA0000787 issued to Massport and Co-Permittees of Logan Airport. Massport manages stormwater discharges and protects groundwater resources from aircraft deicing operations during the winter months.

The areas proposed for Terminal E improvements are already paved and the Proposed Action would not result in increased impervious surfaces or pollutant-generating activities on the apron or ramp. The distribution of stormwater between the building and apron would shift to more roof collection, but the aggregate amount of stormwater and overall stormwater runoff quality would remain unchanged from the existing condition. The system would be modified as necessary to accommodate the new roof area drainage. The small area that drains to the Porter Street Outfall in the existing condition would be re-graded and the entire Project Area would drain to the North and West Outfalls, both of which are equipped with end-of-pipe treatment to remove debris and floating oil and grease from stormwater prior to discharge to Boston Harbor.

The Terminal E Modernization Project would result in a greater percentage of stormwater runoff from rooftops than from the paved apron, as compared to the existing and No-Action Alternative. Generally, rooftop runoff is cleaner than apron runoff due to less deposition of materials on the surface. No change in peak rates of runoff are anticipated as the Proposed Action would not increase impervious area. The Proposed Action would comply with the Massachusetts Stormwater Standards.

Aircraft deicing operations are conducted by each airline with mobile deicing trucks at their individual gates as well as designated deicing locations. Compared to the No-Action condition, deicing under the Proposed Action would be more controlled, taking place at gates, rather than at hardstands.

The Proposed Action would connect to the MWRA wastewater system, which is ultimately treated at the Deer Island Sewage Treatment Plant in Boston Harbor. The Project is consistent with Massport's efforts to reduce the amount of wastewater generated through water efficiency strategies.

The Terminal E Modernization Project would not result in a significant increase in water use. Water consumption in Terminal E is related directly to the number of passengers and employees that use the facility. Similarly, the quantity of sewage flow from Terminal E is related directly to the number of passengers and employees. The same number of passengers would be processed in both the No-Action Alternative and Proposed Action; however, water usage would be somewhat higher in the No-Action Alternative because the Terminal E Modernization Project incorporates low-flow fixtures in new toilet rooms, a practice consistent with Massport's Sustainable Design Standards and Guidelines, which exceed local building code requirements.



5.5.6.3 Indirect Impacts - Water Resources

Massport continually monitors indirect and secondary impacts to stormwater such as illicit discharges to the drainage system, tenant impacts to stormwater, and spill prevention programs. For over 15 years, Massport has been working to investigate and address any illicit connections to the stormwater system at Logan Airport. Massport's primary water quality goal is to prevent or minimize discharges, thus limiting adverse water quality impacts associated with airport activities. Massport employs several programs to promote awareness of Massport and tenant activities that may impact surface and groundwater quality, thus improving water quality. Programs include implementing best management practices for pollution prevention by Massport, its tenants, and its construction contractors; training staff and tenants; and a comprehensive Stormwater Pollution Prevention Plan.

5.5.6.4 Cumulative Impacts - Water Resources

No impacts to stormwater or surface water quality are anticipated from the Terminal E Modernization Project. There are no reasonably foreseeable projects within the North Apron and Terminal E area that would have an effect on stormwater management. Recently completed projects have included upgrades to the stormwater collection system Airport-wide. The Runway 15R-33L Safety Improvements Project included the installation of stormceptor units at drainage inlet points to provide additional treatment of stormwater coming from the airfield areas prior to discharge. The Terminal E Modernization Project would include improvements to stormwater quality that, when added to past projects, result in a positive cumulative effect on water quality.

5.5.6.5 Temporary Construction-Related Impacts - Water Resources

Since the Terminal E Modernization Project involves construction disturbance of greater than one acre of land, a project-specific Stormwater Pollution Prevention Plan will be prepared in accordance with the EPA's NPDES General Permit for Construction Activities. The plan will ensure that construction activities do not result in impacts to water quality within Boston Harbor.

Massport has developed a dewatering and discharge plan for all construction projects at Logan Airport. If required, groundwater treatment and discharge construction practices would be defined and submitted to MassDEP for approval and implemented during construction. Massport would not discharge storm or groundwater to the sanitary sewer system.

5.5.7 Hazardous Materials, Solid Waste, and Pollution Prevention

Under FAA *Order 1050.1F* and *Order 5050.4B*, a significant adverse effect may occur when a proposed action involves a property on or eligible for the National Priority List or involves significant hazardous or solid waste activities. The Terminal E Modernization Project would not have a significant adverse impact related to hazardous materials or solid waste. Massport complies with the Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) by monitoring fuel spills and tracks the status of spill response actions. The MCP lays out a set of regulations that govern the reporting, assessment, and cleanup of spills of oil and hazardous materials in Massachusetts. Massport also maintains a Tank Management Program, a Stormwater Pollution Prevention Plan, and a Spill Prevention Control and Countermeasure Plan.



5.5.7.1 No-Action Alternative - Hazardous Materials

Existing MassDEP disposal sites are required to achieve regulatory closure in accordance with the MCP. The No-Action Alternative would not result in any new construction however, the appropriate assessments and response actions would continue in order for the Potentially Responsible Party to remain in compliance with the MCP.

5.5.7.2 Direct Impacts - Hazardous Materials

The Terminal E Modernization Project includes several supporting infrastructure elements, including adding seven new jet-fuel hydrants that would serve the new gates at the terminal extension. A central fuel farm is located at the north end of the Airport and is connected to the terminals by a buried fueling loop around each of the terminal buildings. Fuel is transferred from fueling pits to aircraft at each gate by fuel pump trucks or hydrant carts. The Terminal E Modernization Project would meet National Fire Protection Association requirements either by appropriate distance or by building face treatment with deluge sprinkler systems.

In addition to a new fueling line and hydrant pits, Massport would prevent potential effects from the new fueling infrastructure by installing a metering system at each hydrant pit as well as emergency cut-off valves on the building at each new gate. Massport would also install cathodic protection to be compatible with the existing system and upgraded, where possible. These spill prevention systems would ensure that the jet-fuel system would not have a direct impact.

The Terminal E Modernization Project would likely have a positive effect on confirmed areas of soil and groundwater contamination in the Project Area. On-site contamination encountered would be assessed, and if necessary, remediated prior to and during construction activities as per the MCP. Reuse of as much excavated soil as possible, including impacted soil with concentrations below the applicable MCP standards, is the preferred option and is recommended if a pre-risk assessment screening of the material shows that there are no limitations on risk associated with the current and foreseeable use of the property. Remediation of soil, which could not be reused, would most likely consist of soil excavation and off-site disposal.

5.5.7.3 Indirect and Secondary (Induced) Impacts - Hazardous Materials

Massport does not anticipate any indirect adverse impacts from the Proposed Action on hazardous materials, solid waste, and pollution prevention. Massport routinely manages contaminated environmental media and solid waste, and conducts careful oversight of the handling, transport, containment, and disposal of such materials.

5.5.7.4 Temporary Construction-Related Impacts - Hazardous Materials

Due to the presence of documented releases of oil and/or hazardous materials (OHM) within the Project Area, on-site industrial use, and the generally developed nature of the Project Area, there is the potential to encounter OHM and contaminated urban fill that requires special handling and management during construction. Potential indoor air quality impacts would also be assessed during the construction to ensure that there are no contaminants that would pose a risk to future building occupants within Terminal E. Furthermore, building materials containing OHM such as lead-based paint, asbestos, or polychlorinated biphenyls (PCBs), if



encountered during construction, will require appropriate disposal in accordance with federal and state regulations.

During construction, Massport will promote and ensure special handling, dust control, and management and disposal of contaminated environmental media and hazardous building materials in order to prevent construction delays and to provide adequate protection to workers and any nearby sensitive receptors. All response actions would ensure that any nearby or adjacent receptors are adequately protected. Additional construction-related hazardous materials considerations are summarized below.

Regulatory Considerations

Preliminary assessment activities would be conducted prior to construction in order to identify the type and quantity of OHM impacted media and help select the optimal disposal methods and/or destination of media prior to generation. Notification to MassDEP would be required if a reporting condition is identified as per the MCP such as when OHM is detected in soil and/or groundwater above the applicable standards, referred to as the Reportable Concentrations. Any soil encountered during construction with OHM above the MCP Reportable Concentrations would be managed appropriately in accordance with the applicable state and federal regulations.

Should impacted soil be generated during Project-related excavation that requires export or on-site re-use, this material would be properly characterized and managed in accordance with applicable regulations. Proper management would ensure appropriate re-use within the Project Area to prevent exposure to contaminants or export to appropriate destinations. Although not anticipated, if OHM impacted groundwater is encountered during Project construction, it would also be managed in accordance with applicable regulations. If the volume would be limited and subsequent off-site disposal is deemed the most cost effective disposal option, the groundwater can be temporarily stored in fractionation tanks. For managing larger volumes of ground water, it may be more cost effective to obtain an EPA Construction General Permit or Remediation General Permit for discharge to surface waters/storm drains or a permit from the local sewer authority, if allowed, for discharge to sanitary sewers. Soil and groundwater handling and management during construction will be conducted in accordance with the appropriate submittals (i.e., Release Abatement Measures, Immediate Response Actions, and/or Safety Management Plans), including appropriate permits and permissions as appropriate. At the completion of response actions for disposal sites for which Massport is listed as the Responsible Party, but a closure report consisting of a Permanent Solution Statement has not yet been submitted, Massport would continue response actions with the intent of achieving a Permanent Solution. Massport would also work with the other Responsible Parties who oversee response actions at disposal sites within the Project Area in order to ensure that work is conducted in a coordinated fashion. Furthermore, per the MCP and MassDEP's comments on the ENF, construction activities during the Terminal E Modernization Project and the establishment of new buildings would not prevent or impede the implementation of response actions within active disposal sites.

Solid Waste

The Terminal E Modernization Project would involve demolition activities related to the relocation of the existing gas station and UPS facility, as well as minor renovations and resurfacing of the North Apron. Based on their age, asbestos-containing materials, including roof flashing, tiles, and other materials may be present in the building materials for the buildings that would be undergoing demolition. In addition, lead-based paint,



mercury, and PCBs may also be present in the building materials and/or fixtures. Prior to demolition, it is recommended that a licensed asbestos and hazardous materials contractor sample the building material, including roof flashing, tiles, and other materials, as well as the potential lead-based paint, mercury, and PCBs. If these hazardous materials are found to be present in the structures, then a licensed contractor must remove them in accordance with state regulations. Asbestos removal and building demolition notifications must be submitted to MassDEP at least 10 working days prior to initiating work using the appropriate permit forms.

Per the ENF comments, re-use of building materials, such as asphalt, brick, and concrete, will be considered, as their re-use could reduce disposal costs and be more sustainable. MassDEP indicates that asphalt, brick, and concrete rubble processing or recycling pursuant to the provisions of Section 3 under 310 CMR 16.05 to be conditionally exempt from the site assignment requirements, if the Asbestos Brick and Concrete rubble is separated from other solid waste materials at the point of generation. Per Section 3, Asbestos Brick and Concrete can be crushed on-site with a 30-day notification to MassDEP. Brick and concrete that are not clean must be classified as construction and demolition waste and would require a Beneficial Use Determination or Site Assignment and permit before it can be crushed.

Pollution Prevention

The spill or release of OHM in the process of constructing the Terminal E Modernization Project is an unlikely event, and measures will be required to prevent and control any such spills. The construction contractors would implement a Spill Control Program in compliance with the MCP. The following practices would be employed on site to prevent, reduce, and clean up spills:

- All spills would be reported to Massport and would be reported to the appropriate state and/or federal agency if the reportable quantity is exceeded.
- Spill cleanup materials would be kept in any chemical storage area.
- All spills would be cleaned up immediately after discovery.
- A spill report would be prepared after each occurrence.
- An appropriately trained employee involved in day-to-day operations would be identified to be the spill prevention coordinator. Each employee would be instructed to report spills to the spill prevention coordinator.
- An inventory of construction and maintenance materials (and corresponding Material Safety Data Sheets) would be maintained.

5.5.7.5 Cumulative Impacts - Hazardous Materials

Based on reasonably foreseeable projects, it is not anticipated that the Terminal E Modernization Project would contribute to significant adverse impacts related to the generation, transportation, storage, or release of hazardous materials.



5.5.8 Coastal Resources

FAA *Order 5050.1F* requires that when a proposed action changes the manner of use or quality of land, water, or other coastal resources, or limits the range or the use of the coastal zone in a state with an approved coastal zone management program, the EA must include a determination as to whether the proposal is consistent with the approved State Coastal Zone Management program.

As described in Chapter 4, *Affected Environment*, the entire Airport is located within the defined coastal zone for Massachusetts. Proposed improvements are limited to those areas of the airfield and terminal that are already in use for aviation activities, and would not change the manner of use, quality of land, or limit the range of use of or access to the coastal zone.

The Project Area is proposed within an entirely previously developed/disturbed portion of the Airport. The Terminal E Modernization Project is consistent with the *Massachusetts Coastal Zone Management Plan*.

5.5.8.1 No-Action Alternative - Coastal Resources

The No-Action Alternative would not result in any changes to the areas within the Coastal Zone and therefore would not have any effects on access to or use of coastal resources.

5.5.8.2 Direct Impacts - Coastal Resources

The Proposed Action would not alter the use of areas within the Coastal Zone. The entire Project Area and terminal footprint are currently developed and in aviation use. Land currently in use for Airport operations would continue to be used for aviation and airport purposes. The Proposed Action would not result in changes to or use of coastal resources.

5.5.8.3 Indirect Impacts - Coastal Resources

Massport does not anticipate any indirect impacts to coastal resources. The Terminal E Modernization Project would not result in any changes in access to the Coastal Zone.

5.5.8.4 Temporary Construction-Related Impacts - Coastal Resources

Construction would be limited to areas already developed and in aviation use. Trucking routes will utilize existing paved roadways and staging areas. Massport does not anticipate any temporary impacts to coastal resources.

5.5.8.5 Cumulative Impacts - Coastal Resources

The Terminal E Modernization Project would not have an impact on coastal resources; therefore, Massport does not anticipate that it would contribute to cumulative impacts to coastal resources.

5.5.9 Land Use

The FAA has not specified thresholds for determining significant adverse effects relevant to land use; however, the following looks at the potential of the Proposed Action to change existing land uses within the Project Area



as well as to promote the conversion of surrounding land uses. The Terminal E Modernization Project would not have an adverse impact to land use, as the Project would take place entirely within the Airport's boundary and would not result in changes to existing land uses on- or off-Airport at any point during construction or operation.

5.5.9.1 No-Action Alternative - Land Use

The No-Action Alternative assumes that Massport would not make any physical improvements to accommodate future projected volumes of international air passengers and aircraft operations at Terminal E. Accordingly, the No-Action Alternative would not result in changes to land use.

5.5.9.2 Direct Impacts - Land Use

Land uses within the Project Area are airport- and aviation-related, and would remain so with the Terminal E Modernization Project. To accommodate the Proposed Action, Massport would relocate the gas station to the Harborside Drive Area and the UPS operation to the South Cargo Area. These relocations would not change existing land uses, as all areas affected by the relocations are and would remain airport- or aviation-related. The Terminal E Modernization Project would not result in direct, adverse land use impacts.

The 2011 *ESPR* describes the overall planning strategy for Logan Airport along with a projection of environmental impacts associated with the Airport's growth in passengers, aircraft operations, and ground transportation activity out to 2030. The Terminal E Modernization Project is consistent with the impact analyses contained in this report, including noise, ground access, air quality, and GHG emissions.

The Terminal E Modernization Project is consistent with local zoning as well as federal, state, and local planning documentation regarding land use, transportation, and open space and recreation. It would be located within the Boston Zoning Commission's Logan International Airport Subdistrict. Although Massport is not subject to local zoning, the Proposed Action is none-the-less consistent with the East Boston Neighborhood District Zoning Article (Article 53) that includes the establishment of the Logan International Airport Subdistrict. The Logan International Airport Subdistrict has a stated purpose "to accommodate those uses necessary to the operation of an international airport while ensuring that such uses do not impose adverse impacts on traffic and parking in the residential, commercial, and waterfront areas of the East Boston Neighborhood District."⁴⁰ The Logan International Airport Subdistrict zoning regulations support the East Boston Neighborhood Plan, developed with the extensive participation of the East Boston Planning and Zoning Advisory Committee, civic associations, business groups, and residents.

The Terminal E Modernization Project is confined to the terminal area and airside of Logan Airport. There would be no adverse effects on the condition, use, or access to any open space of recreation area.

⁴⁰ Boston Redevelopment Authority. 1993. *Article 53: East Boston Neighborhood District*. Retrieved 3 May 2016, from <http://www.bostonredevelopmentauthority.org/getattachment/2662a796-0f21-4788-8903-2b7c3370a0b2>



5.5.9.3 Indirect Impacts - Land Use

Massport does not anticipate indirect or induced impacts to land use from the Proposed Action. The Terminal E Modernization Project would not change existing land use classifications and should not promote the conversion of surrounding land uses.

5.5.9.4 Temporary Construction-Related Impacts - Land Use

Construction activities associated with the Terminal E Modernization Project would temporarily disrupt existing land uses within and in the vicinity of the Project Area. These activities, however, would not take place beyond the confines of the Airport's property boundary. Existing land uses would remain airport- and aviation-related once construction is complete.

5.5.9.5 Cumulative Impacts - Land Use

When added to past, present, and reasonably foreseeable future actions, the Terminal E Modernization Project would not result in an incremental impact to land use.

5.5.9.6 Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

FAA *Order 1050.1F* requires Massport to consider the impacts of the alternatives on "economic activity, employment, income, population, housing, public services, and social conditions." The Proposed Action would not have an adverse environmental impact, and, therefore, would not cause a disproportionately adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as Environmental Justice communities.

The Airport is an affirmative action/equal opportunity employer that is committed to workplace diversity. According to Massport's website, the agency promotes "a culture that respects and values diversity." Massport sets both workforce and business diversity goals. The Diversity and Inclusion/Compliance department works with other department heads and is involved in the recruiting/hiring process to ensure diverse candidates. There is not currently a local hiring or residency requirement/goal; however, hiring from neighboring communities is encouraged.⁴¹

The Airport employs 12,000 individuals, and is a significant contributor to the regional and local economies. With an estimated total economic impact of over \$8.9 billion annually, the Airport is a major employer and economic generator for the region, and an economically stabilizing anchor in East Boston.⁴² Logan Airport accounts for 85.9% of all economic impact deriving from Massport airports.⁴³ This economic output estimate includes payments to vendors and suppliers that are located within areas generally impacted by Massport operations. In 2012, Massport's economic contribution to vendors and suppliers in impacted communities was over \$8.0 million and in 2013, it was over \$11.7 million. This amount represents a 46.5% increase from the amount paid in fiscal year 2012.⁴⁴

41 Interview with Massport staff. 2 July 2014 (C. Lurie, L. Ballou, VHB and L. Azuero, CDM Smith; interviewers).

42 Boston-Logan International Airport Sustainability Management Plan. 2015.

43 Massachusetts Department of Transportation. Massachusetts Statewide Airport Economic Impact Study. 2011.

44 Boston-Logan International Airport Sustainability Management Plan. 2015.



5.5.9.7 No-Action Alternative - Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

Under the No-Action Alternative, East Boston communities in the vicinity of the Airport would not experience negative impacts to economic conditions. However, the North Apron would continue to operate as an aircraft layover and loading area, and anticipated increases in air traffic would increase noise and air quality impacts compared to existing conditions.

Increased airline traffic would likely generate increased economic activity locally and regionally, and Airport employment may increase slightly to manage the increased travel demand. The Airport would continue to be a stable economic fixture in East Boston and the region, but may become a bottleneck due to limitations in passenger and aircraft throughput at Terminal E.

5.5.9.8 Direct Impacts - Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

As detailed in Section 4.3.11, *Socioeconomics, Environmental Justice, and Children's Health and Safety Risks*, the Project Area is substantially distanced and buffered from the surrounding communities through elevated roadways, structures, and vegetative screening. The modernized Terminal E facility would be constructed on existing Airport property and in an area at which cargo loading and aircraft maintenance activities regularly occur.

Massport does not anticipate that the Terminal E Modernization Project would result in any direct adverse environmental impacts. As discussed in Section 5.5.1, *Noise and Noise-Compatible Land Use*, the Proposed Action is anticipated to reduce the overall noise levels experienced by nearby residential areas as compared to the No-Action Alternative due to the Terminal E extension acting as a noise buffer. As discussed in Section 5.5.3, *Air Quality*, the Proposed Action is anticipated to have a positive overall impact on air quality by decreasing localized emissions as compared with the No-Action Alternative by reducing usage of aircraft engines, auxiliary power units, and ground support equipment.

Because the Terminal E Modernization Project would not result in direct adverse impacts to socioeconomics or children's health and safety, there would be no resulting disproportionate impacts to Environmental Justice communities.

Massport will hold informational meetings on the Terminal E Modernization Project, publish public notices regarding the Project in Spanish, and provide Spanish translation services at the MEPA Public Meeting.

5.5.9.9 Indirect Impacts - Socioeconomics, Environmental Justice, and Children's Health and Safety Risks

The Terminal E Modernization Project would have positive indirect effects on local and regional socioeconomics. The extension of Terminal E would provide additional space for tenant activity such as concessions. This has the potential to increase activity in the local economy through additional business-to-business activity between Massport tenants and local suppliers as well as between the local suppliers and other local businesses. It also has the potential to create additional employment opportunities, which would likely generate additional household spending at local businesses.



5.5.9.10 Temporary Construction-Related Impacts - Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks

The construction footprint of the Terminal E Modernization Project is within the existing Airport boundary and within an area currently under active use for cargo loading, aircraft storage, and other Airport activities. Construction of the Terminal E Modernization Project is not anticipated to have an adverse impact to the socioeconomics or children’s health and safety of surrounding communities. Major construction occurs throughout the greater Boston metropolitan region, and Massport would adhere to established construction best management practices and protocols broadly employed throughout the region. Construction of the Terminal E Modernization Project would positively impact local employment opportunities by generating temporary construction jobs.

Because the Terminal E Modernization Project would not have an adverse impact to socioeconomics or children’s health and safety, there would be no disproportionate adverse impacts to local Environmental Justice communities.

5.5.9.11 Cumulative Impacts - Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks

Massport has several projects that it recently completed, is constructing, or is planning in the vicinity of the Project Area and Airport-wide, as shown in **Table 5-2**. A substantial number of these projects are focused on enhancing the airside operations and streamlining passenger and aircraft throughput, improving the efficiency of the Airport without adding environmental impacts to the surrounding area. These projects are not anticipated to cause a cumulative impact to the local socioeconomic condition or children’s health and safety. Accordingly, they will not produce a disproportionate adverse effect to surrounding Environmental Justice communities.

5.5.10 Department of Transportation Act, Section 4(f)

FAA *Order 1050.1F* and *Order 5050.4B* identify the significance threshold for actions involving a Section 4(f) resource. For the Terminal E Modernization Project, the determination of significance was based on the potential for the involvement of “more than a minimal physical use of a Section 4(f) resource” or a use that “constitutes a ‘constructive use’ based on FAA determination that the aviation project would substantially impair the Section 4(f) resource.”

There are no Section 4(f) properties within the boundaries of the Airport. There are two Section 4(f) properties in the vicinity of the Airport: East Boston Memorial Stadium Park and Bremen Street Park (see **Figure 4-13**). Both parks are located outside the Project Area. The 17.7-acre East Boston Memorial Stadium Park is located adjacent to and north of the Southwest Service Area site and includes former Massport land that was provided to the City of Boston in 2003 and was used to expand the park. The facilities include a baseball field, softball field, little league field, football/lacrosse/rugby field, play equipment/tot lot, cricket, a passive area, and a running track. Pedestrian and vehicular access is at the southwest corner of the park, via a paved area. The park facilities are operated and maintained by the Boston Parks and Recreation Department.



Bremen Street Park is an 18-acre park located off-Airport between Bremen Street and Interstate 90/Route 1A. The park is owned and managed by Massport, but it is open to the public. The park is equipped with a shared use path, fountain, playground, community garden, and dog park.

5.5.10.1 No-Action Alternative - Section 4(f)

Under the No-Action Alternative, aircraft operations would increase on the North Apron associated with forecasted growth. No modifications to the terminal or roadways would occur. The No-Action Alternative would not require the use of the adjacent Section 4(f) properties.

5.5.10.2 Direct Impacts - Section 4(f)

The Terminal E Modernization Project would occur entirely on-Airport and on land currently in use for Airport operations. No work or construction would take place outside of the Airport property. The Proposed Action would not require the use of any Section 4(f) properties.

Constructive Use

FAA must comply with 23 CFR 774.15 to determine whether there is a constructive (indirect) use of Section 4(f) property. Constructive use of a Section 4(f) property occurs when the proximity impacts of a project on an adjacent or near-by Section 4(f) property, after incorporation of impact mitigation, are so severe that the activities, features, or attributes of the property are substantially impaired. Noise from increased aircraft operations on the North Apron would be buffered by the terminal building to areas south of the terminal. To the north and west, the noise from North Apron ground operations associated with the Project would not increase at levels perceptible to the human ear and would not exceed regulatory thresholds. No constructive use or indirect impacts to parkland would occur because of the Terminal E Modernization Project.

5.5.10.3 Temporary Construction-Related Use - Section 4(f)

Construction activities would be limited to areas of the Airport that are already developed and would not require the use of adjacent parklands. Construction routes and staging would utilize existing roadways and paved surfaces and would not require the use of adjacent Section 4(f) resources. The Terminal E Modernization Project would not result in construction related impacts to adjacent parklands.

5.5.10.4 Cumulative Impacts - Section 4(f)

The Proposed Action would not require the use of Section 4(f) properties. None of the reasonably foreseeable projects proposed in the area by Massport or others would result in the use of adjacent parklands or historic property. Therefore, Massport does not anticipate that the Terminal E Modernization Project would contribute to adverse cumulative impacts to adjacent Section 4(f) properties; rather it would improve noise and air quality conditions at these properties due to more efficient aircraft activity on the North Apron and benefits of the terminal serving as an effective ground noise barrier. Since the early 1990s, Massport has actively constructed and maintained public parklands on the properties surrounding the Airport that have resulted in a net gain in public open space.



5.5.11 Visual Effects (including Light Emissions)

This section considers the potential impacts of the Proposed Action on the visual character of the Project Area and surrounding neighborhoods. In accordance with FAA *Order 1050.1F*, it also assesses the Project's potential to create an annoyance or interfere with normal activities from light emissions as well as affect the visual character of the area due to light emissions.

The Terminal E Modernization Project would not adversely impact the visual character of the Project Area or surrounding areas. The Project would not be highly visible from surrounding neighborhoods, as elevated roadways, open parcels, and vegetative screening provide buffering. It would be consistent with the existing architectural character of the existing Terminal E building. Additional lighting associated with the Terminal E Modernization Project would not create annoyance or interfere with normal activities in surrounding areas or affect the visual character of the area, as Massport would shield such lighting, where feasible, to limit uncontrolled light pollution.

5.5.11.1 No-Action Alternative - Visual Effects (including Light Emissions)

The No-Action Alternative would not adversely impact the visual character of the Project Area or surrounding neighborhoods, as aesthetic and lighting conditions would largely remain consistent with existing conditions. The additional remote hardstands that would take place on the North Apron due to increased international aircraft operations and the lack of sufficient gate accommodations at Terminal E would increase the intensity of lighting in this area during nighttime and poor weather conditions to ensure operational safety. Existing elevated roadways, open parcels, and vegetative screening would largely block views of this area from surrounding neighborhoods; however, this area would be visible from nearby public roadways.

5.5.11.2 Direct Impacts - Visual Effects (including Light Emissions)

Massport does not anticipate that the Terminal E Modernization Project would have adverse direct impacts on the visual character of the Project Area or surrounding neighborhoods, as it would not substantially alter the architectural character or lighting conditions of these areas. The Project Area is located on-Airport; elevated roadways, open parcels, and vegetative screening separate it from surrounding residential neighborhoods. Massport would design the extension of Terminal E to be compatible with the architectural character of the existing Terminal E building. At potentially 45 feet to nearly 70 feet in height, the extension would stand at a height consistent with the existing terminal, and would shield lighting emanating from aircraft and ground support equipment on the North Apron from nearby roadways. Compared to the No-Action Alternative, the Terminal E Modernization Project would improve the visual character of the area by shielding lighting associated with airside activities on the North Apron from nearby public roadways.

The lighting requirements of the Terminal E Modernization Project would not be substantially different from the existing lighting program in the Project Area in terms of intensity, duration, and emission. The extension of Terminal E would include lighting for safety, function, and aesthetics, and curbside and roadway enhancements would include lighting appropriate for vehicle and pedestrian safety. Massport would shield landside lighting, where feasible, to control light pollution. Airside lighting would be sufficient to ensure safety of operations at night and during poor weather conditions. Landside and airside lighting in the Project Area would be similar to



the existing lighting elsewhere at Terminal E, and would not create annoyance or interfere with normal activities in the vicinity of the Project Area.

5.5.11.3 Indirect Impacts - Visual Effects (including Light Emissions)

Massport does not anticipate that the Terminal E Modernization Project would have any indirect adverse impacts due to changes to the visual character of the Project Area. The extension of Terminal E would not cause or otherwise induce changes to nearby visual resources, nor would it influence economic behavior in surrounding areas. New buildings and infrastructure within the Project Area would be consistent with the existing and future visual character, and would continue to serve airport- and aviation-related functions.

5.5.11.4 Construction-Related Impacts - Visual Effects (including Light Emissions)

Construction of the Terminal E Modernization Project would take place entirely within the Airport's boundary. Existing elevated roadways, open parcels, and vegetative screening would largely block views of construction activities. Some towering construction equipment such as mobile cranes would be visible from surrounding areas throughout the construction period. Massport may need to light such equipment to ensure the safety of workers during operation as well as for airspace obstruction purposes.

5.5.11.5 Cumulative Impacts - Visual Effects (including Light Emissions)

The Terminal E Modernization Project would not contribute cumulative adverse impacts to the visual character of the Project Area or surrounding areas. Considered in association with other on-Airport projects, the Proposed Action would continue the architectural and aesthetic consistency of the Airport.

5.6 Qualitative Analysis of the Interim Condition (Phase 1)

As described in Chapter 3, *Alternatives and Proposed Action*, Massport would undertake the Terminal E Modernization Project in phases to respond to demand as it happens and to ensure the programming meets capital improvement budget constraints. Phase 1 would include constructing four new gates to relieve existing deficiencies and accommodate interim growth. A partial new concourse would be constructed, which would allow for future extension to a seven-gate facility. The interim phase provides a measured approach to the terminal extension, providing facilities, as needed, to mitigate the effects of international passenger demand fluctuations.

The interim condition is anticipated to provide environmental benefits when compared to the No-Action Alternative for noise and air, similar to the conditions in the Proposed Action. The interim condition would provide noise buffering for the 2022 activities on the apron and would help meet the forecasted operational demands more efficiently with the ability for aircraft to plug into gates rather than idle on the apron.



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Beneficial Measures/Mitigation

6.1 Introduction

Massport actively and continuously seeks to limit, reduce, or, avoid the environmental effects associated with operations at Boston-Logan International Airport (Logan Airport). Planning and development at Logan Airport is conducted within an established framework of environmental goals and objectives.

It is within this airport-wide context that mitigation for the Terminal E Modernization Project is assessed. As presented in the Terminal E Modernization Project Environmental Notification Form (ENF) and confirmed in the analysis documented in Chapter 5, *Environmental Consequences*, the Terminal E Modernization Project has a range of positive environmental benefits, including reducing ground noise and emissions, when compared to the No-Action Alternative. Implementation of the proposed improvements will allow Massport to avoid the adverse environmental impacts of the No-Action Alternative. The Project is expected to create no long-term adverse environmental impacts and only minor and temporary construction-period impacts. The Terminal E Modernization Project is one component of Massport's efforts to improve environmental conditions at and around Logan Airport.

The Certificate of the Secretary of Energy and Environmental Affairs on the Terminal E Modernization Project ENF requested that the EIR include:

“A separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each area of impact associated with Massport’s Preferred Alternative. The EIR should contain clear commitments to implement these 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 a schedule for implementation.

To ensure that all GHG emissions reduction measures adopted by the Proponent in the Preferred 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 included in the EIR.

Provide draft Section 61 Findings that identify project-specific mitigation measures.”



This chapter includes environmental benefits relating to project design, sustainable elements and resiliency measures, and construction period mitigation. Appendix B includes a draft Section 61 Findings confirming that Massport will take all feasible measures to avoid or minimize the Project’s adverse environmental impacts and Massport’s commitment to provide a self-certification that greenhouse gas (GHG) emissions reduction measures have been incorporated.

As described below, Massport commits to environmentally beneficial measures that pertain to: (1) project design elements; (2) sustainability features; (3) resiliency; and (4) mitigation measures that pertain to construction period impacts. Following approval of the Project, detailed tracking of and reporting on the various mitigation measures would continue through Massport’s annual Logan Airport Environmental Data Report (EDR)/Environmental Status and Planning Report (ESPR) filings.

6.2 Beneficial Measures/Project Commitments

As part of the Terminal E Modernization Project, Massport commits to implementing the following measures as summarized in **Table 6-1**.

Table 6-1 Summary of Terminal E Modernization Beneficial Measures

Element	Beneficial Measure
Project Design Features	<ul style="list-style-type: none"> ■ The extended terminal concourse would serve as a noise barrier to nearby residences and neighborhood recreational areas ■ The new gates with 400-hertz (Hz) power and pre-conditioned air would allow aircraft to plug in and reduce air emissions from auxiliary power units ■ The new gates would increase the operational efficiency of the North Apron and reduce the need for remote hardstand use and busing passengers to the terminal ■ The Project includes a direct weather protected pedestrian connection between the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station and Terminal E, which would improve the passenger experience and convenience
Sustainability	<ul style="list-style-type: none"> ■ The Terminal E Modernization Project would be built to Leadership in Energy and Environmental Design (LEED®) Silver standards, or higher ■ As design proceeds, Massport will consider the following: <ul style="list-style-type: none"> ■ Incorporate materials to reduce Heat Island Effect ■ Use of no-glare roofing material will be non-glare ■ Prioritize materials based on lifespan and lifecycle maintenance costs ■ Specify products with recycled content to the maximum extent practicable ■ Incorporate infrastructure for collection, storage, and handling of recyclables (approved pre-security and post-security recycling stations, on-site collection bins, and storage dumpsters). ■ Establish a project specific goal and specify materials extracted, harvested, recovered, and /or manufactured within New England ■ Design Project to achieve energy efficiencies of a minimum of 20% below Massachusetts Energy code ■ Specify energy efficient interior and exterior lighting ■ Investigate the feasibility of supplying, at a minimum, 2.5% of the Project’s power with on-site renewable energy systems ■ Design Project to be able to accommodate roof top solar, in accordance with Federal Aviation Administration (FAA) guidance regarding glare ■ Design infrastructure and operations that reduce water use by 20% below the Massachusetts Plumbing code ■ Incorporate occupancy sensors with a manual override in all indoor areas ■ Incorporate infrastructure for collection, storage, and handling of recyclables

Table 6-1 Summary of Terminal E Modernization Beneficial Measures (Continued)

Element	Beneficial Measure
Sustainability (Continued)	<ul style="list-style-type: none"> ■ Incorporate options such as broad roof overhangs or shading devices to reduce solar heat gain and glare ■ Install 400 Hz gate power at all newly constructed gates to support pre-conditioned air for aircraft and other state-of-the-art energy efficiency upgrades for gates to reduce use of on-board engines
Resiliency/Floodproofing	<ul style="list-style-type: none"> ■ In general, the first level (lowest floor) of the proposed project is located above the Design Flood Elevation (DFE) ■ Where spaces must be below the DFE, critical areas would be flood proofed through measures such as: <ul style="list-style-type: none"> ■ Install watertight shields on doors, windows, and louvers ■ Use exterior and interior membranes and sealants to reduce seepage ■ Seal electrical conduits and other utilities entering below the DFE ■ Install drainage collection systems and sump pumps ■ Install early warning devices to monitor water levels ■ Install back-flow preventer valves on drainage and sanitary sewer piping located below the DFE ■ Install flood openings to equalize the hydrostatic pressure ■ Provide pumps to remove floodwater in non-draining areas
Construction Period Mitigation	<ul style="list-style-type: none"> ■ Hours of work generally would be limited to typical working hours of 7:00 AM to 5:00 PM ■ Massport would require its Construction Manager to prepare: <ul style="list-style-type: none"> ■ Draft Soil Management Plan ■ Draft Stormwater Pollution Prevention Plan ■ Draft Management Plan for Dewatering (if needed) ■ Draft Health and Safety Plan ■ Ground transportation construction-period mitigation measures will include: <ul style="list-style-type: none"> ■ All trucks will access the site by Route 1A, Interstate 90, and the main Airport roadway only ■ Trucks would be prohibited from using local streets ■ Truck routes would be specified in contractors' construction specifications ■ Concrete production and batching would occur in existing plants with access via Route 1A or Interstate 90 ■ Massport would encourage construction workers to use Logan Express, the water shuttle, and other modes of public transportation ■ Air quality construction-period mitigation measures would include: <ul style="list-style-type: none"> ■ Construction vehicle/equipment anti-idling ■ Retrofitting of appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters ■ Air quality and fugitive dust management would be deployed including monitoring of construction dust; disposal options for excavated materials; and fences, wheel washing, and other methods to protect the Airport and surrounding communities from fugitive dust during construction ■ Sound levels from activities associated with the construction of the Project will be voluntarily consistent with the City of Boston's noise criteria; therefore, no construction noise mitigation is required. However, construction equipment would use noise-reduction measures such as: <ul style="list-style-type: none"> ■ Noise control techniques would be used to reduce noise from pile driving by at least 5 A-weighted decibels (dBA) below their unmitigated level ■ Community noise levels would be monitored during construction to verify compliance with contract specifications and applicable state and local noise regulations ■ To protect water quality, and in compliance with the Stormwater Pollution Prevention Plan, an Erosion and Sedimentation Control Program would be put in place to minimize construction phase impacts to Boston Harbor



Table 6-1 Summary of Terminal E Modernization Beneficial Measures (Continued)

Element	Beneficial Measure
Construction Period Mitigation (Continued)	<ul style="list-style-type: none"> ■ Spill prevention measures and sedimentation controls would be deployed throughout the construction phase to prevent pollution from construction equipment and erosion ■ Erosion and sedimentation controls would be used during the airfield earthwork and construction phases ■ Perimeter Barriers like straw wattles or compost-filled “silt sock” barriers would be placed around upland work areas to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site ■ Existing catch basins within the work areas would be protected with barriers (where appropriate) or silt sacks throughout construction ■ Open soil surfaces would be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased ■ The contractor or subcontractor would be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan

6.2.1 Project Design Elements

The Terminal E Modernization Project will include design elements specifically intended to reduce operational impacts as documented below.

- Terminal additions will be sited, designed, and constructed to serve as a noise barrier to the adjacent East Boston neighborhoods and Memorial Stadium Park to the southwest of the North Apron. The new structures will have a minimum height of 45 feet above ground level.
- Seven new gates equipped with 400 Hz power and pre-conditioned air will allow aircraft to plug-in at a gate rather than being serviced remotely. This will reduce the need for on-board engine/auxiliary power unit operation, thereby reducing aircraft air emissions, and GHG emissions.
- New gates will increase ramp efficiency by reducing North Apron movements and busing passengers between the terminal and remote aircraft parking locations (hardstands).
- Improved high-occupancy access to the Airport via a direct pedestrian connection to the MBTA Blue Line Airport Station at Project completion.
- Improved passenger processing and experience through building additions and new amenities.
- Roadway/curb improvements to improve vehicle flow and high-occupancy vehicle access (Phase 2 only).

6.2.2 Sustainability Features

The Project will be built to Leadership in Energy and Environmental Design (LEED®) and Massachusetts LEED Plus standards, to achieve LEED Silver, or higher certification. In addition, the Project design team consulted Massport’s *Sustainable Design Standards and Guidelines*.¹ These guidelines are one component of Massport’s overall sustainability program, which include diverse sustainability initiatives ranging from facilities maintenance to innovative partnerships and public incentives. The standards are tailored to Massport’s operations, facilities, and geography, and are intended to be used by architects, engineers, and planners

¹ Massachusetts Port Authority. *Logan Airport Sustainable Design Standards and Guidelines – Version 1*, June 2009.



working on capital projects for Massport. The standards apply to both new construction and rehabilitation projects (building and non-building) of any square footage or monetary value, and may be used on tenant alterations or development projects on Massport property. During the Preliminary Design Phase and later design phases for the Project, the following sustainable design opportunities will be considered for their feasibility and applicability:

- **Heat Island Effect:** The design will incorporate materials with a reflectance rating of at least 0.70 and emittance value of at least 0.75, covering at least 75% of the available roof area. Roofing material will be non-glare for use at Logan Airport.
- **Material Durability:** Massport will evaluate and prioritize materials based on lifespan and lifecycle maintenance costs.
- **Recycled Content:** Massport will specify products with recycled content to the maximum extent practicable.
- **Recycling Operations:** The final design will incorporate infrastructure for collection, storage, and handling of recyclables (approved pre-security and post-security recycling stations, on-site collection bins, and storage dumpsters).
- **Construction Waste Management:** The contractor will be required to develop a Construction Waste Management Plan.
- **Regional Materials:** Massport will establish a project-specific goal and specify materials extracted, harvested, recovered, and /or manufactured within New England.
- **Energy Efficiency:** The Project will be designed to achieve energy efficiencies of a minimum of 20% below Massachusetts Energy Code.
- **Interior and Exterior Lighting:** The final design specifications will stipulate the maximum candela value of all interior lighting that falls within the building, recyclable lamps, use of compact fluorescent or LED (light emitting diode) alternatives unless the materials are not available.
- **Alternative and Renewable Energy:** Massport will investigate the feasibility of supplying, at a minimum, 2.5% of the Project's power with on-site renewable energy systems taking capital and operating costs into account. The Project will be developed to be able to accommodate rooftop solar, in accordance with FAA guidance regarding glare.
- **Water Management and Efficiency:** The final design will include infrastructure and operations that reduce water use by 20% below the Massachusetts Plumbing Code.
- **Indoor Lighting Control:** The Project will incorporate occupancy sensors with a manual override in all indoor areas.
- **Waste Reduction and Recycling Infrastructure:** Incorporate infrastructure for collection, storage, and handling of recyclables (approved pre-security and post-security recycling stations, on-site collection bins, and storage dumpsters).
- **Passive Solar:** Incorporate options such as broad roof overhangs or shading devices to reduce solar heat gain and glare.



- **Airport Ramp Infrastructure:** Install 400-hertz gate power at all newly constructed gates to support pre-conditioned air for aircraft and other state-of-the-art energy efficiency upgrades for gates to reduce use of on-board engines.
- **Greenhouse Gas Impact Evaluation and Mitigation:** Massport has conducted a GHG impact evaluation of potential GHG emissions from direct and indirect emission sources as defined by the Massachusetts Executive Office of Energy and Environmental Affairs GHG Policy (see Chapter 5, *Environmental Consequences*).

The following areas of the design would be reviewed as design proceeds to achieve the overall energy reduction performance goal for the Proposed Action:

- **Building Envelope**
 - Thermal insulation of exterior walls, roof, and second floor slab with unconditioned space below;
 - Glazed window area limited to where needed for views
 - High-efficiency glazing and solar shading devices to reduce solar heat gain; and
 - Vestibules and air sealing of wall openings on airside of building.
- **Lighting**
 - Reduced lighting energy intensity (watts/square foot) where feasible for occupancy;
 - Daylight sensors and daylight-harvesting lighting controls; and
 - Lighting controls including occupancy sensors and timer systems.
- **Mechanical**
 - Energy-efficient equipment;
 - Heat recovery systems;
 - Automatic control systems;
 - Commissioning of systems for proper functioning; and
 - In addition to the heating, ventilation, and air conditioning system for the new building, additional pre-conditioned air units will be provided to handle the load of the aircraft.
- **Building equipment**
 - Energy efficiency/energy harvesting technologies on major equipment such as escalators, elevators, and baggage handling equipment; and
 - Energy Star kitchen appliances and office computers.

Additional sustainable design opportunities will be addressed as the Project progresses into design development. These design commitments will be incorporated into construction, especially as they relate to the proper specification of sustainable materials and construction practices.



6.2.3 Resiliency/Floodproofing

In 2013, Massport launched a comprehensive resiliency initiative to maximize business continuity in the midst of various human and natural threats. Recent extreme storms, such as Hurricane Sandy (2012), Tropical Storm Irene (2011), and winter storm Nemo (2013), demonstrated the link between climate hazards and the resiliency of the built environment, including air and maritime transportation infrastructure. As part of its broader resiliency initiative, Massport conducted a *Disaster and Infrastructure Resiliency Planning Study*² focused on the risks associated with climate change, primarily coastal flooding from extreme storms and sea level rise. The *Disaster and Infrastructure Resiliency Planning Study* included climate hazard analyses, vulnerability assessments for critical infrastructure, and resiliency intent recommendations for capital improvements and programming. One of the high priority recommendations was for Massport to develop and adopt design guidelines for flood resiliency, including establishing design flood elevations possibly more stringent than required by current building codes for future flood scenarios. In April 2015, Massport published its updated Floodproofing Design Guide,³ which is based on the analysis and recommendations of the *Disaster and Infrastructure Resiliency Planning Study*.

Consistent with the Secretary's Certificate and FAA's National Environmental Policy Act (NEPA) considerations, guidelines that will be applied to the Terminal E Modernization Project are outlined below. Massport also coordinated with the Massachusetts Office of Coastal Zone Management regarding measures to enhance resiliency and minimize potential coastal storm-related impacts. The following resiliency measures will be implemented:

- In general, the first level (lowest floor) of the Project is located above the Design Flood Elevation (DFE) prescribed in the *Sustainable Design Standards and Guidelines* for new construction. Thus, important utilities, life safety systems, and other critical equipment are generally above the DFE.
- Where spaces must be below the DFE, critical areas will be flood proofed through measures such as:
 - ❑ Install watertight shields on doors, windows, and louvers;
 - ❑ Use exterior and interior membranes and sealants to reduce seepage;
 - ❑ Seal electrical conduits and other utilities entering below the DFE;
 - ❑ Install drainage collection systems and sump pumps
 - ❑ Install early warning devices to monitor water levels;
 - ❑ Install back-flow preventer valves on drainage and sanitary sewer piping located below the DFE;
 - ❑ Install flood openings to equalize the hydrostatic pressure; and
 - ❑ Provide pumps to remove floodwater in non-draining areas.

6.2.4 Construction Period Measures

In accordance with FAA *Order 5050.4B* and *Order 1050.1F*, Massport has analyzed potential construction-related impacts, including construction noise; dust and noise from heavy equipment traffic; disposal of construction debris; and air and water pollution. Temporary, construction-related impacts occur on a short-term basis during

² Massport. 2014. *Disaster and Infrastructure Resiliency Planning Study*. Internal document.

³ Massport. 2015. *Floodproofing Design Guide*. Internal document.



the construction period based on construction methods, duration, materials, and equipment. Construction impacts alone are rarely significant pursuant to NEPA; however, Massport has identified best practices that would minimize the likelihood of negative impacts on the natural and built environments.

Construction impacts and mitigation are considered under each of the individual impact review categories above. During construction, there would be limited short-term impacts from added vehicle trips to and from the site by construction equipment, fugitive dust, noise, negligible amounts of sediment added to the area's stormwater collection system, and demolition materials and other routine construction wastes in need of proper disposal.

Massport specifically prohibits delivery of materials through residential streets, creation of borrow pits and disposal of spoil, burning of debris, and water pollution from erosion. In addition, Massport would require that the Project's design and construction planning would incorporate appropriate environmental protection measures. All construction impacts would be mitigated as required by construction contracts, therefore, a significant adverse effect would not be allowed to occur.

Massport would develop and implement a comprehensive Soil Erosion and Sediment Control Plan in accordance with National Pollutant Discharge Elimination System (NPDES) and Massachusetts Department of Environmental Protection standards. The Stormwater Pollution Prevention Plan would include best practices for soils and spill management, including the use of sediment control methods (such as silt fences or compost-filled silt sock barriers) during excavation to prevent silt and sediment entering the stormwater system and waterways, and applying water to dry soil to prevent dust production.

Temporary, short-term impacts from construction activities would be mitigated to the extent practicable. Appropriate construction mitigation measures would be incorporated into the contract documents and specifications governing the activities of contractors and subcontractors constructing elements of the Proposed Action. All construction activities would comply with FAA *Advisory Circular 150/5370-10 (latest edition), Standards for Specifying Construction of Airports*. These construction-period mitigation measures would be the responsibility of Massport. Specific mitigation measures would be developed during the final design.

6.2.4.1 Construction Management

Massport has developed a number of requirements for construction mitigation with which all architects, engineers, and construction contractors must comply. Massport will hire a construction management consulting firm that will be responsible for overseeing all activities related to the proposed project. The construction management consulting firm will be responsible for insuring that the management practices listed below and others to be developed are followed.

- Hours of work generally will be limited to typical working hours of 7:00 AM to 5:00 PM unless constrained by operational conditions at the Airport. For example, some night activity may occur during the concrete pouring period (which will reduce the duration of the construction period), during construction of utilities and pedestrian bridges, and at other times to minimize disruption to Airport roadways.
- Adequate storage areas for construction materials will be located on-Airport (away from residential areas).



- Fugitive dust will be controlled through wetting, sweeping, and other suppression techniques. Massport will require contractors to maintain on-site water trucks. All trucks hauling materials and excavate from the site will be covered.
- A Draft Soil Management Plan will be developed based upon sub-surface investigations. The plan outlines standards and procedures for the identification and disposal of contaminated materials that may be encountered on the Project site during construction. Soil tracking protocols will be detailed from the point of excavation to designated testing areas and to the ultimate disposal site.
- A Draft Stormwater Pollution Prevention Plan will be developed which is intended to keep the Airport's stormwater system free of sediment and contaminants during construction. The plan will be incorporated into construction plans, specifications, and contracts.
- A Draft Management Plan for Dewatering will be developed which addresses the requirements for testing, handling, and treatment prior to discharge of contaminated groundwater from dewatering.
- A Draft Health and Safety Plan will be developed which provides the minimum health and safety specifications that contractors must meet during construction including requirements for environmental monitoring, personnel protective equipment, site control and security, and training.
- Rodent control inspection, monitoring, and treatment will be carried out before, during, and at the completion of all foundation and utilities demolition and construction work for the Project. Rodent extermination prior to work start-up will consist of treatment throughout the Project Area including building exteriors and interiors. During the construction process, regular service visits will be made to maintain effective rodent control levels.

6.2.4.2 Ground Transportation

The mitigation of ground transportation impacts which could result from project construction will focus on two issues: minimizing construction-related vehicles on local and Airport roadways and insuring that all Airport roadway operations are maintained at full capacity to minimize traffic congestion both on- and off-Airport. The specific measures to be taken are noted below.

- All trucks will access the site by Route 1A, Interstate 90, and the main Airport roadways only. Trucks will be prohibited from using local streets unless they are seeking construction-related access to or from local businesses.
- Truck routes will be specified in contractors' construction specifications.
- Concrete production and batching will occur in existing plants with access via Route 1A or Interstate 90. This will reduce on-Airport construction activities and consolidate truck trips to the greatest extent possible.
- It is expected that construction workers will access the Airport via public transportation or via shuttle buses from off-Airport parking areas. Specific actions regarding construction worker access are noted below.
- Construction companies will be encouraged to provide off-Airport parking for their employees and to provide shuttle services from these locations. Massport will encourage contractors to locate such off-Airport



construction worker parking in areas adjacent to regional arterial roadways to help minimize traffic on local streets.

- Massport will encourage use by construction workers of Logan Express, the water shuttle, and other modes of public transportation.

6.2.4.3 Construction Air Quality Mitigation

As part of the Project approvals process and to minimize air emissions, Massport would require all contractors to comply with certain construction guidelines that relate to:

- Construction vehicle/equipment anti-idling;
- Retrofitting of appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters;
- Construction worker vehicle trip management, including requiring contractors to provide off-Airport parking, and use high-occupancy vehicle transportation modes for employees; and
- Air quality and fugitive dust management will be deployed including monitoring of construction dust; disposal options for excavated materials; and fences, wheel washing, and other methods to protect the Airport and surrounding communities from fugitive dust during construction.

Emissions from construction activities may be further reduced by employing the following best management practices:

- Reducing exposed erodible surface area through appropriate materials and equipment staging procedures;
- Covering exposed surface areas with pavement or vegetation in an expeditious manner;
- Reducing equipment idling times;
- Reducing vehicles speeds onsite;
- Ensuring contractor knowledge of appropriate fugitive dust and equipment exhaust controls;
- Stabilizing soil with cover or periodic watering;
- Using low- or zero-emissions equipment;
- Using covered haul trucks during materials transportation; and
- Suspending construction activities during high-wind conditions.

6.2.4.4 Construction Noise

The construction of the Proposed Action would generate noise associated with various stages of the Project development activities. Construction equipment is expected to be used intermittently throughout the Project's construction phase, only during daytime hours. Normal flight operations would continue to function during project construction.



Sound levels from activities associated with the construction of the Project will be consistent with the City of Boston's noise criteria (even though Massport is not subject to these criteria); therefore, no construction noise mitigation is required. However, construction equipment would use noise-reduction measures such as:

- Noise control techniques will be used to reduce noise from pile driving by at least 5 A-weighted decibels (dBA) below their unmitigated levels. These techniques include such measures as enclosing the point of impact for the pile driver; installing an impact cushion between the pile driver and the pile; or requiring the application of dampening (energy-absorbing) material to steel piles.
- Further noise control options will be evaluated during Project design to define their effectiveness and feasibility. Appropriate operational specifications and performance standards will be incorporated into the construction contract documents. In addition, community noise levels will be monitored during construction to verify compliance with contract specifications and applicable state and local noise regulations.

6.2.4.5 Construction Water Quality

The Terminal E Modernization Project includes changes and additions to the hydrant fuel system on the apron surrounding Terminal E, as well as associated apron and airfield pavement additions that would disturb more than one acre. Soil disturbance from construction activity creates the potential for water quality impacts from stormwater runoff and erosion. Therefore, the Project would be required to comply with the requirements of the NPDES General Permit for Stormwater Discharges from Construction Activities. NPDES requires filing a Notice of Intent and preparing a Stormwater Pollution Prevention Plan. As part of the Stormwater Pollution Prevention Plan, an Erosion and Sedimentation Control Program would be put in place to minimize construction phase impacts to Boston Harbor. Massport will comply with the provisions of the Massachusetts Contingency Plan.

Spill prevention measures and sedimentation controls would be deployed throughout the construction phase to prevent pollution from construction equipment and erosion. The following best practices would be deployed throughout the construction phase in order to prevent pollution from construction equipment or material:

- Erosion and sedimentation controls would be used during the airfield earthwork and construction phases. Proposed controls are provided as recommendations for the site contractor and do not constitute or replace the final Stormwater Pollution Prevention Plan that must be fully implemented by the contractor and owner in compliance with U.S. Environmental Protection Agency NPDES regulations and with Massport's contractor requirements.
- Perimeter Barriers like straw wattles or compost-filled "silt sock" barriers would be placed around upland work areas to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site.
- Existing catch basins within the work areas would be protected with barriers (where appropriate) or silt sacks throughout construction.
- Open soil surfaces would be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased.



- The contractor or subcontractor would be responsible for implementing each control shown on the Sedimentation and Erosion Control Plan.

Refer to Appendix B for draft Section 61 Findings for the proposed Terminal E Modernization Project.

Regulatory Compliance and Public/Agency Coordination

7.1 Introduction

This chapter discusses the state and federal permits that Massport anticipates for the Terminal E Modernization Project (the Proposed Action or Project), in addition to complying with the National Environmental Policy Act (NEPA) and Massachusetts Environmental Policy Act (MEPA). It also identifies Massport’s ongoing efforts to coordinate with local, state, and federal agencies, as well as the public.

7.2 Regulatory Compliance

Table 7-1 lists anticipated state and federal permits required for the Proposed Action along with the status of the permits and other approvals. Subsequent sections describe how the Proposed Action will comply with these regulatory requirements.

Table 7-1 Anticipated Permits and Approvals

Issuing Agency	Approval or Permit	Status
Federal Aviation Administration	Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA)	Environmental Assessment (EA) submitted; finding expected at the conclusion of the NEPA process
Federal Aviation Administration	Airport Layout Plan Approval	Approval to be issued
Federal Aviation Administration	Air Quality General Conformity Determination	Determination made in this document. See Chapter 5, <i>Environmental Consequences</i>
Federal Aviation Administration	14 CFR Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction



Table 7-1 Anticipated Permits and Approvals (Continued)

Issuing Agency	Approval or Permit	Status
Executive Office of Energy and Environmental Affairs	Secretary's Certificate under the Massachusetts Environmental Policy Act (MEPA)	Draft Environmental Impact Report (DEIR) submitted herein. A Final Environmental Impact Report (FEIR) will be noticed following the close of the comment period and issuance of the Secretary's certificate on the DEIR.
U.S. Environmental Protection Agency Region 1	National Pollutant Discharge Elimination System (NPDES) Individual Permit	The Project will meet the standards included in Logan Airport's individual NPDES permit (No. MA0000787)
	NPDES Construction General Permit	A construction-related stormwater pollution prevention plan will be developed by the contractor
Massachusetts Contingency Plan (MCP)	Hazardous materials encountered during the development would be addressed in accordance with applicable MCP regulations	As required
Massachusetts Water Resources Authority (MWRA)	Modification to existing MWRA Sewer Use Discharge Permit	If required, prior to construction

7.2.1 Airport Layout Plan Approval

Massport prepared this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) because it is seeking Federal Aviation Administration (FAA) approval for a modification of the Airport Layout Plan, which includes the components of the Proposed Action—the Terminal E Modernization Project. The Airport Layout Plan approval is a federal action that requires review pursuant to NEPA, as described in FAA *Order 5050.4B*.¹ FAA's approval of the Airport Layout Plan will incorporate modifications to facilities associated with the Terminal E Modernization Project.

7.2.2 National Environmental Policy Act

The FAA has determined that the Terminal E Modernization Project, as Massport (the Sponsor) proposes, requires an EA under NEPA due to requisite changes to the Logan Airport Layout Plan. This EA identifies project alternatives and documents the potential environmental effects associated with the construction and operation of the proposed terminal improvements at Logan Airport. Massport does not expect the Proposed Action to result in significant environmental impacts such as increased vehicle traffic, additional noise, or air emissions. Based on its review of the comments on the EA or, if additional information is needed to make a determination, FAA may pursue further review under NEPA.

¹ FAA. 2006. *Order 5050.4B: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.



7.2.3 Air Quality/ General Conformity Determination

As documented in Chapter 5, *Environmental Consequences*, Section 5.3.3, *Air Quality*, the Terminal E Modernization Project would be in conformance with the General Conformity Rule, established under the Clean Air Act, as related emissions would be within *de minimis* thresholds. Modeled Project-related emissions are within prescribed numerical thresholds (called *de minimis* levels) indicating that violations of the National Ambient Air Quality Standards are not expected and compliance with the State Implementation Plan is assured. Specifically, changes in emissions total under the Proposed Action in comparison to the No-Action Alternative (i.e., the Project-related emissions) are well within (i.e., below) the applicable General Conformity Rule *de minimis* levels for Carbon Monoxide, Volatile Organic Compounds, and Oxides of Nitrogen.

The Proposed Action will not change the aircraft operational levels at Logan Airport, and will result in a reduced number of ground-based aircraft movements (i.e., taxi and delay periods) compared to the future No-Action Alternative. Therefore, operational emissions (mobile and stationary source) will be reduced due to the Proposed Action.

While construction activities are expected to generate short-term construction-related air emissions, including exhaust emissions from on-road construction vehicles, off-road construction equipment, evaporative emissions from asphalt placement and curing, and the generation of fugitive dust from disturbance of unpaved areas, these Project-related emissions would be substantially below federal General Conformity *de minimis* thresholds. In addition to generating Project-related emissions well below *de minimis* thresholds, the Project activities fall under the list of activities "Presumed to Conform" by the FAA according to the July 30, 2007, Federal Register.² The Proposed Action is presumed to conform, falling primarily under categories 6. *Terminal and Concourse Upgrades*, and 7. *New HVAC Systems, Upgrades, and Expansions*.

As part of the approvals process associated with the Terminal E Modernization Project and to minimize air emissions, Massport will require all contractors to comply with certain construction guidelines that relate to:

- Construction vehicle/equipment anti-idling;
- Retrofitting of appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters; and
- Construction worker vehicle trip management, including encouraging contractors to provide off-Airport parking, and use high-occupancy vehicle transportation modes for employees.

7.2.4 FAA Part 77 Notification

In administering Title 14 of the Code of Federal Regulations (CFR) Part 77, the prime objectives of the FAA are to promote air safety and the efficient use of the navigable airspace.³ To accomplish this, an evaluation of aeronautical surfaces with respect to structure heights are conducted based on information provided by project proponents to complete a FAA Form 7460-1, Notice of Proposed Construction or Alteration. The 14 CFR Part 77.9 states that any person/organization who intends to sponsor any of the following construction or

² Federal Register (72 FR 415), *Federal Presumed To Conform Actions Under General Conformity*, Federal Aviation Administration, July 30, 2007.

³ 14 CFR Part 77: <http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=14:2.0.1.2.9>



alterations must notify the Administrator of the FAA by submitting this form. Massport will submit a FAA Form 7460-1 as needed prior to construction of the Project.

7.2.5 Massachusetts Environmental Policy Act

The Proposed Action exceeds a MEPA review threshold under 301 CMR 11.03(6)(b)(6); the Proposed Action will add greater than 100,000 square feet to an existing terminal at Boston-Logan International Airport. Massport filed an Environmental Notification Form (ENF) for the Proposed Action, noticed in the MEPA Environmental Monitor on November 9, 2015, and received the Secretary's Certificate for the ENF on December 16, 2015. The Certificate required that Massport prepare a DEIR with a narrow scope tailored to the Project and its specific impacts. Massport has prepared this DEIR to comply with the requirements of the Certificate and MEPA. The Secretary of the Executive Office of Energy and Environmental Affairs will solicit comments on the DEIR, and based on its review of the DEIR, issue a certificate that verifies the adequacy of the document.

7.2.6 U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Related Stormwater Discharge

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the U.S. Point sources are discrete conveyances such as pipes or man-made ditches. The NPDES program includes permitting for municipal, industrial, and construction-related sources of pollution under general or individual permits. The Project must meet the standards included in Logan Airport's individual NPDES permit (No. MA0000787), which allows Massport to discharge stormwater from outfalls on the Airport property. All Project elements will be designed to meet the standards of Logan Airport's NPDES individual permit.

The Project would also require completion and submittal of a Stormwater Notice of Intent to the U.S. Environmental Protection Agency (EPA) for coverage under the NPDES Construction General Permit for stormwater discharge from construction activities because the Project will require disturbance of over one acre. The Permit requires the development and implementation of a Stormwater Pollution Prevention Plan that includes specific sedimentation and erosion control measures that will be implemented for the entire duration of construction activities. Proper implementation of the Stormwater Pollution Prevention Plan will ensure that no adverse impacts would occur from construction-related runoff. Mitigation measures included in Logan Airport's existing Stormwater Pollution Prevention Plan to minimize sedimentation and erosion are described in Chapter 5, *Environmental Consequences*.

7.2.7 Massachusetts Contingency Plan (MCP)

During construction, the soil and groundwater contamination issues surrounding the existing terminal facilities will be addressed, as needed, in compliance with the Massachusetts Contingency Plan (MCP). In compliance with the MCP, a Soil Management Plan may be required to determine whether any excavated soils that are generated through foundation construction or improvements to the fuel hydrant system can be reused onsite, and/or determine requirements for off-site reuse, recycling, or disposal. Soil will be disposed of in conformance with Massport's soil management policy. A Soils Management Plan will be developed under the supervision of



a Massachusetts Licensed Site Professional, and will be integrated into the requirements of existing Response Action Outcomes for portions of the site covered by Release Tracking Numbers and/or Release Abatement Measures plans for any newly identified areas of contamination. The Soils Management Plan would be developed in concert with a groundwater management plan, which will address requirements for dewatering and collection, testing and/or treatment, and disposal or discharge of water pumped from excavations, if required.

7.2.8 Massachusetts Water Resources Authority (MWRA)

In accordance with Massachusetts Water Resources Authority (MWRA) Sewer Use Regulations,⁴ Massport maintains a Sewer Use Discharge Permit. Prior to the Proposed Action, Massport will coordinate with MWRA to modify the existing Sewer Use Discharge Permit to reflect the project, if required.

7.3 Public and Agency Coordination

During the preparation of this EA/DEIR, Massport has coordinated with the FAA and other federal, state, and local agencies.

7.3.1 Public Involvement

Public outreach and community input is an important element of Massport's overall process for the Terminal E Modernization project. Commencing before even filing the ENF and continuing during the ongoing permitting process, Massport staff has attended various public meetings to both provide an overview and answer questions on the Terminal E Modernization. These meetings ranged from briefing local community groups in East Boston to meeting with public officials at the local, state and federal level, and meeting with key stakeholders such as major business groups, and non-profit organizations such as the Logan Community Advisory Committee. In addition to this specific outreach, the joint FAA and MEPA public meeting held on November 19, 2015 associated with the ENF filing was well attended by the public and included an extensive opportunity for questions and answers. Massport advertised the notice of the meeting in local papers in English and in Spanish. Additionally, Spanish translation services were provided at the meeting. Following the meeting, Massport has continued its conversation with the community regarding Terminal E, with additional briefings to local community leaders, and Massport is planning a second publicly advertised public information briefing following the filing of the DEIR. Collectively, Massport has been pursuing widespread public outreach regarding the Terminal E Modernization project for more than ten (10) consecutive months.

Community and agency outreach and coordination will continue through permitting, design, and construction of the Terminal E Modernization Project. Massport has also consulted directly with resource agencies regarding potential impacts, avoidance, and minimization of these impacts and mitigation strategies.

⁴ 360 CMR §§10.007, 10.052, 10.072, and 10.092



Massport described the Proposed Action in the publicly circulated *Boston-Logan International Airport 2014 Environmental Data Report (EDR)*, published September 2015 and available at the following URL: www.massport.com/environment/environmental-reporting.⁵

Massport posts information about key regulatory filings on its website. The most recent environmental filings, including this EA/DEIR and all supporting documentation, will be made available on its website at: www.massport.com/environment/environmental-reporting/environmental-filings. A Notice of Availability of the EA/DEIR and associated public information session in both English and Spanish will be placed in the *Boston Herald* and *East Boston Times – Free Press*.

In response to the ENF and public meeting, public and agency comments were received. These comments and their responses are included in Appendix A, *Responses to Comments on the Environmental Notification Form* of this EA/DEIR.

7.3.2 Agency Consultation and Coordination

Massport conducted outreach and coordination with the following agencies during the development of the project alternatives and MEPA process:

- Massachusetts Bay Transportation Authority (MBTA); coordination on new direct pedestrian connection between the MBTA Blue Line Station and Terminal E;
- The Office of Energy and Environmental Affairs and Massachusetts Department of Energy Resources; coordination on energy efficiency measures to be considered for the new terminal area;
- Massachusetts Office of Coastal Zone Management; coordination on coastal zone protection and resiliency measures;

Massport distributed this EA/DEIR to local, state, and federal agencies for their review and comment (see Chapter 8, *Distribution List*). Massport will publish the EA/DEIR on its website at <https://www.massport.com/environment/environmental-reporting/environmental-filings>.

Following publication of the EA/DEIR there will be a 30-day public comment period.

⁵ Massport. 2015. *Boston-Logan International Airport 2014 Environmental Data Report*. September 15, 2015



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Distribution

FAA Order 5050.4B states that airport development will trigger public interest. Distributing this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) to the public is the best way to provide the public with the information needed to formulate an opinion. The Massachusetts Environmental Policy Act (MEPA) requires the EIR be circulated to each person or agency that commented on the Environmental Notification Form and any agency or person that requests a copy during the comment period. Massport will distribute this EA/DEIR in accordance with Federal Aviation Administration (FAA) Order 5050.4B and Massachusetts regulation 301 CMR 11.16 (3).

The following is a list of recipients of this EA/DEIR, which include representatives of governmental agencies, community groups, and local residents interested in activities at Logan Airport. The 'C' indicates that Massport sent a compact disc (CD), the 'P' indicates that Massport sent a printed copy, and the 'E' indicates that Massport sent an electronic copy.

This EA/DEIR is available on Massport's website (www.massport.com) and electronically on CD. Persons may request limited CD or printed copies of this EA/DEIR from Stewart Dalzell, telephone (617) 568-3507, email: sdalzell@massport.com. Electronic and printed copies of this EA/DEIR are available for review at the following public libraries.

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List of Preparers

9.1 Introduction

The Terminal E Modernization Project Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) was prepared by the Massachusetts Port Authority. Technical analyses and documents were prepared by a team of technical consultants. The entities involved, as well as the personnel and their individual areas of responsibility, are listed below. The years of experience for each individual are listed in parentheses as well as their qualifications.

9.2 VHB

VHB was the lead consultant responsible for the preparation of the EA/DEIR.

Carol Lurie, LEED AP, AICP, ENV SP – Principal in Charge (37)	M.S., City Planning B.S., Town and Regional Planning
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AECOM supported the development of Chapter 2, *Purpose and Need* and Chapter 3, *Alternatives and Proposed Action*.

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Timothy vonAschwege – Principal Designer and Associate Vice President (46)	Bachelor of Architecture



9.4 KB Environmental Sciences, Inc.

KB Environmental Sciences, Inc. prepared the greenhouse gas and air quality analyses and supported the development of Chapter 4, *Affected Environment* and Chapter 5, *Environmental Consequences*.

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9.5 Harris Miller Miller & Hanson, Inc.

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Appendices

Volume I:

- Appendix A, MEPA Environmental Notification Certificate and Response to Comments
- Appendix B, Draft Section 61 Findings

Volume II:

- Appendix C, Federal Aviation Administration Terminal Area Forecast
- Appendix D, Noise Technical Appendix
- Appendix E, Surface Transportation Technical Appendix
- Appendix F, Air Quality Technical Appendix
- Appendix G, Energy Model
- Appendix H, Agency Correspondence

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Appendix A
MEPA Environmental Notification Form
Certificate and Response to Comments

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MEPA Certificate on the Terminal E Modernization Project Environmental Notification Form

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December 16, 2015

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

PROJECT NAME : Terminal E Modernization
 PROJECT MUNICIPALITY : East Boston
 PROJECT WATERSHED : Boston Harbor
 EEA NUMBER : 15434
 PROJECT PROponent : Massachusetts Port Authority
 DATE NOTICED IN MONITOR : November 9, 2015

Pursuant to the Massachusetts Environmental Policy Act (M.G. L. c. 30, ss. 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I have carefully reviewed the Environmental Notification Form (ENF), comments submitted on it, and have carefully considered whether an EIR is warranted. The project is undergoing MEPA review and requires an ENF pursuant to 301 CMR 11.03(6)(b)(6) because it will be undertaken by a State Agency and consists of the expansion of an existing terminal at Logan Airport by greater than 100,000 sf. The project does not exceed a Mandatory EIR threshold. Mandatory EIR thresholds are established to identify a category of projects, or aspects thereof, for which it is presumed that the environmental impacts warrant additional analysis in an EIR.

Comments identify concerns with the project and its impacts and identify broader concerns associated with airport operations and growth. These include comments from Senator Petrucci, Representative Madaro, and Councilor LaMattina; Representative Garrett J. Bradley; the City of Boston Environment Department; the Town of Hull; the Milton Board of Selectmen; representatives of the Massport Citizens Advisory Committee (CAC); and many residents. I have weighed these concerns against the presumption that the project is not subject to a Mandatory EIR and that Massport will prepare an Environmental Assessment (EA) for review pursuant to the National Environmental Policy Act (NEPA), which will include additional opportunities for public comment.

I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to

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augment the federal review process, not duplicate it. The EIR is not intended to address broad concerns associated with airport operations and growth. The venue for addressing cumulative environmental impacts is through the Environmental Status and Planning Reports (ESPR) and Environmental Data Reports (EDR).

Through these reports, Logan Airport is subject to comprehensive and regular MEPA review, including opportunities for public comment. This regular updating and reporting on planning and cumulative impacts is unique among State Agencies. It reflects the challenge and complexity of managing and modernizing Logan Airport within a dense, urban area. It recognizes that the proximity of communities to the Airport warrants an enhanced level of public engagement and a concerted, long-term effort to minimize and mitigate impacts.

I expect that Massport can prepare a Draft EIR that will adequately address the Scope such that I may determine, pursuant to 301 CMR 11.08, that no substantive issues remain to be addressed and allow the DEIR to be reviewed as a Final EIR (FEIR) or as a Response to Comments on the DEIR.

Project Description

The project proposes modernizing Boston-Logan International Airport's John A. Volpe International Terminal (Terminal E) with a 500,000 to 700,000-square foot (sf) addition that corrects facility deficiencies and accommodates current and anticipated passenger volumes. The project includes three gates which previously underwent MEPA review (International Gateway Project, EEA #9791) but were not constructed, and two to four additional aircraft gates, passenger holdrooms, concourse, concessions, and passenger processing areas. The project includes Customs and Border Patrol (CBP) and Federal Inspection Services (FIS) facilities to replace and expand FIS facilities that were originally reviewed under MEPA (Terminal B, Pier A Improvements/Satellite FIS Facility, EEA #12235) but also not constructed. The project also includes a direct pedestrian connection between Terminal E and the Massachusetts Bay Transportation Authority's (MBTA) Blue Line Airport Station.

Terminal E was constructed in 1974 with 12 gates and served 1.4 million annual passengers. In 2014, it served approximately five million passengers. The ENF indicates that the current level of passenger activity routinely causes severe congestion in the terminal and negatively impacts customer service and operations. During peak late afternoon and early evening periods, passengers experience severe congestion and delays at the ticket counters and security screening areas, and there is insufficient seating, concessions, and other support services. The ENF indicates that aircraft must use remote parking facilities at hardstands in the North Cargo Area and passengers are bused to the terminal during peak periods when there are insufficient gates. Massport has clearly demonstrated the need for the project and made a compelling case for the expansion.

The project is proposed in two phases. The first phase could include up to five new gates; part of the concourse extension, including the majority of the additional terminal processing area; roadway and curb improvements; and direct pedestrian connections to the MBTA Blue Line Airport Station. The second phase would primarily consist of the remainder of the concourse area, additional gates, holdrooms, boarding bridges; support spaces such as concessions, mechanical spaces, airline and airport operations spaces; and passenger processing areas. Both

phases include airside modifications to accommodate aircraft maneuvering, taxiing, parking, and docking operational requirements.

The project will displace ground service equipment (GSE), other airside activities, existing surface parking, the cell phone lot, and the gas station which will be relocated within existing airport boundaries.

Environmental Status and Planning Report (ESPR)

The MEPA environmental review process for Logan Airport occurs on two levels: airport-wide and project-specific. The ESPR and EDR provide a "big picture" analysis of the environmental impacts of current and anticipated levels of airport-wide activities (including aircraft operations and passenger activity), and presents comprehensive strategies to avoid, minimize and mitigate impacts. The ESPR is generally updated on a five-year basis; the most recent ESPR for the year 2011 was filed in April 2013. Environmental Data Reports (EDRs) evaluate environmental conditions for the reporting year as compared to the previous year and are filed in the years between ESPRs. The most recent EDR for the year 2014 was filed in October 2015. The ESPR is supplemented by (and ultimately incorporates) the EDRs and the detailed analyses and mitigation commitments that emerge from project-specific reviews. This process provides a comprehensive and continuous review of airport programs, projects, environmental impacts and associated data.

The MEPA regulations (Section 11.06(2)) indicate that during the course of an ENF review I may review any relevant information from any other source to determine whether to require an EIR, and, if so, what to require in the Scope. To provide context for this project-specific review and because many issues raised by commenters relate to airport-wide operations and impacts, this Certificate refers to documents from the Environmental Status and Planning Report (ESPR) process (EEA#3247/5146). Massport indicates that the Terminal E project is consistent with the analysis presented in the Environmental Status and Planning Report (ESPR) and has incorporated that document by reference into the ENF as the framework for analyzing cumulative impacts of, and mitigation for, Logan Airport projects, and considers the regional transportation context.

The 2011 ESPR reported on key indicators of airport activity levels, the regional transportation system, ground access, noise, air quality, environmental management, and project mitigation tracking. In addition to the annual report on 2011 conditions, the ESPR evaluated the cumulative impacts of passenger growth and associated ground and aircraft operations looking forward to 2030. The ESPR also presented environmental management plans for addressing areas of environmental concern.

The 2011 ESPR identifies a future phase of the International Gateway Project – Terminal E, which includes three new gates, and assumes it is constructed by 2030. The 2012/2013 EDR also identifies this project and indicates it will be constructed beyond 2022. The 2014 EDR identifies the Terminal E Modernization Project as a stand-alone project. It indicates that it would include an additional two to four gates for a total of five to seven gates and construction could begin in 2018.

Logan Airport and Project Site

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The Airport boundary encompasses approximately 2,400 acres in East Boston and Winthrop, including approximately 700 acres underwater in Boston Harbor. The Airport is surrounded on three sides by Boston Harbor and is accessible by two public transit lines and the roadway system. The airfield is comprised of six runways and approximately 15 miles of taxiway. Logan Airport has four passenger terminals, A, B, C, and E, each with its own ticketing, baggage claim, and ground transportation facilities.

Terminal E is located adjacent to the North Cargo Area, closest to the MBTA Blue Line Airport Station. Land uses in the area of the proposed project include UPS aircraft parking and loading area, the airport's Remain Over Night aircraft parking area, the North Cargo Area equipment storage area, a building occupied by United Parcel Service (UPS), the MBTA Blue Line Airport Station, airport roadways, various short-term and cell phone parking lots, and a gas station.

The project site is located within the coastal zone of Massachusetts. The entirety of the project site is comprised of previously disturbed impervious area. It is not located in Priority or Estimated Habitat as mapped by the Division of Fisheries and Wildlife's (DFW) Natural Heritage and Endangered Species Program (NHESP). The project site does not contain wetland resource areas regulated pursuant to the Wetland Protect Act and its implementing regulations (310 CMR 10.00).

The ENF identified the following projects within the vicinity of Terminal E that have been reviewed under MEPA: Terminal A Replacement (EEA#9329), Terminal E Modifications (EEA#9324), Federal Inspection Services (FIS) Facility and West Concourse Project / International Gateway (EEA#9791), and Terminal B, Pier A Improvements/Satellite FIS Facility (EEA#12235).

Permitting and Jurisdiction

The project is undergoing MEPA review and requires an ENF pursuant to 301 CMR 11.03(b)(6) because it will be undertaken by a State Agency and results in the expansion of an existing terminal at Logan Airport by greater than 100,000 sf.

The project requires a Sewer Permit Modification from the Boston Water and Sewer Commission (BWSC) and may require an Industrial User Permit from the Massachusetts Water Resource Authority (MWRA). The project may be subject to Massachusetts Office of Coastal Zone Management (CZM) federal consistency review.

The project requires approval by the Federal Aviation Administration (FAA) for changes to the Airport Layout Plan and, therefore, requires an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). The project also requires a National Pollutant Discharge Elimination System (NPDES) General Permit for Construction from the U.S. Environmental Protection Agency.

Because the project will be undertaken by a State Agency, MEPA jurisdiction is broad in scope and extends to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations.

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Environmental Impacts and Mitigation

The project includes construction of approximately 500,000 to 700,000 sf of new floor area (for a maximum 1,500,000 sf total), and will increase both water consumption and wastewater generation by approximately 25,600 gallons per day (76,800 gpd total). The project will not create new impervious area and will eliminate approximately 60 parking spaces. The ENF indicates that the project will accommodate existing and forecasted passenger levels and operations and, therefore, will not increase passenger enplanements or vehicle trips.

Measures to avoid, minimize and mitigate project impacts include improving high-occupancy vehicle (HOV) access to the airport via a direct pedestrian connection to the MBTA Blue Line Airport Station and reducing air emissions, greenhouse gas (GHG) emissions, and energy consumption by providing better access to gate plug-ins and pre-conditioned air. The ENF also indicates that the building will act as a noise barrier to the adjacent neighborhood and Memorial Stadium Park.

Review of the ENF

The ENF includes a general description of proposed activities, a conceptual plan, and a limited analysis of alternatives. It does not provide a typical level of information necessary to evaluate the potential environmental impacts of the project for the purpose of MEPA review. The ENF does not address why construction projections have changed compared to the ESRP and EDR or how the increase in gates may affect the impact analysis which is based on the 2011 ESRP forecasts. The ENF provides a scope for the NEPA EA that identifies further analysis and data that will be provided to assess potential impacts and measures to avoid, minimize, and mitigate these impacts. As requested by Massport, the ENF was subject to an extended 30-day comment period to provide additional time for public review and comment.

Environmental Justice

Massport provided outreach consistent with the spirit and intent of the enhanced public participation provisions of the EJ Policy. Massport requested and was granted an extension of the comment period to provide additional time to review and comment on the ENF. The meeting notice was published in The Boston Herald, The East Boston Times, and the Winthrop Transcript. It was translated into Spanish and also published in El Mundo. Spanish language translation was provided at the joint MEPA/NEPA meeting held on November 19, 2015. In addition, Massport held additional meetings and presented information regarding the Terminal E Expansion at a number of meetings from September through December. I expect that Massport will employ similar approaches to ensure public review and comment of the EIR.

Massport has also provided enhanced air quality analysis and assessment of cumulative impacts in the ESRP and EDRs that address the spirit and intent of the EJ Policy. The Scope for the EA indicates that it will evaluate potential disproportionate noise and air quality impacts for existing and future build years 2022 and 2030; demonstrate how it will avoid, minimize, and/or mitigate these impacts to the greatest feasible extent; and, ensure that its proposed actions will not unduly burden low income or minority areas.

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I have received numerous comment letters regarding environmental justice and concerns that the burden of cumulative noise, air pollution, and traffic impacts associated with growth and increased operations will be borne by neighboring communities, independent of this specific project. The Executive Office of Energy and Environmental Affairs (EEA) Environmental Justice Policy (EJ Policy) was designed to improve protection of low income and communities of color from environmental pollution as well as promote community involvement in planning and environmental decision-making to maintain and/or enhance the environmental quality of their neighborhoods.

Alternatives Analysis

The ENF identified a maximum developable footprint and indicated that all Build Alternatives will be located within previously developed land within the Airport Boundary. It did not identify a Preferred Alternative or compare relative impacts/benefits of alternatives. The ENF indicated that conceptual Build Alternatives will be developed during the NEPA permitting process based on airport industry planning standards, FAA, Customs and Border Patrol, and Transportation Security Administration (TSA) requirements that define various terminal, airside, and landside functions. The key differences among potential alternatives will relate to the internal and external layout of the building, the ability to efficiently accommodate passengers, and constructability. According to the ENF, all Build Alternatives will include phased development of three gates followed by the development of between two and four additional new gates, additional concourse with supporting facilities, a new direct pedestrian connection to the MBTA's Blue Line Airport Station, reconfiguration of adjacent roadways and short-term parking areas, and reconfiguration of some airside operations. All Build Alternatives will be located within existing paved and developed areas of the airport that are currently used for aviation or aviation-related activities.

The ENF indicates that under the No-Build alternative, passenger and aircraft operations would continue to increase as projected in the 2011 ESRP, but there would be no significant changes to Terminal E interior or exterior facilities. Gate service facilities would be inadequate to efficiently handle the increase in scheduled operations and passengers and arriving aircraft would wait on the apron with engines idling until an aircraft clears a gate or park at a "hardstand" away from the Terminal at a North Cargo Area aircraft parking area and passengers will deplane using mobile stairs and be bused to the terminal. Hardstand operations, aircraft idling, and the use of on-board diesel auxiliary power units (APU) require greater use of energy, including bussing passengers to and from the terminal, and use of the aircraft engines to provide electricity to the cabin during these ground operations. The ENF indicates that the No-Build alternative would result in insufficient passenger processing capacity, long wait times at ticketing and security, and additional congestion at the curb and roadway. Based on these considerations, the No-Build alternative was eliminated.

Comments on the ENF request Massport accommodate more demand at regional airports and evaluate regional project alternatives to the proposed project. I acknowledge that long-term strategies to mitigate Logan's impacts will continue to include an emphasis on diverting travel to regional airports and to rail. Regional transportation will continue to be addressed through the ESRP and EDR, not through this project-specific review.

C.4

C.1

C.2

C.3

C.5

The 2011 ESPR and 2014 EDR provide a thorough analysis of trends in regional airport activity and identify initiatives and joint efforts to improve the efficiency of the regional transportation system (including regional rail transportation initiatives). The reports identify Massport investments in Hanscom Field and Worcester Regional Airports, consistent with the findings of the 2006 New England Regional Airport System Plan (NERASP) Study. Future ESPRs and EDRs will require Massport to report on Logan's role in the regional transportation system; Massport's efforts to promote the Worcester Regional Airport and Hanscom Field; the status of plans and improvements provided by the regional airport authorities; cooperation with other transportation agencies to promote efficient regional highway and transit operations; and report on metropolitan and regional rail initiatives and ridership. The reports demonstrate that Massport has continued to emphasize and build on opportunities to strengthen regional transportation.

Climate Change Adaptation and Resiliency Measures

Massport recently completed a Disaster and Infrastructure Resiliency Planning (DIRP) Study and generated a Floodproofing Design Guide which are intended to improve their ability to restore operational capabilities during and after major disruptions, and to adapt and enhance facilities to be more resilient to the effects of extreme weather events. The DIRP Study identified increased storm and sea-level rise as the threats with the highest probability of occurring and impacting Massport operations. The Floodproofing Design Guide also notes that Logan Airport is increasingly susceptible to flooding hazards caused by extreme storms and rising sea levels as a result of climate change.

The ENF does not include information regarding current Federal Emergency Management Agency (FEMA) floodplain mapping. MassDEP comments note that preliminary flood mapping depicts the 100-year flood zone to the west of the project site, near the Airport MBTA Station. Comments from MassDEP and CZM indicate the proximity of the project to the coastal environment may make it susceptible to sea level rise and increased storm intensity and frequency-related impacts. Massport should draw on the DIRP Study and Floodproofing Design Guide to develop mitigation strategies to support the functionality and resiliency of Terminal E in the near and distant future. I encourage Massport to consult with CZM as the project design process progresses.

Greenhouse Gas Emissions

Because I am requiring an EIR, the project is subject to review under the May 2010 MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol ("the Policy"). The ENF indicates that Massport will quantify stationary and mobile source GHG emissions generated by the project and will identify measures to avoid, minimize, or mitigate GHG emissions to determine the applicability of state and federal requirements. I note that mobile sources will only include passenger vehicles and GSE. The ENF indicates that the energy demand of the project may require a new substation and that energy modeling will be used to quantify the GHG emissions for the terminal building.

¹ Preliminary Flood Insurance Rate Map, Map Number 25025C00821, March 16, 2016

Massport has incorporated sustainability into all aspects of its activities through a Sustainability Management Plan as described in the 2014 EDR. Recent Massport accomplishments include compliance with the Leading by Example Executive Order which requires state agencies to procure 15 percent of their electricity from renewable resources; the new Rental Car Center in the Southwest Service Area receiving Logan's first LEED Gold Certification in 2015; and expansion of the Logan Express Bus Service and ongoing support of HOV measures.

Noise

The ENF asserts that the project will not increase the number of aircraft operations when compared to the Future No-Build Alternative. The ENF also indicates that the proposed terminal building will act as a sound barrier to dampen or reflect noise because it will be positioned between the airfield and roadway. These benefits were not analyzed in the ENF. The ENF indicates that the EA will assess the potential for anticipated ground noise impacts resulting from proposed changes to the functioning of the North Cargo Area. The EA will also contain an analysis of the specific sound barrier benefits of the proposed terminal.

Impacts associated with existing operations and noise levels, and potential increases in impacts associated with this project and long-term growth, are a major concern identified in most comment letters. Letters identify a particular concern with nighttime noise and concentrations of flight tracks and increased flight frequency due to the FAA's area navigation (RNAV) procedures. As documented in the ESPR and annual EDR submittals, implementation of several of the RNAV procedures have generated increased noise complaints in some towns surrounding Logan Airport. The procedures themselves have resulted in aircraft at higher altitudes, though in patterns that are concentrated over certain communities. Since 2000, the number of daily aircraft operations and the number of people exposed to the 65 decibel (dB) Day-Night Average Sound Level (DNL) has declined by approximately 27 percent and fifty percent (respectively), reflecting a trend towards fewer overall flights with larger, more efficient, and quieter aircraft. I acknowledge that projected increases in flight operations will increase cumulative noise impacts compared to existing conditions, although they will remain below historic levels. Cumulative impacts will continue to be addressed through the ESPR and EDR, not through project specific review of the Terminal E project.

Air Quality

The ENF indicates that the project will not alter runway use and will not affect the number of anticipated aircraft operations or generate any new vehicle trips. The project may alter airside ground operations in the North Cargo Area, including aircraft taxiing and parking, use of hardstands and busing, and use of supporting ground service equipment (GSE). The ENF indicates that an emissions inventory for the EPA criteria pollutants for airside ground operations (not flight operations) will be conducted for existing and future-year conditions using the recently released FAA Aviation Environmental Design Tool (AEDT). The AEDT will evaluate changes in aircraft ground operations and associated GSE and airside motor vehicle emissions will be assessed using the EPA MOVES model.

Total air quality emissions from all sources at Logan Airport in recent years are significantly less than they were a decade ago. The ENF attributes this downward trend to

<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>Massport's longstanding objective to accommodate the demands of increasing passenger and cargo activity levels with fewer aircraft operations generating fewer emissions. The 2014 EDR demonstrated that total emissions are incrementally increasing. Massport will continue to assess the applicability of emissions reduction measures to the extent practicable and report on air quality in the ESPR and the EDR.</p>	<p>C.11</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>Many comments cite the findings or request additional information on the 2004 Logan Airport Health Study performed by the Massachusetts Department of Public Health (DPH). The study was published in May 2014 and identified two respiratory outcomes for adults and children living in the high exposure area. In addition to contributions from Logan Airport, the study identified high background levels of air pollutants. The results of this study and have been reported in the annual EDR filings and include actions Massport is taking based on recommendations of the study. Cumulative air quality impacts will continue to be addressed through the ESPR and EDR, not through project specific review of the Terminal E project.</p>	<p>C.12</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>The project includes construction of a direct pedestrian connection between Terminal E and the MBTA Blue Line Airport Station. The EA will include an analysis of the existing public transportation options serving the airport and evaluate the potential impacts the direct connection may have on ridership and operations.</p>	<p>C.13</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>Many comments urge that I require a detailed analysis of ground transportation issues due to the cumulative impacts of landside and air operations at Logan and the identified issues with limited parking capacity. The issues of ground transportation and parking are clearly relevant to any discussion of cumulative impacts, and are an important component of any cumulative air quality analysis, which will continue to be addressed through the ESPR and EDR, not through this project specific review of the Terminal E Expansion.</p>	<p>C.14</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>The ESPR and annual EDR updates include a substantial body of analysis on ground transportation issues. The 2014 EDR indicates that Massport is developing a Long-Term Parking Management Plan intended to address the parking supply, pricing and operations associated with Logan's constrained parking. Strategies to address the parking issue may have implications for design of the Terminal E Modernization project, including curbside access and/or short-term parking areas.</p>	<p>C.15</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>According to the ENF, the project will generate an additional 25,600 gallons per day (gpd) of wastewater flow, for a total of 76,900 gpd. Similarly, the project will consume an additional 25,600 gpd of potable water, for a total of 76,800 gpd. MassDEP has indicated that the project will not require a Sewer Connection Permit from MassDEP. However, under the terms of the new Sewer System Extension and Connection Regulations (314 CMR 12.00), MassDEP requires that sewer authorities with permitted combined sewer overflows (CSOs), including the Boston Water and Sewer Commission (BWSC), require the removal of four gallons of infiltration and inflow (I/I) for each gallon of new wastewater flows generated by any new connection that would generate greater than 15,000 gpd. I refer Massport to comments from BWSC that provide additional guidance on this issue and identify applicable design standards for all new or relocated water mains and sewers.</p>	<p>C.16</p>
<p>EA# 15434</p>	<p>ENF Certificate</p>	<p>December 16, 2015</p>	<p>Comments from MWRA indicate that the project site is served by BWSC combined sewers that discharge to the MWRA's East Boston Branch Sewer. The ENF indicates that there is sufficient capacity in the existing collection system to accommodate the additional flow. I refer Massport to comments from MWRA which request the analysis also consider wet weather flow conditions.</p>	<p>C.17</p>

² The study is available for download at <http://www.mass.gov/eohhs.gov/departments/dph/programs/environmental-health/investigations/logan-airport-health-study.html>

<p>EEA# 15434</p> <p>Stormwater</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>The ENF indicates that the project will not create new impervious area as development of the terminal will occur in an area that is already paved. The Terminal E complex will continue to drain to the North Outfall, which is equipped with end-of-pipe treatment to remove debris and floating oils and grease from stormwater prior to discharge. Comments from CZM indicate that samples from the North Outfall recently exceeded water quality standards for bacteria and recommend that Massport develop a strategy to identify and eliminate illicit sewer connections to address this issue.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>According to the ENF, the EA will include a drainage analysis and description of the proposed stormwater management measures and identify the size and location of stormwater management features. The EA will also demonstrate how the project will meet MassDEP Stormwater Management Standards, Logan Airport's stormwater management practices, and the requirements of the NPDES Multi-Sector General Permit under which the airport operates. I refer Massport to comments from BWSC that identify applicable design standards and plan requirements, and provide guidance on discharge of dewatering drainage.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p><i>Historic and Archaeological Resources</i></p> <p>According to the ENF, the project site does not contain any properties listed in the State or National Registers of Historic Places. The project site contains both an area and a structure that are included in the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth (the Inventory). Specifically, the entirety of Logan Airport is identified as an Invented Area (MHC ID#BOS.K) and Terminal E is identified as an Invented Structure (MHC ID#BOS.63). The ENF contains a commitment to coordinate with MHC to identify potential impacts and avoidance, minimization, and mitigation measures.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p><i>Construction Period</i></p> <p>The ENF does not identify specific construction period impacts or associated mitigation measures. It indicates that construction period impacts, including noise, air quality, traffic, solid and hazardous waste, and water quality will be evaluated in the EA. It will also describe project phasing and sequencing. Massport participates in MassDEP's Clean Construction Equipment Initiative and requires engine retrofits to reduce exposure to diesel exhaust fumes and particulate emissions. The ENF indicates that demolition activities will comply with MassDEP's Solid Waste and Air Quality control regulations. I refer Massport to comments from MassDEP that provide guidance on asbestos removal and the handling of asphalt, brick, and concrete. The ENF indicates Massport will recycle construction & demolition (C&D) waste.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>The ENF indicates that contaminated material will be managed in compliance with the Massachusetts Contingency Plan (MCP) and that a Soil Management Plan may be required to determine whether excavated soils generated through foundation construction can be used onsite or hauled off-site for reuse and/or disposal. The ENF indicates that areas near the site have been regulated under c.21E Release Tracking Number (RTN) 3-10027 (Phase V) and RTN 3-324. MassDEP comments note RTN 3-324 appears to be linked to a site in a different city. Massport should review and confirm the RTN or provide the correct RTN for the site. I refer Massport to MassDEP comments, which provide additional guidance on the excavation, removal and/or</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>As noted previously, numerous comments raise concerns about the project, the management of growth at Logan Airport, the environmental and community impacts of this growth, and the mitigation of impacts. I have also received comments that suggest review of the Terminal E Modernization project has been improperly segmented under MEPA from the review of airport operations as a whole.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>Massport asserts that international passenger activity is forecast to increase independent of any additional facilities. The 2011 ESPR provides accurate forecasts of passenger demand and aviation activity in 2030 and documents that demand for passenger service is primarily determined by external factors, including economic growth, cost of travel, and demographic shifts. In addition, I note that Massport has been engaged in planning to accommodate growth in international passengers and operations since the 1990's.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>The issue of cumulative airport-wide impacts and segmentation is not new to the review of projects at Logan Airport. The ESPR and EDR provide a cumulative analysis of Logan Airport operations, environmental impacts, and mitigation measures. Review of individual projects proceeds within the context of this long-term planning and analysis of cumulative impacts. The record of MEPA review clearly demonstrates that Massport has and continues to identify impacts associated with individual projects within the context of long-term plans and cumulative impacts of Logan Airport. Cumulative impacts and project specific impacts will continue to be assessed on separate tracks; they will complement each other and ensure that projects are not viewed in isolation.</p>	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>
<p>Based on a review of the ENF, consultation with State Agencies and review of comment letters, I am requiring that Massport submit an EIR consisting of the EA and limited additional information identified in the Scope. The DEIR will consist of a project specific review of the Terminal E Modernization project within the context of airport-wide operations and impacts as a whole. The purpose of the DEIR is to:</p> <ol style="list-style-type: none"> 1. Provide a detailed and comprehensive project description including conceptual design; 2. Identify protect-specific impacts and the project's consistency with Logan planning and annual reporting; 3. Consider how alternative building design and location, within the project site, can minimize impacts and maximize benefits; and, 4. Provide draft Section 61 Findings that identify project-specific mitigation measures. 	<p>ENF Certificate</p> <p>December 16, 2015</p>	<p>December 16, 2015</p> <p>C.22 Cont.</p>

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<p>Through this review, Massport will demonstrate that it has met its obligations under MEPA to avoid, minimize and mitigate impacts of the Terminal E Modernization to the maximum extent feasible.</p>			C.34
<p>In recognition of the comment letters that raise concerns with cumulative airport-wide impacts pertaining to traffic and parking, air quality, and noise and, consistent with the MEPA review structure for Logan Airport, I am requiring Massport to respond to comments regarding airport operations and cumulative impacts in subsequent ESPR and/or EDR documents. The next ESPR will analyze calendar year 2016 and will likely be filed in late 2017 or 2018 and the next EDR will analyze calendar year 2015 and will likely be filed in the fall of 2016.</p>			C.35
<p>The 2015 EDR Scope includes reporting on noise, air quality, and long-term parking management. The 2016 ESPR should revise growth projections based on the changes in the Terminal E Modernization Project that occurred subsequent to the 2011 ESPR (if necessary). It should also reflect the proposed connection to the Airport Station and identify the anticipated ridership, changes in the HOV mode share, and ground access planning considerations.</p>			C.36
<p>SCOPE</p>			C.37
<p>General</p>			C.38
<p>The ENF included a proposed scope for the Environmental Assessment that will undergo review pursuant to the National Environmental Policy Act (NEPA). It includes a project description and permitting, alternatives, air quality, climate, coastal resources, hazardous materials, solid waste, pollution prevention, historical, architectural, archaeological and cultural resources, land use, natural resources and energy supply, noise and compatible land use, transportation, water resources, and construction impacts. In the interest of harmonizing State and federal review and in recognition of the significant and on-going planning and analysis represented by the ESPR and the EDRs, Massport may submit the EA as the Draft EIR. The EA should be supplemented by addressing the additions and modifications identified in this Scope. If Massport would prefer to tailor the EIR rather than submit the EA, the EIR should consist of the standard MEPA requirements for an EIR (Section 11.07(6)) and address the requirements of the MEPA GHG Emissions Policy and Protocol.</p>			C.39
<p>Massport may also choose to coordinate the State and federal review. MEPA comment and review periods may be adjusted to align with NEPA deadlines. Lastly, I note that this certificate applies to the review of the project under MEPA only, and does not restrict the ability of the federal government to act on those aspects of the project subject to NEPA.</p>			C.40
<p><u>Project Description and Permitting</u></p>			C.41
<p>The EIR should identify and describe any changes to the project since the filing of the ENF and provide an update on State, local, and federal permitting. It should include a discussion of permitting requirements and document the project's consistency with regulatory standards.</p>			C.42
<p><u>Noise</u></p>			C.43
<p>The EA will include a noise analysis. The EIR should identify how the sound barrier benefits of the terminal have been maximized through its location and design. The EIR should</p>			C.43

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 C.43 Cont.
 C.54

identify whether the addition of new gates constructed to current industry standards would affect the fleet mix and, potentially, alter/increase noise and vibration on Logan Airport and within the surrounding community compared to the 2030 forecasts.

wastewater flows, and I/I removal requirements as outlined in MWRA and BWSC's comments. I recommend that Massport employ an indexed response to comments format, supplemented as appropriate with direct narrative response.

Air Quality
 The EA will include an emissions inventory for the EPA criteria pollutants for airside ground operations for existing and future-year conditions to evaluate changes in aircraft ground operations and associated GSE and airside motor vehicle emissions. The EIR should quantify the impacts or benefits of providing direct access to plug-in gate operations and decreasing reliance on auxiliary power units, ground support equipment, and busing passengers around the airport. Massport should consider the potential and relative benefits of alternative building locations on the site and design between the airfield and neighborhoods as it relates to creating a potential barrier to particulate matter and other hazardous air pollutants.

Circulation
 In accordance with Section 11.16 of the MEPA Regulations and as modified by this Certificate, Massport should circulate a hard copy of the EIR to each State and City Agency from which the Proponent will seek permits. Massport must circulate a copy of the EIR to all other parties that submitted individual written comments. Per 301 CMR 11.1.6(5), the Proponent may circulate copies of the EIR to these other parties in CD-ROM format or by directing commenters to a project website address. However, Massport should make available a reasonable number of hard copies to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. Massport should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. A CD-ROM copy of the filing should also be provided to the MEPA Office. A copy of the EIR should be made available for review at the following Libraries: Boston Public Library - Main, Connolly, Orient Heights, Charlestown, and East Boston Branches, Chelsea Public Library, Winthrop Public Library, Revere Public Library, Everett Public Library, Milton Public Library, and Hull Public Library.

Construction Period
 The EA IR should identify construction period impacts, including noise, air quality, traffic, solid and hazardous waste, and water quality and identify avoidance, minimization, and mitigation measures. It should also describe project phasing and sequencing.

C.55

Mitigation/Draft Section 61 Findings

The EIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each area of impact associated with Massport's Preferred Alternative. The EIR should contain clear commitments to implement these 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 a schedule for implementation. To ensure that all GHG emissions reduction measures adopted by the Proponent in the Preferred 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 included in the EIR.

December 16, 2015
 Date



Matthew A. Beaton

Responses to Comments
 The EIR should contain a copy of this Certificate and a copy of each comment letter received on the ENF. Based on the large volume of comment letters received, the comment letters may be provided electronically on a CD. In order to ensure that the issues raised by commenters are addressed, the EIR should include direct responses to these 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 EIR beyond what has been expressly identified in this Certificate. The response can refer to future EDRs and/or ESPRs to address issues that are not within the DEIR Scope. In addition to items noted in the Scope, the response to comments section should address comments from MassDEP pertaining to wastewater, recycling, source reduction and water conservation efforts. The EIR should also address wet weather capacity,

Comments received:

- 12/07/2015 Massachusetts Department of Environmental Protection - Northeast Regional Office (MassDEP)
- 12/07/2015 Massachusetts Water Resources Authority (MWRA)
- 12/07/2015 Madeline Steczynski
- 12/07/2015 Jane O'Reilly
- 12/07/2015 Alexis Daniels
- 12/07/2015 Chris Marchi (1st letter)
- 12/07/2015 Jason Burrell
- 12/07/2015 John Casamassima
- 12/07/2015 Kannan Thiruvengadam
- 12/07/2015 Robin Maguire
- 12/07/2015 Susanna Starratt
- 12/07/2015 Theresa Turino
- 12/08/2015 Alfred Pucillo
- 12/08/2015 Duane Eric Lock
- 12/08/2015 Jeannie Grice
- 12/08/2015 Joanne Donatelli
- 12/08/2015 Joanne T. Pomodoro

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12/09/2015	Jeff Kerr (1 st letter)	
12/09/2015	Christina Leshock	
12/09/2015	Collin Cameron	
12/09/2015	Aaron M. Toffler, on behalf of Airport Impact Relief, Incorporated (AIR, Inc.)	
12/09/2015	Jason Hibbard	
12/09/2015	Gisela Voss and Dan Kernan	
12/09/2015	Elizabeth Kay	
12/09/2015	Harvey Rowe	
12/09/2015	Jill Romano, Wenham Logan CAC Representative	
12/09/2015	Leanne Tirabassi	
12/09/2015	Myron Kassara, Belmont Logan CAC and Massport CAC Representative	
12/09/2015	Nancy Plotkin	
12/09/2015	Larry A. Butler	
12/09/2015	Rowan Curran	
12/09/2015	Lois Freedman	
12/09/2015	Kathleen Conlon, Milton Board of Selectmen	
12/09/2015	Frank Kerr, Hull Neighbors for Quiet Skies	
12/09/2015	Jim Roberts	
12/09/2015	Tom Hardey	
12/09/2015	Donna Goes	
12/09/2015	Colleen MacDonald	
12/09/2015	Brian Carney	
12/09/2015	Billy Avalos	
12/09/2015	John Walkey	
12/09/2015	Stephan Martin	
12/09/2015	Amelia Cardona	
12/09/2015	Jeff Karr (2 nd Letter)	
12/09/2015	Priscilla Beadle	
12/09/2015	H. Gerald Zeller	
12/09/2015	Arnie Freedman	
12/09/2015	Bonita K. Koelker	
12/09/2015	Mary Ellen Welch	
12/09/2015	Marie & James Fraher	
12/09/2015	Erica Mattison, Environmental League of MA, Massport CAC Representative	
12/09/2015	Lynn Marie Ray	
12/09/2015	Dennis Saide	
12/09/2015	Vera Schneider	
12/09/2015	Neill K. Ray	
12/09/2015	Boston Harbor Association	
12/09/2015	Nicole Al Rashid	
12/09/2015	Ellen M. Tan, Commonwealth Land Trust	
12/09/2015	Cindy L. Christiansen, Milton Logan CAC Representative	
12/09/2015	Patricia Waddleton	
12/09/2015	Eric Rose	
12/09/2015	Carey Lam	
12/09/2015	Kathy Beitler	
12/09/2015	Joe Berkeley	
12/09/2015	Eileen M. Boylen	

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12/08/2015	John Antonellis	
12/08/2015	Lisa Rusch	
12/08/2015	Lorraine Curry	
12/08/2015	Magdalena Ayed	
12/08/2015	Mary Elizabeth Noziger	
12/08/2015	Nancy Lagro	
12/08/2015	Normairis Casiano	
12/08/2015	Rebecca Lock	
12/08/2015	Sandra Downey	
12/08/2015	Danielle Dell'Olio	
12/08/2015	Allyson and Michael Simons	
12/08/2015	Patricia J D'Amore	
12/08/2015	Jessica L. Curtis	
12/08/2015	Daniel Cano on behalf of the Eagle Hill Civic Association and Jeffries Point Neighborhood Association (dated 12/02/15)	
12/08/2015	Dan Bailey	
12/08/2015	Matthew Neave	
12/08/2015	Salvador Cartagena	
12/08/2015	Alexis Pumphrey	
12/08/2015	Jeff Lee	
12/08/2015	Kelly Rusch	
12/08/2015	Christine Passaricello	
12/08/2015	Rick Loekney (with attached data)	
12/08/2015	Camille MacLean	
12/09/2015	Angela Mroz	
12/09/2015	Pamela Loring	
12/09/2015	Brian Gannon	
12/09/2015	Jay Benson	
12/09/2015	Peter Chipman	
12/09/2015	Kathryn Leeber	
12/09/2015	Carol Taylor	
12/09/2015	Rebecca Lynds	
12/09/2015	Georges Arnaout	
12/09/2015	Lisa Locke	
12/09/2015	James Linthwaite	
12/09/2015	Mary J. Ryan	
12/09/2015	Steve and Chrissy Holt	
12/09/2015	Paul Paquin	
12/09/2015	Karis L. North	
12/09/2015	David and Carissa Juengst	
12/09/2015	Caroline Sulick	
12/09/2015	Maria Graceffa	
12/09/2015	Robyn Riddle	
12/09/2015	Elda and Mark Prudden	
12/09/2015	Christine Thompson	
12/09/2015	Frank J. Ciano, Arlington Logan CAC and Massport CAC Representative	
12/09/2015	Senator Petruccielli, Representative Madaro, Councilor LaMattina	
12/09/2015	Elke O'Brien	

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David Flynn
12/09/2015 Michael Passariello
12/09/2015 Richard Armenia
12/09/2015 James B. Lampke, Town of Hull, Acting Town Manager
12/09/2015 Cindy Borges-Peralta
12/09/2015 Stephen Cooper
12/09/2015 Tina St. Gelais Kelly
12/09/2015 Tara Ten Eyck
12/09/2015 Maria Ticona
12/09/2015 Ira Fleishman
12/09/2015 Andrew Schmidt
12/09/2015 Debbie Ellerin
12/10/2015 Jeeyoon Kim
12/10/2015 Boston Water and Sewer Commission (BWSC)
12/10/2015 George and Diane Nassopoulos
12/10/2015 Betsy Lewenberg
12/10/2015 Representative Garrett J. Bradley
12/11/2015 Massachusetts Office of Coastal Zone Management (CZM)
12/11/2015 Chris Marchi, (2nd letter)
12/11/2015 City of Boston – Environmental Department
12/11/2015 Mary Beth Hamwey
12/11/2015 Maureen White
12/11/2015 Jesse Purvis
12/11/2015 John Tyler
12/11/2015 Renee MacLean
12/11/2015 Edward MacLean
12/11/2015 E.F. (45 Grovers Ave.)
12/11/2015 D.P. (402 Meridian St.)
12/11/2015 Daniel Cordon
12/11/2015 Tanya Hahnel
12/11/2015 B.R. (412 Summer St.)
12/11/2015 A.V. (198 Everett St.)
12/11/2015 Gillian B. Anderson
12/12/2015 Elizabeth Stoy
12/15/2015 Department of Energy Resources (DOER)

MAB/PRC/prc

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton	
Comment #	Response:
C.1	<p>Comment: The ENF does not address why construction projections have changed compared to the ESRP and EDR or how the increase in gates may affect the impact analysis which is based on the 2011 ESRP forecasts.</p> <p>Response: Massport is continually planning improvements and upgrades to Logan Airport facilities. Massport reviews and updates its forecasts as passenger demands change, airlines consolidate, and other factors come into play. With changes in circumstances, plans are modified accordingly. As documented in this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) (see Chapter 2, Purpose and Need), comparisons are made to the forecasts documented in the 2011 Environmental Planning and Status Report (ESRP) and the most recent forecast on which the Terminal E Modernization Project concepts are based.</p>
C.2	<p>Comment: Massport provided outreach consistent with the spirit and intent of the enhanced public participation provisions of the EJ policy... The meeting notice was published in the Boston Herald, The East Boston Times, and the Winthrop Transcript. It was translated into Spanish and also published in El Mundo. Spanish language translation was also provided at the joint MEPA/NEPA meeting held on November 19, 2015. In addition, Massport held meetings and presented information regarding the Terminal E Expansion at a number of meetings from September through December. I expect that Massport will employ similar approaches to ensure public review and comment of the EIR.</p> <p>Response: Massport will develop similar approaches for the Terminal E Modernization Project. Massport will hold informational meetings on the Terminal E Modernization Project, will publish public notices regarding the Project in Spanish, and will provide Spanish translation services at the Massachusetts Environmental Policy Act (MEPA) public information session.</p>
C.3	<p>Comment: The Scope for the EA indicates that it will evaluate potential disproportionate noise and air quality impacts for existing and future build years 2022 and 2030, demonstrate how it will avoid, minimize, and/or mitigate these impacts to the greatest feasible extent; and, ensure that its proposed actions will not unduly burden low income or minority areas.</p> <p>Response: As documented in Chapter 5, Environmental Consequences, there are no significant noise or air quality impacts associated with the Terminal E Modernization Project, thus there are no disproportionate impacts to Environmental Justice communities in the vicinity of Logan Airport. Massport is committed to collaborating with impacted surrounding communities. Massport will continue to publish meeting notices in the Boston Herald, the East Boston Times, and the Winthrop Transcript. These notices will be translated into Spanish and will also be published in El Mundo and El Planeta. Massport will continue to provide notices in Spanish along with translation services at public meetings.</p>
C.4	<p>Comment: It did not identify a Preferred Alternative or compare relative impacts/benefits of alternatives. The ENF indicated that conceptual Build Alternatives will be developed during the NEPA permitting process based on airport industry planning standards, FAA, Customs and Border Protection, and Transportation Security Administration (TSA) requirements that define various terminal, airside, and landside functions.</p> <p>Response: Chapter 3, Alternatives and Proposed Action, outlines the Project terminal, airside, and landside elements, and conceptual design alternatives considered. Several terminal and roadway layout options were evaluated in terms of efficiency, feasibility, cost, and environmental considerations. The Proposed Action is identified and fully evaluated in Chapter 5, Environmental Consequences.</p>
C.5	<p>Comment: I acknowledge that long-term strategies to mitigate Logan's impacts will continue to include an emphasis on diverting travel to regional airports and to rail. Regional transportation will continue to be addressed through the ESRP and EDR, not through this project-specific review.</p> <p>Response: Chapter 3, Alternatives and Proposed Action, reviews past and ongoing actions to enhance the regional airport system. As outlined in the Secretary's Certificate, regional transportation is appropriately addressed through the ongoing ESRP and Environmental Data Report (EDR) process.</p>
C.6	<p>Comment: Massport should draw on the DIRP Study and Floodproofing Design Guide to develop mitigation strategies to support the functionality and resiliency of Terminal E in the near and distant future. I encourage Massport to consult with CZM as the project design process progresses.</p> <p>Response: Massport is a leading public transportation agency in addressing and preparing for the effects of climate change. In the comprehensive Disaster and Infrastructure Resiliency Planning study, Massport identified various flood levels and scenarios likely to occur during storm events. This led to the development of Massport's Floodproofing Design Guidelines which are intended to prepare Massport for extreme flooding events. These guidelines will be followed in the design process for the terminal facility. For more information, visit https://www.massport.com/media/323694/Massport-Floodproofing-Design-Guide-Revised-April-2015.pdf. Additionally, on April 14, 2016, Massport met with the Massachusetts Office of Coastal Zone Management for a briefing on the Terminal E Modernization Project and the ongoing climate and resiliency efforts (Appendix H, Agency Correspondence). Massport will continue to coordinate with the Massachusetts Office of Coastal Zone Management throughout the planning and design process.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.7	<p>Comment: Because I am requiring an EIR, the project is subject to review under the May 2010 MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol ("the Policy").</p> <p>Response: This EA/DEIR fully complies with MEPA's Greenhouse Gas Emissions Policy and Protocol. In Chapter 5, Environmental Consequences, Section 5.5.5.1 MEPA EIR Greenhouse Gas Emissions Policy, reports on the findings of the greenhouse gas assessment conducted in accordance with the MEPA guidance. The assessment compares a traditional building to one with the proposed Project, which has energy conservation measures incorporated in its design and operation. For more information, visit http://www.mass.gov/eea/docs/mepa/ghg-policy-final.pdf</p> <p>The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year.</p> <p>The emissions inventory documented in Chapter 5, Environmental Consequences, includes mobile sources such as landside vehicles, airside ground vehicles, and ground support equipment.</p>
C.8	<p>I note that mobile sources will only include passenger vehicles and GSE.</p>
C.9	<p>The ENF indicates that the energy demand of the project may require a new substation and that energy modeling will be used to quantify the GHG emissions for the terminal building.</p> <p>The greenhouse gas modeling conducted for this EA/DEIR follows the MEPA Greenhouse Gas Emissions Policy and Protocol (http://www.mass.gov/eea/docs/mepa/ghg-policy-final.pdf). Chapter 5, Environmental Consequences, Section 5.5.5.1, MEPA EIR Greenhouse Gas Emissions Policy, reports on the findings of the greenhouse gas assessment and compares a traditional building to the proposed Project, which has energy conservation measures incorporated in its design and operation. The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year. A new electrical substation would be required for electrical transmission to support the new facilities. This was taken into account in the air quality modeling.</p>
C.10	<p>Cumulative impacts will continue to be addressed through the ESDR and EDR, not through project specific review of the Terminal E project.</p> <p>As described in the Secretary's Certificate, the 2015 EDR will be published later this year and the following 2016 ESDR will assess cumulative impacts of overall airport operations through 2030.</p>
C.11	<p>The 2014 EDR demonstrated that total emissions are incrementally increasing. Massport will continue to assess the applicability of emissions reduction measures to the extent practicable and report on air quality in the ESDR and the EDR.</p> <p>Massport will continue to assess the applicability of emissions reduction measures and report on air quality in the ESDR and the EDR. Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports for MEPA and for public review since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR." Projects that require state (MEPA) or federal (National Environmental Policy Act (NEPA)) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The 2015 EDR and 2016 ESPR will continue to report on baseline and cumulative impacts of overall airport operations.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.12	<p>As directed by the Secretary, cumulative air quality impacts will continue to be addressed through the EDR, not through project specific review of the Terminal E Modernization Project.</p>
C.13	<p>Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line. A review of ridership and trainset capacity on the MBTA Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p>
C.14	<p>As directed by the Secretary, the issues of ground transportation and parking will continue to be addressed through the EDR and EDR, not through this project specific review of the Terminal E Modernization Project.</p>
C.15	<p>The EDR and annual EDR updates include a substantial body of analysis on ground transportation issues. The 2014 EDR documents Massport's Long-Term Parking Management Plan, which is intended to address the parking supply, pricing, and operations associated with Logan Airport's constrained parking. As documented in Chapter 5, Environmental Consequences, Section 5.5.2, Surface Transportation, Cumulative Impacts, Massport is in the conceptual planning and design phase of a Trip Reduction/New Parking Garage Project. This project is predicated on the approval of a draft regulatory change, issued by the Massachusetts Department of Environmental Protection (MassDEP), to amend the Logan Airport Parking Freeze Regulation, 310 CMR 7.30, and allow for additional commercially parked vehicles at Logan Airport. Consistent with its Long-term Parking Management Plan, first published in the 2012/2013 EDR, Massport proposes to build no more than 5,000 new on-Airport commercial parking spaces at Logan Airport, subject to an amendment to the Parking Freeze. This project is part of Massport's comprehensive strategy to address environmentally undesirable drop-off/pick-up trips. The new spaces would be accommodated in one or more locations. The new spaces are intended to accommodate existing and anticipated air passenger demand for parking at the Airport and would be planned and constructed in an environmentally sensitive manner. The new parking spaces would reduce regional air passenger-related vehicle miles traveled and associated vehicle air emissions. Massport is currently considering six potential on-Airport siting locations for the garage(s). Each of these six sites currently includes surface parking as an existing use. Massport will identify a preferred siting location as the process moves through the conceptual planning, design, and subsequent public environmental review process. The proposed additional parking garage(s) at Logan Airport would be subject to MEPA review under 301 CMR 11.03 (6)(a), through preparation of a mandatory Environmental Impact Report for "Construction of 1,000 or more new parking spaces at a single location." Massport will coordinate with the Federal Aviation Administration (FAA) on the level of review required under the NEPA. The level of NEPA review will depend on the chosen alternative and will be at the discretion of the FAA.</p> <p>While the current Parking Freeze cap is in place, no additional parking spaces can be constructed within the Airport footprint. However, given the 15 year analysis timeframe, it is possible that the Parking Freeze regulation will be amended to allow for construction of additional commercial parking on-Airport. The following section presents analysis comparing the No-Action Alternative to the Proposed Action, with the assumption that an additional 5,000 on-Airport parking spaces are constructed by 2030 for both scenarios. For the purposes of this analysis, it was assumed that a portion of the additional parking spaces would be accommodated in front of Terminal E and the remainder would be accommodated near the existing Economy Garage/North Cargo Area. The new parking facility would be built with or without the proposed Terminal E Modernization Project, and for full disclosure, is analyzed in this EA/DEIR.</p>
C.16	<p>Massport will coordinate with the Boston Water and Sewer Commission regarding water and wastewater connections.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.17	I refer Massport to comments from MWRA which request the analysis also consider wet weather flow conditions.
C.18	Comments from CZM indicate that samples from the North Outfall recently exceeded water quality standards for bacteria and recommend that Massport develop a strategy to identify and eliminate illicit sewer connections to address this issue.
C.19	I refer Massport to comments from BWSC that identify applicable design standards and plan requirements, and provide guidance on discharge of dewatering drainage.
C.20	The ENF indicates Massport will recycle construction & demolition (C&D) waste.
C.21	Massport should review and confirm the RTN or provide the correct RTN for the site.
C.22	I refer Massport to MassDEP comments, which provide additional guidance on the excavation, removal and/or disposal of contaminated soil, pumping of contaminated groundwater, and/or working on contaminated media.
C.23	The ESPR and EDR provide a cumulative analysis of Logan Airport operations, environmental impacts, and mitigation measures. Review of individual projects proceeds within the context of this long-term planning and analysis of cumulative impacts. The record of MEPA review clearly demonstrates that Massport has and continues to identify impacts associated with individual projects within the context of long-term plans and cumulative impacts of Logan Airport. Cumulative impacts and project specific impacts will continue to be assessed on separate tracks; they will complement each other and ensure that projects are not viewed in isolation.
C.24	The purpose of the DER is to: Provide a detailed and comprehensive project description including conceptual design.

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.25	<p>Comment: Identify protect-specific impacts and the project's consistency with Logan planning and annual reporting;</p> <p>The EA/DEIR assesses the potential impacts associated with the proposed Terminal E Modernization Project in relation to many environmental categories including noise and air quality. Refer to Chapter 5, Environmental Consequences, for additional information. Section 5.5.9, Land Use, demonstrates how the proposed Project is consistent with Logan Airport planning and EDRs/ESPRs. Future EDRs and ESPRs will track the construction and mitigation of the Terminal E Modernization Project. In addition, the Terminal E Modernization Project is consistent with federal, state, and local plans and policies regarding land use, transportation, open space, and recreation. The Project would not result in a change in land use.</p>
C.26	<p>Chapter 3, Alternatives and Proposed Action, documents the various design layouts that were considered for the Terminal E Modernization Project. Options evaluated included a major expansion of the existing Terminal E building, a new satellite concourse, and an extended concourse. Primary consideration was given to positioning the terminal concourse as a noise barrier and to configuring the North Apron and new gates to improve efficiency of operations on the apron and in the terminal. Chapter 5, Environmental Consequences, documents those expected benefits.</p>
C.27	<p>Chapter 6, Beneficial Measures/Mitigation, and Appendix B, Draft Section 61 Findings, describe the proposed beneficial and mitigation measures.</p>
C.28	<p>The 2015 EDR (scheduled for publication fall 2016) and the 2016 ESPR will address comments regarding Airport operations and cumulative impacts through 2030.</p>
C.29	<p>The 2015 EDR will include an assessment of Airport-wide noise, air quality conditions, and the status of Massport's Long-term Parking Management Plan.</p>
C.30	<p>If warranted, the 2016 ESPR will update aircraft operations and passenger activity levels through 2030 based on aviation industry trends, economic, and demographic factors. Consideration will also be given to the FAA's Terminal Area Forecasts.</p>
C.31	<p>Chapter 2, Purpose and Need, describes the direct pedestrian connector to the MBTA Blue Line. Chapter 5, Environmental Consequences, includes a description of the existing public transportation options serving the Airport. A review of ridership and trainset capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p>
C.32	<p>In this EA, the Terminal E Modernization Project will undergo a full environmental assessment according to the federal NEPA requirements as administered by the FAA. To assess potential impacts, the Secretary's Certificate requested additional information regarding the necessary details of design and development of the Terminal E Modernization Project. This document is a combined EA with a narrowly tailored scoped DEIR which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.33	<p>The EIR should identify and describe any changes to the project since the filing of the ENF and provide an update on State, local, and federal permitting. It should include a discussion of permitting requirements and document the project's consistency with regulatory standards.</p>
C.34	<p>The EIR should include updated site plans for existing and post-development conditions at a legible scale including curbside improvements and changes to the on-airport roadways.</p>
C.35	<p>The EIR should provide an update on consultations with the MBTA regarding the proposed connection to the MBTA Airport Station. The EIR should identify whether a Land Transfer (including easement) from MBTA will be required to construct the pedestrian connection to the MBTA Airport Station. The EIR should include a conceptual design for the proposed connection to the Airport Station and identify anticipated ridership, potential changes in the HOV mode share, and associated ground access planning considerations.</p>
C.36	<p>The EIR should identify the planning metrics, facility requirements, and assumptions used to design the project and to determine the final number and location of gates. It should compare and contrast benefits and potential impacts of alternatives in narrative form and in a tabular format.</p>
C.37	<p>The EIR should identify the peak hour used to determine gate locations and design passenger hold rooms. The EIR should identify the number of planes that are currently forced to "hard stand" during peak hours due to lack of available gates to the number of planes. It should identify the number forced to "hard stand" during peak hours under proposed alternatives.</p>
C.38	<p>The EIR should include a discussion of the proposed project and alternatives consistency with the long-term growth forecasts contained in the ESPR and EDR.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.39	<p>The EIR should describe the project's consistency with the DIRP Study and Massport's Floodproofing Design Guide to demonstrate that the project will incorporate proactive site design measures to address potential impacts related to predicted sea level rise.</p>
C.40	<p>In addition to Massport assets, I encourage Massport to consult with the MBTA to review existing station vulnerabilities, as operations of the Blue Line and this station are important to support Massport HOV goals.</p>
C.41	<p>The EIR should include an analysis of GHG emissions and mitigation measures in accordance with the standard requirements of the MEPA GHG Policy and Protocol. The analysis should include project-related stationary source emissions and mobile source emissions (passenger vehicles and GSE). I refer Massport to comments from DOER and MassDEP which provide additional guidance regarding mitigation measures that should be explored as part of the GHG analysis.</p>
C.42	<p>The EIR should include a feasibility analysis of [Combined Heat and Power] CHP and a roof-mounted solar photovoltaic (PV) system. I encourage Massport to meet with representatives from MEPA and DOER prior to preparation of the GHG analysis.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.43	<p>The EA will include a noise analysis. The EIR should identify how the sound barrier benefits of the terminal have been maximized through its location and design. The EIR should identify whether the addition of new gates constructed to current industry standards would affect the fleet mix and, potentially, alter/increase noise and vibration on Logan Airport and within the surrounding community compared to the 2030 forecasts.</p>
C.44	<p>The EA will include an emissions inventory for the EPA criteria pollutants for airside ground operations for existing and future-year conditions to evaluate changes in aircraft ground operations and associated GSE and airside motor vehicle emissions.</p>
C.45	<p>The EIR should quantify the impacts or benefits of providing direct access to plug-in gate operations and decreasing reliance on auxiliary power units, ground support equipment, and busing passengers around the airport.</p>
C.46	<p>Massport should consider the potential and relative benefits of alternative building locations on the site and design between the airfield and neighborhoods as it relates to creating a potential barrier to particulate matter and other hazardous air pollutants.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.47	<p>The EA/EIR should identify construction period impacts, including noise, air quality, traffic, solid and hazardous waste, and water quality and identify avoidance, minimization, and mitigation measures.</p> <p>Chapter 5: Environmental Consequences, assesses construction-related impacts. Detailed assessment of ground transportation, noise, and air quality are provided for the proposed Project. Construction equipment is expected to be used intermittently throughout the Project's construction, only during daytime hours. Normal flight operations would continue to function during Project construction. Even though Massport is not subject to the City of Boston noise requirements, the noise analysis demonstrated that the sound levels from construction activities associated with the Terminal E Modernization Project would comply with the City of Boston's noise criteria.</p> <p>For ground access, short-term construction impacts are expected to be limited to the segments of the East Boston roadways that provide direct access to the Airport's entrances (Service Road, Frankfurt Street, and Prescott Street) and on Airport roadways (Transportation Way, Harborside Drive, and Terminal Area roadways). As documented in Massport's construction management specifications, construction vehicles are restricted from using local roads.</p> <p>For air quality, total emissions are estimated to range from less than one ton to 12 tons on an annual basis depending on the pollutant. Furthermore, emissions of carbon monoxide (CO), volatile organic compounds (VOCs), and nitrogen oxide (NO_x) are well within the applicable General Conformity thresholds. This important outcome signifies that the Terminal E Modernization Project conforms to the State Implementation Plan and would not cause, or contribute to, violations of any National Ambient Air Quality Standards (NAAQS).</p>
C.48	<p>It should also describe project phasing and sequencing.</p> <p>Project phasing and sequencing is described in detail in Chapter 3, Alternatives and Proposed Action. The first phase of the Project would include construction of up to four new contact gates in an extension to the west portion of existing Terminal E.</p>
C.49	<p>The EIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each area of impact associated with Massport's Preferred Alternative. The EIR should contain clear commitments to implement these 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 a schedule for implementation.</p> <p>Chapter 6, Beneficial Measures/Mitigation, includes proposed mitigation measures and Appendix B includes the draft Section 61 Findings. The proposed Terminal E Modernization Project would create no long-term adverse environmental impacts and only minor construction-period impacts. Overall, the Terminal E Modernization Project has positive environmental benefits in the areas of noise, air quality, and ground access.</p>
C.50	<p>To ensure that all GHG emissions reduction measures adopted by the Proponent in the Preferred 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 included in the EIR.</p> <p>Massport will 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 will be incorporated into the draft Section 61 Findings included Appendix B of this EA/DEIR. The status of mitigation measures will also be reported on an annual basis in EDRs and ESPRs.</p>
C.51	<p>The EIR should contain a copy of this Certificate and a copy of each comment letter received on the ENF. Based on the large volume of comment letters received, the comment letters may be provided electronically on a CD. In order to ensure that the issues raised by commenters are addressed, the EIR should include direct responses to these 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 EIR beyond what has been expressly identified in this Certificate. The response can refer to future EDRs and/or ESPRs to address issues that are not within the DEIR Scope.</p> <p>Appendix A, MEPA Environmental Notification Form Certificate and Response to Comments, contains a copy of this Certificate and a copy of each comment letter received on the ENF. The appendix includes direct responses to these comments to the extent that they are within MEPA jurisdiction. As directed, issues relating to cumulative impacts and Airport-wide issues will continue to be addressed in forthcoming EDRs and ESPRs.</p>

Terminal E ENF Comments and Responses

Secretary Matthew A. Beaton Continued	
Comment #	Response:
C.52	<p>Comment: In addition to items noted in the Scope, the response to comments section should address comments from MassDEP pertaining to wastewater, recycling, source reduction and water conservation efforts.</p> <p>Response: Appendix A, MEPA Environmental Notification Form Certificate and Response to Comments, addresses comments from MassDEP pertaining to wastewater, recycling, source reduction, and water conservation efforts.</p>
C.53	<p>Comment: The EIR should also address wet weather capacity, wastewater flows, and V/1 removal requirements as outlined in MWRA and BWSC's comments.</p> <p>Response: Wet weather flows will be taken into account when the Project moves into the final design phase.</p>
C.54	<p>Comment: I recommend that Massport employ an indexed response to comments format, supplemented as appropriate with direct narrative response.</p> <p>Response: Appendix A, MEPA Environmental Notification Form Certificate and Response to Comments, includes this indexed response to comments for each identified comment provided by reviewers.</p>
C.55	<p>Comment: Massport should circulate a hard copy of the EIR to each State and City Agency from which the Proponent will seek permits. Massport must circulate a copy of the EIR to all other parties that submitted individual written comments. ...the Proponent may circulate copies of the EIR to these other parties in CD-ROM format or by directing commenters to a project website address. ... Massport should make available a reasonable number of hard copies to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. A CD-ROM copy of the filing should also be provided to the MEPA Office. A copy of the EIR should be made available for review at [specified] Libraries.</p> <p>Response: Distribution of the EA/DEIR will be conducted in accordance with the Secretary's guidance.</p>

Comment Letters and Responses

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Letter	Name	Organization
1	Garret J. Bradley	Representative
2	Senator Anthony Petruccelli, Representative Adian C. Madaro, City Councilor Salvatore LaMattina	Representative
3	Massachusetts Office of Coastal Zone Management	
4	Massachusetts Department of Environmental Protection	
5	Massachusetts Department of Energy Resources	
6	Massachusetts Water Resources Authority	
7	City of Boston Environment Department	
8	Boston Water and Sewer Commission	
9	Kathleen M. Conlon	Milton Board of Selectmen
10	James B. Lampke, Esq.	Hull Town, Acting town Manager
11	Jill Romano	Wenham Representative to the Logan CAC
12	Erica Mattison	Environmental League of Massachusetts, Massport CAC
13	Jill Valdes Horwood Julie Wormser	The Boston Harbor Association
14	Aaron Toffler	Airport Impact Relief, Inc.
15	Daniel Cano	Eagle Hill Civic Association and Jeffries Point Neighborhood Association
16	Alexis Pumphrey	
17	Allyson and Michael Simons	
18	Brian Gannon	
19	David and Carissa Juengst	
20	Jane O'Reilly	
21	Jay Benson	
22	Jessica L. Curtis, Esq.	
23	John Walkey	
24	Kelly Rusch	
25	Madeleine Steczynski	
26	Chris Marchi	
27	Chris Marchi	Airport Impact Relief, Inc.
28	Mary Ellen Welch	
29	Matthew Neave	
30	Michael Passariello	
31	Rebecca Lynds	
32	Rich Lockney	
33	Rowan Curran	
34	Salvador Cartagena	

Letter	Name	Organization
35	Steve and Chrissy Holt	
36	Cindy Christiansen, PhD.	Town of Milton Logan CAC
37	Betsy Lewenberg	
38	Elke O'Brien	
39	Gisela Voss and Dan Kernan	
40	H. Gerald Zeller	
41	Jeff Kerr	
42	Jeff Kerr	
43	Joe Berkeley	
44	Karis L. North	
45	Paul Paquin	
46	Priscilla Beadle	
47	Amelia Cardona	
48	Billy Avalos	
49	Peter Chipman	
50	Tina Kelly	
51	Dan Bailey	



Commonwealth of Massachusetts

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2nd Assistant Majority Leader
Committee on Rules
Committee on Ethics

Garrett.Brady@MAHouse.gov

December 10, 2015

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street Suite 900
Boston, MA 02114

Attn: Ms. Page Czepiga

RE: Logan Airport - Terminal 'E' Modernization Project [ENF - EEA #15434]

Dear Secretary Beaton,

I write to you on behalf of the residents that I represent, who live within the Third Plymouth District (Cohasset, Hingham, Hull, North Scituate), relative to the Modernization Project proposed for Terminal 'E' at Logan Airport. As you know the Communities that I proudly represent have been severely hampered relative to their quality of life and their own personal health due to the noise and pollution emanating from air traffic to and from Logan Airport. I have read some of the correspondence that my constituents have forwarded to you during the 'comment period'. These heart-felt and factually accurate informative letters clearly depict a real need to address this serious issue. In addition, I believe that it would be appropriate for you to extend the comment period to allow for more input from the general public.

I concur with many of the residents' concerns that expanding Terminal 'E', and thus the expansion of international flight capacity, will further increase the negative impacts to my District, the South Shore area, and those Communities in the vicinity of the airport.

As you are aware the key issues of noise and pollution are longtime problems plaguing my District and my constituents. In my humble opinion, ANY expansion of Terminal 'E' will exacerbate these serious issues and will have an increased negative impact on the region and the residents. This proposed expansion will create significantly higher frequency of flights in the evening that in turn will further impact the residents. Thus, I humbly and respectfully request that the Commonwealth seek from Massport and the FAA, a detailed analysis of how the expansion of Terminal E will allow for increased flight operations (especially in the evening hours), and what the corresponding impact(s) will be on residents and the communities.

It is my hope that the FAA could reexamine and re-design the air-traffic pathways (arrivals and departures) so that the flights could fly out further over the Atlantic Ocean and/or the coast which will mitigate the impacts defined herein. As you are aware, this was the usual air-traffic flow prior to the re-vamping initiatives.

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Page 2 – Logan Airport: Terminal E Modernization Project

Currently, I am working closely with Congressman Stephen Lynch, Massport, and other state legislators on the air traffic issues and the negative impacts they are causing my District and other South Shore towns. In fact, I attended the FAA meeting held last Thursday, December 3rd in Milton. Prior to the start of the public meeting, I met with Congressman Lynch and FAA staff to relay my concerns on behalf of my constituents. Due to the good work and research that several of my constituents provided me, I was able to offer specific suggestions to the FAA. The overall theme of my comments to the FAA was that my District constituents must see an improvement in the deafening noise, as well as other negative environmental effects caused by heavy air traffic over our communities.

I truly appreciate your consideration on this very important matter. I am available to further discuss this with you at your convenience. Thank you.

Sincerely,

GARRETT J. BRADLEY
State Representative
3rd Plymouth District

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Terminal E ENF Comments and Responses

Garrett J. Bradley, State Representative	
Comment #	Response:
<p>1.1</p> <p>In addition, I believe that it would be appropriate for you to extend the comment period to allow for more input from the general public.</p>	<p>Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose to not further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR).</p>
<p>1.2</p> <p>This proposed expansion will create significantly higher frequency of flights in the evening that in turn will further impact the residents. Thus, I humbly and respectfully request that the Commonwealth seek from Massport and the FAA a detailed analysis of how the expansion of Terminal E will allow for increased night operations (especially in the evening hours), and what the corresponding impact(s) will be on residents and the communities.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft will be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. The same number of night operations will be accommodated under the No-Action Alternative and Proposed Action conditions, however, with the proposed Terminal E Modernization Project, North Apron operations would be more efficient and would reduce aircraft idling times.</p>
<p>1.3</p> <p>It is my hope that the FAA could re-examine and re-design the air-traffic pathways (arrivals and departures) so that the flights could fly out further over the Atlantic Ocean and/or the coast which will mitigate the impacts defined herein. As you are aware, this was the usual air-traffic flow prior to the re-vamping initiatives.</p>	<p>The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impacts of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Detailed information from the studies can be found at: http://www.bostonoverflightnoise.study.com. That study continues to be the appropriate forum for those discussions. For over three decades, Massport has provided an annual report on the noise environment of Logan Airport, as documented in the Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). These annual reports also provide updates on the BLANS study and other FAA initiatives.</p>

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COMMONWEALTH OF MASSACHUSETTS
THE GENERAL COURT
STATE HOUSE, BOSTON 02133-1053

December 9, 2015

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Beaton:

This letter is in response to the Environmental Notification Form ("ENF") submitted by the Massachusetts Port Authority ("MassPort") regarding a proposal to expand Terminal E at Logan Airport. As the elected officials of East Boston, representing the best interests of our community, we respectfully request the following:

- | | |
|--|-----|
| 1. We would like MassPort to quantify and explain the data to help the public fully understand impacts on expected growth and flight volume, traffic, pollution, and noise | 2.1 |
| 2. We would like a public meeting held at a neutral, centrally located venue in East Boston – such as East Boston High School – to provide further opportunity for community input | 2.2 |
| 3. We would like an extension of the ENF comment period until after the requested public meeting and the holidays to provide sufficient time for analysis by the public and elected officials | 2.3 |
| 4. We would like the Executive Office of Energy and Environmental Affairs, under the direction of Secretary Beaton, to seek a full Environmental Impact Report ("EIR") to completely understand the impacts of MassPort's proposal | 2.4 |

With the information requested above, in addition to clear communication and transparency, we will be able to establish a cooperative and collaborative effort between ourselves, the community of East Boston, and MassPort to address the issues and properly serve our neighborhood.

Sincerely,

Anthony Petrucci
State Senator

Adrian C. Madaro
State Representative

Salvatore LaMattina
City Councilor

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Terminal E ENF Comments and Responses

General Court: Anthony Petrucci, State Senator; Adrian C. Madaro, State Representative; Salvatore LaMattina, City Councilor		
Comment #	Comment:	Response:
2.1	We would like Massport to quantify and explain the data to help the public fully understand impacts on expected growth and flight volume, traffic, pollution, and noise.	As required by the National Environmental Protection Act (NEPA) and the Massachusetts Environmental Protection Act (MEPA), this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) provides detailed information regarding the Project-related impacts associated with noise, air quality, ground transportation, and over a dozen other environmental categories. Refer to Chapter 5, Environmental Consequences, for an assessment of the environmental consequences associated with the proposed Project. Supporting technical appendices provide additional information.
2.2	We would like a public meeting held at a neutral, centrally located venue in East Boston-such as East Boston High School-to provide further opportunity for community input.	The public information session on this EA/DEIR will be held in a convenient location. See the EA/DEIR cover letter for detailed information.
2.3	We would like an extension of the ENF comment period until after the requested public meeting and the holidays to provide sufficient time for analysis by the public and elected officials.	Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.
2.4	We would like the Executive Office of Energy and Environmental Affairs, under the direction of Secretary Beaton, to seek a full Environmental Impact Report ("EIR") to completely understand the impacts of Massport's proposal	In the December 16, 2015 Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary stated that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it." This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction. Refer to Chapter 5, Environmental Consequences, for an assessment of the environmental consequences associated with the proposed Project.

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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: Page Czepiega, MEPA Unit
 FROM: Bruce Carlisle, Director, CZM
 DATE: December 9, 2015
 RE: EEA 15434, Boston-Logan Terminal E Modernization Project, Boston

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the *Environmental Monitor* dated November 9, 2015, and offers the following comments.

Project Description

The proposed project will upgrade Terminal E of the Logan-Boston International Airport in order to accommodate current and anticipated international passenger volumes by adding between five and seven aircraft gates, passenger hold rooms, concourses, concessions, and passenger processing facilities. The project will provide a pedestrian connection between the MBTA Blue Line Airport Station and Terminal E. The project will expand new structures between 500,000 and 700,000 square feet, increase water consumption and wastewater generation by approximately 25,600 gallons per day. All proposed work will occur within the existing footprint of impervious surfaces. The project does not propose direct impacts to wetland resource areas.

Project Comments

Coastal Resiliency

The ENF does not include information regarding current FEMA floodplain mapping in the area of the proposed project. The preliminary FIRIM map (March 16, 2016) indicates the project is not located within the 100-year floodplain. However, given the proximity of the project to the coastal environment and the anticipated increases in sea level, frequency of storm events, and overland stormwater flows, CZM recommends Massport develop mitigation strategies to address the potential impacts of climate change which could adversely affect the functionality and resiliency of Terminal E in the near and distant future. CZM is available for consultation as the project design process continues.

Stormwater

The ENF states that the proposed project will not add any new impervious area however, because the project involves the construction of new or larger buildings, a greater portion of the total stormwater runoff will change from pavement runoff to roof runoff. This shift will not result in a greater amount of total stormwater runoff. Roof and pavement stormwater associated with the Terminal E improvements will continue to flow to the North Outfall (one of four monitored by Massport at Logan). As part of stormwater monitoring requirements, Massport reports monthly sampling data for the Logan stormwater outfalls. According to recent monitoring results (January to July 2015), samples from the North Outfall exceeded water quality standards for fecal coliform and/or *Enterococcus* in each month. In order to address these water quality concerns, we recommend Massport develop a strategy to identify and eliminate illicit sewer connections.

CHARLES D. BAKER GOVERNOR KARYN E. POLITO LIEUTENANT GOVERNOR MATTHEW A. BEATON SECRETARY BRUCE K. CARLISLE DIRECTOR
 www.mass.gov/czm



Federal Consistency

The proposed project may be subject to CZM federal consistency review. 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.state.ma.us/czm/fcr.htm.

BKC/bw/lbe/dlb

cc: Todd Callaghan, MA CZM
 Lealdon Langley, MA DEP
 Brad Washburn, MA CZM

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Terminal E ENF Comments and Responses

Office of Coastal Zone Management	
Comment #	Response:
3.1	<p>Comment: The ENF does not include information regarding current FEMA floodplain mapping in the area of the proposed project. The preliminary FIRM map (March 16, 2016) indicates the project is not located within the 100-year floodplain.</p> <p>Response: A copy of the most recent Federal Emergency Management Agency (FEMA) map is provided in Chapter 4, Affected Environment, Figure 4-10, and confirms that the Project is not located within the 100-year floodplain.</p>
3.2	<p>Comment: However, given the proximity of the project to the coastal environment and the anticipated increases in sea level, frequency of storm events, and overland stormwater flows, CZM recommends Massport develop mitigation strategies to address the potential impacts of climate change which could adversely affect the functionality and resiliency of Terminal E in the near and distant future. CZM is available for consultation as the project design process continues.</p> <p>Response: Massport is a leading public transportation agency in addressing and preparing for the effects of climate change. In the comprehensive Disaster and Infrastructure Resiliency Planning study, Massport identified various flood levels and scenarios likely to occur during storm events. This led to the development of Massport's Floodproofing Design Guidelines which are intended to prepare Massport for extreme flooding events. These guidelines will be followed in the design process for the terminal facility. For more information, visit https://www.massport.com/media/323694/Massport-Floodproofing-Design-Guide-Updated-April-2015.pdf</p> <p>Additionally, on April 14, 2016, Massport met with the Massachusetts Office of Coastal Zone Management for a briefing on the Terminal E Modernization Project and the ongoing climate and resiliency efforts (Appendix H, Agency Correspondence).</p>
3.3	<p>Comment: According to recent monitoring results (January to July 2015), samples from the North Outfall exceeded water quality standards for fecal coliform and/or Enterococcus in each month. In order to address these water quality concerns, we recommend Massport develop a strategy to identify and eliminate illicit sewer connections.</p> <p>Response: Massport has completed a study and corrected issues in regards to eliminating illicit sewer connections. The Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) will continue to report on water quality sampling results.</p>

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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

Kathryn E. Pollio
Lieutenant Governor

Matthew A. Bealon
Secretary

Merlin Sudberg
Commissioner

December 9, 2015

Matthew A. Beaton, Secretary
Executive Office of
Energy & Environmental Affairs
100 Cambridge Street
Boston MA, 02114

RE: Boston
Terminal E Modernization Project
Boston-Logan International Airport
EEA # 15434 (also #9791 and #12235)

Attn: MEPA Unit

Dear Secretary Beaton:

The Massachusetts Department of Environmental Protection Northeast Regional Office (MassDEP-NERO) has reviewed the Environmental Notification Form (ENF) submitted by Massachusetts Port Authority (Massport) to expand the John A. Volpe International Terminal E by 500,000 to 700,000 square feet for a total of about 1,500,000 sf on a 37.41 acre site in Boston (EEA #15434). The project proposal described in the ENF includes five to seven new aircraft gates, passenger hold rooms, a concourse, concession areas, and passenger processing areas. A direct pedestrian connection between Terminal E and the Blue Line Airport Station also is planned. Airside modifications will be needed to the taxi lanes and aircraft apron layout in the vicinity of Terminal E. Reconfiguration of the airport roadway from Terminal E to the turnaround west of the terminal also will be necessary. These changes are anticipated to displace surface parking, the cell phone lot, and the gas station, which will need to be relocated elsewhere on the airport property.

Although the project is not categorically included for the preparation of an environmental impact report, Massport will be preparing an Environmental Assessment under the National Environmental Policy Act (NEPA) for approval from the Federal Aviation Administration. MassDEP provides the following comments.

Wastewater

The ENF states that there is sufficient capacity in the existing collection system to accommodate the additional 25,600 gallons per day (gpd) of wastewater flow that would be added from the project for a total of 76,800 gpd. As of April 25, 2014, the sewer regulations changed and the requirements for self-certification or a sewer connection/extension permit from

This information is available in alternate format. Call Rita Chelms-Waters, Diversity Director, at 617-292-5751. TTY: Massachusetts Relay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

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Terminal E Modernization Project, EEA # 15434

MassDEP were eliminated. Under the terms of the new regulations at 314 CMR 12.04(2)(d), MassDEP requires sewer authorities with permitted combined sewer overflows, including the Boston Water and Sewer Commission, to require removal of four gallons of infiltration and inflow (I/I) for each gallon of new wastewater flows generated for any new connection where greater than 15,000 gallons per day of new wastewater flows will be generated. The EIR should describe the sewer system for the project and identify any sewer system deficiencies within the combined sanitary sewer system serving the project site.

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Climate Change

The preliminary Flood Insurance Rate Map, Map Number 25025C00821, March 16, 2016 locates the 100-year flood elevation (Zone AE elevation 10) to the west of the project site, near the Airport MBTA station. Nuisance flooding, which is becoming a more frequent, high-tide related coastal impact associated with climate change may have potentially damaging effects on the proposed project. In addition, the impacts of sea level rise also will be exacerbated by extreme weather events that are expected to occur with greater frequency and intensity due to climate changes associated with increasing greenhouse gas emissions.

Recognizing the vulnerability of the coastline in the vicinity of the proposed project site, the proponent should be prepared to address the impacts of sea level rise and damage to property, businesses, and infrastructure over the lifespan of the project. The potential risks to the project should be evaluated based on sea level rise scenarios developed by known authorities, including the Massachusetts Coastal Zone Management Agency. Mitigation strategies should be considered to accommodate the effects of sea level rise and manage risk. Adding pre-disaster mitigation and post-disaster recovery measures will improve the project resiliency to flooding and the impacts of extreme storm events.

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Recycling Issues

Even though the ENF indicates that C&D waste will be recycled, the EENF has not made a specific commitment to a recycling goal. MassDEP encourages the project proponent to make a significant commitment in the EIR to C&D recycling activities as a sustainable measure for the project. 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:

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“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 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

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 the Terminal E Modernization project at the planning and design stage enable 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.

Greenhouse Gas (GHG) Emissions

Even though the project is not subject to the MEPA *Greenhouse Gas Emissions Policy and Protocol*, the ENF indicates that GHG emissions will be quantified for the terminal building. Opportunities to reduce energy demand and to incorporate energy efficiency will be considered. As explained in the ENF, the energy demand associated with the project may require a new substation.

The Massachusetts Clean Energy and Climate Plan 2020 estimates that MEPA project reviews will contribute by reducing approximately 100,000 Metric Tons of CO₂ equivalent emissions by 2020. To ensure that these energy efficiency goals are achieved or surpassed, MassDEP recommends that an integrated, whole building design approach be taken to incorporate highly effective and commercially-available, energy efficiency and renewable energy measures into the building envelope; lighting and daylighting; heating, cooling, and ventilation systems; and to reduce plug and process loads.

MassDEP encourages the proponent to incorporate as many cost-effective, energy efficient designs and equipment as possible into the project. The proponent is encouraged to consider USEPA's WaterSense certification program and EnergyStar ratings, in the selection of plumbing fixtures and appliances to reduce water and energy demands associated with the

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building's uses. Water conserving plumbing fixtures, equipment, and appliances also have reduced power demands because pumping and treating drinking water and wastewater are energy-intensive processes. Additional information on the WaterSense certification program is available on the following website: http://www.epa.gov/watersense/docs/home_finalspec508.pdf. In addition, MassDEP supports the proponent's potential purchase of Green-e certified renewable energy credits for at least two years, in lieu of incorporating renewable energy into the project, given that renewable energy options are described as infeasible in the BRA NPC.

Massachusetts Contingency Plan (MCP/M.G.L. c.21E

Contaminated Soil and Groundwater: The ENF indicates that areas near the site have been regulated under c.21E, Release Tracking Number (RTN) 3-10027 (Phase V) and RTN 3-234. However, RTN 3-234 is linked to a site in Beverly, Massachusetts. Therefore, the appropriate RTN for the Logan Airport site should be provided. 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 OSHA. 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, 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.

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 <http://www.mass.gov/dep/cleanup/laws/vi/ifs.htm>.

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.

Air Quality

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 Northeast Regional Office appreciates the opportunity to comment on this proposed project. Please contact at (978) 694- for further information on the issues. If you have any general questions regarding these comments, please contact Nancy.Baker@state.ma.us , MEPA Review Coordinator at (978) 694-3338.

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

cc: Brona Simon, Massachusetts Historical Commission
Kevin Brander, Heidi Davis, MassDEP-NERO
John Sullivan, BWSC

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Terminal E ENF Comments and Responses

Massachusetts Department of Environmental Protection		
Comment #	Comment:	Response:
4.1	Under the terms of the new regulations at 314 CMR 12.04(2)(d), MassDEP requires sewer authorities with permitted combined sewer overflows, including the Boston Water and Sewer Commission, to require removal of four gallons of infiltration and inflow (I/I) for each gallon of new wastewater flows generated for any new connection where greater than 15,000 gallons per day of new wastewater flows will be generated.	Currently Terminal E generates an average of 55,000 gal/day of wastewater (2015 records). Under the Proposed Action, wastewater generation is estimated to increase to 66,000 gal/day. The additional 5,500 passengers using Terminal E (compared to 2015) will be utilizing a sanitary system that is compliant with Massport's Sustainable Design Standards and Guidelines for new facilities. Under the No-Action Alternative wastewater generation is estimated to increase to 73,000 gal/day - for the same increase in passengers. However, in the No-Action Alternative the additional passengers will be utilizing existing toilet rooms, some of which date back to original terminal construction and are not as efficient nor equipped with water conservation devices. In addition, both the Proposed Action and No-Action Alternative would likely be reduced as Massport refurbishes existing toilet rooms to incorporate low-flow devices – consistent with Massport's Sustainable Design Standards and Guidelines - as part of other projects (and routine upgrades).
4.2	The EIR should describe the sewer system for the project and identify any sewer system deficiencies within the combined sanitary sewer system serving the project site.	The Project site is served by separate storm and wastewater (sanitary) systems as stated in Chapter 4, Affected Environment. The Logan Airport storm drains discharge to outfalls directly to Boston Harbor, not into a combined sewer.
4.3	Recognizing the vulnerability of the coastline in the vicinity of the proposed project site, the proponent should be prepared to address the impacts of sea level rise and damage to property, businesses, and infrastructure over the lifespan of the project. The potential risks to the project should be evaluated based on sea level rise scenarios developed by known authorities, including the Massachusetts Coastal Zone Management Agency.	Massport is a leading public transportation agency in addressing and preparing for the effects of climate change. In the comprehensive Disaster and Infrastructure Resiliency Planning study, Massport identified various flood levels and scenarios likely to occur during storm events. This led to the development of Massport's Floodproofing Design Guidelines which are intended to prepare Massport for extreme flooding events. These guidelines will be followed in the design process for the terminal facility. For more information, visit https://www.massport.com/media/323694/Massport-Floodproofing-Design-Guide-Revised-April-2015.pdf Additionally, on April 14, 2016, Massport met with the Massachusetts Office of Coastal Zone Management for a briefing on the Terminal E Modernization Project and the ongoing climate and resiliency efforts (Appendix H, Agency Correspondence). Massport will continue to coordinate with the Massachusetts Office of Coastal Zone Management throughout the planning and design process.
4.4	Mitigation strategies should be considered to accommodate the effects of sea level rise and manage risk.	Massport is a leading public transportation agency in addressing and preparing for the effects of climate change. In the comprehensive Disaster and Infrastructure Resiliency Planning study, Massport identified various flood levels and scenarios likely to occur during storm events. This led to the development of Massport's Floodproofing Design Guidelines which are intended to prepare Massport for extreme flooding events. These guidelines will be followed in the design process for the terminal facility. For more information, visit https://www.massport.com/media/323694/Massport-Floodproofing-Design-Guide-Revised-April-2015.pdf Additionally, on April 14, 2016, Massport met with the Massachusetts Office of Coastal Zone Management for a briefing on the Terminal E Modernization Project and the ongoing climate and resiliency efforts (Appendix H, Agency Correspondence). Massport will continue to coordinate with the Massachusetts Office of Coastal Zone Management throughout the planning and design process.
4.5	Even though the ENF indicates that C&D waste will be recycled, the ENF has not made a specific commitment to a recycling goal. MassDEP encourages the project proponent to make a significant commitment in the EIR to C&D recycling activities as a sustainable measure for the project.	Massport already achieves a near 100% diversion rate for construction and demolition material such as dry wall, wood, asphalt, brick, and concrete. Massport is a strong proponent of sustainability and recently published the Logan Airport Sustainability Management Plan. In that plan, Massport has identified a goal of maintaining construction and demolition waste diverted close to 100%. Massport will continue to aim to divert close to 100% of construction and demolition waste in the construction of the Terminal E Modernization Project.
4.6	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, [...]	Massport will ensure that demolition activities comply with both Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. Chapter 40, Section 54, [...] which relates to building permit restrictions, availability of water supply, and disposal of debris.

Terminal E ENF Comments and Responses

Massachusetts Department of Environmental Protection Continued		
Comment #	Comment:	Response:
4.7	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.	Massport is a strong proponent of sustainability and recently published the Logan Airport Sustainability Management Plan. In that plan, Massport has identified goals of reducing waste generation per passenger by 2% per year through 2030; and to increase the percent of municipal solid waste recycling to 20% by the end of 2016, 40% by 2018, and 60% by 2020. As the design for the terminal proceeds, Massport will actively plan for providing facilities that will allow Massport and the terminal tenants to establish and maintain effective waste diversion programs.
4.8	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.	Massport will follow the requirements of 310 CMR 7.02 of the Air Pollution Control regulations as part of securing the construction-related permits and approvals.
4.9	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).	Massport will follow applicable regulations regarding asbestos handling and removal during construction.
4.10	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.	Massport will follow applicable regulations regarding asbestos disposal during construction.
4.11	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.	Massport will follow applicable regulations regarding asbestos handling and removal during construction.
4.12	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)).	Massport will follow applicable regulations regarding asbestos handling and removal during construction.

Terminal E ENF Comments and Responses

Massachusetts Department of Environmental Protection Continued		
Comment #	Comment:	Response:
4.13	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 the Terminal E Modernization project at the planning and design stage enable the project's management and occupants to establish and maintain effective waste diversion programs.	Massport is a strong proponent of sustainability and recently published the Logan Airport Sustainability Management Plan. In that plan, Massport has identified goals of reducing waste generation per passenger by 2% per year through 2030; and to increase the percent of municipal solid waste recycling to 20% by the end of 2016, 40% by 2018, and 60% by 2020. As the design for the terminal proceeds, Massport will actively plan for providing facilities that will allow Massport and the terminal tenants to establish and maintain effective waste diversion programs.
4.14	The Massachusetts Clean Energy and Climate Plan 2020 estimates that MEPA project reviews will contribute by reducing approximately 100,000 Metric Tons of CO2 equivalent emissions by 2020. To ensure that these energy efficiency goals are achieved or surpassed, MassDEP recommends that an integrated, whole building design approach be taken to incorporate highly effective and commercially-available, energy efficiency and renewable energy measures into the building envelope; lighting and daylighting; heating, cooling, and ventilation systems; and to reduce plug and process loads.	To enhance its sustainability performance, Massport will build the Project to Leadership in Energy and Environmental Design (LEED®) and Massachusetts LEED Plus standards to achieve LEED Silver or higher certification. This includes energy efficiency measures that will improve the building's energy performance by 13.8% compared to the baseline case (ASHRAE 90.1-2010). Added energy conservation measures under consideration would improve the building's efficiency by up to 23.7%. Massport is considering adding photovoltaics (solar energy generation equipment), which would produce, at a minimum, 2.5% of the new building's total electric energy needs. Chapter 6, Beneficial Measures/Mitigation, documents the sustainable features that would be incorporated into the Project's design and operations. Appendix G, Energy Model identifies the energy efficiency measures that would be incorporated into the proposed design, as well as the additional energy conservation measures under consideration.
4.15	MassDEP encourages the proponent to incorporate as many cost-effective, energy efficient designs and equipment as possible into the project. The proponent is encouraged to consider USEPA's WaterSense certification program and EnergyStar ratings, in the selection of plumbing fixtures and appliances to reduce water and energy demands associated with the building's uses.	Massport plans to certify the Project as LEED Silver or higher. As such, many energy and water conservation measures and fixtures would be incorporated into the Project's design and retrofits would be implemented in some locations within the existing terminal. Chapter 6, Beneficial Measures/Mitigation, documents the sustainable features that would be incorporated into the Project's design and operations. Appendix G, Energy Model identifies the energy efficiency measures that would be incorporated into the proposed design, as well as the additional energy conservation measures under consideration.
4.16	In addition, MassDEP supports the proponent's potential purchase of Green-e certified renewable energy credits for at least two years, in lieu of incorporating renewable energy into the project, given that renewable energy options are described as infeasible in the BRA NPC.	Roof mounted photovoltaics are being considered for the proposed Project. Photovoltaics are consistent with a key element of Massport's Sustainable Design Standards and Guidelines - which include directives to investigate the feasibility of supplying, at a minimum, 2.5% of the Project's power with on-site renewable energy systems. The Project will be developed to be able to accommodate rooftop solar, in accordance with FAA guidance regarding glare.
4.17	The ENF indicates that areas near the site have been regulated under c.21E; Release Tracking Number (RTN) 3-10027 (Phase V) and RTN 3-234. However, RTN 3-234 is linked to a site in Beverly, Massachusetts. Therefore, the appropriate RTN for the Logan Airport site should be provided.	The corrected RTN is RTN 3-23493.
4.18	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 OSHA.	Massport would appropriately manage contaminated soil and groundwater in accordance with the Massachusetts Contingency Plan (310 CMR 40.000). In addition, a site-specific Health and Safety Plan would be required for the selected contractor(s), per the Occupational Safety and Health Administration, to engage in construction activities.

Terminal E ENF Comments and Responses

Massachusetts Department of Environmental Protection Continued	
Comment #	Response:
4.19	<p>Comment:</p> <p>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.</p> <p>Response:</p> <p>The appropriate regulatory submittal, such as a Release Abatement Measure or Immediate Response Action, would be filed in accordance with the Massachusetts Contingency Plan prior to disturbing known areas of contaminated soil or groundwater within an active disposal site. In the absence of known contamination, a Soil Management Plan would be utilized.</p>
4.20	<p>Comment:</p> <p>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.</p> <p>Response:</p> <p>As noted in Chapter 6, Beneficial Measures/Mitigation, dust control and monitoring procedures would be outlined in the construction specifications, as well as the Massachusetts Contingency Plan submittals.</p>
4.21	<p>Comment:</p> <p>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.</p> <p>Response:</p> <p>Existing analytical data and any data collected to facilitate the Project will be evaluated for the potential to cause indoor air impacts in accordance with the Massachusetts Contingency Plan.</p>
4.22	<p>Comment:</p> <p>Excavation of contaminated soils to construct clean utility corridors should be conducted for all new utility installations.</p> <p>Response:</p> <p>Should impacted soil be generated during Project-related excavation that requires export or on-site re-use, this material would be properly characterized and managed in accordance with applicable regulations.</p>
4.23	<p>Comment:</p> <p>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.</p> <p>Response:</p> <p>Massport will seek pre-approval from the Massachusetts Department of Environmental Protection (MassDEP) should the Project require a boiler regulated under 310 CMR 7.26(30)-(37), inclusive.</p>
4.24	<p>Comment:</p> <p>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).</p> <p>Response:</p> <p>If the Terminal E Modernization Project includes emergency generators equal to or greater than 37 kW, then each of those emission units will comply with the regulatory requirements in 310 CMR 7.26(42).</p>

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If the expansion will be provided hot and cold water produced by Logan's Central Utility Plant, be sure to carefully review the Appendix G method G.1.1.3.3. Also, information on the efficiency of the CUP is required.

Complying with the Policy:

With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include at minimum the following information:

- *Combined Heat and Power (CHP)*: Evaluations of combined heat and power at the CUP or as a satellite plant at the Terminal E expansion.
- MEPA allows the use of a source energy path compliance with the stretch energy code. The principal reason for this is to enable the quantification of mitigation to both the source energy consumption by direct and indirect sources as well as the related GHG emissions provided by including a CHP system in the as-proposed design. Given the very substantial incentives offered in the Commonwealth for CHP, including potential income associated with minting and sale of useful thermal production, the DOER recommends that the proponent evaluate the financial feasibility of CHP in their future submissions.

CHP systems may also be able to address resiliency, potentially providing both electricity and thermal energy to the project in the event of a power grid outage

- *Solar*: With its open exposure and relatively large roof area, the project appears potentially well-suited for solar PV.

Given the financial incentives (minting and sale of energy credits) potentially available, PV offers the proponent the opportunity to develop an economic asset while reducing greenhouse gas (GHG) emissions. The proponent is encouraged to include financial analyses for both solar PV and solar thermal supporting their go/no-go evaluations for these systems.

- *Site Improvements*: A description of any other site improvements which will consume energy, including parking lot and street lighting; unconditioned garage ventilation systems, sidewalk ice melting systems, etc.

- *HVAC Systems, Building Envelop, and Mitigation measures*: A description of the HVAC systems, building envelop details and mitigation measures evaluated

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 Terminal E Modernization Project
 Boston Logan Airport, East Boston, Massachusetts
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We're reviewed the Environmental Notification Form for the above reference project, as well as proponent's Sustainability Management Plan – Highlights, dated June 2015. We are pleased to see numerous sustainability measures being considered. The purpose of this memorandum is to:

- Help ensure that the content of subsequent submissions to MEPA conforms to the application of the MEPA GHG Policy and Protocol (the Policy) for this project;
- Help ensure that the project is made aware of the requirements of Chapter 5 of the building code ("Advanced Energy Efficiency) also known as the "Stretch Code"; and to
- Highlight design and proposed mitigation measures which appear potentially promising for the project.

The DOER notes that, should this project be required to file an EIR, a GHG analysis which complies with the MEPA GHG Policy and Protocol (the Policy) will be required.

GHG Policy and DOER Role:

In general, the Policy requires that:

- GHG emissions be identified and quantified;
- The proposed design incorporate ways to avoid, minimize, or mitigate GHG emissions;

Effective Code:

Boston has adopted the Mass Stretch Energy Building Code (SC). For projects to be located in jurisdictions which have adopted the SC, the MEPA Policy and Protocol (Policy) requires that the energy modeling of the baseline and as-proposed (as-designed) cases of all proposed buildings with areas greater than 100,000 sf demonstrate that the as-proposed design achieves an EUI reduction of 20% over the baseline when modeled in compliance with the rules and methods as contained in the ASHRAE standard 90.1 – 2007 Appendix G (energy only). MEPA allows proponents to demonstrate a 15% reduction relative to 2010 Appendix G, as well.

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 Boston Logan Airport, East Boston, Massachusetts
 ENF - Stationary GHG Sources
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 P Ormond

should be included. Mitigation measures should be categorized as: adopted; under further consideration; to be considered in a later stage; or rejected. Discussion of the reasons for not adopting a mitigation measure should be included. A list of suggested energy and GHG mitigation measures is included as an appendix to the Policy. The DOER urges the proponent to refer to these measures for consideration.

In order to expedite the DOER review a table similar to the example below should be included:

Measure/Area	Baseline	Proposed	% Improvement	Comment
Roof Assembly U-value (Btu/hr-Ft ² -f)				
Bldg A	0.048	0.040	17%	
Bldg B	0.055	0.051	7%	
Area Window/Area Wall (%)				
Bldg A	0.4	0.54	-35%	
Bldg B	0.4	0.30	25%	
Window U-value (Btu/hr-Ft ² -f)				
Bldg A	0.55	0.47	15%	
Bldg B	0.55	0.40	27%	
AC Efficiency (EER)				
Bldg A	13.5	14.5	7%	
Bldg B	11.7	14.9	27%	
ERV Effectiveness (%)				
Bldg A	none	none	-	
Bldg B	none	none	-	
Boiler (% efficiency)				
Bldg A	0.8	0.93	16%	
Bldg B	0.8	0.93	16%	
LPD (Watts/sq ft)				
Bldg A	1.0	0.7	30%	
Bldg B	0.9	0.8	11%	

• *Building Envelop R-Value and U-Factors.* A description of the proposed building envelop assembly; report both component R-values and whole assembly U-factor. Utilize the pre-calculated relationships between R-Value and U-factor contained in Appendix A of the applicable code (Appendix A is the applicable appendix in both ASHRAE and IECC).

Baseline buildings' total wall (and roof) assemblies shall match the applicable U value as required in Appendix G, table G3.1 part 5b of the code

- *Building Energy Model Information.* Submit the following:
 - A description of the building energy simulation model and procedures utilized.
 - A detailed and complete table of modeling inputs showing the item and the input value for both the base and as-designed scenarios. The area of the building should be included.
 - The output of the model showing the monthly and annual energy consumption, totalized and by major end use system.
 - Project modeling files are to be submitted to the DOER with the submittal on a flash drive or may be transmitted via electronic file transfer to paul.ormond@massmail.state.ma.us.
 - Separate "side cales" may be required for non-building energy consuming site improvements which are not included in the building energy modeling software (e.g. parking lot lighting and parking garage ventilation).

5.7 cont.

5.8 cont.

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Terminal E ENF Comments and Responses

Massachusetts Department of Energy Resources	
Comment #	Response:
5.1	<p>Comment: The DOER notes that, should this project be required to file an EIR, a GHG analysis which complies with the MEPA GHG Policy and Protocol (the Policy) will be required.</p> <p>Response: Chapter 5, Environmental Consequences, Section 5.5.3, Air Quality, documents the greenhouse gas assessment conducted as required. The protocol for the assessment was determined in a meeting between Massport and the Massachusetts Department of Energy Resources on March 30, 2016.</p>
5.2	<p>Comment: Boston has adopted the Mass Stretch Energy Building Code (SE). For projects to be located in jurisdictions which have adopted the SE, the MEPA Policy and Protocol (Policy) requires that the energy modeling of the baseline and as-proposed (as-designed) cases of all proposed buildings with areas greater than 100,000 sf demonstrate that the as- proposed design achieves an EUI reduction of 20% over the baseline when modeled in compliance with the rules and methods as contained in the ASHRAE standard 90.1 – 2007 Appendix G (energy only). MEPA allows proponents to demonstrate a 15% reduction relative to 2010 Appendix G, as well.</p> <p>Response: Chapter 5, Environmental Consequences, documents the greenhouse gas assessment, which was conducted as required. The protocol for the assessment was determined in a meeting between Massport and the Massachusetts Department of Energy Resources on March 30, 2016. The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year.</p>
5.3	<p>Comment: With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy).</p> <p>Response: This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) fully complies with the Massachusetts Environmental Policy Act's (MEPA's) Greenhouse Gas Emissions Policy and Protocol. Chapter 5, Environmental Consequences, Section 5.5.5.1, MEPA EIR Greenhouse Gas Emissions Policy, reports on the findings of the greenhouse gas assessment conducted in accordance with the MEPA guidance. The assessment compares a traditional building to one with the proposed Project which has energy conservation measures incorporated in its design and operation. For more information, visit http://www.mass.gov/eea/docs/mepa/ghg-policy-final.pdf.</p> <p>The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year.</p>
5.4	<p>Comment: With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: <i>Combined Heat and Power (CHP)</i>: Evaluations of combined heat and power at the CUP or as a satellite plant at the Terminal E expansion. MEPA allows the use of a source energy path compliance with the stretch energy code. The principal reason for this is to enable the quantification of mitigation to both the source energy consumption by direct and indirect sources as well as the related GHG emissions provided by including a CHP system in the as-proposed design. Given the very substantial incentives offered in the Commonwealth for CHP, including potential income associated with minting and sale of useful thermal production, the DOER recommends that the proponent evaluate the financial feasibility of CHP in their future submissions.</p> <p>Response: Massport has conducted studies of Combined Heat and Power over recent years. These have considered existing facilities, applicable technologies, capital and operating costs, and financial payback. The studies have focused on the conversion of equipment at the Central Heating and Cooling Plant, which Massport intends to replace as they approach the end of their useful life. Massport will further study the implementation of Combined Heat and Power. This is separate from the Terminal E Modernization Project.</p>

Terminal E ENF Comments and Responses

Massachusetts Department of Energy Resources Continued		
Comment #	Comment:	Response:
5.5	With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: Solar - With its open exposure and relatively large roof area, the project appears potentially well-suited for solar PV. Given the financial incentives (mining and sale of energy credits) potentially available, PV offers the proponent the opportunity to develop an economic asset while reducing greenhouse gas (GHG) emissions. The proponent is encouraged to include financial analyses for both solar PV and solar thermal supporting their go/no-go evaluations for these systems.	Roof mounted photovoltaics are being considered for the proposed Project. Photovoltaics are consistent with a key element of Massport's Sustainable Design Standards and Guidelines - which include directives to investigate the feasibility of supplying, at a minimum, 2.5% of the Project's power with on-site renewable energy systems. The Project will be developed to be able to accommodate rooftop solar, in accordance with FAA guidance regarding glare.
5.6	With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: Site Improvement: A description of any other site improvements which will consume energy, including parking lot and street lighting, unconditioned garage ventilation systems, sidewalk ice melting systems, etc.	The Project complies with MEPA's Greenhouse Gas Emissions Policy and Protocol as discussed in Chapter 5, Environmental Consequences. Stationary sources include parking lot/street lighting. Reference to garage and ice melters are not applicable to this Project.
5.7	With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: HVAC Systems, Building Envelop, and Mitigation measures. A description of the HVAC systems, building envelop details and mitigation measures evaluated should be included. Mitigation measures should be categorized as: adopted; under further consideration; to be considered in a later stage; or rejected. Discussion of the reasons for not adopting a mitigation measure should be included. A list of suggested energy and GHG mitigation measures is included as an appendix to the Policy. The DOER urges the proponent to refer to these measures for consideration.	The Project EA/DEIR complies with MEPA's Greenhouse Gas Emissions Policy and Protocol (the Policy). The building energy modeling data, included in the submission as Appendix G, Energy Model, includes a description of the heating, ventilation, and air conditioning (HVAC) systems, building envelope details, and mitigation measures evaluated. Mitigation measures have been categorized in modeling as: adopted; under further consideration; or rejected. Reasons for not adopting a potentially applicable mitigation measure have been included in the modeling backup. Modeling has identified at least a 13.8% reduction in energy usage against baseline conditions (ASHRAE 90.1-2010) utilizing planned mitigation measures and potentially a 23.7% reduction when additional measures that are pending further development are considered.
5.8	With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: Building Envelop R-Value and U-Factors. A description of the proposed building envelop assembly; report both component R-values and whole assembly U-factor. Utilize the pre-calculated relationships between R-Value and U-factor contained in Appendix A of the applicable code (Appendix A is the applicable appendix in both ASHRAE and IECC). Baseline buildings' total wall (and roof) assemblies shall match the applicable U value as required in Appendix G, table G3.1 part 5b of the code.	The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO ₂) a year. The Project EA/DEIR complies with MEPA's Greenhouse Gas Emissions Policy and Protocol (the Policy). The building energy modeling data, included in the submission as Appendix G, Energy Model, includes a description of the heating, ventilation, and air conditioning (HVAC) systems, building envelope details, and mitigation measures evaluated. Mitigation measures have been categorized in modeling as: adopted; under further consideration; or rejected. Reasons for not adopting a potentially applicable mitigation measure have been included in the modeling backup. Modeling has identified at least a 13.8% reduction in energy usage against baseline conditions (ASHRAE 90.1-2010) utilizing planned mitigation measures and potentially a 23.7% reduction when additional measures that are pending further development are considered.

Terminal E ENF Comments and Responses

Massachusetts Department of Energy Resources Continued	
Comment #	Response:
<p>5.9</p> <p>With respect to the stationary sources of GHG, the next future submission should comply fully with MEPA's GHG Policy and Protocol (the Policy), and include: <i>Building Energy Model Information</i>. Submit the following:</p> <ul style="list-style-type: none"> -A description of the building energy simulation model and procedures utilized. -A detailed and complete table of modeling inputs showing the item and the input value for both the base and as-designed scenarios. The area of the building should be included. -The output of the model showing the monthly and annual energy. <ul style="list-style-type: none"> -consumption, totalized and by major end use system. -Project modeling files are to be submitted to the DOER with the submittal on a flash drive or may be transmitted via electronic file transfer to paul.ormond@massmail.state.ma.us. -Separate "side calcs" may be required for non-building energy consuming site improvements which are not included in the building energy modeling software (e.g. parking lot lighting and parking garage ventilation). 	<p>This EA/DEIR submission complies with MEPA's Greenhouse Gas Emissions Policy and Protocol, and includes the elements cited. See Appendix F, Air Quality Technical Appendix, for additional information. The building energy modeling data, included in the submittal as Appendix G, Energy Model, includes a description of the heating, ventilation, and air conditioning (HVAC) systems, building envelope details, and mitigation measures evaluated. Mitigation measures have been categorized in modeling as: adopted; under further consideration; or rejected. Reasons for not adopting a potentially applicable mitigation measure have been included in the modeling backup. Modeling has identified at least a 13.8% reduction in energy usage against baseline conditions (ASHRAE 90.1-2010) utilizing planned mitigation measures and potentially a 23.7% reduction when additional measures that are pending further development are considered.</p> <p>The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year.</p>

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MASSACHUSETTS WATER RESOURCES AUTHORITY

Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Lasky
Executive Director

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December 7, 2015

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 #15431- Environmental Notification Form
Massachusetts Port Authority - Logan International Airport
Terminal E Modernization, East Boston, MA

Dear Secretary Beaton:

The Massachusetts Water Resources Authority (MWRA) has completed its review of the Environmental Notification Form ("ENF") for the Logan International Airport Terminal E Modernization (the "Project") proposed by the Massachusetts Port Authority (Massport). The Project includes the addition of five to seven aircraft gates and expansion of passenger holding rooms, concourse, concessions, and passenger processing (including Customs and Border Patrol [CBP] and Federal Inspection Service [FIS] facilities). A new direct pedestrian connection between Terminal E and the MBTA Blue Line Airport Station will improve High Occupancy Vehicles (HOV) access to the entire airport. The ENF reports that the Project will be constructed entirely within the existing Airport footprint on currently full-developed land in the Airport's North Cargo area.

The ENF also reports that the Project requires approval by the Federal Aviation Administration (FAA) for any resulting changes to the Airport Layout Plan, and is therefore also subject to review under the National Environmental Policy Act (NEPA). Though the Project does not automatically require a mandatory MEPA Environmental Impact Report, the FAA has determined that an Environmental Assessment (EA) is required. The ENF, in Attachment 3, includes Massport's proposed draft scope for the EA.

MWRA's comments focus on issues related to Stormwater and Wastewater Flows, and Discharge Permitting from the Toxic Reduction and Control (TRAC) Department.

Stormwater and Wastewater Flows

The ENF reports that the EA will include a drainage analysis and description of the proposed stormwater management measures and will demonstrate how the Project will meet MassDEP Stormwater Management Standards, consistent with Federal Aviation Administration's (FAA's) design standards. FAA considers open stormwater detention and retention basins with greater than 48-hour detention periods to be hazardous wildlife attractants that are prohibited in close proximity to runways and taxiways. The EA will identify the size and



the location of stormwater system features and will demonstrate how the proposed work is consistent with Boston Logan International Airport's stormwater management practices and the requirements of the NPDES Multi-Sector General Permit under which the airport operates. MWRA looks forward to reviewing the EA in part to confirm that no stormwater generated within the Project area drains to the municipal (Boston Water and Sewer Commission) or MWRA combined sewer systems or combined sewer overflow (CSO) outfalls serving East Boston.

Wastewater

Massport estimates that the completed Project will generate 76,839 gallons per day (gpd) of wastewater flow, which the Proponent reports is an increase of 25,600 gpd over the estimated existing wastewater generation of 51,239 gpd. According to the BWSC storm drain and sewer maps, the Project site is served by BWSC combined sewers that discharge to MWRA's East Boston Branch Sewer. The ENF reports that the EA will provide a wastewater flow analysis based on MassDEP Title 5 guidelines, will examine the existing and projected wastewater volumes, and will assess the hydraulic capacity of the existing sanitary sewage collection system. The wastewater flow analysis will determine the need and requirements for any new sewer connections and verify whether the Project requires a MassDEP Sewer Connection/Extension Permit and/or MWRA Industrial User Permit.

Based on a current conceptual design, Massport anticipates that the Project's overall site wastewater generation can be accommodated by the existing collection and treatment infrastructure. This may be true for dry weather system flow conditions, but the Massport analyses must also consider that the BWSC and MWRA sewer systems serving the Airport are combined sewer systems that also collect large volumes of stormwater runoff in East Boston, and that combined sanitary/stormwater flows can exceed system capacities in large storms and contribute to CSO discharges to the Inner Harbor at outfalls along the East Boston waterfront. Increasing wastewater flow to the BWSC and MWRA East Boston sewer systems without offset can contribute to greater surcharging and overflows and compromise the sewer system and harbor water quality benefits of MWRA's \$898 million region-wide CSO control plan.

Massport's EA should report on all Massport sewer connections to the BWSC and MWRA systems, estimated long-term wastewater flows at each connection, and how Massport intends to mitigate (offset) the impacts that higher wastewater flow can have on municipal system performance and overflows. Mitigation of the wastewater flow increase is also necessary to comply with MassDEP regulation and BWSC policy for new wastewater flows.

TRAC Discharge Permitting

MWRA prohibits the discharge of groundwater to the sanitary sewer system, pursuant to 360 CMR 10.023(1), except in a combined sewer area when permitted by MWRA and the municipality. The Project Site has access to storm drains and surface water and it is not located in a combined sewer area; therefore, the discharge of groundwater or stormwater to the sanitary sewer system associated with construction of this project is prohibited. Massport will need to

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secure a USEPA-NPDES General Permit for Storm Water Discharges from its construction activities.

Thank you for the opportunity to comment.

Sincerely yours,



Marianne Connolly
Senior Program Manager
Environmental Review & Compliance

cc: David Kubiak, MWRA E&C
Solomon Wondimu, MWRA E&C
Kattia Thomas, MWRA, TRAC Department
Steward Dalzell, Massport

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Terminal E ENF Comments and Responses

Massachusetts Water Resources Authority	
Comment #	Response:
6.1	<p>Comment: MWRA looks forward to reviewing the EA in part to confirm that no stormwater generated within the Project area drains to the municipal (Boston Water and Sewer Commission) or MWRA combined sewer systems or combined sewer overflow (CSO) outfalls serving East Boston.</p> <p>Response: Stormwater from the proposed Project would drain to either the North Outfall (North Apron) or to the West Outfall, both of which are equipped with end-of-pipe pollution control facilities for the removal of debris and floating oil and grease from stormwater prior to discharge into Boston Harbor. No stormwater generated within the Project area drains to the municipal Boston Water and Sewer Commission or the state Massachusetts Water Resources Authority combined sewer systems or combined sewer overflow outfalls serving East Boston.</p>
6.2	<p>Comment: Based on a current conceptual design, Massport anticipates that the Project's overall site wastewater generation can be accommodated by the existing collection and treatment infrastructure. This may be true for dry weather system flow conditions, but the Massport analyses must also consider that the BWSC and MWRA sewer systems serving the Airport are combined sewer systems that also collect large volumes of stormwater runoff in East Boston, and that combined sanitary/stormwater flows can exceed system capacities in large storms and contribute to CSO discharges to the Inner Harbor at outfalls along the East Boston waterfront.</p> <p>Response: The Project would connect to the Massachusetts Water Resources Authority wastewater system, which is ultimately treated at the Deer Island Sewage Treatment Plant in Boston Harbor. The Project is consistent with Massport's efforts to reduce the amount of wastewater generated through water efficiency strategies, which would be evaluated and incorporated during the design phase as part of the overall sustainable development goals.</p> <p>At Logan Airport, the sanitary system and stormwater collection systems are separate systems. Sewage from the Project would be conveyed via the existing sanitary sewer system, to the Boston Water and Sewer Commission system, and ultimately connecting to the Massachusetts Water Resources Authority treatment facilities at Deer Island, which has adequate capacity for the flow from Terminal E.</p> <p>Currently Terminal E wastewater is discharged to an existing 15-inch sanitary sewer running generally parallel to the Service Road. The sewer transitions to a 24-inch sanitary sewer and connects to the Boston Water and Sewer Commission system at manhole BWSC B-MH006 in vicinity of Memorial Park. The proposed Project would not result in a significant increase in water use or sewage when comparing the No-Action Alternative to the Proposed Action. Water consumption in Terminal E is related directly to the number of passengers and employees that use the facility. Similarly, the quantity of sewage flow from Terminal E is related directly to the number of passengers and employees. The same number of passengers would be processed in both the No-Action Alternative and the Proposed Action; however water usage would be somewhat higher in the No-Action versus Proposed Action conditions – due to the Proposed Action incorporating low-flow fixtures in new Toilet Rooms – consistent with Massport's Sustainable Design Standards and Guidelines which exceed Code requirements.</p>
6.3	<p>Comment: Massport's EA should report on all Massport sewer connections to the BWSC and MWRA systems, estimated long-term wastewater flows at each connection, and how Massport intends to mitigate (offset) the impacts that higher wastewater flow can have on municipal system performance and overflows. Mitigation of the wastewater flow increase is also necessary to comply with MassDEP regulation and BWSC policy for new wastewater flows.</p> <p>Response: At Logan Airport the sanitary system and stormwater collection systems are separate systems. Sewage from the Project would be conveyed via the existing sanitary sewer system, to the Boston Water and Sewer Commission system, and ultimately connecting to the Massachusetts Water Resources Authority treatment facilities at Deer Island, which has adequate capacity for the flow from Terminal E.</p> <p>Currently Terminal E generates an average of 55,000 gal/day of wastewater (2015 records). Under the Proposed Action, wastewater generation is estimated to increase to 66,000 gal/day. The additional 5,500 passengers using Terminal E (compared to 2015) would be utilizing a sanitary system that is compliant with Massport's Sustainable Design Standards and Guidelines for new facilities. Under the No-Action Alternative wastewater generation is estimated to increase to 73,000 gal/day - for the same increase in passengers. However, in the No-Action Alternative the additional passengers would be utilizing existing toilet rooms, some of which date back to original terminal construction. It is noted that both the Proposed Action and No-Action Alternative volumes would probably be reduced as Massport refurbishes existing Toilet Rooms to incorporate low-flow devices – consistent with Massport's Sustainable Design Standards and Guidelines - as part of other projects (and repair projects).</p> <p>The proposed Project would connect to the existing wastewater system, described above. The connection point may be via existing lines connecting the existing terminal to the 15-inch line near the Service Road, or directly to the 15-inch line – as developed during design.</p>

Terminal E ENF Comments and Responses

City of Boston, The Environment Department		
Comment #	Comment:	Response:
6.4	MWRA prohibits the discharge of groundwater to the sanitary sewer system, pursuant to 360 CMR 10.023(1), except in a combined sewer area when permitted by MWRA and the municipality. The Project Site has access to storm drains and surface water and it is not located in a combined sewer area; therefore, the discharge of groundwater or stormwater to the sanitary sewer system associated with construction of this project is prohibited. Massport will need to secure a US EPA-NPDES General Permit for Storm Water Discharges from its construction activities.	Massport will secure a U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from its construction activities.



**CITY OF BOSTON
THE ENVIRONMENT DEPARTMENT**

Boston City Hall, Room 709 • Boston, MA 02201 • 617/635-3850 • FAX: 617/635-3435

December 11, 2015

Matthew A. Beaton, Secretary
Executive Office of Energy and Environmental Affairs
Attention: Page Czepiga, MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Logan International Airport Terminal E Modernization and Expansion
Environmental Notification Form
EEA # 15435

Dear Secretary Beaton:

The City of Boston is committed to protecting and enhancing the quality of life for all Boston residents. The following comments are in support of a Draft Environmental Impact Report (DEIR) for this proposed two-phase project which will expand Terminal E, modify taxiways, runways and other airport infrastructure to accommodate Group VI aircraft, and add five to seven new gates.

The following issues should receive detailed attention in a DEIR.

Demand and Capacity

International passengers using Logan are expected to more than quadruple from 1.4 million (2014) to 6 million in 2022. This projected increase is due in part to incentives and an aggressive marketing campaign. As noted in the 2014 Environmental Data Report (2014 EDR), domestic travel is also expected to maintain a steady continued increase.

Logan International Airport is sited on a limited piece of land close to Boston and Winthrop residents and surrounded by the waters of Boston Harbor. It is essential that, as part of this significant expansion, the Massachusetts Port Authority (Massport) address the issue of Logan's maximum capacity. We ask that it be required as part of the DEIR.

Regional Transportation

The 2014 EDR indicated that between 2010 and 2014, Manchester operations declined by 13.5 percent and T. F. Green's by 6.2 percent. Hanscom Field has been unable to retain commercial service due, in part, to decades-old noise rules.

Massport has indicated in numerous EDRs that it is committed to multi-modal regional transportation options and cites its participation in the New England Regional Aviation System Plan (NERASP) and other regional planning

Austin Blackmon, Chief

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Marrin J. Walsh, Mayor

Logan Airport Terminal E Modernization and Expansion Project ENF, EEA #15434
Boston Environment Department comments

7.2 efforts. However, Massport's role in furthering multi-modal regional transportation has not been made clear. The DEIR should include an analysis of the ways in which Massport can contribute to the strength of these regional efforts and the potential effects on demand and capacity.

7.3 Traffic and Parking
The ENF indicates that there will be no increase in daily vehicle trips as a result of the proposed project. This seems inconsistent with the number of passengers Massport expects to serve. We ask for a detailed analysis of this statement.

7.4 It appears that the reduction of 60 parking spaces will result from the closing of the cell phone lot and short-term lot, both important categories of parking. We note that, at the same time, Massport is seeking to add 5,000 new on-airport parking spaces. Any analysis of this project must include the number of vehicle trips and parking demand that will be associated with the projected passenger increases. In addition, the way in which the cell phone and short-term needs will be addressed should be described.

7.5 Noise and Vibration
Massport, the Federal Aviation Administration and Logan Community Advisory Committee, Inc. have been engaged in a lengthy study of Logan-generated noise and potential measures to reduce those levels. It seems likely that the increased engine size, significantly increased weight capacity and maximum takeoff weights (600,00 to 1.21 million pounds) of New Large Aircraft (NLA) such as the Boeing 787-8 and, Airbus A-30 (AKA "super-jumbo" jets) will result in increased noise and vibration.

7.6 The DEIR should discuss in detail the potential landside and airside noise impacts of the project including, but not limited to, changes in noise contours, impacted populations, landing minima and vibration, and proposed mitigation.

7.7 Air Quality
The discussion of air quality should include the findings of the Massachusetts Department of Public Health (MA DPH) Logan Health Study and Massport's air quality study. It is essential that Massport describe both the protocol and conclusions of the study.

Thank you for the opportunity to comment. The Boston Environment Department looks forward to a robust DEIR and substantive responses to comments.

Sincerely

Carl Spector
Commissioner

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Terminal E ENF Comments and Responses

City of Boston, The Environment Department		
Comment #	Comment:	Response:
7.1	It is essential that, as part of this significant expansion, the Massachusetts Port Authority (Massport) address the issue of Logan's maximum capacity. We ask that it be required as part of the DEIR.	<p>The growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. For over three decades, Massport has provided annual updates on the environmental status of Logan Airport. Every three to five years, Massport prepares a forecast of future aircraft operations and passenger activity levels and associated environmental conditions (out 15 to 20 years into the future). The analysis documents plans that Massport has in place to accommodate projected growth, while ensuring the Airport operates safely and efficiently. Refer to the 2011 Environmental Status and Planning Report (ESPR) for additional information on Airport plans out to 2030 and anticipated environmental conditions with a focus on noise, ground access, air quality, water quality, and sustainability. For example, in 2000, there were 27 million passengers and 490,000 flights at Logan Airport. In 2014, there were 30 million passengers and 370,000 flights. This decrease in operations shows increased efficiency with the higher number of passengers.</p>
7.2	However, Massport's role in furthering multi-modal regional transportation has not been made clear. The DEIR should include an analysis of the ways in which Massport can contribute to the strength of these regional efforts and the potential effects on demand and capacity.	<p>Massport plays an important role in supporting and furthering multimodal transportation in the region. Massport is investing in its family of airports including:</p> <ol style="list-style-type: none"> 1. Acquiring and modernizing the Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region. 2. Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. As a result of this collaboration, JetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013. 3. Massport recently started construction on Worcester Regional Airport's Category III Instrument Landing System to enhance operational and safety conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport's all-weather reliability, a long-standing impediment to greater utilization of this airport. 4. Hanscom Field continues to maintain its role as a corporate reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. New England's second busiest airport, Hanscom Field, is a full-service general aviation airport and popular choice for business executives traveling to Eastern Massachusetts and "America's Technology Region" situated along the Route 128/95 and Route 495/3 corridors. <p>In addition, as documented in Chapter 4, Regional Transportation, of the 2014 Environmental Data Report (EDR), the aim of regional transportation planning efforts is to reduce reliance on Logan Airport, and to provide New England travelers with a variety of viable transportation options. The New England Regional Airport System Plan, conducted in 2006, has helped to develop the primary commercial airport system in New England in order to support these benefits. Meanwhile, the Conference of New England Governors and Eastern Canadian Premiers works to coordinate the highway, aviation, freight, and commuter rail transportation networks. Rail service such as the Amtrak Northeast Corridor and proposed improvements such as the Boston-South Station Expansion, also help to balance the passenger load among various forms of transportation. Other supporting planning forums include GreenDOT, the Healthy Transportation Compact, and Boston Region Metropolitan Planning Organization. Massport supports several regional transportation cooperation planning efforts including: New England Regional Airport System Plan, New England Regional Airport System Plan – General Aviation, and the Conference of New England Governors and Eastern Canadian Premiers.</p>

Terminal E ENF Comments and Responses

City of Boston, The Environment Department Continued	
Comment #	Response:
<p>7.3</p> <p>The ENF indicates that there will be no increase in daily vehicle trips as a result of the proposed project. This seems inconsistent with the number of passengers Massport expects to serve. We ask for a detailed analysis of this statement.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Chapter 2, Purpose and Need, documents that international passenger activity levels have grown significantly since the international terminal was constructed in 1974. When Massport completed the original terminal in 1974, the Airport served 1.4 million international passengers per year served out of 12 gates. Massport enhanced internal terminal passenger facilities as part of the Terminal E Modifications Project in 1997. In 2002, Massport began work on the International Gateway Project, which proposed to expand and upgrade the terminal to provide better service to international passengers. This expansion project included three new gates that were approved and never built due to the economic climate post September 11, 2001. At the time Massport planned the International Gateway Project, Terminal E served approximately 3.6 million international passengers. In 2015, Terminal E served over 5.5 million international passengers, still out of the same original 12 gates, but with decreases in efficiency; this has resulted in air quality impacts and adverse impacts to the passenger experience.</p> <p>However, construction of the Terminal E Modernization Project would allow passenger handling on the airside, in the terminal, and at the curbs to be conducted in a more efficient way. Additional gates would reduce the number of aircraft that have to be parked on the apron with passengers accessing the terminals via buses, and would reduce wait times for aircraft to reach gates. Passenger processing in the terminal would be enhanced with the addition of Customs and Border Protection facilities, and improvements to the curb would enhance passenger drop-off and pick-up activities and reduce recirculation of vehicles at the curb. A key feature of the Project is construction of a direct, weather-protected connection between the terminal and the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station.</p>
<p>7.4</p> <p>We note that, at the same time, Massport is seeking to add 5,000 new on-airport parking spaces. Any analysis of this project must include the number of vehicle trips and parking demand that will be associated with the projected passenger increases.</p>	<p>The Terminal E Modernization Project and addressing Airport-wide parking are independent issues. Any new parking facility will be evaluated as a separate project. However, due to its proximity to the proposed Project, in terms of both timeframe for construction and likely physical location, the potential for increased parking is evaluated as part of the cumulative impact assessment for relevant categories (ground access and air quality) in Chapter 5, Environmental Consequences. This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) includes an analysis of the Project both with and without additional on-airport parking spaces.</p>
<p>7.5</p> <p>In addition, the way in which the cell phone and short-term needs will be addressed should be described.</p>	<p>The proposed Project does not require relocation of the Cell Phone Lot. Available parking supply in the immediate vicinity of Terminal E is primarily impacted by the relocation of taxi and limousine loading areas, which are anticipated to occur prior to commencement of the Terminal E Modernization Project. As part of that effort, replacement parking in front of existing Terminal E will be provided. Chapter 5, Environmental Consequences, describes the changes to the short-term parking spaces as a result of the Project.</p>
<p>7.6</p> <p>The DEIR should discuss in detail the potential landside and airside noise impacts of the project including, but not limited to, changes in noise contours, impacted populations, landing minima and vibration, and proposed mitigation.</p>	<p>Chapter 5, Environmental Consequences, documents the noise impacts associated with the proposed Project. The analysis shows that the proposed terminal configuration would serve as a noise barrier and reduce the effect of ground noise impacts associated with aircraft operations.</p>

Terminal E ENF Comments and Responses

City of Boston, The Environment Department Continued		
Comment #	Comment:	Response:
7.7	<p>The discussion of air quality should include the findings of the Massachusetts Department of Public Health (MADPH) Logan Health Study and Massport's air quality study. It is essential that Massport describe both the protocol and conclusions of the study.</p>	<p>Massport provides an update on the status and findings of the Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron which would reduce aircraft idling and in turn improve air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

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**Boston Water and
Sewer Commission**

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

December 9, 2015

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs (EEA)

Attn: MEPA Office
Page Czepliga, EEA 15434
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Boston - Logan Airport
Terminal E Modernization
Environmental Notification Form

Dear Secretary Beaton:

The Boston Water and Sewer Commission (Commission) has reviewed the Environmental Notification Form (ENF) for the Boston Logan Airport, Terminal E Modernization project. This letter provides the Commission's comments on the ENF.

The proposed project is located at Boston Logan Airports International Terminal (Terminal E). The project consists of adding between five and seven aircraft gates, and modifications to the terminal that will include modifications to passenger holdrooms, concourses, concessions, and passenger processing.

The water, sewer and storm drain system at Logan Airport is owned and maintained by Massport. The system is supplied by master water meters at the entrance to the airport and a sewer service connection at the entrance of the Airport.

The ENF states that the proposed project will use approximately 76,800 gallons per day (gpd) of water and generate approximately 76,800 gpd of wastewater. This represents an increase of approximately 25,600 gpd of water and an increase of 25,600 gpd of wastewater.

The Commission has the following comments regarding the ENF.

General

1. All new or relocated water mains, sewers and storm drains must be designed and constructed at Massport'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. The site plan should include

8.1



the locations of new, relocated and existing water mains, sewers and drains which serve the site, proposed service connections, as well as back flow prevention devices in the facilities that will require inspection.

8.1
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2. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority and its member communities, are 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. 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.

8.2

Sewage / Drainage

1. In conjunction with the Site Plan, Massport 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.

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- 2. 8.4
The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. Massport 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, the proponent will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge.
- 3. 8.5
Massport 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.
- 4. 8.6
Any food service facility built as part of this project will require grease traps in accordance with the Commission's Sewer use Regulations. Massport is advised to consult with the Commission's Operations Department with regards to grease traps.

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JFS/cj

- c: S. Dalzell, Massport
- K. Pedersen, BRA
- M. Zlody, BED
- P. Larocque, BWSC

Terminal E ENF Comments and Responses

Boston Water and Sewer Commission	
Comment #	Response:
<p>8.1</p> <p>All new or relocated water mains, sewers and storm drains must be designed and constructed at Massport'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. A site plan including locations of existing water mains, sewers and drains which serve the site, and proposed service connections is provided in this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR). Back flow prevention devices in the facilities that require inspection would be included as the design is developed.</p>	<p>All new or relocated water mains, sewers, and storm drains would be designed and constructed at Massport's expense. They would be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use Regulations, and Requirements for Site Plans. A site plan including locations of existing water mains, sewers and drains which serve the site, and proposed service connections is provided in this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR). Back flow prevention devices in the facilities that require inspection would be included as the design is developed.</p>
<p>8.2</p> <p>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.</p>	<p>The Project does not trigger thresholds that would require this action.</p>
<p>8.3</p> <p>In conjunction with the Site Plan, Massport will be required to submit a Stormwater Pollution Prevention Plan. The plan must:</p> <ul style="list-style-type: none"> -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. 	<p>Once the Project has progressed into more detailed design, and in conjunction with development and finalization of the Site Plan, Massport would submit a Stormwater Pollution Prevention Plan that meets the Boston Water and Sewer Commission requirements.</p>
<p>8.4</p> <p>Massport 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, the proponent will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge.</p>	<p>Massport understands the requirements for construction dewatering during construction. If such dewatering is required with discharge to the storm drainage system, appropriate permits and approvals would be secured.</p>
<p>8.5</p> <p>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.</p>	<p>Massport would investigate opportunities for retention of roof runoff during final design for the Project. Stormwater from the proposed Project would drain to either the North Outfall (North Apron) or to the West Outfall, both of which are equipped with end-of-pipe pollution control facilities for the removal of debris and floating oil and grease from stormwater prior to discharge into Boston Harbor. No stormwater generated within the Project area drains to the municipal Boston Water and Sewer Commission or state Massachusetts Water Resources Authority combined sewer systems or combined sewer overflow outfalls serving East Boston.</p>
<p>8.6</p> <p>Any food service facility built as part of this project will require grease traps in accordance with the Commission's Sewer use Regulations. Massport is advised to consult with the Commission's Operations Department with regards to grease traps.</p>	<p>Massport would coordinate with the Boston Water and Sewer Commission regarding the need to incorporate grease traps into the design where food service uses are proposed.</p>

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The Honorable Matthew Beaton
December 9, 2015
Page 2

Because I have insufficient time in which to fully review the ENF and prepare detailed comments, I offer the following brief comments for your consideration.

Health, pollution and environmental risks relating to airport operations are serious concerns for Milton, which is overburdened by an inequitable distribution of air traffic. As noted in Milton's 2014 EDR Response, recent studies at LAX found ultrafine particle counts as far as ten miles from heavily used arrival runways. Runways 4L and 4R, which place hundreds of arriving flights over Milton on any given day and often at intervals of only a minute or two, are not only heavily used but overused. I understand that jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands of people who live under these flight paths to pollution 6 to 8 times urban average levels and, therefore, heightened risks and adverse health outcomes. If, as projected, there is a 43% expansion in passenger volume at Logan Airport, this would cause a 24% increase in nitrogen oxide emissions. With the terminal expansion project expected to contribute 57% to this passenger growth, the project will cause a 14% increase in emissions. I urge you to consider requiring an environmental impact report for the project.

Airplane noise is not simply a nuisance but also a health concern. Milton's 2014 EDR Response notes that there is medical evidence that airplane noise is associated with health issues such as an increased risk of cardiovascular disease, coronary heart disease and stroke.³ Airplane noise also disrupts sleep patterns. Too often, Milton residents are subjected to loud, constant aircraft noise as early as 5:00 a.m. and as late as 1:00 a.m. This is an inequitable distribution of air traffic and I hereby reiterate my full Board's request that the Executive Office of Energy and Environmental Affairs work with Milton, the FAA, Massport and the Logan Airport Community Advisory Committee to remedy the many environmental impacts described in Milton's 2014 EDR Response.

Thank you for considering my comments and the serious health and environmental risks that existing airport operations, let alone expanded airport operations, pose to the approximately 27,000 residents of Milton on almost a daily basis.

Sincerely,

Kathleen M. Conlon

Kathleen M. Conlon
Member, Milton Board of Selectmen

³ Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: multi-airport retrospective study *BMJ* 2013;347:f5561 doi: 10.1136/bmj.f5561 (Published 8 October 2013); Aircraft noise and cardiovascular disease near Heathrow airport in London: small area study *BMJ* 2013;347:f5432 doi: 10.1136/bmj.f5432 (Published 8 October 2013); Airport noise and cardiovascular disease *BMJ* 2013;347:f5752 doi: 10.1136/bmj.f5752 (Published 8 October 2013).

42 Reedsdale Road
Milton, MA 02186
December 9, 2015

VIA EMAIL

The Honorable Matthew Beaton
Secretary of Energy and Environmental Affairs
Mass. Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: **Environmental Notification Form ("ENF") – Logan Airport Terminal E Expansion**

Dear Secretary Beaton:

I write to comment on the ENF and the proposed expansion of Terminal E at Logan Airport. I am concerned about the effects that increased air traffic over the Town of Milton resulting from such an expansion could have on the residents of Milton, whom I serve as a member of the Board of Selectmen.

First, I urge you to extend the comment deadline for an additional thirty (30) days beyond today. I became aware of the proposed Terminal E expansion and today's deadline for public comments on the ENF only last night. As you know from the Milton Board of Selectmen's letter dated November 5, 2015 ("Milton's 2014 EDR Response") with respect to the Boston-Logan International Airport 2014 Environmental Data Report, Milton, like some other communities, is already significantly adversely impacted by the FAA's implementation of the RNAV system¹ and the health and environmental impacts of increased air traffic in and out of Logan Airport.² As such, Milton should have been formally notified about the proposed Terminal E expansion and afforded an opportunity to participate in the process. Neither the Milton Board of Selectmen nor our representative to the Logan Airport Community Advisory Committee received notice of the proposal or the comment period. Apparently Milton is not alone, and other communities that bear the burdens of increased air traffic and the implementation of the RNAV system were also unaware of the comment deadline until yesterday. Therefore, I believe an extension of the comment period is warranted.

¹ Four runways (arrivals on 4R and 4L and southbound departures on 27 and 33L) place air traffic over Milton. Currently, three (3) RNAVs (for runways 4R, 27 and 33L) fly over Milton. Earlier this year, the FAA proposed to add two (2) more RNAVs, each for runway 4L, to the sky over Milton. If implemented, the FAA's proposal would result in five (5) RNAVs over Milton. On June 29, 2015, the Milton Board of Selectmen submitted comments to the FAA objecting to the implementation of the two proposed 4L RNAVs and seeking relief from the overuse of runway 4R. My understanding is that the 4L RNAV proposals and the many written comments submitted to the FAA are still under review.

² Milton had the highest number of total calls from any town by far in 2014, with 2,669 recorded complaints, and has had the highest number of noise complaints for each of the last three calendar years. Complaints on the Massport complaint line have increased for Milton from an average of 9 per month in 2012, to an average of 160 per month in 2013, to an average of 222 per month in 2014. That represents a 25-fold increase in noise complaints. Noise complaints for 2015 tabulated through September average 220 monthly.

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Terminal E ENF Comments and Responses

Milton Board of Selectmen	
Comment #	Response:
<p>9.1</p> <p>I am concerned about the effects that increased air traffic over the Town of Milton resulting from such an expansion could have on the residents of Milton, whom I serve as a member of the Board of Selectmen.</p>	<p>The proposed Project would have no impact on the number of flights operating at Logan Airport, nor their flight paths. The historic growth at Logan Airport that occurred without additional gates, demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized. Additional information regarding operations forecasts and flight tracks are provided in the 2014 Environmental Data Report (EDR) and will be updated in the forthcoming 2015 EDR.</p>
<p>9.2</p> <p>First, I urge you to extend the comment deadline for an additional thirty (30) days beyond today. [...] Milton should have been formally notified about the proposed Terminal E expansion and afforded an opportunity to participate in the process. [...] Therefore, I believe an extension of the comment period is warranted.</p>	<p>Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose to not further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR).</p>
<p>9.3</p> <p>[...] I urge you to consider requiring an environmental impact report for the project.</p>	<p>In the December 16, 2015 Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the DEIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction. See Chapter 5, Environmental Consequences.</p>
<p>9.4</p> <p>Airplane noise is not simply a nuisance but also a health concern. Milton's 2014 EDR Response notes that there is medical evidence that airplane noise is associated with health issues such as an increased risk of cardiovascular disease, coronary heart disease and stroke. Airplane noise also disrupts sleep patterns.</p>	<p>Massport provides an update on the status and findings of the Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016.</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community. - Providing for more efficient use of the North Apron which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units. - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place. Similar to Terminal A, the community would be shielded from ground noise from aircraft operations on the apron, in some cases resulting in up to a 17 dB decrease in sound levels compared to if the proposed Terminal E Modernization Project were not built.</p> <p>For over three decades, the Logan Airport Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) have tracked noise conditions at Logan Airport, providing annual noise contours and the population located within the Federal Aviation Administration (FAA) defined noise level of 65 dB, which is considered to be incompatible with residential land use. Since 1990, the population living within areas 65 dB and above has dropped from 44,142 to 8,922 people in 2014. Massport has an extensive sound insulation program which has treated over 11,515 impacted dwellings since the start of the program in 1996.</p>

Terminal E ENF Comments and Responses

Milton Board of Selectmen	
Comment #	Response:
<p>9.5</p> <p>Too often, Milton residents are subjected to loud, constant aircraft noise as early as 5:00 a.m. and as late as 1:00 a.m. This is an inequitable distribution of air traffic and I hereby reiterate my full Board's request that the Executive Office of Energy and Environmental Affairs work with Milton, the FAA, Massport and the Logan Airport Community Advisory Committee to remedy the many environmental impacts described in Milton's 2014 EDR Response.</p>	<p>Massport will continue to collaborate with the FAA, the Logan Airport Community Advisory Committee (CAC), and community on noise issues. These efforts will continue to be reported on in the Logan Airport EDRs and ESPRs.</p> <p>The FAA's Record of Decision approving construction of the unidirectional Runway 14-32 required that the FAA, Massport, and the Logan Airport CAC jointly undertake a study to determine whether changes to existing noise abatement flight track corridors might further reduce noise impacts. The primary focus of the Boston Logan Airport Noise Study (BLANS) is to determine viable ways to reduce noise from aircraft operations to and from Logan Airport without diminishing Airport safety and efficiency. Milton is an active member of this group which is seeking a solution to issues of dwell and persistence from the FAA's recent RNAV procedures. Massport continues to support the use of late night noise abatement procedures where aircraft are routed over Boston Harbor instead of over communities.</p>

Czepiga, Page (EEA)

From: Jim Lampke [jimbo51@gmail.com]
Wednesday, December 09, 2015 9:29 PM
Sent: Czepiga, Page (EEA)
To: Brannan Hull B/S, John; Lemnios Phil; work: Kevin Richardson; DSesito@town.hull.us.ma;
CMichel@town.hull.us.ma; JRReilly@town.hull.us.ma; Bradley, Garrett - Rep. (HOU);
Cc: Hedlund, Robert, Sen.; A\JBL-TC-HULL; Allen, Nancy; Bennett, Jan; karis.north@verizon.net;
carolaylorrecruits@gmail.com; erich21248@gmail.com; David Carlon
Subject: Comments on Terminal E Modernization Project ENF - EEA #15434.

December 9, 2015

Secretary Matthew Beaton (VIA EMAIL ONLY)
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

RE: Comments on Terminal E Modernization Project ENF - EEA #15434.

Dear Secretary Beaton:

I write on behalf of the Town of Hull, which as you may recall is one of the communities most adversely affected by airplane noise from Logan Airport.

The Town administration learned only a few hours ago of the comment period for the above project. That in and of itself raises issues about this process. I would urge you to consider extending the comment period and requiring better notification to those who already suffer from noise pollution emanating from Logan Airport and those who will suffer in the future. It is important that the public be properly informed of such comment periods and have a reasonable opportunity to respond. A failure of that to occur can result in any approval being overturned on appeal.

I have had the opportunity to review a few other letters sent to you offering comments on the Terminal E Modernization Project and its adverse impact. These letters point out legitimate and serious concerns. The Town wishes to call in particular the following excerpts from those comments, which are also concerns that the Town has and thus adopts these comment letters as well.

For example, Hull resident Karis North correctly observes that:

"Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with

31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces.

...

Surrounding community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, Massport studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Massport is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require Massport to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally impacts of this proposal.

...

Current Massport plans call for a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute to 57% of this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

10.1

There is data available which demonstrates that aircraft emissions, particularly of fine particulates impacts public health directly, by depositing particulates into the lungs and indirectly, by contributing to ozone and smog. FAA's own analysis of aviation emissions cites to research that indicates "fine particulate matter is responsible for the majority of the health risks from aviation emissions."¹¹ These particulates contribute to increased heart and lung disease, including increased hospital admissions, emergency room visits, and work absences. No project that increases airport operations and resulting aircraft emissions in the communities that surround Logan Airport should be approved without a complete and thorough review of the public health impacts of the proposal. That complete review has not been done here.

10.5

There is data available which demonstrates that aircraft emissions, particularly of fine particulates impacts public health directly, by depositing particulates into the emergency lungs and indirectly, by contributing to ozone and smog. FAA's own analysis of aviation emissions cites to research that indicates "fine particulate matter is responsible for the majority of the health risks from aviation emissions."¹¹ These particulates contribute to increased heart and lung disease, including increased hospital admissions, room visits, and work absences. No project that increases airport operations and resulting aircraft emissions in the communities that surround Logan Airport should be approved without a complete and thorough review of the public health impacts of the proposal. That complete review has not been done here."

10.2

<p>Ms. Ellen M. Tan, President & CEO of the Commonwealth Land Trust, Inc., located in Roxbury Crossing, made several particularly pertinent observations, including:</p>	<p>detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan – especially in the evening/night hours – and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory Committee (CAC)”, along with her other requests appear reasonable.</p>	<p>10.9 Cont.</p>
<p>"Environmental Impact of Increased International Flight Volume Insufficiently Considered The Logan Airport 2011 Environmental Status and Planning Report (ESPR - http://www.massport.com/media/2891/Logan_ESPR_2011.pdf) projects an increase in flight operations at Logan Airport of 29% from 2011-2030.</p>	<p>... "This real-world impact should include the analysis of all flight paths that could be used to accommodate this increase in flights and supplemental metrics such as N65, Lmax and SEL in addition to DNL. I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.</p>	<p>10.10</p>
<p>The ENF states that the number of projected international passengers at Logan will increase from 4.9 million in 2014 to 6 million in 2022 – a 22% increase. One can reasonably assume based on the proposal to expand the International Terminal at Logan that a substantial amount of the ESPR’s projected increase is going to come from international operations. This is important because Logan is capacity-constrained during the peak hours of 6am-9am and 4pm-7pm.</p>	<p>... Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, and a 300% increase in risk of heart attack. Jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	<p>10.11</p>
<p>The current international flights are primarily arriving between 6pm-9pm and departing between 9pm-12am. There is also a scheduled flight to Hong Kong at 1:30am.</p>	<p>... Current Massport plans call for significant expansion of passenger volume that will have a corresponding increase in NOx. With the expanded Terminal E expected to contribute 57% to the growth in passenger volume, the project will cause a 14% increase in NOx by itself, a fact that must be weighed by MEPA in considering the environmental impacts of this project."</p>	<p>10.12</p>
<p>It is reasonable to assume: 1. Since there is no more runway capacity during the peak hours 2. The majority of current international flights arrive and depart between 6pm and 12am 3. There is additional capacity during that time period – there are currently only seven departures between 9pm-10pm, three between 10pm-11pm and two between 11pm-12am.</p>	<p>Finally, I call to your attention the salient comments of another Hull resident, Carol Taylor, who observes in part: "The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking. Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.</p>	<p>10.6</p>
<p>The communities in the vicinity of Logan can expect that there will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant and is not appropriately considered in the content of the Environmental Notification Form (ENF). The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.</p>	<p>... "The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking. Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.</p>	<p>10.7</p>
<p>There is a reference on page 10 of the ENF to environmental analysis that was included in the 2011 ESPR but this is in no way an adequate consideration of the potential impact such a substantial potential increase in flight operations in the evening/night time frame and overnight time periods. The DNL metric used by the FAA in their analysis of changes in flight operations is antiquated and was developed for a radar-based mode of air traffic control. The impact of these increases in flight volume is exacerbated by the continued implementation by the FAA of RNAV satellite-based flight path routing under their Performance-based Navigation (PBN) initiatives under the umbrella of their NextGen modernization program. These new international flights will be large, heavy (full of freight) and in some cases old, aircraft. They tend to gain altitude more slowly and have a much louder noise profile than smaller jets. So the residents in close-in communities as well as those under concentrated flight paths further away from the airport who are already experiencing significant negative effects from current operations will be subjected to what will be a significant impact – regardless of what is reflected in the FAA’s captive analysis."</p>	<p>... "that the State of Massachusetts require Massport and the FAA to provide</p>	<p>10.8</p>
<p>Ms. Tan's request</p>	<p>that the State of Massachusetts require Massport and the FAA to provide</p>	<p>10.9</p>

115 North Street, Suite 3
Hingham, MA 02043
[781-749-9922](tel:781-749-9922)

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jlampke@town.hull.ma.us

Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

..

Even while Massport sends out marketing teams in search of more international business for Logan, and even as they will have doled out \$5.6 million over the next few years in incentives to bring business here (Adding to what they predict will be a 30% increase in flights over the next 14 years), these same Port Authority officials claim that these flights would come whether or not they built a new terminal. Thus the Terminal E Modernization ENF repeatedly concludes wishful 'findings of no significant impact' (FONSI) in regards to the project. Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.

10.14

..

A-71

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes."

I ask that you consider these and the other comments that are filed.

Thank you for your attention to this matter.

Very truly yours,

James B. Lampke

James B. Lampke, Esq.

Town Counsel-Town of Hull

Acting Town Manager

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Terminal E ENF Comments and Responses

Town Counsel - Town of Hull	
Comment #	Response:
10.1	<p>I would urge you to consider extending the comment period and requiring better notification to those who already suffer from noise pollution emanating from Logan Airport and those who will suffer in the future.</p>
10.2	<p>Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips.</p>
10.3	<p>Rather than studying viable regional project alternatives in the ENF, Massport studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Massport is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%. MEPA should require Massport to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally impacts of this proposal.</p>
	<p>Massport requested and was granted an extension of the Environmental Notification (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR).</p> <p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers would be accommodated with or without the proposed Project; the parking and travel demand will be the same.</p> <p>Logan Airport serves as New England's primary domestic and international airport plays, a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Massport has considered provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E. Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports.</p> <p>Refer to the 2014 Environmental Data Report (EDR), Chapter 4, Regional Transportation, for additional information on airports in the New England region. Annual EDRs provide ongoing context, trends, updates, and information on regional projects.</p>

Terminal E ENF Comments and Responses

Town Counsel - Town of Hull Continued	
Comment #	Response:
<p>10.4</p> <p>Current Massport plans call for a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute to 57% of this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. As documented in Chapter 5, Environmental Consequences, due to improved airport efficiency, air quality conditions would be improved with the proposed Project compared to the No-Action Alternative. Because of these measures and based on the results of this analysis, the following air quality benefits associated with the Terminal E Modernization Project are demonstrated when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> - With respect to the criteria pollutants, carbon monoxide (CO) emissions decrease by 9%, nitrogen oxide (NO_x) emissions decrease by 44%, and sulfur oxides (SO_x) emissions decrease by 33%. Volatile organic compounds (VOCs) emissions decrease by 6% and particulate matter (PM₁₀ and PM_{2.5}) emissions decrease by 9% and 25%, respectively. - With respect to climate change emissions, operational-related carbon dioxide (CO₂) emissions decrease by 15%. - Terminal building design features are shown to decrease CO₂ emissions by 12% when compared to conventional building methods and materials.
<p>10.5</p> <p>There is data available which demonstrates that aircraft emissions, particularly of fine particulates impacts public health directly, by depositing particulates into the lungs and indirectly, by contributing to ozone and smog. FAA's own analysis of aviation emissions cites to research that indicates "fine particulate matter is responsible for the majority of the health risks from aviation emissions." [1] These particulates contribute to increased heart and lung disease, including increased hospital admissions, emergency room visits, and work absences. No project that increases airport operations and resulting aircraft emissions in the communities that surround Logan Airport should be approved without a complete and thorough review of the public health impacts of the proposal.</p>	<p>For over three decades, Massport has tracked and reported air quality conditions at Logan Airport. The Logan Airport EDRs and Environmental Status and Planning Reports (ESPRs) report on the Environmental Protection Agency (EPA) defined criteria pollutants including PM_{2.5} and PM₁₀. The proposed Terminal E Modernization Project would improve overall air quality conditions at Logan Airport. Improved efficiency on the North Apron would improve air quality through the reduced need for aircraft taxi and idling, reduced use of aircraft auxiliary power units, and fewer busing operations shuttling passengers from remote hardstand locations to the terminal.</p> <p>The Terminal E Modernization Project provides the following beneficial measures when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> -Less aircraft taxi-delay time due to less congestion in the terminal area; -Less use of aircraft auxiliary power units by alleviating the "hardstanding" of aircraft; -Elimination of buses and other ground support equipment used to move people and cargo from the aircraft at hardstands to the terminal; -Less curbside motor vehicle idle time attributable to improved traffic conditions and less congestion in the terminal area; and -Fewer vehicle miles traveled due to the reduction of vehicles circulating on the internal Airport roadways. <p>Because of these measures and based on the results of this analysis, the following air quality benefits associated with the Terminal E Modernization Project are demonstrated when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> -With respect to the criteria pollutants, CO emissions decrease by 9%, NO_x emissions decrease by 44%, and SO_x emissions decrease by 33%. -VOC emissions decrease by 6% and PM₁₀ and PM_{2.5} emissions decrease by 9% and 25%, respectively. -With respect to climate change emissions, operational-related CO₂ emissions decrease by 15%. -Terminal building design features are shown to decrease CO₂ emissions by 12% when compared to conventional building methods and materials.

Terminal E ENF Comments and Responses

Town Counsel - Town of Hull Continued	
Comment #	Response:
<p>10.6</p> <p>The communities in the vicinity of Logan can expect that there will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant and is not appropriately considered in the content of the Environmental Notification Form (ENF). The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>The three-decades-old Terminal E is not equipped to handle the existing nor the projected number of international passengers in an efficient and customer-service oriented manner. Terminal E consistently serves higher passenger volumes than the facility was designed to serve. When the terminal first opened in 1974, Logan Airport served 1.4 million international passengers a year through 12 gates. In 2015, the Airport served 5.5 million international passengers through the same number of gates.</p> <p>The Terminal E Modernization Project would result in noise benefits to the community; the proposed concourse extension would serve as a barrier between the community and Airport operations. Ground noise associated with Terminal E operations would be reduced as much as 17 dB in certain community locations due to the Project's configuration.</p>
<p>10.7</p> <p>There is a reference on page 10 of the ENF to environmental analysis that was included in the 2011 ESPR but this is in no way an adequate consideration of the potential impact such a substantial potential increase in flight operations in the evening/night time frame and overnight time periods.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. Massport does not have control over the scheduling of aircraft arrivals and departures.</p>
<p>10.8</p> <p>The impact of these increases in flight volume is exacerbated by the continued implementation by the FAA of RNAV satellite-based flight path routing under their Performance-based Navigation (PBN) initiatives under the umbrella of their NextGen modernization program.</p>	<p>The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impacts of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Detailed information from the studies can be found at: http://www.bostonoverflightnoiseisstudy.com. That study continues to be the appropriate forum for those discussions. Hull is an active member in the CAC.</p> <p>The FAA NextGen initiative is a national effort to improve the daily operations of the entire National Airspace System. This has resulted in changes in flight track and airspace around the country with resultant changes in the noise environment. The FAA prepared an EA that studies the change in RNAV, which enables aircraft to fly on any desired flight path within the coverage of ground- or space-based navigation aids, within the limits of the capability of the self-contained systems, or a combination of both capabilities. RNAV aircraft have better access and flexibility for point-to-point operations.</p> <p>For over three decades, Massport has provided an annual report on the noise environment of Logan Airport, as documented in the EDRs and ESPRs. These annual reports also provide updates on the BLANS study and other FAA initiatives.</p>

Terminal E ENF Comments and Responses

Town Counsel - Town of Hull Continued	
Comment #	Response:
<p>10.9</p> <p>Ms. Tan's request "that the State of Massachusetts require Massport and the FAA to provide detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan – especially in the evening/night hours – and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory Committee (CAC)", along with her other requests appear reasonable.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The Terminal E Modernization Project would improve energy efficiency through both operational and design features. The addition of the new gates would allow aircraft to park at the gates instead of waiting on the apron or deplaning passengers at hardstand locations and busing them to the terminal. All gates would be equipped with preconditioned air and 400 Hz power. Aircraft idling would be reduced by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units. The Project would be designed to meet Leadership in Energy and Environmental Design (LEED) Silver or higher requirements which would include many energy conservation measures. By modernizing Terminal E, Massport has the opportunity to serve aircraft at the gates, and to provide the environmental benefits of building a significant noise barrier between the airfield/apron activity and building Logan Airport's first passenger connection to the Massachusetts Bay Transportation Authority (MBTA) Blue Line. These features would help reduce ground noise and reduce air emissions.</p>
<p>10.10</p> <p>This real-world impact should include the analysis of all flight paths that could be used to accommodate this increase in flights and supplemental metrics such as N65, Lmax and SEL in addition to DNL.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft, would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. Chapter 5, Environmental Consequences, documents sound exposure levels (SEL) and equivalent sound levels (Leq) in addition to day-night average sound level (DNL).</p> <p>For over three decades Massport has prepared EDRs and ESPRs that annually report on noise, air, ground access, water quality, and sustainability at Logan Airport. The EDRs/ESPRs include several supplemental metrics including Time Above a certain threshold and the Cumulative Noise Index. The 2015 EDR, which will be published later in 2016, will report on noise conditions for 2015 and will compare them to previous years back to 1990.</p>
<p>10.11</p> <p>I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.</p>	<p>Like all commercial service airports in the United States, Logan Airport is subject to federal laws. The federal Airport Noise and Capacity Act (or ANCA) severely restricts Massport's ability to impose access restrictions. Since its enactment in 1990, no access restriction on stage 3 aircraft has been approved by the FAA. Massport's most recent analysis of Logan Airport's fleet shows that 97% (2014) of aircraft jet operations at Logan Airport meet stage 4 requirements, the latest and highest standard for noise and emissions currently adopted by the FAA. This latest technology also reflects the most recent advancements in fuel burn efficiency and air emissions reductions. Massport has also implemented a comprehensive noise abatement program that includes soundproofing the homes of our closest neighbors; noise abatement procedures to minimize overflights over residences and reduce engine noise on the airport surface; and a 24/7 noise complaint line for concerned residents to call. One critical noise abatement action is the late night, over-the-water departure/arrival (or "head-to-head") procedure. This procedure is utilized by the FAA, when wind and weather allow, during the sensitive overnight period and places aircraft over Boston Harbor away from Logan Airport's surrounding communities and the urban core.</p> <p>It is unlikely that future growth of international service will result in more late night flights. Opportunities for more nonstop service to Asia are limited given the service Logan Airport has today. Also, it is expected that the main driver for future growth is Europe/other markets not requiring late night arrivals or departures. Since most of Logan Airport's international service is to Europe and the Caribbean, these markets are expected to operate during the current daily peak period of 6:00 PM to 10:00 PM.</p>

Terminal E ENF Comments and Responses

Town Counsel - Town of Hull Continued	
Comment #	Response:
<p>10.12</p> <p>Current Massport plans call for significant expansion of passenger volume that will have a corresponding increase in NOx. With the expanded Terminal E expected to contribute 57% to the growth in passenger volume, the project will cause a 14% increase in NOx by itself, a fact that must be weighed by MEPA in considering the environmental impacts of this project.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized and will not cause an increase in passenger activity.</p> <p>As documented in Chapter 5, Environmental Consequences, due to improved Airport efficiency, air quality conditions would be improved with the proposed Project, compared to the No-Action Alternative. Because of these measures and based on the results of this analysis, the following air quality benefits associated with the Terminal E Modernization Project are demonstrated when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> - With respect to the criteria pollutants, carbon monoxide (CO) emissions decrease by 9%, nitrogen oxide (NO) emissions decrease by 44%, and sulfur oxides (SO_x) emissions decrease by 33%. Volatile organic compound (VOC) emissions decrease by 6% and particulate matter (PM₁₀ and PM_{2.5}) emissions decrease by 9% and 25%, respectively. - With respect to climate change emissions, operational-related carbon dioxide (CO₂) emissions decrease by 15%. - Terminal building design features are shown to decrease CO₂ emissions by 12% when compared to conventional building methods and materials.
<p>10.13</p> <p>The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Since the same number of passengers will be accommodated with or without the proposed Project, there will be no induced demand as a result of the Project. Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>This EA/DEIR provides a full analysis of transportation as it relates to the Terminal E Modernization Project.</p>
<p>10.14</p> <p>Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft will be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>The analysis finds that positioning the terminal to serve as a noise barrier results in a reduction of noise up to 17 dB compared to the No-Action Alternative and that there would be no perceptible vibrations expected from the Proposed Action.</p>

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Czepiga, Page (EEA)

From: jill_romano@verizon.net
Sent: Wednesday, December 09, 2015 2:58 PM
To: Beaton, Matthew (EEA); Czepiga, Page (EEA)
Subject: Terminal E Expansion at Logan Airport

Secretary Beaton,

I am a resident of Wrentham and a member of the Logan CAC. I am contacting you with regard to the proposed expansion of Terminal E at Logan Airport.

11.1

While I appreciate the need to expand the airport's capacity for international travel, I see nothing in the Environmental Modification Form for the Terminal E Modernization Proposal that addresses the impact of noise and air pollutants caused by the increased traffic.

As you may already be aware, the communities surrounding Logan have been greatly impacted by changes made by NextGen navigation system. Those communities directly beneath an RNAV approach have seen a substantial change in their quality of life. With Congressman Lynch's assistance, the FAA and Massport attended a public hearing in Milton just last week on this very issue.

11.2

One of the biggest issues that has come out of that forum, and which I directly see as a member of the CAC, is the lack of coherent, comprehensive and reliable reporting from Massport to the CAC. Without a baseline and reliable information, we have had no way to truly measure the impact of this increased traffic to our communities. To move forward with a new expansion without this basic requirement would be reckless to the health and well being of all of those residents affected by the airport.

11.3

I urge you to consider requiring Massport to prepare baseline studies of the existing noise profile, set in motion a process to measure the airborne pollutant levels and prepare a current and proposed runway usage plan as a necessary requirement to approval of the proposed expansion.

I am happy to discuss further.

Jill Romano
Wrentham Logan CAC Representative

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Terminal E ENF Comments and Responses

Wenham, Logan CAC	
Comment #	Response:
11.1	<p>While I appreciate the need to expand the airport's capacity for international travel, I see nothing in the Environmental Modification Form for the Terminal E Modernization Proposal that addresses the impact of noise and air pollutants caused by the increased traffic.</p>
11.2	<p>Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports to the state and the public since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed. As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR". Projects that require state (MEPA) or federal (NEPA) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The most recent EDR reports on 2014 conditions and the 2015 EDR will be published later this year and will continue to cover a baseline impact assessment of changes in aircraft operations/passenger activity levels on noise conditions, air quality, ground access, regional transportation options, and water quality. In addition, the EDRs and ESPRs provide updates on Massport's plans for Airport improvements through 2030.</p>
11.3	<p>As described above, for over two decades Massport has annually published environmental data reports that document noise and air quality conditions at Logan Airport relating to aircraft operations. These comprehensive reports provide a documented record of noise and air quality conditions at Logan Airport. The EDRs and ESPRs provide a summary of runway use for the entire airport each year. Refer to the 2014 EDR for the most recent information on environmental conditions. The 2015 EDR, which reports on 2015 conditions, will be published later this year.</p> <p>The Terminal E Modernization Project would not change runway usage or the airfield. The Project would modernize and extend the existing Terminal E making the facility more efficient, improving the passenger experience, and reducing air emissions. The reduction of emissions would result from reducing aircraft idling, reducing use of auxiliary power units, and reducing the number of buses required to transport passengers, from aircraft using hardstands, to the terminal.</p>

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December 9, 2015

Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Attn: MEPA Office
Boston, MA 02114

Dear Director Buckley:

The Environmental League of Massachusetts (ELM) is a state-based, nonprofit, environmental policy and advocacy organization whose mission is to protect the health of our environment and citizenry by safeguarding the land, water, and air of our Commonwealth.

We appreciate the opportunity to review the Environmental Notification Form (ENF) for the Boston-Logan International Airport Terminal E Modernization Project. As Massport seeks to modernize its international terminal to accommodate a growing number of passengers, it is essential that sustainability be at the forefront of the planning, capital investments, and operations. Though Massport's sustainability initiatives and greenhouse gas (GHG) emission reduction targets as outlined in its recent Sustainability Management Plan are to be recognized, the proposed development of additional gates and parking spaces is likely to work against those stated goals. In order to meet its goal of reducing GHG emissions 40% by 2020 and 80% by 2050 compared to 1999 levels, Massport needs to dramatically increase energy efficiency and renewable energy.

AIRCRAFT & TRAFFIC

Although the ENF claims that the proposed project would not increase flights or passenger traffic, it is reasonable to believe that by seeking to "accommodate existing and future demand for international flights," Massport is looking to increase international flights. With more international flights come more GHG emissions and air pollution. The 2014 Massachusetts Department of Public Health (MDPH) Logan Airport Health Study found that air pollution levels surrounding Logan are higher than in other local urban areas.¹ Children in the high-exposure area were estimated to have three to four times the likelihood of asthma compared with children in the low-exposure area. It is Massport's responsibility to mitigate these effects and reduce the burden of air pollution on area residents.

PARKING

¹ Massachusetts Department of Public Health, and Bureau of Environmental Health. *Logan Airport Health Study*. Mass.gov, May 2014.

Furthermore, the ENF claims that the proposed addition of parking spaces will decrease GHG emissions because it will limit the number of vehicle trips to and from the airport. However, by adding thousands of parking spaces, more people may opt to drive instead of take transit. This would result in increased GHG emissions. Instead, Massport should pursue further investment in transit options for travelers to make it as easy and attractive as possible for people to get to the airport via transit.

In addition, whatever parking facilities are approved should employ green infrastructure best practices and incorporate renewable energy. For instance, parking lots should have pervious pavement to reduce stormwater runoff and flooding. They should also have solar canopies so that lighting and other energy needs can be provided for with clean, renewable energy.

PASSENGER CONNECTIVITY

We support Massport's efforts to promote passenger connectivity. The proposed construction of the first-ever direct passenger connection from the MBTA Blue Line Airport Station to Terminal E would significantly improve efficiency both for passengers and the Terminal itself. The result would be decreased vehicle emissions and improved access to public transportation. Efforts like these should be replicated throughout Logan in the interest of reducing miles driven.

We look forward to further discussing the best course of action for the Terminal E modernization project.

Thank you for your consideration,

Erica Mattison

Erica Mattison
Environmental League Legislative Director &
Massport Community Advisory Committee Member
617-742-2553
emattison@environmentalleague.org

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Terminal E ENF Comments and Responses

Environmental League of Massachusetts	
Comment #	Response:
<p>12.1</p> <p>As Massport seeks to modernize its international terminal to accommodate a growing number of passengers, it is essential that sustainability be at the forefront of the planning, capital investments, and operations. Though Massport's sustainability initiatives and greenhouse gas (GHG) emission reduction targets as outlined in its recent Sustainability Management Plan are to be recognized, the proposed development of additional gates and parking spaces is likely to work against those stated goals. In order to meet its goal of reducing GHG emissions 40% by 2020 and 80% by 2050 compared to 1999 levels, Massport needs to dramatically increase energy efficiency and renewable energy.</p>	<p>Massport is a strong proponent of sustainability as documented in the recently published Logan Airport Sustainability Management Plan. The Terminal E Modernization Project would improve energy efficiency through both operational and design features. The addition of the new gates would allow aircraft to park at the gates instead of waiting on the apron or deplaning passengers at hardstand locations and busing them to the terminal. All gates would be equipped with preconditioned air and 400 Hz power. Aircraft idling would be reduced by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units. The Project would be designed to meet Leadership in Energy and Environmental Design (LEED) Silver or higher requirements which would include many energy conservation measures. (See Chapter 5, Environmental Consequences, for analysis of the greenhouse gas reduction benefits of the proposed energy conservation measures to be included in the Project.)</p> <p>The analysis includes the required three elements: (1) identify a project baseline; (2) calculate estimated greenhouse gas emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline. The analysis shows that compared to the baseline condition, the energy conservation measures and other building and facility design features would result in a reduction of 685 tons of carbon dioxide (CO₂) a year.</p> <p>In addition to Project-specific elements, Massport has a comprehensive Energy Management Program that promotes energy conservation, generation of renewable energy (solar), and purchase of renewable energy as part of the energy mix at Logan Airport. Additional information on this will be available in the Annual Sustainability Reports, to be published annually by Massport.</p>
<p>12.2</p> <p>Although the ENF claims that the proposed project would not increase flights or passenger traffic, it is reasonable to believe that by seeking to "accommodate existing and future demand for international flights," Massport is looking to increase international flights.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers will be accommodated with or without the proposed Project. The proposed Terminal E Modernization Project would serve the anticipated passenger growth more efficiently than if the facilities were not modernized.</p> <p>The Boston region's dynamic economy is the primary driver of current and future air passenger growth at Logan Airport. The Airport serves the seventh largest metropolitan area in the nation. Residents of the Boston metropolitan area have above-average incomes and a high propensity for personal and business-related airline travel. Since no airline maintains a connecting hub operation at the Airport, Logan Airport is principally an origin and destination airport. Future passenger levels are therefore largely determined by underlying market demand and are not dependent on airline connecting passengers that transfer from one flight to another without leaving the terminal area. Air travel demand and airport passenger traffic are strongly linked to the economic characteristics of a region. The Boston service area, encompassing the Greater Boston Metropolitan Area, is a central player in the nation's finance, technology, biotechnology, healthcare, and education sectors. As one of the nation's largest population and economic centers, Boston is a mature market with a high per capita income of \$39,858 (2014) which is 40% higher than the U.S. national average of \$28,555. The region's mature market supports a sustained demand for air travel, particularly those with above-average incomes that have a high propensity for personal and business-related airline travel.</p>
<p>12.3</p> <p>The 2014 Massachusetts Department of Public Health (MDPH) Logan Airport Health Study found that air pollution levels surrounding Logan are higher than in other local urban areas. Children in the high-exposure area were estimated to have three to four times the likelihood of asthma compared with children in the low-exposure area. It is Massport's responsibility to mitigate these effects and reduce the burden of air pollution on area residents.</p>	<p>Massport provides an update on the status and findings of the Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR, which will be published later in 2016. The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

Terminal E ENF Comments and Responses

Environmental League of Massachusetts Continued	
Comment #	Response:
<p>12.4</p> <p>Furthermore, the ENF claims that the proposed addition of parking spaces will decrease GHG emissions because it will limit the number of vehicle trips to and from the airport. However, by adding thousands of parking spaces, more people may opt to drive instead of take transit. This would result in increased GHG emissions.</p>	<p>The Terminal E Modernization Project and Airport-wide parking issues are independent. The proposed parking capacity enhancement strategy that includes additional on-airport spaces would be subject to independent public environmental review under the Massachusetts Environmental Policy Act (MEPA) and/or the National Environmental Policy Act (NEPA). That environmental review would build on the cumulative Airport-wide environmental assessments presented annually through the EDR/ESPR process, as supplemented by data from the Terminal E Modernization Project environmental baseline.</p> <p>Early concepts for the parking capacity project include possible construction of up to 5,000 parking spaces in two or more possible locations, subject to the conditions of the Logan Airport Parking Freeze. Therefore, due to its proximity to the proposed Project in terms of both timeframe for construction and likely physical location, it is evaluated as part of the cumulative impact assessment for relevant categories (ground access and air quality) in Chapter 5, Environmental Consequences.</p>
<p>12.5</p> <p>Instead, Massport should pursue further investment in transit options for travelers to make it as easy and attractive as possible for people to get to the airport via transit.</p>	<p>Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, Airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports for MEPA and for public review since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in the total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR". Projects that require state (MEPA) or federal (NEPA) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The 2015 EDR and 2016 ESPR will continue to report on baseline and cumulative impacts of overall Airport operations.</p>
<p>12.6</p> <p>In addition, whatever parking facilities are approved should employ green infrastructure best practices and incorporate renewable energy.</p>	<p>Massport is a strong proponent of sustainability as documented in the recently published Logan Airport Sustainability Management Plan. The Terminal E Modernization Project would improve energy efficiency through both operational and design features. The addition of the new gates would allow aircraft to park at the gates instead of waiting on the apron or deplaning passengers at hardstand locations and busing them to the terminal. All gates would be equipped with preconditioned air and 400 Hz power. Aircraft idling would be reduced by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units. The Project would be designed to meet LEED Silver or higher requirements which would include many energy conservation measures. (See Chapter 5, Environmental Consequences, Section 5.5.5.1, MEPA EIR Greenhouse Gas Emissions Policy, for analysis of the greenhouse gas reduction benefits of the proposed energy conservation measures to be included in the Project.)</p> <p>In addition to Project-specific elements, Massport has a comprehensive Energy Management Program that promotes energy conservation, generation of renewable energy (solar), and purchase of renewable energy as part of the energy mix at Logan Airport. Additional information on this will be available in the Annual Sustainability Reports, to be published annually by Massport.</p>
<p>12.7</p> <p>We support Massport's efforts to promote passenger connectivity. The proposed construction of the first-ever direct passenger connection from the MBTA Blue Line Airport Station to Terminal E would significantly improve efficiency both for passengers and the Terminal itself. The result would be decreased vehicle emissions and improved access to public transportation Efforts like these should be replicated throughout Logan in the interest of reducing miles driven.</p>	<p>A key feature of the Terminal E Modernization Project is the construction of a direct weather-protected connection from the terminal to the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station. This effort would provide another convenient offering to Airport passengers.</p>



December 9, 2015

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Ste 900
Boston, MA 02114

Attn: Page Czepiga, EEA

Re: Boston-Logan International Airport Terminal E Modernization Project

Dear Secretary Beaton,

On behalf of The Boston Harbor Association, thank you for the opportunity to comment on the Boston-Logan International Airport Terminal E Modernization Project Environmental Notification Form submitted on November 2, 2015.

As of 2014, Logan International Airport's Terminal E served 4.9 million international passengers. Demand is currently projected to increase to 6 million passengers by 2022. To accommodate this demand, the Terminal E modernization project will add between five and seven gates, passenger holdrooms, concourses, concessions, and passenger processing areas. The additions and enhancements will add 500,000-700,000 square feet in terminal structures for a total area of approximately 799,000 square feet. The project is divided into two phases with an expected completion date of 2017.

We understand Massport plans to conduct a comprehensive environmental assessment as requested by the Federal Aviation Administration and required under the National Environmental Policy Act.

We would like the NEPA Environmental Assessment to include the following:

- Opportunities for decreased energy use by connecting Terminal E with water transportation as well as land-based transit.
- Mitigation of community impacts from Terminal E enhancements and daily airport operations through on-going subsidies for new and enhanced water transportation serving East Boston, Winthrop and other inner harbor destinations.
- Measures to ensure that terminal E enhancements are climate resilient, including able to withstand salt-water inundation without system failures (e.g. unwanted toxic discharge of toxins such as jet fuel into Boston Harbor).

Our comments on the Environmental Notification Form follow.

The Boston Harbor Association | 374 Congress Street, Suite 307 | Boston, MA 02210
617-482-1722 | www.tbha.org

Existing Conditions

Under existing conditions, if there are no available gates, international aircrafts landing at Logan Airport are redirected to the North Cargo Area to let passengers deplane via mobile stairs. Aircraft idling and North Cargo Area drop-offs encourage inefficient use of energy and create additional noise disturbances to the adjacent community (e.g. busing to and from terminal, engine idling noise, and using aircraft engines to provide electricity to cabins). In its present configuration, the North Cargo area is closer to the East Boston neighborhood than the existing terminal and does not include a noise barrier. More frequent and increased international deplaning procedures would imply additional disturbances to the surrounding residents of East Boston.

For this reason, we support the modernization of Terminal E to efficiently accommodate passenger demands, minimize ongoing disturbances to the adjacent community, enhance access roadways and curbs, and act as a noise barrier for the adjacent neighborhood and Memorial Stadium Park.

Transportation

The terminal E modernization project will create the first direct passenger connection from MBTA Blue Line Airport Station to Terminal E. TBHA strongly supports Massport's efforts to actively support public transit usage. We are especially supportive of the free inbound Silver Line service from Logan and the robust "Logan Express" bus system, including the "Logan Express" service connecting visitors and residents in the Back Bay with convenient service to the airport.

The anticipated growth in international travel, the main focus of this project, will require additional and more effective means to move millions more passengers each year. We know Massport will work with adjacent communities to develop mitigation efforts that directly address increased visitation to Logan International.

It is essential for Massport to evaluate the benefits of water transportation to both address and enhance travel options for passengers and residents. This is beneficial not only for incoming travelers but also for homecoming residents. Indeed, Massport should consider enhancing Boston Harbor's water transportation system as the primary mitigation measure of this and future airport enhancements. This might range from ADA-compliant landside facilities to subsidized routes to Winthrop. East Boston and other inner harbor destinations. Investing in a more robust water transportation system is an ideal opportunity to better serve residents and visitors and highlight Boston's harbor and waterfront renaissance.

We commend Massport for its continued commitment to the improvement of public transportation access to and from Logan Airport. We look forward to reviewing a more detailed breakdown of the operation and management of the new public transportation initiatives planned for Terminal E and the first direct passenger connection to the MBTA Blue Line Station.

Construction Mitigation

During construction, Massport does not anticipate off-airport impacts or relocations. As proposed, all impacted facilities will be replaced or relocated to other on-airport locations. This is welcome news for residents of East Boston who continue to feel the immediate negative impacts of daily airport operations.

We ask that best practices be implemented to minimize construction impacts to the East Boston community during both Phase I and II of construction. Depending on the anticipated construction activities, increased traffic is likely both in size and frequency of vehicles entering and leaving the site. We expect that delivery of construction materials will also affect the amount of trucks traveling through the surrounding community. We ask that Massport consider a comprehensive traffic plan to minimize traffic flow interference from construction activities (e.g. advanced public notice of road closures and shifting operations affecting traffic to off-peak hours).

13.8

13.9

Thank you again for the opportunity to comment. We look forward to reviewing the results of Massport's environmental assessment requested by the Federal Aviation Administration and required under the National Environmental Policy Act.

Sincerely,



Jill Valdes Horwood
Waterfront Policy Analyst



Julie Wormser
Executive Director

Terminal E ENF Comments and Responses

Boston Harbor Association	
Comment #	Response:
<p>13.1</p> <p>We would like the NEPA Environmental Assessment to include the following: Opportunities for decreased energy use by connecting Terminal E with water transportation as well as land-based transit.</p>	<p>In addition to the Massachusetts Bay Transportation Authority (MBTA) Blue Line connector, Terminal E would continue to be connected to the water shuttle dock via regular shuttle buses. Massport is committed to a robust high-occupancy vehicle program including water transportation, Logan Express, and other services. Massport will continue to provide shuttle bus access from the dock to the terminals to serve incoming water taxis and shuttles. In addition, Massport is currently studying the origin information of its passengers - via information obtained from the 2013 and 2016 air passenger surveys - to assess where and which modes (including water transportation) would benefit the most from improvements to the transportation system.</p>
<p>13.2</p> <p>We would like the NEPA Environmental Assessment to include the following: Mitigation of community impacts from Terminal E enhancements and daily airport operations through ongoing subsidies for new and enhanced water transportation serving East Boston, Winthrop and other inner harbor destinations.</p>	<p>Massport is committed to a robust high-occupancy vehicle program including water transportation, Logan Express, and other services. Massport will continue to provide shuttle bus access from the dock to the terminals to serve incoming water taxis and shuttles. In addition, Massport is currently studying the origin information of its passengers - via information obtained from the 2013 and 2016 air passenger surveys - to assess where and which modes (including water transportation) would benefit the most from improvements to the transportation system.</p>
<p>13.3</p> <p>We would like the NEPA Environmental Assessment to include the following: Measures to ensure that terminal E enhancements are climate resilient, including able to withstand salt-water inundation without system failures (e.g. unwanted toxic discharge of toxins such as jet fuel into Boston Harbor).</p>	<p>Massport is a leading public transportation agency in addressing and preparing for the effects of climate change. In the comprehensive Disaster and Infrastructure Resiliency Planning study, Massport identified various flood levels and scenarios likely to occur during storm events. This led to the development of Massport's Floodproofing Design Guidelines which prepares Massport for extreme flooding events. For more information visit: https://www.massport.com/media/323694/Massport-Floodproofing-Design-Guide-Revised-April-2015.pdf. These guidelines would be followed in the design process for the terminal facility and includes consideration of salt-water flooding.</p>
<p>13.4</p> <p>For this reason, we support the modernization of Terminal E to efficiently accommodate passenger demands, minimize ongoing disturbances to the adjacent community, enhance access roadways and curbs, and act as a noise barrier for the adjacent neighborhood and Memorial Stadium Park.</p>	<p>Massport acknowledges Boston Harbor Association's support of the Project and intends to implement the Project so that the planned benefits of noise reduction, air quality improvement, greenhouse gas reduction, improved roadway/curb efficiency, and transit connectivity are realized.</p>
<p>13.5</p> <p>The anticipated growth in international travel, the main focus of this project, will require additional and more effective means to move millions more passengers each year. We know Massport will work with adjacent communities to develop mitigation efforts that directly address increased visitation to Logan International.</p>	<p>As documented in the 2014 Environmental Data Report (EDR) and previous EDRs and Environmental Status and Planning Reports (ESPRs), Massport continues to implement a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately operated scheduled buses and shared-ride vans.</p>
<p>13.6</p> <p>It is essential for Massport to evaluate the benefits of water transportation to both address and enhance travel options for passengers and residents.</p>	<p>Massport is committed to a robust high-occupancy vehicle program including water transportation, Logan Express, and other services. Massport will continue to provide shuttle bus access from the dock to the terminals to serve incoming water taxis and shuttles. In addition, Massport is currently studying the origin information of its passengers - via information obtained from the 2013 and 2016 air passenger surveys - to assess where and which modes (including water transportation) would benefit the most from improvements to the transportation system.</p>

Terminal E ENF Comments and Responses

Boston Harbor Association Continued	
Comment #	Response:
<p>13.7</p> <p>Indeed, Massport should consider enhancing Boston Harbor's water transportation system as the primary mitigation measure of this and future airport enhancements. This might range from ADA-compliant landside facilities to subsidized routes to Winthrop, East Boston and other inner harbor destinations. Investing in a more robust water transportation system is an ideal opportunity to better serve residents and visitors and highlight Boston's harbor and waterfront renaissance.</p>	<p>Massport is committed to a robust high-occupancy vehicle program including water transportation, Logan Express, and other services. Massport will continue to provide shuttle bus access from the dock to the terminals to serve incoming water taxis and shuttles. In addition, Massport is currently studying the origin information of its passengers - via information obtained from the 2013 and 2016 air passenger surveys - to assess where and which modes (including water transportation) would benefit the most from improvements to the transportation system.</p>
<p>13.8</p> <p>We ask that best practices be implemented to minimize construction impacts to the East Boston community during both Phase I and II of construction. Depending on the anticipated construction activities, increased traffic is likely both in size and frequency of vehicles entering and leaving the site.</p>	<p>Massport has a comprehensive construction mitigation program in place that addresses ground access, dedicated truck routes, designated airport gateways, as well as short-term air quality, water quality, hazardous waste, and noise impact mitigation. Refer to Chapter 6, Beneficial Measures/Mitigation, for additional information.</p>
<p>13.9</p> <p>We expect that delivery of construction materials will also affect the amount of trucks traveling through the surrounding community. We ask that Massport consider a comprehensive traffic plan to minimize traffic flow interference from construction activities (e.g. advanced public notice of road closures and shifting operations affecting traffic to off-peak hours).</p>	<p>For construction projects, Massport develops a comprehensive traffic mitigation plan (see Chapter 6, Beneficial Measures/Mitigation) that is included in construction specifications. It includes a notifications and a construction hot-line.</p>

December 9, 2015

The Honorable Matthew Beaton, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street Suite 900
Boston, MA 02114

Re: Boston-Logan International Airport Terminal E Modernization Project – EEA #15434

Dear Secretary Beaton,

On behalf of Airport Impact Relief, Incorporated (AIR, Inc.), I am submitting this comment letter on the Environmental Notification Form (ENF) for the above-referenced proposal to expand Terminal E at Logan Airport. AIR, Inc. has the following concerns about the environmental and health effects of this expansion on the community and its residents, and respectfully requests that an Environmental Impact Report (EIR) be prepared to address them:

Transportation Impacts

The Massachusetts Port Authority (Massport) has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The ENF projects that this expansion will not create any additional vehicle trips at all, but instead is designed to meet the demand that is anticipated to occur whether or not the project is built. ENF, page 3. The ENF simply states that “[i]n the last five years, international traffic at Logan Airport grew at unprecedented rates and this trend is projected to continue.” ENF, page 4. However, much of this anticipated growth in international travel is due to the fact that Massport has been remarkably successful in the past several years in attracting, through incentives that by their own calculations add up to over \$5.6 million dollars, additional international carriers to Logan Airport. Logan has signed up five new international airlines in the past three years, courting carriers from around the globe. See, www.massport.com/2014/03/10/logan-new-international-airlines. They have added direct routes to Israel, Costa Rica, Beijing, Dubai, Istanbul and others using incentives such as offering free advertising for the airlines and temporarily waiving landing fees. The ENF does not provide credible evidence that the proposed terminal expansion will not produce additional induced demand for vehicle trips and parking. It stands to reason that, as was the case with the Big Dig, if the terminal's capacity is increased at the same time as new carriers are being wooed, demand for parking at the airport will increase along with vehicle trips. An EIR should include an analysis of this increased demand as well as its impact on the surrounding neighborhoods.

Further analysis is also warranted to determine the impact that this project will have on the public transportation infrastructure. The ENF suggests that more people will arrive at the airport via the MBTA because of a new direct connection between Terminal E and the Airport Station on the Blue Line. As the MBTA is already experiencing service problems, this anticipated extra burden on the system should be evaluated. Enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan may be necessary to meet the extra demand associated with this project. An EIR should be required to evaluate how to meet this additional demand for public transportation while maintaining or improving current levels of service.

Finally, in public meetings about this project, Massport has suggested that they will likely need request that the current parking freeze be lifted and add an additional five thousand parking spaces on airport property. Although Massport has not explicitly linked the current project with the anticipated future need to lift the parking freeze, their 2014 Environmental Data Report (2014 EDR) attributes much of their future growth to the international market. Because this project will get rid of sixty existing spaces as well as the cell phone lot, and because the additional anticipated demand for parking spots at the airport can be linked primarily to the anticipated growth in the international air travel market, MEPA should regard these projects together, and require a holistic evaluation of parking needs on site. Related projects such as these should not be segmented and evaluated in a piecemeal fashion. An EIR should be required to evaluate parking needs on site that will result largely from increased international passenger demand.

14.1

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14.4

14.5

Failure to Consider Alternatives

An EIR should be required so that viable regional transportation alternatives can be considered. Community residents have promoted regional air travel planning for over thirty years. Yet now, despite the negative health impacts caused by Logan Airport pollution found by the recently completed Department of Public Health study, Massport's planners are attempting to build their way to success; looking only at on-airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs. The ENF only considers three alternatives to the project, with no consideration given to utilizing other airports or other forms of transportation to meet regional needs. This should be rectified by requiring a more regional transportation analysis in an EIR.

14.6

Health / Pollution

The recently released Logan Airport Health Study¹ (done by the Massachusetts Department of Public Health – Bureau of Environmental Health) found that pollution from Logan Airport causes an increased risk of childhood asthma and chronic obstructive pulmonary disease. AIR, Inc. has commissioned a review of this health study and found that other studies of airport impacts on public health have found even greater associations between airport pollution and disease. It is clear that more study needs to be done to assess the impact of Logan's operations on public health.

14.7

This project, responding to an increased induced demand for international travel, should be studied for its contribution to adverse public health outcomes, particularly in light of the impending request to lift the parking freeze. Massport's own data (reported in the 2014 EDR) shows increases in particulate matter, VOCs and NOx emissions in 2014. Because increases in international air travel are expected to continue to provide the majority of Logan's growth over the next several years, it is important to understand the health impacts of such growth on the surrounding communities. In order to fully understand the impact of airport pollution on these communities, a comprehensive monitoring program should be put in place and the data made available to researchers across the state. An EIR should include a proposed monitoring and evaluation program that would support the protection of public health.

14.8

Thank you for the opportunity to submit this comment letter. If you have any questions or concerns, please feel free to contact me at aaron.toffler@gmail.com.

Very truly yours,

Aaron M. Toffler, Esq.
Airport Impact Relief, Inc.

cc: Stewart Daltzell, Deputy Director, Environmental Planning and Permitting, Massport

¹ <http://www.mass.gov/eohhs/docs/dph/environmental/investigations/logan-airport-health-study-executive-summary.pdf>

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Terminal E ENF Comments and Responses

Airport Impact Relief, Inc.	
Comment #	Comment:
14.1	<p>The ENF projects that this expansion will not create any additional vehicle trips at all, but instead is designed to meet the demand that is anticipated to occur whether or not the project is built. ENF, page 3. [...] The ENF does not provide credible evidence that the proposed terminal expansion will not produce additional induced demand for vehicle trips and parking. It stands to reason that, as was the case with the Big Dig, if the terminal's capacity is increased at the same time as new carriers are being wooed, demand for parking at the airport will increase along with vehicle trips. An EIR should include an analysis of this increased demand as well as its impact on the surrounding neighborhoods.</p>
14.2	<p>Further analysis is also warranted to determine the impact that this project will have on the public transportation infrastructure. The ENF suggests that more people will arrive at the airport via the MBTA because of a new direct connection between Terminal E and the Airport Station on the Blue Line. As the MBTA is already experiencing service problems, this anticipated extra burden on the system should be evaluated.</p>
	<p>Response:</p> <p>As described in Chapter 2, Purpose and Need, the forecast demand for international traffic exists regardless of the proposed improvements to Terminal E. The same number of passengers are anticipated to use Logan Airport with or without the Terminal E Modernization Project. Proposed capital improvements were not taken into account by the forecast team in developing the forecasts.</p> <p>International passenger activity levels have grown significantly since the International Terminal was constructed in 1974. When Massport completed the original terminal in 1974, the Airport served 1.4 million international passengers per year with 12 gates. Massport enhanced internal terminal passenger facilities as part of the Terminal E Modifications Project in 1997. In 2002, Massport began work on the International Gateway Project, which proposed to expand and upgrade the terminal to provide better service to international passengers. This expansion project included three new gates that were approved and never built due to the economic climate post-September 11, 2001. At the time Massport planned the International Gateway Project, Terminal E served approximately 3.6 million international passengers. In 2015, Terminal E served over 5.5 million international passengers still out of the same original 12 gates, but with decreased efficiency, resulting in air quality impacts and adverse impacts to the passenger experience.</p> <p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers will be accommodated with or without the proposed Project and the parking demand will be the same.</p> <p>Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line. A review of ridership and transit capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p> <p>Massport continues to implement a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans.</p>

Terminal E ENF Comments and Responses

Airport Impact Relief, Inc. Continued	
Comment #	Response:
14.3	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by the economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers will be accommodated with or without the proposed Project and the parking demand will be the same.</p> <p>Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the MBTA Blue Line. A review of ridership and trainset capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available. The Proposed Action is not anticipated to result in an increased parking demand. A separate project is evaluating overall on-airport parking needs and this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) assesses the impacts of this action both with and without increased parking in place. As documented in the 2014 Environmental Data Report (EDR) and previous EDRs and Environmental Status and Planning Reports (ESPRs), Massport implements a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans and limousine services. Massport continues its partnership with the MBTA to offer free boardings of the Silver Line bus at the Airport. The promising results of reduced dwell times and faster travel times through the terminal area led Massport to extend the free-fare program indefinitely. Next-bus arrival digital dynamic signs have been added to the terminal curb bus stops to now include Airport Shuttle, Blue Line/Rental Car, and Logan Express (in addition to the Silver Line signage, which was previously installed). Massport continues to improve wayfinding for ground transportation (with an emphasis on public transportation within the terminals) resulting in enhanced directional signs in the terminals for arriving air passengers.</p> <p>Massport plans to continue with its extensive ground access transportation high-occupancy vehicle enhancement strategy to maintain its high air passenger high-occupancy vehicle mode share and to accommodate future growth. For additional information refer to the 2014 EDR, Chapter 5, Ground Access to and from Logan Airport. Massport will continue to work with impacted communities to address the effects of increased activity at Logan Airport.</p>
14.3 Continued	
14.4	<p>Because this project will get rid of sixty existing spaces as well as the cell phone lot, and because the additional anticipated demand for parking spots at the airport can be linked primarily to the anticipated growth in the international air travel market, MEPA should regard these projects together, and require a holistic evaluation of parking needs on site. Related projects such as these should not be segmented and evaluated in a piecemeal fashion.</p>
14.5	<p>An EIR should be required to evaluate parking needs on site that will result largely from increased international passenger demand.</p> <p>The Terminal E Modernization Project and Massport's need to address Airport-wide parking issues are independent. Any additional parking is a separate project from the Terminal E Modernization Project and subject to an amendment to the Logan Airport Parking Freeze. The proposed Project does not require relocation of the Cell Phone Lot. Available parking supply in the immediate vicinity of Terminal E is primarily impacted by the relocation of taxi and limousine loading areas, which are anticipated to occur prior to commencement of the Terminal E Modernization Project. As part of that effort, replacement parking in front of existing Terminal E will be provided. See Chapter 5, Environmental Consequences, Section 5.5.2, Surface Transportation, for additional information.</p> <p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers will be accommodated with or without the proposed Project and the parking demand will be the same.</p> <p>The Terminal E Modernization Project and Massport's need to address Airport-wide parking issues are independent. Any additional parking is a separate project from the Terminal E Modernization Project and subject to an amendment to the Logan Airport Parking Freeze. The proposed Project does not require relocation of the Cell Phone Lot.</p>

Terminal E ENF Comments and Responses

Airport Impact Relief, Inc. Continued	
Comment #	Response:
<p>14.6</p> <p>The ENF only considers three alternatives to the project, with no consideration given to utilizing other airports or other forms of transportation to meet regional needs. This should be rectified by requiring a more regional transportation analysis in an EIR.</p>	<p>Logan Airport serves as New England's primary domestic and international airport plays, a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Chapter 3, Alternatives and Proposed Action, reviews operational effects. Massport has considered the provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E.</p> <p>Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports.</p> <p>Refer to the 2014 EDR, Chapter 4, Regional Transportation, for additional information on airports in the New England region. Annual EDRs provide ongoing context, trends, updates, and information on regional projects.</p>
<p>14.6 Continued</p>	
<p>14.7</p> <p>This project, responding to an increased induced demand for international travel, should be studied for its contribution to adverse public health outcomes, particularly in light of the impending request to lift the parking freeze. Massport's own data (reported in the 2014 EDR) shows increases in particulate matter, VOCs and NOx emissions in 2014.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Since the same number of passengers will be accommodated with or without the proposed Project, there will be no induced demand as a result of the Project.</p> <p>The analysis demonstrates that the Terminal E Modernization Project would improve noise conditions through the construction of the terminal extension which acts as an effective noise barrier between the Airport and Stadium Park and the East Boston community. Air quality conditions would also improve through reducing aircraft idling by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units.</p>

Terminal E ENF Comments and Responses

Airport Impact Relief, Inc. Continued	
Comment #	Response:
14.8	<p>An EIR should include a proposed monitoring and evaluation program that would support the protection of public health.</p> <p>Massport provides an update on the status and findings of the Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR, which will be published later in 2016. The Terminal E Modernization Project is being design to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place. As required by the National Environmental Policy Act (NEPA), Massport would monitor the implementation of mitigation measures to ensure their proper implementation.</p>

December 2, 2015

Michael Angelini, Esq.

Chairman, Board of Directors

Massachusetts Port Authority

1 Harborside Drive

East Boston, MA 02128

Respectfully,

Eagle Hill Civic Association

Jeffries Point Neighborhood Association

Dear Chairman Angelini:

The undersigned East Boston-based organizations and individuals write this letter in opposition to a proposed expansion that includes the addition of 5,000 new parking spaces at Logan Airport. The addition of so many new spaces will certainly increase car congestion and pollution in our neighborhood, as airport customers will further be incentivized to drive to the airport rather than utilize shuttles or other public transportation options. As longtime neighborhood activist Fran Riley put it in a recent letter to our elected officials, the current expansion proposal "is at best a serious threat to all East Boston residents and our health."

As you know, the history of Massport has been one of providing economic benefit for the Commonwealth at the direct expense of the health and well-being of East Boston and surrounding residents. As CEO Tom Glynn and media advertisements in East Boston have noted, the reduction in airport impacts has reduced the environmental and health burden on our families. However, we're puzzled as to how Mr. Glynn's team could argue for increasing those impacts again by expanding airport services. Massport's expansion proposal is a nonstarter with our neighborhood and no promise of monetary reparations will change our concern for the health and well-being of our families. East Boston will not abide a return to increasing negative impacts of the airport.

Massport is disingenuous in leading its community discussion on airport expansion with talk of further "mitigation." Instead, the residents of East Boston demand clean air for our families, streets that are safe and free of airport congestion, and quiet homes free of increased airport noise.

If Massport wants to better serve the transportation needs of its customers, we strongly recommend the authority partner with the MBTA to expand Blue Line service to Lynn; to aid in the construction of a Blue Line-Red Line connector; and to continue the expansion of the Silver Line to the airport. Public transit is a public benefit that would help both airport customers and residents alike. Community residents stand ready to partner with Massport to advocate for these much needed improvements.

We are working with elected officials to ensure that the interests of East Boston's residents are protected, and we call on Massport to rescind this tone-deaf expansion proposal – not turn back the clock in airport-neighborhood relations.

15.1

Cc: Thomas P. Glynn, CEO Massport
Mayor of Boston Martin J. Walsh
District 1 City Councilor Salvatore LaMattina
Senator Anthony Petruccelli
Representative Adrian Madaro

15.2

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Terminal E ENF Comments and Responses

Eagle Hill Civic Association, Jeffries Point Neighborhood Association		
Comment #	Comment:	Response:
15.1	The addition of so many new spaces will certainly increase car congestion and pollution in our neighborhood, as airport customers will further be incentivized to drive to the airport rather than utilize shuttles or other public transportation options.	There are no increases in parking spaces related to the Proposed Action. The Terminal E Modernization Project and Massport's need to address Airport-wide parking issues are independent. Any additional parking is a separate project from the Terminal E Modernization Project and subject to an amendment to the Logan Airport Parking Freeze. Massport will continue to support and enhance its comprehensive high-occupancy vehicle strategy. See Chapter 5, Ground Access to and from Logan Airport, in the 2014 Environmental Data Report (EDR).
15.2	If Massport wants to better serve the transportation needs of its customers, we strongly recommend the authority partner with the MBTA to expand Blue Line Service to Lynn; to aid in the construction of the Blue Line - Red Line connector; and to continue the expansion of the Silver Line to the airport.	<p>As documented in the 2014 EDR and previous EDRs and Environmental Status and Planning Reports (ESPRs), Massport implements a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free Massachusetts Bay Transportation Authority (MBTA) Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curbside areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans and limousine services.</p> <p>Massport continues its partnership with the MBTA to offer free boardings of the Silver Line bus at the Airport. The promising results of reduced dwell times and faster travel times through the terminal area led Massport to extend the free-fare program indefinitely. Next-bus arrival digital dynamic signs have been added to the terminal curb bus stops to now include Airport Shuttle, Blue Line/Rental Car, and Logan Express (in addition to the Silver Line signage which was previously installed).</p> <p>Massport continues to improve wayfinding for ground transportation (with an emphasis on public transportation) within the terminals resulting in enhanced directional signs in the terminals for arriving air passengers. Massport plans to continue with its extensive ground access transportation high-occupancy vehicle enhancement strategy to maintain its high air passenger high-occupancy vehicle mode share and to accommodate future growth.</p> <p>Massport provides annual updates through the EDRs and ESPRs. The most recent update is the 2014 EDR. For additional information refer to the 2014 EDR, Chapter 5, Ground Access to and from Logan Airport.</p>

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Czepiga, Page (EEA)

From: Alexis Pumphrey [alexispumphrey@msn.com]
Sent: Tuesday, December 08, 2015 10:11 PM
To: Czepiga, Page (EEA)
Cc: salvatore.lamattina@boston.gov; Anthony.Petrucelli@masenate.gov; Adrian.Madaro@mahouse.gov
Subject: ENF Terminal E MEPA Response Letter

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

My husband and I bought our house on Eagle Hill in November of 2009. We would have occasional days of airplanes taking off overhead the first few years, but it was bearable and understandable living so close to the airport. However, since the RNA V satellite navigation system was implemented at Logan in 2013, there are some days where the constant flights overhead are verging on water torture. This past Friday, December 4, 2015, I tallied no less than 180 planes that flew in a straight line over house in a 9-hour period (2:47pm-11:45pm). They can start as early as 5am and end after 2am that same day. I truly can't imagine the misery that would be caused by the further expansion of Logan, including Terminal E.

Yes, the RNAV system may be saving on fuel use, which is good for the environment. However, what about the people that are being constantly bombarded by that same jet fuel each time a plane passes overhead? We rarely ever open our windows anymore for fear of noise and contaminants in the air. And it's not only the planes- there's also the auto traffic that will increase with further expansion, including the cabs that still use Meridian and Condor streets to get back to Boston from Eastie to avoid the toll charge. I know I'm not alone in feeling as though the people of East Boston have been forgotten about in all these changes at Logan.

I ask you to please consider the community that surrounds the airport and the affect that the expansion of Terminal E would have on it.

Alexis Pumphrey
231 Brooks Street
Boston, MA 02128
617-418-5598

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Terminal E ENF Comments and Responses

Alexis Pumphrey		
Comment #	Comment:	Response:
16.1	<p>Yes, the RNAV system may be saving on fuel use, which is good for the environment. However, what about the people that are being constantly bombarded by that same jet fuel each time a plane passes overhead? We rarely ever open our windows anymore for fear of noise and contaminants in the air. And it's not only the planes- there's also the auto traffic that will increase with further expansion, including the cabs that still use Meridian and Condor streets to get back to Boston from Eastie to avoid the toll charge. I know I'm not alone in feeling as though the people of East Boston have been forgotten about in all these changes at Logan.</p>	<p>The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impacts of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Detailed information from the studies can be found at: http://www.bostonoverflightnoisestudy.com. That study continues to be an open forum for those discussions.</p> <p>Massport has a robust high-occupancy vehicle program and will continue to promote alternative ways for Airport users to access the Airport through high-occupancy vehicle transit and other shared modes of transportation.</p>

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Czepiga, Page (EEA)

From: Ally [aes.mks@gmail.com]
Sent: Tuesday, December 08, 2015 11:20 AM
To: Czepiga, Page (EEA)
Cc: salvatore.lamattina@boston.gov; anthony.petrucci@masenate.gov; adrian.nadaro@mahouse.gov
Subject: Opposition to Terminal E Expansion at Logan Airport

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

In addition to the vast environmental impacts of this expansion, I have concerns about such a large project being green-lighted with virtually zero opportunity for a dialogue from abutting residents of East Boston, Winthrop and beyond. I am raising my family here and this will mean a large quality of life deficit for us. Projects like this, done with little transparency or regard to quality of life implications, make me second guess continuing the nearly two decade investment I've placed into my community here in East Boston.

I am urging you, on behalf of my family and the thousands of others who will be affected by this expansion, to further study the health, environmental and many other implications of these projects. Furthermore, I plead that you do more due diligence to seeking out alternatives to this expansion, such as expanding other regional air ports that are not already bearing the burden of Logan's tiny footprint and close proximity to residential areas.

17.1

17.2

Thank you in advance for what I can only hope is your careful consideration to this matter.

Allyson and Michael Simons

116 Marginal Street #2, East Boston MA 02128

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Terminal E ENF Comments and Responses

Allyson and Michael Simons	
Comment #	Response:
17.1	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
17.2	<p>Logan Airport serves as New England's primary domestic and international airport plays, a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Chapter 3, Alternatives and Proposed Action, reviews operational effects. Massport has considered the provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E.</p>
17.2 Continued	<p>Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports.</p> <p>Refer to the 2014 EDR, Chapter 4, Regional Transportation, for additional information on airports in the New England region. Annual EDRs provide ongoing context, trends, updates, and information on regional projects.</p>

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Czepiga, Page (EEA)

From: Brian Gannon (briangannon.j@gmail.com)
Sent: Tuesday, December 08, 2015 2:17 PM
To: Czepiga, Page (EEA)
Subject: Logan Terminal E Expansion

MEPA,

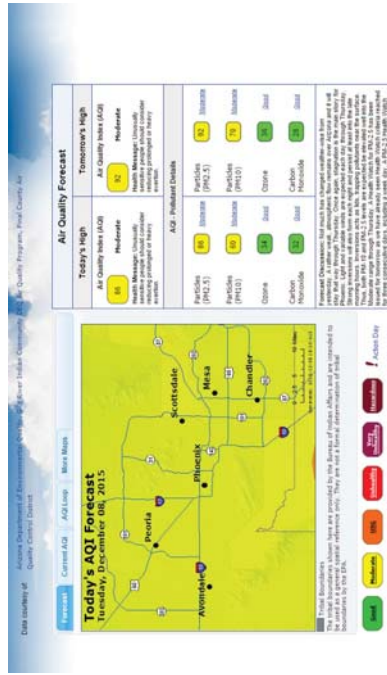
I am writing to you with regards to the proposal to expand terminal E at Logan airport. It is irresponsible to support any expansion or increase in passenger volume at Logan until we have consistent online monitoring of levels of pollution and have all the data on the current exposure. I have a 1 year old daughter and no recent study can show me how much air pollution she is currently being exposed to now or during my wife's pregnancy. From the recent study (although flawed and incomplete) we do know that at current levels cases of childhood asthma are much higher for those of us who live close to the airport. I live at 198 Everett Street, my wife, my daughter and I can smell exhaust from the airplanes and vehicles heading to the CONRAC along the Maverick street wall. This recent expansion at the CONRAC center is a great example of a flawed design where neighborhood health concerns are not considered. Rather than using the internal roads at the airport to deliver cars into the rental building, vehicles are forced to drive an additional 1/2 mile along the maverick gate pushing small particle pollution into Jeffries Point. I have asked several times for raw data from the air monitors that exist but are apparently rarely turned on but I have yet to receive the data as requested. Until current exposure is apparent and risks to residents completely transparent there should be no further expansion. If we had something like (See Link Below) monitoring air quality in our neighborhood I and my neighbors would have accurate understanding of what we are exposed to. Additionally we can directly hold Massport accountable to excessive levels of pollution and force their hand to reductions. Daily, hourly and real time air quality should be shared with residents. See attached link for an example. http://airnow.gov/index.cfm?action=airnow.local_city&cityid=33

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18.4



Regards,

Brian Gannon
198 Everett Street East Boston MA 02128

EA/DEIR

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Terminal E ENF Comments and Responses

Brian Gannon	
Comment #	Response:
18.1	<p>Comment: I am writing to you with regards to the proposal to expand terminal E at Logan airport. It is irresponsible to support any expansion or increase in passenger volume at Logan until we have consistent online monitoring of levels of pollution and have all the data on the current exposure.</p> <p>Response: The Logan Airport Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) provide two decades of documentation on the air quality effects from activity at Logan Airport. The EDRs and ESPRs report on carbon monoxide (CO), nitrogen oxide (NO_x), volatile organic compounds (VOCs), and particulate matter (PM_{2.5} and PM₁₀); greenhouse gas emissions are also reported. The 2014 EDR provides air quality data in Chapter 7, Air Quality/Emissions Reduction. In addition, MassDEP provides current daily, and annual air quality reporting on its website at: http://www.mass.gov/eea/agencies/massdep/air/quality/</p>
18.2	<p>Comment: I have asked several times for raw data from the air monitors that exist but are apparently rarely turned on but I have yet to receive the data as requested.</p> <p>Response: The Logan Airport EDRs and ESPRs provide two decades of documentation on air quality data from activity at Logan Airport. The 2014 EDR provides air quality data in Chapter 7, Air Quality/Emissions Reduction. In addition, MassDEP conducts continuous air quality monitoring and forecasting. This information is available at http://www.mass.gov/eea/agencies/massdep/air/</p>
18.3	<p>Comment: Until current exposure is apparent and risks to residents completely transparent there should be no further expansion. If we had something like (See Link Below) monitoring air quality in our neighborhood, my neighbors and I would have accurate understanding of what we are exposed to.</p> <p>Response: MassDEP provides current, daily, and annual air quality reporting on its website: http://www.mass.gov/eea/agencies/massdep/air/quality/</p>
18.4	<p>Comment: Additionally we can directly hold Massport accountable to excessive levels of pollution and force their hand to reductions. Daily, hourly and real time air quality should be shared with residents.</p> <p>Response: Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports for the Massachusetts Environmental Policy Act (MEPA) and for public review since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR." Projects that require state (MEPA) or federal (National Environmental Policy Act (NEPA)) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The 2015 EDR and 2016 ESPR will continue to report on baseline and cumulative impacts of overall Airport operations.</p>

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Czepiga, Page (EEA)

From: David Juengst (david.juengst@gmail.com)
Sent: Wednesday, December 09, 2015 12:34 PM
To: Czepiga, Page (EEA)
Cc: salvatore.iammatina@boston.gov; anthony.petrucelli@masenate.gov; adrian.madaro@mahouse.gov
Subject: Comment Letter - Terminal E Expansion at Logan Airport

Mr. Matthew Beaton

Executive Office of Energy and Environmental Affairs

Attn: Page Czepiga, EEA No. 15434

100 Cambridge Street, Suite 900

Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, we have concerns as to how this expansion will impact the people of East Boston:

Health concerns - East Boston Memorial Park

There is a significant health risk to living in East Boston as a result of the airport. As I know my neighbors have shared with you the health statistics regarding childhood asthma and heart disease. We will choose to bring up the potential impact the expansion will have on those who use East Boston Memorial Park instead. If the expansion moves forward, the expanded terminal will now be less than 100 yards from East Boston Memorial Park. This will mean a closer proximity to the aircraft exhaust and fumes from jet fuel. People in that area already complain about the smell of exhaust. The expansion will only make it worse. During the summer months, East Boston Memorial Park is constantly used by East Boston's youth sports. On any given night, there are upwards of 1000 people (mostly children) at the park. The terminal expansion will likely increase their exposure to toxic fumes and therefore increase their risk of health problems.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The Airport already causes issues for the residents of East Boston through the increase in traffic, car pollution, reduction in walking access, and the increase in noise. The project ENF does not address how this expansion will impact existing traffic issues. With Massport's projected expansion of

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passengers, it can only be assumed that this will increase parking needs as well as increase needed trips to the airport. Aside from parking and volume of traffic, their needs to be a study done on the current road/tunnel infrastructure to determine if they will be able to handle an increase in traffic volumes.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%. MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Noise

Even while Massport sends out marketing teams in search of more international business for Logan; and even as they will have doled out \$5.6 million over the next few years in incentives to bring business here (Adding to what they predict will be a 30% increase in flights over the next 14 years), these same Port Authority officials claim that these flights would come whether or not they built a new terminal. Thus the Terminal E Modernization ENF repeatedly concludes wishful 'findings of no significant impact' (FONSI) in regards to the project. Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.

Thank you for your time,

David and Carissa Juengst

684 Bennington St

Boston MA 02128

413-374-5889

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Terminal E ENF Comments and Responses

David and Carissa Juengst	
Comment #	Response:
<p>19.1</p> <p>During the summer months, East Boston Memorial Park is constantly used by East Boston's youth sports. On any given night, there are upwards of 1000 people (mostly children) at the park. The terminal expansion will likely increase their exposure to toxic fumes and therefore increase their risk of health problems.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>19.2</p> <p>Aside from parking and volume of traffic, there needs to be a study done on the current road/tunnel infrastructure to determine if they will be able to handle an increase in traffic volumes.</p>	<p>Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports for the Massachusetts Environmental Policy Act (MEPA) and for public review since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR." Projects that require state (MEPA) or federal (National Environmental Policy Act [NEPA]) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The 2015 EDR and 2016 ESPR will continue to report on baseline and cumulative impacts of overall Airport operations.</p>

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Czepiga, Page (EEA)

From: Jane O'Reilly [oreillyjane05@gmail.com]
Sent: Monday, December 07, 2015 10:05 PM
To: Czepiga, Page (EEA)
Cc: Salvatore LaMartina; anthony.petrucelli@massenate.gov; Adrian C. (HOU) Madaro
Subject: comment letter to proposed enlargement of airport
Attachments: airportcomment2015.doc

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs

Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

I have attended many recent meetings regarding the Airport's plan for expansion: the Piers Pac meeting, the JPNM meeting, and the meeting at Massport's Rental car building. I have also attended meetings of Air, Inc. and the East Boston Progressive Network. I have also helped to formulate some of the questions contained in the attached letter.

I am complete agreement with the attached letter. Most urgently, I request a delay on this particular proposal until all parties have produced a long term master plan for air transportation into and out of Boston and the entire state of Massachusetts. As far as I can see, Logan Airport has reached capacity in its present site, and a long range regional plan is essential.

No more piece meal projects, please.

Thank you,

Jane O'Reilly
150 Orleans Street
Apt 407
East Boston, Ma 02129

[617 567 1880](tel:6175671880)

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Terminal E ENF Comments and Responses

Jane O-Reilly		
Comment #	Comment:	Response:
20.1	Most urgently, I request a delay on this particular proposal until all parties have produced a long term master plan for air transportation into and out of Boston and the entire state of Massachusetts. As far as I can see, Logan Airport has reached capacity in its present site, and long range regional plan is essential.	<p>Massport, working with the Federal Aviation Administration (FAA) and other New England regional state aviation divisions, produced Regional Airport System Plans in 1995 and 2006. The plans include extensive investments in Manchester-Boston Regional Airport and T.F. Green Airport (improved access directly to the highway, new parking garages, lengthening of runways, and new terminals) which have now been accomplished. The Plans envisioned expanded high-speed rail in the Northeast Corridor and that increased rail service would divert air passengers in the Logan Airport to New York City market (accomplished). Increased Massport investment in Worcester Regional Airport including Category III Instrument Landing System upgrades and commercial service was anticipated (accomplished). Hanscom Field's role as New England's premier general aviation facility would continue (accomplished). The plan also calls for more investment in Logan Airport and its critical role as the region's access point to the international marketplace.</p> <p>Massport's investments in its family of airports are consistent with the Regional Plan, including acquiring and modernizing Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region. Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. As a result of this collaboration, JetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013. Massport recently started construction on Worcester Regional Airport's Category III Instrument Landing System (ILS) to enhance operational and safety conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport's all-weather reliability, a long-standing impediment to greater utilization of this airport. Hanscom Field continues to maintain its role as a corporate reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. New England's second busiest airport, Hanscom Field is a full-service general aviation airport and popular choice for business executives traveling to Eastern Massachusetts and "America's Technology Region" situated along the Route 128/95 and Route 495/3 corridors.</p>

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Czepiga, Page (EEA)

From: mimi/jay|bostonmimi@verizon.net
Sent: Wednesday, December 09, 2015 12:07 AM
To: Czepiga, Page (EEA)
Subject: Terminal E expansion at Logan Airport

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Secretary Beaton,

I urge you to refuse to approve the proposals to expand Terminal E at Logan without an environmental impact report. 21.1

I have attended 3 meetings about the terminal expansion where many questions have been asked and very few answered. The fact that increasing the paid parking slots by 5,000 was mentioned early in the process but dropped even though some of those spots will be adjacent to terminal E is very troubling. This was a classic case of Massport segmenting its requests when the cumulative effect of their proposals is very important. There needs to be a master plan that covers all aspects both airside and landside. 21.2

With more gates even more planes can land and with all those additional passengers coming off long international flights I doubt most of them will opt to use the subway - which is overburdened already.

I have yet to hear Massport discuss the ultrafine particulates which are extremely harmful to the populace. Unless and until Massport addresses improved ground transportation issues, pollution issues, facts and figures to back up their requests, etc. they should not be granted any permits. 21.3

Additionally I feel that having this occur in the middle of the holiday season was carefully planned to reduce community participation and comments.

Thank you,
Jay Benson
210 Webster St.
East Boston, MA 02128

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Terminal E ENF Comments and Responses

Jay Benson	
Comment #	Response:
21.1	<p>I urge you to refuse to approve the proposals to expand Terminal E at Logan without an environmental impact report.</p> <p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
21.2	<p>The fact that increasing the paid parking slots by 5,000 was mentioned early in the process but dropped even though some of those spots will be adjacent to terminal E is very troubling. This was a classic case of Massport segmenting its requests when the cumulative effect of their proposals is very important. There needs to be a master plan that covers all aspects both airside and landside.</p> <p>The Terminal E Modernization Project and Massport's need to address Airport-wide parking issues are independent. Any additional parking proposed would be a separate project from the Terminal E Modernization Project and is subject to an amendment to the Logan Airport Parking Freeze. Available parking supply in the immediate vicinity of Terminal E is primarily impacted by the relocation of taxi and limousine loading areas, which are anticipated to occur prior to commencement of the Terminal E Modernization Project. As part of that effort, replacement parking in front of existing Terminal E will be provided. See Chapter 5, Environmental Consequences, Section 5.5.2, Surface Transportation for additional information.</p> <p>For over three decades, Massport has prepared Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) which annually report on planning activities at Logan Airport including: planning concepts for the next 20 years, recently completed projects, and projects under construction. These EDRs and ESPRs are available on Massport's website at https://www.massport.com/environment/environmental-reporting/</p>
21.3	<p>I have yet to hear Massport discuss the ultrafine particulates which are extremely harmful to the populace. Unless and until Massport addresses improved ground transportation issues, pollution issues, facts and figures to back up their requests, etc. they should not be granted any permits.</p> <p>Terminal E Modernization Project provides the following beneficial measures when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> -Less aircraft taxi-delay time due to less congestion in the terminal area; -Less use of aircraft auxiliary power units by alleviating the "hardstanding" of aircraft; -Elimination of buses and other ground support equipment used to move people and cargo from the aircraft at hardstands to the terminal; -Less curbside motor vehicle idle time attributable to improved traffic conditions and less congestion in the terminal area; and -Fewer vehicle miles traveled due to the reduction of vehicles circulating on the internal Airport roadways. <p>Because of these measures and based on the results of this analysis, the following air quality benefits associated with the Terminal E Modernization Project are demonstrated when compared to the No-Action Alternative:</p> <ul style="list-style-type: none"> -With respect to the criteria pollutants, carbon monoxide (CO) emissions decrease by 9%, nitrogen oxide (NOx) emissions decrease by 44%, and sulfur oxides (SO_x) emissions decrease by 33%. -Volatile organic compounds (VOCs) emissions decrease by 6% and particulate matter (PM₁₀ and PM_{2.5}) emissions decrease by 9% and 25%, respectively. -With respect to climate change emissions, operational-related carbon dioxide (CO₂) emissions decrease by 15%. -Terminal building design features are shown to decrease CO₂ emissions by 12% when compared to conventional building methods and materials.

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Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Paige Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton:

I am writing to express my concerns regarding the Logan International Airport Terminal E “Modernization” project Environmental Notification Form (ENF), EEA #15434. As an East Boston homeowner in the Wood Island neighborhood and as a concerned citizen of the Commonwealth, I am gravely concerned about the project’s potential environmental impacts; the lack of consideration given for serious alternatives, including regionalization; and the wholly inadequate methods and timelines used for community outreach on the proposal. **Given the long-term impacts this project will have on the environment, health, and quality of life for East Boston residents, I strongly urge you to require an Environmental Impact Review and to extend the comment period to allow the community adequate time to digest, analyze, and make recommendations to the ENF.**

Like many Eastie parents, I was dismayed to find that the Massachusetts Department of Public Health Logan Airport Health Study released in 2014 confirmed a direct association between airport pollution and chronic diseases. The study showed a 360 percent increased risk of probable childhood asthma and nearly 200 percent increased risk of chronic obstructive pulmonary disease in communities affected by the airport. As a mother, I find this gravely concerning. As a homeowner, the findings—coupled with the proposed growth of the airport and its impact on our neighborhood—have prompted ongoing discussions among my family and neighbors about whether and when these health risks, which in turn have serious implications for our health, earning power, and family budgets, will make staying in East Boston a losing proposition. **Given this direct link and the potential serious health impacts on East Boston’s residents, I strongly urge you to require an EIR in accordance with 301 CMR 11.06(7).**

I am also concerned that Massport has done an insufficient job of addressing mitigation and transportation matters in the ENF. For example, given the expected increase in passenger traffic at Terminal E (§ 2.3.1.3) and the recent Massport community proposals to lift the longstanding legal parking freeze, it should be assumed that demand for parking and vehicle trips will also increase. I suggest that MEPA further investigate this inconsistency of no new vehicle trips (§ 3.6.8) for an expansion project of this size in conjunction with its desire to lift the parking freeze. The lack of serious mitigation beyond a pedestrian walkway (§ 2.8) is also an affront to idea that a large increase in passenger and aviation capacity in international travel will have no further mitigating impacts beyond the scope of the project.

Furthermore, to the extent that the health impacts of the Project place Eastie residents at greater risk of chronic illness, the Project will have financial implications for employers, health care providers, the City of Boston and the Commonwealth that Massport must take into consideration as part of any overall mitigation package. The Boston Public Health Commission found that rates of ER visits for asthma for children *under the age of five* had climbed 27 percent in East Boston between 2005 and 2011, at a time when significant decreases were occurring in other neighborhoods.¹ Those numbers translate to children missing school, parents missing work and potentially jeopardizing their livelihoods, families falling into medical debt, and health care providers picking up the tab for patients who are unable to pay the full cost of care. In other contexts, anchor institutions—that is, businesses and non-profit organizations that cannot leave the communities in which they are placed—are beginning to seriously consider their role in promoting the long-term health and economic viability of the residents living in the communities they serve.

Indeed, reducing pollution in a community like East Boston that is already overburdened must be a priority. Those issues are woefully unaddressed in the ENF or in Massport’s current planning; in fact, the Project itself takes the opposite approach of increasing pollution, rather than seriously considering options to regionalize or otherwise serve the needs of the Boston market while balancing concerns about the long-term economic and environmental sustainability of East Boston and the Boston metro area. It is becoming increasingly clear that both for operational and public health impact reasons, Logan International Airport will not be able to fulfill its appetite for long-term continued growth in a sustainable manner. **The project alternatives in the ENF found in §§ 2.4.1 and 2.4.2 are wholly inadequate given that the Port Authority could have studied economic, environmental and operational viability that would provide greater sustainable growth alternatives. The failure to address regionalized air travel as a common and widely viewed alternative demonstrates this need for further review.**

Based upon the risks associated with airport developments and their specific nature, **I join other residents in urging MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 301 CMR 11.09.** Massport proposals to expand or “modernize” Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments. This includes always requiring a thorough Environmental Impact Report; a more robust community engagement process that reaches out to non-English-speaking community members, community members with limited English proficiency and literacy concerns, and members with accessibility issues due to disabilities and other health conditions. Longer comment periods are needed to allow residents to sift through the data, and an Environmental Justice Coordinator should be required to promote thorough inclusion of these topics on all further MEPA related public processes.

¹ Boston Public Health Commission, *Health of Boston: A Neighborhood Focus (2012-2013)*, page 11. Accessed December 8, 2015 at http://www.bphc.org/healthdata/health-of-boston-report/Documents/HOB-2012-2013/HOB12-13_FullReport.pdf.

Finally, I strongly urge you to extend the ENF comment period to allow more Eastie residents opportunity to comment. As mentioned elsewhere, 6 PM meetings held at the Airport do not allow adequate time for people working traditional work hours—or those caring for children or family members—to attend and participate in a meaningful way. (Personally, I was unable to attend this meeting due to child care restrictions.) I have heard reports that the venue, its size, and its lack of amplified audio facilities were inadequate; that it was very difficult to hear everyone's comments; and that many people had to stand due to the lack of seating. Furthermore, limiting the comment period to just 30 days for large projects of this nature, especially during the winter and the holiday seasons, and making written materials available primarily or only in English makes it extremely difficult for community residents to gather, analyze, and discuss the necessary information to make informed comments. This is especially true in a community like East Boston, where a significant percentage of residents do not speak English as a primary language. It is disheartening and dismaying to see the Commonwealth, Massport, and the City making minimal effort to include or engage these residents in decisions that will impact their future irrevocably.

Thank you for your time and attention to this critical issue. Please do not hesitate to contact me if you have further questions.

Sincerely,

Jessica L. Curtis, Esq.
742 Saratoga Street, East Boston, MA 02128
617-874-2507
jesscurtis@gmail.com

22.7

22.8

Terminal E ENF Comments and Responses

Jessica L. Curtis, Esq.	
Comment #	Response:
<p>22.1</p> <p>I strongly urge you to require an Environmental Impact Review and to extend the comment period to allow the community adequate time to digest, analyze, and make recommendations to the ENF.</p>	<p>Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR). In the Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>22.2</p> <p>Given this direct link and the potential serious health impacts on East Boston's residents, I strongly urge you to require an EIR in accordance with 301 CMR 11.06(7).</p>	<p>In the Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>22.3</p> <p>I am also concerned that Massport has done an insufficient job of addressing mitigation and transportation matters in the ENF. For example, given the expected increase in passenger traffic at Terminal E (§ 2.3.1.3) and the recent Massport community proposals to lift the longstanding legal parking freeze, it should be assumed that demand for parking and vehicle trips will also increase. I suggest that MEPA further investigate this inconsistency of no new vehicle trips (§ 3.6.8) for an expansion project of this size in conjunction with its desire to lift the parking freeze. The lack of serious mitigation beyond a pedestrian walkway (§ 2.8) is also an affront to idea that a large increase in passenger and aviation capacity in international travel will have no further mitigating impacts beyond the scope of the project.</p>	<p>As documented in the 2014 Environmental Data Report (EDR) and previous EDRs and Environmental Status and Planning Reports (ESPRs), Massport implements a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free Massachusetts Bay Transportation Authority (MBTA) Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans and limousine services.</p> <p>Massport continues its partnership with the MBTA to offer free boardings of the Silver Line bus at the Airport. The promising results of reduced dwell times and faster travel times through the terminal area led Massport to extend the free-fare program indefinitely. Next-bus arrival digital dynamic signs have been added to the terminal curb bus stops to now include Airport Shuttle, Blue Line/Rental Car, and Logan Express (in addition to the Silver Line signage which was previously installed).</p> <p>Massport continues to improve wayfinding for ground transportation (with an emphasis on public transportation) within the terminals resulting in enhanced directional signs in the terminals for arriving air passengers. Massport plans to continue with its extensive ground access transportation high-occupancy vehicle enhancement strategy to maintain its high air passenger high-occupancy vehicle mode share and to accommodate future growth.</p> <p>Massport provides annual updates through the EDRs and ESPRs. The most recent update is the 2014 EDR. For additional information refer to the 2014 EDR, Chapter 5, Ground Access to and from Logan Airport.</p>

Terminal E ENF Comments and Responses

Jessica L. Curtis, Esq. Continued	
Comment #	Response:
<p>22.4</p> <p>Furthermore, to the extent that the health impacts of the Project place Eastie residents at greater risk of chronic illness, the Project will have financial implications for employers, health care providers, the City of Boston and the Commonwealth that Massport must take into consideration as part of any overall mitigation package.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPPs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>22.5</p> <p>The project alternatives in the ENF found in §§ 2.4.1 and 2.4.2 are wholly inadequate given that the Port Authority could have studied economic, environmental and operational viability that would provide greater sustainable growth alternatives. The failure to address regionalized air travel as a common and widely viewed alternative demonstrates this need for further review.</p>	<p>Logan Airport serves as New England's primary domestic and international airport plays a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Massport has considered provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E. Chapter 3, Alternatives and Proposed Action reviews operational effects.</p> <p>Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports.</p>

Terminal E ENF Comments and Responses

Jessica L. Curtis, Esq. Continued	
Comment #	Response:
<p>22.6</p> <p>Based upon the risks associated with airport developments and their specific nature, I join other residents in urging MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 301 CMR 11.09. Massport proposals to expand or “modernize” Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments. This includes always requiring a thorough Environmental Impact Report; a more robust community engagement process that reaches out to non-English-speaking community members, community members with limited English proficiency and literacy concerns, and members with accessibility issues due to disabilities and other health conditions. Longer comment periods are needed to allow residents to sift through the data, and an Environmental Justice Coordinator should be required to promote thorough inclusion of these topics on all further MEPA related public processes.</p>	<p>Massport requested and was granted an extension of the ENF comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR. In the Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project “does not exceed a Mandatory ER threshold.” However, the Secretary states that “I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the ER is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it.”</p> <p>This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p> <p>Massport will continue to publish meeting notices in the Boston Herald, The East Boston Times, and the Winthrop Transcript. These notices will be translated into Spanish and will also be published in El Mundo and El Planeta. Massport will continue to provide notices in Spanish along with translation services at public meetings.</p>
<p>22.7</p> <p>Finally, I strongly urge you to extend the ENF comment period to allow more Eastie residents opportunity to comment. As mentioned elsewhere, 6 PM meetings held at the Airport do not allow adequate time for people working traditional work hours—or those caring for children or family members—to attend and participate in a meaningful way. (Personally, I was unable to attend this meeting due to child care restrictions.) I have heard reports that the venue, its size, and its lack of amplified audio facilities were inadequate; that it was very difficult to hear everyone’s comments; and that many people had to stand due to the lack of seating.</p>	<p>Massport requested and was granted an extension of the ENF comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.</p>
<p>22.8</p> <p>Furthermore, limiting the comment period to just 30 days for large projects of this nature, especially during the winter and the holiday seasons, and making written materials available primarily or only in English makes it extremely difficult for community residents to gather, analyze, and discuss the necessary information to make informed comments.</p>	<p>Massport will continue to provide notices in Spanish along with translation services at public meetings. Massport will continue to publish meeting notices in the Boston Herald, The East Boston Times, and the Winthrop Transcript. These notices will be translated into Spanish and will also be published in El Mundo and El Planeta. Massport will continue to provide notices in Spanish along with translation services at public meetings.</p>

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23.6	<p>Further analysis is also warranted to determine the impact that this project will have on the public transportation infrastructure. The ENF suggests that more people will arrive at the airport via the MBTA because of a new direct connection between Terminal E and the Airport Station on the Blue Line. As the MBTA is already experiencing service problems, this anticipated extra burden on the system should be evaluated. Enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan may be necessary to meet the extra demand associated with this project. An EIR should be required to evaluate how to meet this additional demand for public transportation while maintaining or improving current levels of service.</p>
23.7	<p>Finally, in public meetings about this project, Massport has suggested that they will likely need request that the current parking freeze be lifted and add an additional five thousand parking spaces on airport property. Although Massport has not explicitly linked the current project with the anticipated future need to lift the parking freeze, their 2014 Environmental Data Report (2014 EDR) attributes much of their future growth to the international market. Because this project will get rid of sixty existing spaces as well as the cell phone lot, and because the additional anticipated demand for parking spots at the airport can be linked primarily to the anticipated growth in the international air travel market, MEPA should regard these projects together, and require a holistic evaluation of parking needs on site. Related projects such as these should not be segmented and evaluated in a piecemeal fashion. An EIR should be required to evaluate parking needs on site that will result largely from increased international passenger demand.</p>
23.8	<p>Health / Pollution The recently released Logan Airport Health Study¹ (done by the Massachusetts Department of Public Health – Bureau of Environmental Health) found that pollution from Logan Airport causes an increased risk of childhood asthma and chronic obstructive pulmonary disease. AIR, Inc. has commissioned a review of this health study and found that other studies of airport impacts on public health have found even greater associations between airport pollution and disease. It is clear that more study needs to be done to assess the impact of Logan's operations on public health.</p>
23.9	<p>This project, responding to an increased induced demand for international travel, should be studied for its contribution to adverse public health outcomes, particularly in light of the impending request to lift the parking freeze. Massport's own data (reported in the 2014 EDR) shows increases in particulate matter, VOCs and NOx emissions in 2014. Because increases in international air travel are expected to continue to provide the majority of Logan's growth over the next several years, it is important to understand the health impacts of such growth on the surrounding communities. In order to fully understand the impact of airport pollution on these communities, a comprehensive monitoring program should be put in place and the data made available to researchers across the state. An EIR should include a proposed monitoring and evaluation program that would support the protection of public health.</p>
23.10	<p>Cumulative Impacts/Project Segmentation Finally, regarding the entire MEPA process there is a serious failing to take a bigger picture look at projects and their impacts that clearly violates the intention of both the 2002 and 2014 Executive Orders on Environmental Justice and the spirit of valuing the concept of environmental justice. Projects that are part of larger development plans are habitually segmented into smaller, articulated projects that when considered in isolation may not rise to the level of a MEPA review or whose impacts may appear to be less. In this case no one can say with a straight face (although the proponent did in front of a room full of angry residents) that increasing the capacity of Terminal E will not in time result in an increase of traffic, resulting in more cars needing parking (hence the "separate" project of a new parking garage for 5,000 cars presented by Massport in community meetings but not considered at the MEPA community presentation). The needed parking infrastructure and its impacts should be considered with this expansion project since by any reasonable person's analysis it is needed for the entire plan to work and make sense.</p>
23.11	<p>Similarly, the health impacts of this one project in isolation may be of one level of acceptable health impacts but when considered with the compounding effects of all current operations and other planned projects these overall impacts on the low income communities and communities of color or the already over-burdened environmental justice communities around the airport, are far greater. The impacts of plane, ground vehicle and operations air</p>
23.12	<p>¹ http://www.mass.gov/eohhs/docs/dph/environmental/investigations/logan-airport-health-study-executive-summary.pdf</p>

23.1	<p>I would like to express a number of concerns regarding the public health and environmental effects of the expansion of Terminal E at Logan Airport as described in the published Environmental Notification Form (ENF). Ultimately, I would like to strongly urge you to require that the proponent prepare an Environmental Impact Report (EIR) beyond their usual environmental reports. Those reports are useful and appreciated, but a Draft EIR and Final EIR should be required to address the multitude of issues surrounding both the effects of this project and the process by which members of the community are made aware of this.</p>
23.2	<p>Failure to Consider Alternatives First and foremost the proponent's alternatives to the proposed project are not appropriate. Given that they are not a simple private company just looking to realize a large project, but are a critical provider of transportation infrastructure whose impacts extend far beyond the immediate neighborhood and touch the economic well-being and health of so many Commonwealth residents, they should be studying true alternatives. By this I mean they should be looking at how their other airport holdings in Massachusetts, such as in Worcester and Hanscom, can best be used to help meet the need they have identified while reducing health and environmental impacts on one population. Beyond this, it behooves the state (and the FAA) to approach these alternatives with a truly regional perspective that makes better use of resources such as airports in Providence, RI and Manchester, NH. This may not be of interest to the bottom line of the proponent, but as a quasi-state agency they also should be looking out for the best interests of the residents of the Commonwealth. The lack of an analysis of true alternatives falls the tax payers in this regard. It is the responsibility of State caretakers of the common wealth and health to ensure that this analysis is done in an expanded EIR. If MassPort is unable or unwilling to do this, then MassDOT should identify someone to perform this analysis.</p>
23.3	<p>Transportation Impacts The Massachusetts Port Authority (Massport) has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The ENF projects that this expansion will not create any additional vehicle trips at all, but instead is designed to meet the demand that is anticipated to occur whether or not the project is built. ENF, page 3. The ENF simply states that "[i]n the last five years, international traffic at Logan Airport grew at unprecedented rates and this trend is projected to continue." ENF, page 4. However, much of this anticipated growth in international travel is due to the fact that Massport has been remarkably successful in the past several years in attracting, through incentives that by their own calculations add up to over \$5.6 million dollars, additional international carriers to Logan Airport. Logan has signed up five new international airlines in the past three years, courting carriers from around the globe. See, www.massport.com/press-releases/2014/03/10/logan-new-international-airlines. They have added direct routes to Israel, Costa Rica, Beijing, Dubai, Istanbul and others using incentives such as offering free advertising for the airlines and temporarily waiving landing fees. The ENF does not provide credible evidence that the proposed terminal expansion will not produce additional induced demand for vehicle trips and parking. It stands to reason that, as was the case with the Big Dig, if the terminal's capacity is increased at the same time as new carriers are being wooed, demand for parking at the airport will increase along with vehicle trips. An EIR should include an analysis of this increased demand as well as its impact on the surrounding neighborhoods.</p>
23.4	<p>23.4</p>
23.5	<p>23.5</p>

December 9, 2015
The Honorable Matthew Beaton, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street Suite 900
Boston, MA 02114

Re: Boston-Logan International Airport Terminal E Modernization Project – EEA #15434

Dear Secretary Beaton,

I respectfully submit my comments regarding the referenced Massachusetts Port Authority (Massport) project as part of the MEPA review process. I submit these as a resident of East Boston that is active with my local neighborhood Association (Eagle Hill Civic Association), an active Board member of Airport Impact Relief, Incorporated (AIR, Inc.), an active member of the Chelsea Creek Action Group (CCAG) and local advocate for environmental justice.

I would like to express a number of concerns regarding the public health and environmental effects of the expansion of Terminal E at Logan Airport as described in the published Environmental Notification Form (ENF). Ultimately, I would like to strongly urge you to require that the proponent prepare an Environmental Impact Report (EIR) beyond their usual environmental reports. Those reports are useful and appreciated, but a Draft EIR and Final EIR should be required to address the multitude of issues surrounding both the effects of this project and the process by which members of the community are made aware of this.

Failure to Consider Alternatives

First and foremost the proponent's alternatives to the proposed project are not appropriate. Given that they are not a simple private company just looking to realize a large project, but are a critical provider of transportation infrastructure whose impacts extend far beyond the immediate neighborhood and touch the economic well-being and health of so many Commonwealth residents, they should be studying true alternatives. By this I mean they should be looking at how their other airport holdings in Massachusetts, such as in Worcester and Hanscom, can best be used to help meet the need they have identified while reducing health and environmental impacts on one population. Beyond this, it behooves the state (and the FAA) to approach these alternatives with a truly regional perspective that makes better use of resources such as airports in Providence, RI and Manchester, NH. This may not be of interest to the bottom line of the proponent, but as a quasi-state agency they also should be looking out for the best interests of the residents of the Commonwealth. The lack of an analysis of true alternatives falls the tax payers in this regard. It is the responsibility of State caretakers of the common wealth and health to ensure that this analysis is done in an expanded EIR. If MassPort is unable or unwilling to do this, then MassDOT should identify someone to perform this analysis.

Transportation Impacts

The Massachusetts Port Authority (Massport) has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The ENF projects that this expansion will not create any additional vehicle trips at all, but instead is designed to meet the demand that is anticipated to occur whether or not the project is built. ENF, page 3. The ENF simply states that "[i]n the last five years, international traffic at Logan Airport grew at unprecedented rates and this trend is projected to continue." ENF, page 4. However, much of this anticipated growth in international travel is due to the fact that Massport has been remarkably successful in the past several years in attracting, through incentives that by their own calculations add up to over \$5.6 million dollars, additional international carriers to Logan Airport. Logan has signed up five new international airlines in the past three years, courting carriers from around the globe. See, www.massport.com/press-releases/2014/03/10/logan-new-international-airlines. They have added direct routes to Israel, Costa Rica, Beijing, Dubai, Istanbul and others using incentives such as offering free advertising for the airlines and temporarily waiving landing fees. The ENF does not provide credible evidence that the proposed terminal expansion will not produce additional induced demand for vehicle trips and parking. It stands to reason that, as was the case with the Big Dig, if the terminal's capacity is increased at the same time as new carriers are being wooed, demand for parking at the airport will increase along with vehicle trips. An EIR should include an analysis of this increased demand as well as its impact on the surrounding neighborhoods.

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23.14

pollution and noise pollution along with the regular fuel spills and contamination of surrounding surface and coastal waters should be considered and analyzed. Again, for smaller projects by one private developer this may seem to be an extreme request, but for a quasi-state agency being overseen by other state agencies it is entirely reasonable to assume that the state will be looking out for the well-being of its own residents. The current process and in particular the process around this Terminal E expansion should be seen in this light. The failure on the part of state authorities to do so represents an insult to the community that is paying the bill for these projects and these processes either through its taxes or through its purchasing of services from the proponent. The full, cumulative impacts and of the entire, unsegmented development plan should be addressed in an EIR.

23.15

Thank you for the opportunity to submit this comment letter. If you have any questions or concerns, please feel free to contact me at jwalkey@hotmail.com.

Very truly yours,



John Walkey
63 Putnam Street #1
Boston, MA 02128

cc: Stewart Daizeil, Deputy Director, Environmental Planning and Permitting, Massport

Terminal E ENF Comments and Responses

John Walkey	Comment #	Comment:	Response:
23.1	I would like to express a number of concerns regarding the public health and environmental effects of the expansion of Terminal E at Logan Airport as described in the published Environmental Notification Form (ENF).	In the Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it." This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction. Additional information on Logan Airport's environment is provided in the Logan Airport Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs).	
23.2	Ultimately, I would like to strongly urge you to require that the proponent prepare an Environmental Impact Report (EIR) beyond their usual environmental reports. Those reports are useful and appreciated, but a Draft EIR and Final EIR should be required to address the multitude of issues surrounding both the effects of this project and the process by which members of the community are made aware of this.	In the Certificate on the Terminal E Modernization ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it." This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction. Additional information on Logan Airport's environment is provided in the Logan Airport EDRs and ESPRs.	
23.3	By this I mean they should be looking at how their other airport holdings in Massachusetts, such as in Worcester and Hanscom, can best be used to help meet the need they have identified while reducing health and environmental impacts on one population.	Massport, working with the Federal Aviation Administration (FAA) and other New England regional state aviation divisions, produced Regional Airport System Plans in 1995 and 2006. The plans include extensive investments in Manchester-Boston Regional Airport and T.F. Green Airport (improved access directly to the highway, new parking garages, lengthening of runways, and new terminals) which have now been accomplished. The Plans envisioned expanded high-speed rail in the Northeast Corridor and that increased rail service would divert air passengers in the Logan Airport to New York City market (accomplished). Increased Massport investment in Worcester Regional Airport including Category III Instrument Landing System upgrades and commercial service was anticipated (accomplished). Hanscom Field's role as New England's premier general aviation facility would continue (accomplished). The plan also calls for more investment in Logan Airport and its critical role as the region's access point to the international marketplace. Massport's investments in its family of airports are consistent with the Regional Plan, including acquiring and modernizing Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region. Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. As a result of this collaboration, JetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013. Massport recently started construction on Worcester Regional Airport's Category III Instrument Landing System (ILS) to enhance operational and safety conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport's all-weather reliability, a long-standing impediment to greater utilization of this airport. Hanscom Field continues to maintain its role as a corporate reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. New England's second busiest airport, Hanscom Field is a full-service general aviation airport and popular choice for business executives traveling to Eastern Massachusetts and "America's Technology Region" situated along the Route 128/95 and Route 495/3 corridors.	

Terminal E ENF Comments and Responses

John Walkey Continued	
Comment #	Response:
23.4	<p>Comment: It is the responsibility of State caretakers of the common wealth and health to ensure that this analysis is done in an expanded EIR. If Massport is unable or unwilling to do this, then MassDOT should identify someone to perform this analysis.</p> <p>Response: In the Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it." This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction. Additional information on Logan Airport's environment is provided in the Logan Airport EDRs and ESPPs.</p>
23.5	<p>Comment: An EIR should include an analysis of this increased demand [for parking] as well as its impact on the surrounding neighborhoods.</p> <p>Response: The Terminal E Modernization Project and addressing Airport-wide parking issues are independent. In addition, the proposed new parking facility is a separate project from the Terminal E Modernization Project. However, due to its proximity to the proposed Project in terms of both timeframe for construction and likely physical location, it is evaluated as part of the cumulative impact assessment for relevant categories (ground access and air quality) in Chapter 5, Environmental Consequences. The Proposed Action is not anticipated to result in an increased parking demand. A separate project is evaluating overall on-Airport parking needs and this DEIR assesses the impacts of this action both with and without increased parking in place.</p>
23.6	<p>Comment: Further analysis is also warranted to determine the impact that this project will have on the public transportation infrastructure. The ENF suggests that more people will arrive at the airport via the MBTA because of a new direct connection between Terminal E and the Airport Station on the Blue Line. As the MBTA is already experiencing service problems, this anticipated extra burden on the system should be evaluated. Enhancements to Logan Express, extending the Blue Line and funding the Red/Blue Connector to provide alternative modes of transportation to and from Logan may be necessary to meet the extra demand associated with this project. An EIR should be required to evaluate how to meet this additional demand for public transportation while maintaining or improving current levels of service.</p> <p>Response: The Terminal E Modernization Project and any projects addressing Airport-wide parking issues are independent. In addition, the proposed new parking facility is a separate project from the Terminal E Modernization Project. However, due to its proximity to the proposed Project in terms of both timeframe for construction and likely physical location, it is evaluated as part of the cumulative impact assessment for relevant categories (ground access and air quality) in Chapter 5, Environmental Consequences. Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line. A review of ridership and trainset capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p>
23.7	<p>Comment: Although Massport has not explicitly linked the current project with the anticipated future need to lift the parking freeze, their 2014 Environmental Data Report (2014 EDR) attributes much of their future growth to the international market. Because this project will get rid of sixty existing spaces as well as the cell phone lot, and because the additional anticipated demand for parking spots at the airport can be linked primarily to the anticipated growth in the international air travel market, MEPA should regard these projects together, and require a holistic evaluation of parking needs on site.</p> <p>Response: The proposed Project does not require relocation of the Cell Phone Lot. Available parking supply in the immediate vicinity of Terminal E is primarily impacted by the relocation of taxi and limousine loading areas, which are anticipated to occur prior to commencement of the Terminal E Modernization Project. As part of that effort, replacement parking in front of existing Terminal E will be provided. Chapter 5, Environmental Consequences, describes the changes to the short-term parking spaces as a result of the Project. The Terminal E Modernization Project and addressing Airport-wide parking issues are independent. In addition, the proposed new parking facility is a separate project from the Terminal E Modernization Project. However, due to its proximity to the proposed Project in terms of both timeframe for construction and likely physical location, it is evaluated as part of the cumulative impact assessment for relevant categories (ground access and air quality) in Chapter 5, Environmental Consequences.</p>
23.8	<p>Comment: An EIR should be required to evaluate parking needs on site that will result largely from increased international passenger demand.</p> <p>Response: The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers will be accommodated with or without the proposed Project and the parking demand will be the same.</p>

Terminal E ENF Comments and Responses

John Walkey Continued	
Comment #	Response:
<p>23.9</p> <p>It is clear that more study needs to be done to assess the impact of Logan's operations on public health.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations.
<p>23.10</p> <p>This project, responding to an increased induced demand for international travel, should be studied for its contribution to adverse public health outcomes, particularly in light of the impending request to lift the parking freeze.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations.
<p>23.11</p> <p>In order to fully understand the impact of airport pollution on these communities, a comprehensive monitoring program should be put in place and the data made available to researchers across the state.</p>	<p>The 2014 EDR provides air quality data in Chapter 7, Air Quality/Emissions Reduction. In addition, the Massachusetts Department of Environmental Protection (MassDEP) provides current, daily, and annual air quality reporting on their website (http://www.mass.gov/eea/agencies/massdep/air/quality).</p>
<p>23.12</p> <p>An EIR should include a proposed monitoring and evaluation program that would support the protection of public health.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>23.13</p> <p>The needed parking infrastructure and its impacts should be considered with this expansion project since by any reasonable person's analysis it is needed for the entire plan to work and make sense.</p>	<p>There are no increases in parking spaces related to the Proposed Action. The Terminal E Modernization Project and Massport's need to address Airport-wide parking issues are independent. Any additional parking is a separate project from the Terminal E Modernization Project and subject to an amendment to the Logan Airport Parking Freeze.</p>

Terminal E ENF Comments and Responses

John Walkey Continued	
Comment #	Response:
<p>23.14</p> <p>The impacts of plane, ground vehicle and operations air pollution and noise pollution along with the regular fuel spills and contamination of surrounding surface and coastal waters should be considered and analyzed.</p>	<p>This EA/DEIR includes an assessment of the Project-related environmental consequences including noise, air quality, water quality, and several other environmental categories. Refer to Chapter 5, Environmental Consequences, for additional information. In addition, the 2014 EDR assesses the environmental effects of overall Airport operations and activities for noise, ground access, air quality/greenhouse gas emissions, water quality, and sustainability.</p>
<p>23.15</p> <p>The full, cumulative impacts [of the project] and of the entire, unsegmented development plan should be addressed in an EIR.</p>	<p>This EA/DEIR, coupled with the 2014 EDR, assesses the cumulative impact of the Project in relation to current and anticipated Airport projects. Refer to Chapter 5, Environmental Consequences, of this EA/DEIR.</p>

Czepiga, Page (EEA)

From: Kelly Rusch [kelly_rusch@outlook.com]
Sent: Tuesday, December 08, 2015 11:00 PM
To: Czepiga, Page (EEA)
Subject: Terminal E Modernization

94 Brooks St.
Boston MA, 02128
508-904-9112

kelly_rusch@outlook.com

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

The Massachusetts Port Authority failed to address almost all impacts the Terminal E expansion would have on the community. The Port Authority suggested that pollution will go down with the introduction of more efficient and modern planes, but they will be increasing flights meaning more people traveling to the airport on trains, buses and cars. Also, more flights, even with more efficient planes, will inevitably bring more pollution. People in our community are sick, the asthma rates are higher than average, and a lot of these cases are attributed to living near the airport. While The Port Authority gloats that "flights are down" and people can "breathe easier", children are learning to use an inhaler so they can enjoy being a kid.

I understand that the "Modernization" of Terminal E is necessary to support an upcoming increase in international flights due to The Port Authority's solicitation to other countries, but when will The Port Authority be accountable for their actions? The corporate greed of expanding Logan Airport as a business hurts people who are unaware or unable to stand up for themselves, and their community. I see an Environmental Impact Report as an extreme necessity for the next steps of the Modernization of Terminal E in order to let people know the actual impacts the expansion will have on our air quality, our sleep, our health, our water, and our community.

24.1

Thank you

Kelly Rusch

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Terminal E ENF Comments and Responses

Kelly Rusch		
Comment #	Comment:	Response:
24.1	I see an Environmental Impact Report as an extreme necessity for the next steps of the Modernization of Terminal E in order to let people know the actual impacts the expansion will have on our air quality, our sleep, our health, our water, and our community.	<p>In the Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>

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Czepiga, Page (EEA)

From: Madeleine Steczynski [msteczynski@zumix.org]
Sent: Monday, December 07, 2015 8:49 PM
To: Czepiga, Page (EEA)
Subject: Opposition to Termal E expansion at Logan Airport
Attachments: Massport Modernization enf comment letter.docx

Dear Page,

For 24 years I have worked to improve the lives of East Boston youth through out-of-school programming in music and related arts. After seeing the Environmental Notification Form about the proposal to expand Terminal E at Logan Airport, I am concerned about the the environmental impacts of the project on the residents, and particularly the youth of East Boston. Please forward my attached letter to Secretary Beaton.

25.1

Thank you!
Madeleine

Madeleine Steczynski
Co-Founder & Executive Director
ZUMIX

260 Summer St.
East Boston, MA 02128
Tel: (617) 568-9777 x104
Fax: (617) 568-9797

msteczynski@zumix.org
www.zumix.org



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Sunday, Dec. 6: Jazz at the Firehouse featuring Greg Abate & Gary Smulyan

Greg Abate is a jazz saxophonist, flutist, and composer who spends 225 days a year touring the globe as an international jazz and recording artist and teaches at Rhode Island College. Paired with Abate will be Gary Smulyan, baritone saxophonist, who is ranked as the #1 baritone saxophone player in the annual Down Beat Readers and Critics polls. The ZUMIX Latin Ensemble will open the night. Click [HERE](#) for info and tickets.

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Tune in to ZUMIX Youth & Community Radio!
- Streaming on the web at zumix.org
- plus check out our blog at zumixradio.blogspot.com

December 7, 2015

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

I am the Co-Founder and Executive Director of ZUMIX, a nonprofit organization dedicated to youth development through music and the arts, based in East Boston, MA.

When I moved to East Boston in 1990, I learned about the long history of struggle between local residents and Logan Airport. The negative impacts of housing an international airport in a densely populated residential neighborhood are plenty, but it took a coordinated effort of organized residents to advocate for quality of life issues, and to ensure that mitigation was upheld.

I am sending this letter regarding the Logan International Airport Terminal E "Modernization" Project's Environmental Notification Form (ENF), EEA #15434.

In 2014 the Massachusetts Department of Public Health's Logan Airport Health Study confirmed a direct association between airport pollution and chronic diseases. To date, it showed a 360 % increased risk of probable childhood asthma and nearly 200% increased risk of chronic obstructive pulmonary disease.

I have a 5-year old stepson who suffers from chronic asthma, and have had to bring him to the ER on many occasions. I also run an organization, which serves over 1,000 youth per year. On behalf of all these children, and their families, I **urge MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 301 CMR 11.09**. Massport proposals to expand or "modernize" Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments.

It is my hope that you will carefully consider these comments, concerns and recommendations, and act in the interests of the community.

Sincerely,

Madeleine Steczynski
103 Webster Street
East Boston, MA 02128

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Terminal E ENF Comments and Responses

Madeleine Steczynski	
Comment #	Response:
<p>25.1</p> <p>After seeing the Environmental Notification Form about the proposal to expand Terminal E at Logan Airport, I am concerned about the environmental impacts of the project on the residents, and particularly the youth of East Boston. Please forward my attached letter to Secretary Beaton.</p>	<p>In the Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>25.2</p> <p>On behalf of all these children, and their families, I urge MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 30I, CMR 11.09. Massport proposals to expand or "modernize" Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments.</p>	<p>In the Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>

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26
See Form Letter Y

Czepiga, Page (EEA)

From: Marchi Family [marchi.family@verizon.net]
Sent: Monday, December 07, 2015 10:14 PM
To: Czepiga, Page (EEA)
Subject: MEPA Comments on Terminal E Modernization Project ENF

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.

Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success: looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Noise

Even while Massport sends out marketing teams in search of more international business for Logan, and even as they will have doled out \$5.6 million over the next few years in incentives to bring business here (Adding to what they predict will be a 30% increase in flights over the next 14 years), these same Port Authority officials claim that these flights would come whether or not they built a new terminal. Thus the Terminal E Modernization ENF repeatedly concludes wishful 'findings of no significant impact' (FONSI) in regards to the project. Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.

Health / Pollution

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for an a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

All three of my children have been diagnosed with Reactive Airway Disorder, (a pre-asthma diagnosis), my father suffers COPD and I have recently been diagnosed with premature hearing loss. For thousands of residents of in-close communities, airport impacts are a very real concern. Therefore, it is my hope that you will carefully consider the concerns of this community and act to protect the interests of the people and neighborhoods impacted by airport operations, recommending that this Massport proposal undergo the full scrutiny of an Environmental Impact report.

Sincerely,

Chris Marchi
161 Saratoga Street
East Boston MA 02128
617-417-2093
marchi.family@verizon.net



This email has been checked for viruses by Avast antivirus software.
www.avast.com

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Terminal E ENF Comments and Responses

Chris Marchi	
Comment #	Response:
26.1	<p>In the Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it."</p> <p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>For thousands of residents of in-close communities, airport impacts are a very real concern. Therefore, it is my hope that you will carefully consider the concerns of this community and act to protect the interests of the people and neighborhoods impacted by airport operations, recommending that this Massport proposal undergo the full scrutiny of an Environmental Impact Report.</p>	

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included in this important planning effort and in a more meaningful way, to the effect of improvement in the degree to which present and projected environmental impacts are reduced and mitigated.

Great effort, much of which should have been produced by Massport as part of the additional outreach referenced above, was made by local residents, working in coordination with Airport Impact Relief Incorporated (AIR INC. a long-serving East Boston neighborhood airport watchdog group) and the coalition they have built to inform and mobilize residents on this issue, to increase community participation during this busy time of the year. Subsequent to this effort, a second effort was made to explain the comment opportunity and support engagement and inclusion around public comment submissions.

As a measure of public concern, the total number of comments produced by our and other efforts is an important metric which will provide community members and their political representatives with needed information. Given the urgent nature of this matter and the high degree of community interest in the process, AIR INC. and partners are hopeful to learn as much as we can about the effectiveness of our participation initiatives so that we may use this data in our continuing planning. Therefore, as soon as is practical, please forward a total comment letter count so that we may prepare our evaluations and analyses and report back to our constituency.

Thank you,
Chris Marchi
AIR INC.
East Boston Environmental
Grupo Ambiental Latino en East Boston

Sent: Fri 12/11/2015 12:11 PM
From: Czepiga, Page (ENV) -page.czepiga@state.ma.us

To: Dalzell, Stewart
CC:

Subject: FW: Request for Comment Letter Count RE Boston-Logan International Airport Terminal E Modernization Project - EEA #15434

Stewart - See below. It was sent to my spam folder for some reason.
Thanks

From: Marchi Family [mailto:marchi.family@verizon.net]
Sent: Friday, December 11, 2015 9:35 AM
To: Czepiga, Page (EEA)
Cc: Rafael Mares
Subject: Request for Comment Letter Count RE Boston-Logan International Airport Terminal E Modernization Project - EEA #15434

Good Morning Ms. Czepiga,
My name is Chris Marchi. I am a volunteer organizer at Airport Impact Relief Incorporated (AIR INC.), an East Boston-based community airport mitigation group. I also direct the Community Building and Environment Department at Neighborhood of Affordable Housing (NOAH), an East Boston community development corporation. As part of our community building efforts, I oversee and support two growing community organizations: East Boston Environmental and Grupo Ambiental Latino en East Boston. Working in coalition with AIR INC. and other groups, we seek to identify shared solutions to environmental issues which bridge communities together.

Thank you for attending the public comment meeting for Massport terminal E modernization ENF, at the Noddle Island Community Room, in East Boston last month. Although the physical location of the Noddle Island Room is remote, causing many residents to report having given up their efforts to come, over 100 community residents did attend. This fact underscores the high level of community concern over the public process and substance of the ENF filed by the Port Authority in re the Terminal R Modernization. Public comment at this meeting evidenced widespread dissatisfaction with the depth and accuracy of the responses provided by Massport staff to questions regarding the health and environmental impacts of the proposed project.

While Section 5 of Executive Order 552 requires additional measures be taken in support of improved public process and no such efforts were made by Massport but that at the request of my staff, they provided translation services, the high level of engagement and attendance from a diverse group of community residents (including some who were linguistically isolated) in an EI community should serve notice as to the determination of East Boston residents to be

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Terminal E ENF Comments and Responses

Chris Marchi	
Comment #	Response:
27.1	<p>As documented in Chapter 5, Environmental Consequences, there are no significant noise or air quality impacts associated with the Terminal E Modernization Project, thus there are no disproportionate impacts to Environmental Justice communities in the vicinity of Logan Airport. Massport is committed to collaborating with impacted surrounding communities.</p> <p>Massport will continue to publish meeting notices in the Boston Herald, The East Boston Times, and the Winthrop Transcript. These notices will be translated into Spanish and will also be published in El Mundo and El Planeta. Massport will continue to provide notices in Spanish along with translation services at public meetings.</p>
27.2	<p>A total of 147 individual comment letters were received as well as 94 form letters.</p>

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Czepiga, Page (EEA)

From: Mary Ellen Welch [maryellen225@yahoo.com]
Sent: Wednesday, December 09, 2015 4:48 PM
To: Czepiga, Page (EEA)
Subject: EEA:015434 Terminal E Expansion Project

Mr., Matthew Beaton
 Executive Office Of Energy And Environmental Affairs
 100 Cambridge Street
 Boston, Massachusetts 02114
 Attn.: Page Czepiga, EEA No 15434

Dear Secretary Beaton,

As a lifelong resident of East Boston I write this comment letter. Over the years I have been involved in working on airport issues because the airport operations affect East Boston in a most direct way. Airport expansion, negative environmental impacts like air, and noise pollution, finding ways to lessen environmental impacts are all issues I have worked on with other concerned citizens.

Community activists were successful in getting noise reduction techniques implemented such as certain turns in the flight tracks on take offs, putting in place a preferential runway assignment system, getting a soundproofing program for homes and schools, Getting the FAA to institute a head to head operation at night to reduce noise impacts, constructing airport buildings to act as sound barriers for certain parts of the neighborhood and towing aircraft from the terminal to runway approaches. In addition, community residents negotiated mitigation projects which would enhance the open space in the community and help organizations in the neighborhood better serve the residents. Over the decades this kind of involvement and activism required many hours of meetings, letter writing, organizing residents and political support, recruiting scientific and legal advisors to help us and coordinating with people in nearby communities to participate in the effort.

While many of the community efforts were successful, some were not. The years long effort to stop Runway 14/32 was not. Construction of this runway was stopped for over 30 years but the political and business interests were well funded to oppose the affected community effort. As a result the community predictions of an increase in traffic on Runway 33 and Runway 27 have proven to be accurate.

Because the airport is not going away and neither is the community, the continuing impacts of noise, air and traffic pollution continue to be a big problem. In a very limited health study done by the State Health Department it was documented that pollution from airport operations causes childhood asthma and severe respiratory illness. Because the state health study was limited in funding and scope many important issues were not researched and documented in the study. So a community group had an environmental consulting firm do a follow up study to look more closely at the environmental impacts of airport operations. Working with credentialed environmental scientists the study documented many other negative impacts and health concerns from airport operations. These study results were brought to the attention of the Port Authority with the suggestion that the Port Authority initiate a planning partnership with the community to address the environmental issues raised in the study.

From a community perspective such a planning partnership would be an ongoing effort addressing environmental impacts as well as working on other issues at the airport like operations and development plans. Instead of going to the community with a completed plan for review the community would be working together with the airport providing input all along the way. Back in 1976 the Port Authority initiated a Master planning Process with the community as a partner. One of the recommendations of that process was a decision not to build a STOL Runway, called 14/32. For over 30 years that decision was upheld. Of course such a planning partnership would involve disagreements but both groups would have to understand that each partner has sometimes different goals and responsibilities. It has been my experience that community input has made projects better. The Port Authority Board of Directors would, of course, have the ultimate decision making power but the projects would be easier to get through the environmental vetting process and would have a head start in the communities. This is not to say that there would be no opposition for some projects in the community or that the Port Authority would accept all the ideas and recommendations from community partners, but, with open minds and mutual respect there would be a more productive relationship between two groups with different opinions and goals.

Here is an example of an issue which would have been a perfect one for a planning partnership issue. During the planning process for the CONRAC project the community raised the issue of ultra fine particulate matter. It wasn't measured in the proposal describing the plans. Only the fine particulates were measured in the proposal. Because the residents understood that the ultra fines were more dangerous when breathed in by residents, we raised the issue with Port Authority staff. Staff response was that the measurement was not important and that there no method to measure them. Of course we found out that there was indeed a way to measure the ultra fines and cited places that did

so. In spite of our pleas and direct information about the ultra fines the project went forward without this critical information. Now this happened under a different Port Authority administration. The Port Authority staff came to a few scattered community meetings where this issue was discussed. Community residents wrote about this issue during the environmental vetting process. Still this measurement of ultra fines was not done. Staff from that time are no longer at the Authority.

In a community Port Authority planning process where the communication was ongoing and direct this issue would have been resolved. Here we are in 2015 and the environmental scientists who did the study on airport impacts raised the issue of the dangerousness of the ultra fines on people. There is an illustration showing how the fine and ultrafine particulates impact the breathing of people. It's been several years since the CONRAC has been operating in the neighborhood. People who live close to the CONRAC are most susceptible to the effects of breathing in the ultra fines. So this is only one issue which I believe could have been resolved through an active, dynamic planning partnership. Such a partnership would promote better communication and understanding of each other's ideas and concerns.

Another issue which I want you to consider is that East Boston is an Environmental Justice community as defined by the Executive Order issued by President Clinton. In fact, last year Governor Patrick issued his own Executive Order on Environmental Justice similar to that of President Clinton. In essence the Environmental Justice designation is meant to prevent unjust environmental impacts on lower income, blue collar, and diverse communities. So, just because East Boston is so close to an airport, we should not bear an undue series of negative environmental impacts. More care and consideration must be taken by proponents of projects to ease environmental impacts on Environmental Justice Communities.

An example of a project gone bad because of poor planning and communication is the RNAV project of the FAA. To be more efficient and to save fuel and time the FAA initiated a change in the flight tracks on certain runways. Instead of fanning out depending on direction the aircraft would stay on a straight, direct path until they reached a certain altitude. What happened was the huge outcry from some Boston neighborhoods and communities along the Mystic River and on the South Shore who experienced much more intense noise on a continuing basis. Without the

fanning of aircraft along the flight track the aircraft were flying over the same neighborhoods and homes on every flight instead of spreading out the impacts the aircraft were flying over the same streets and houses constantly. People from all the severely impacted routes were up in arms about the change. With a better planning process this new procedure probably wouldn't have happened and caused a huge negative and angry reaction. If the technical people at the FAA had a planning partnership with the communities under the flight tracks and had shared the increase in noise, this

angry and justifiable reaction wouldn't have happened. The FAA would have been sensitized to the noise impacts on the people under the flight tracks. So, the lesson learned is that the FAA, the State and Federal environmental agencies and the Port Authority must consider the impacts on people and not just the cost savings for the airlines.

So, as the Port Authority prepares to pursue additional gates at Terminal E and, down the line adding an additional 5000 parking spaces, an additional suggestion I offer is to have the Port Authority and the Executive Office Of Energy And Environment institute a transportation planning partnership chaired by Governors Dukakis Weld which

would draw up a plan to do the Red-Blue Connector, the North South Connector, better Blue Line connectors at the airport and improvements to the Silver Line connections. I will also ask that if the Executive Office of Energy and Environment plans to approve the Terminal E gate expansion it start by approving only the first three gates approved in 1996. A new Planning Partnership between the Port Authority and the community could then work together on any additional parts of the project.

In conclusion I thank you for reading my comments and hope you take them to heart.

Sincerely,
 Mary Ellen Welch
 225 Webster Street
 East Boston 02128

28.1

28.2

28.3

28.4

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Terminal E ENF Comments and Responses

Mary Ellen Welch	
Comment #	Response:
28.1	<p>So, just because East Boston is so close to an airport we should not bear an undue series of negative environmental impacts. More care and consideration must be taken by proponents of projects to ease environmental impacts on Environmental Justice Communities.</p>
28.2	<p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) considers each of the National Environmental Policy Act (NEPA) categories, plus additional topics as directed by the Secretary of Energy and Environmental Affairs. Overall, the Terminal E Modernization Project would result in environmental benefits. These benefits include: reduced ground noise, due to the design of the terminal extension as a noise barrier; reduced air emissions associated with more efficient operations on the North Apron; reduced airside busing; and reduced use of auxiliary power units by aircraft.</p> <p>Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the Airport-wide cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, airport-wide context. A brief overview of that long-standing process follows.</p> <p>Massport has been producing annual reports for the Massachusetts Environmental Policy Act (MEPA) and for public review since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR." Projects that require state (MEPA) or federal (NEPA) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The 2015 EDR and 2016 ESPR will continue to report on baseline and cumulative impacts of overall Airport operations.</p>

Terminal E ENF Comments and Responses

Mary Ellen Welch Continued	
Comment #	Response:
<p>28.3</p> <p>So, as the Port Authority prepares to pursue additional gates at Terminal E and, down the line adding an additional 5000 parking spaces, an additional suggestion I offer is to have the Port Authority and the Executive Office Of Energy And Environment institute a transportation planning partnership chaired by Governors Dukakis & Weld which would draw up a plan to do the Red-Blue Connector, the North-South Connector, better Blue Line connections at the airport and improvements to the Silver Line connections.</p>	<p>Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line. A review of ridership and trainset capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p> <p>Massport is a collaborative participant in regional transportation planning efforts. Massport supports multimodal transportation planning and improving integration with its facilities through its permanent voting membership on the Boston Region Metropolitan Planning Organization, providing input on policy and programming decisions.</p> <p>As documented in the 2014 EDR and previous EDRs and ESPRs, Massport implements a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans and limousine services.</p> <p>Massport continues its partnership with the MBTA to offer free boardings of the Silver Line bus at the Airport. The promising results of reduced dwell times and faster travel times through the terminal area led Massport to extend the free-fare program indefinitely. Next-bus arrival digital dynamic signs have been added to the terminal curb bus stops to now include Airport Shuttle, Blue Line/Rental Car, and Logan Express (in addition to the Silver Line signage which was previously installed). Massport continues to improve wayfinding for ground transportation (with an emphasis on public transportation) within the terminals, resulting in enhanced directional signs in the terminals for arriving air passengers.</p> <p>Massport plans to continue with its extensive ground access transportation high-occupancy vehicle enhancement strategy to maintain its high air passenger high-occupancy vehicle mode share and to accommodate future growth. For additional information refer to the 2014 EDR, Chapter 5, Ground Access to and from Logan Airport.</p>
<p>28.4</p> <p>I will also ask that if the Executive Office of Energy and Environment plans to approve the Terminal E gate expansion it start by approving only the first three gates approved in 1996. A new Planning Partnership between the Port Authority and the community could then work together on any additional parts of the project (Terminal E Modernization).</p>	<p>The Terminal E Modernization Project would be constructed in phases. The first phase would include the three gates previously approved, but not built, in the late 1990s and an additional gate in order to meet projected demand through 2022. The second phase, including three additional gates, would be built after that to efficiently accommodate forecast passenger activity levels.</p>

Czepiga, Page (EEA)

From: Matthew Neave [mdneave@gmail.com]
Sent: Tuesday, December 08, 2015 9:09 PM
To: Czepiga, Page (EEA)
Cc: salvatore.lamatina@boston.gov; Petruccelli, Anthony (SEN); adrian.madaro@mahouse.gov
Subject: ENF Terminal E MEPA Response Letter

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

I am writing about the proposal to expand Terminal E at Logan Airport. I am in support of adding a covered walkway from the Airport subway station and modernizing the terminal, but I believe that there has not been enough investigation into the environmental impacts to the neighborhood that will result from this expansion. Please perform a more in depth study since this upgrade will increase both air and car traffic to the airport. 29.1 29.2

My children play in the parks surrounding the airport and the Commonwealth owes them a close examination of the potential health effects of this project. It would also be prudent to examine what measures could be taken to off-set the impacts, such as connecting the Red and Blue Lines, so more passengers would be willing to take the T to the airport. 29.3 29.4

Thank you,

Matthew Neave
116 Lexington St
East Boston, MA

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Terminal E ENF Comments and Responses

Matthew Neave	
Comment #	Response:
<p>29.1</p> <p>I am in support of adding a covered walkway from the Airport subway station and modernizing the terminal, but I believe that there has not been enough investigation into the environmental impacts to the neighborhood that will result from this expansion.</p>	<p>In this Environmental Assessment (EA), the Terminal E Modernization Project undergoes a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>29.2</p> <p>Please perform a more in depth study [of the Terminal E Modernization] since this upgrade will increase both air and car traffic to the airport.</p>	<p>In this EA, the Terminal E Modernization Project undergoes a full environmental assessment according to the federal NEPA requirements as administered by the FAA. Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping DEIR, which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>29.3</p> <p>My children play in the parks surrounding the airport and the Commonwealth owes them a close examination of the potential health effects of this project.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

Terminal E ENF Comments and Responses

Matthew Neave Continued	
Comment #	Response:
<p>29.4</p> <p>It would also be prudent to examine what measures could be taken to off-set the impacts, such as connecting the Red and Blue Lines so more passengers would be willing to take the T to the airport.</p>	<p>Chapter 5, Environmental Consequences, includes an analysis of the existing capacity on the Massachusetts Bay Transportation Authority (MBTA) Blue Line. A review of ridership and trainset capacity on the Blue Line indicates that there is significant reserve capacity (passenger space available within the trainset) remaining on the Blue Line during the peak hour in the peak direction. Even with a doubling of Blue Line use by air passengers, there is still significant Blue Line capacity available.</p> <p>Massport is a collaborative participant in regional transportation planning efforts. Massport supports multimodal transportation planning and improving integration with its facilities through its permanent voting membership on the Boston Region Metropolitan Planning Organization, providing input on policy and programming decisions.</p> <p>As documented in the 2014 EDR and previous EDRs and ESPRs, Massport implements a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Logan Airport bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans and limousine services.</p> <p>Massport continues its partnership with the MBTA to offer free boardings of the Silver Line bus at the Airport. The promising results of reduced dwell times and faster travel times through the terminal area led Massport to extend the free-fare program indefinitely. Next-bus arrival digital dynamic signs have been added to the terminal curb bus stops to now include Airport Shuttle, Blue Line/Rental Car, and Logan Express (in addition to the Silver Line signage which was previously installed). Massport continues to improve wayfinding for ground transportation (with an emphasis on public transportation) within the terminals, resulting in enhanced directional signs in the terminals for arriving air passengers.</p> <p>Massport plans to continue with its extensive ground access transportation high-occupancy vehicle enhancement strategy to maintain its high air passenger high-occupancy vehicle mode share and to accommodate future growth. For additional information refer to the 2014 EDR, Chapter 5, Ground Access to and from Logan Airport.</p>

Mr. Matthew Beaton
 Executive Office of Energy and Environmental Affairs
 30.3

Attn: Page Czepiga, EEA No. 15434
 100 Cambridge Street, Suite 900
 Boston MA 02114
 30.4

Dear Secretary Beaton,
 This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project
 30.5

After attending the community meeting on the expansion of terminal E, I would like to comment on a few things that I felt were lacking. First of all, I think that as residents of East Boston and as people who have to live with the burden of an international airport in their backyards, we deserve some sense of clarity as to the feasibility of the expansion.
 30.6

Massport's presentation minimizes the effects of noise pollution and air pollution by claiming that since the apron area near the proposed terminal expansion is already in use, there will be no impact felt by the community. However, doesn't expanding an airport terminal entail expanding and increasing the operations in the expanded area? This is a question that needs to be answered.
 30.7

Added to this, it seems as if massport is attempting to mitigate the effects of the added jet noise by claiming that the terminal will serve as a "noise barrier" to airport park and the bordering area
 30.1

of the neighborhood. However, this noise barrier does nothing for the residents of east Boston living in the areas of highest density, and only makes things worse, as the sound will bounce off the buildings and impact the rest of the community.
 Environmentally speaking, the expansion would seemingly be a non-factor based off what Massport presented to the community. Flights are decreasing, according to massport, but what massport fails to realize is that the population density in East Boston has increased, and increased international flights with larger jets strain our environment, even indirectly.
 The method of informing the community regarding this project is unjust and deliberately so. The meeting, first of all, took place at a difficult to reach location. Added to this, members of the community without access to the East Boston times or relevant Facebook groups were not informed well enough of the meeting's date or location, leaving their voices and opinions out of the meeting space. Although the residents in the room were vocal and concerned, members of the community whose voices are often left out of meeting spaces were not represented well enough to truly gauge the concern of the people in East Boston. How can one assume that these people have nothing to say when they are never called upon? Added to this, the comment period is seeming to be deliberately in the middle of the holiday season. Claiming that "it's already longer than it is supposed to be" is not worthy reason for community members to be given the burden of having to rush their comments in during the holiday season.
 Personally, as a 16 year old, I know very little about how these processes work. But I do know that as a future homeowner in my community, I want some more clarity on all of these issues before the port authority can move forward.
 Sincerely,
 Michael Passariello
 East Boston Resident
 30.2

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Terminal E ENF Comments and Responses

Michael Passariello	
Comment #	Response:
30.1	<p>Comment: First of all, I think that as residents of East Boston and as people who have to live with the burden of an international airport in their backyards, we deserve some sense of clarity as to the feasibility of the expansion.</p> <p>Response: In this Environmental Assessment (EA), the Terminal E Modernization Project undergoes a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
30.2	<p>Comment: However, doesn't expanding an airport terminal entail expanding and increasing the operations in the expanded area? This is a question that needs to be answered.</p> <p>Response: The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized.</p>
30.3	<p>Comment: However, this noise barrier does nothing for the residents of east Boston living in the areas of highest density, and only makes things worse, as the sound will bounce off the buildings and impact the rest of the community.</p> <p>Response: Chapter 5, Environmental Consequences, documents the noise impacts associated with the proposed Project. The analysis shows that the proposed terminal configuration would serve as a noise barrier and in almost all locations would reduce the effect of ground noise impacts associated with aircraft operations. Day-night average sound levels (DNL) associated with aircraft ground operations near Terminal E in the Bremen Street area between Putnam Street and Eagle Street would be slightly increased by between 0 to 1 dB from aircraft ground operations near Terminal E due to the lack of building shielding west of the terminal, reflections from the new terminal extension, and different use of the North Apron. (Note that changes in noise below 3 dB are not normally detectable by humans.)</p>
30.4	<p>Comment: Flights are decreasing, according to Massport, but what Massport fails to realize is that the population density in East Boston has increased, and increased international flights with larger jets strain our environment, even indirectly.</p> <p>Response: Each year Massport prepares an annual environmental document, the Environmental Data Report (EDR), which assesses the impact of Airport operations on affected communities in the areas of noise, air quality/greenhouse gas emissions, ground access, and water quality. The reports (prepared annually since 1989) show that key environmental impacts of Airport-wide activities at Logan Airport have decreased significantly in the past 15 years, even while passenger levels and other measures of activity have increased. See Chapters 6 and 7 of the 2014 EDR, which document a 50% decline in the number of people exposed to sound levels of DNL 65 dB or higher, and declines of 29% in nitrogen oxide (NO_x) emissions, 34% in volatile organic compound (VOC) emissions, and 47% in carbon monoxide (CO) emissions, all as compared to 2000.</p>
30.5	<p>Comment: The method of informing the community regarding this project is unjust and deliberately so. The meeting, first of all, took place at a difficult to reach location. Added to this, members of the community without access to the East Boston times or relevant Facebook groups were not informed well enough of the meeting's date or location, leaving their voices and opinions out of the meeting space.</p> <p>Response: Massport will consider alternate locations for future public meetings. Holding public meetings at Logan Airport is a convenient central location for the full spectrum of Airport users and affected community members. Massport will make all diligent efforts to inform the public of public meetings and availability of documents.</p>
30.6	<p>Comment: Although the residents in the room were vocal and concerned, members of the community whose voices are often left out of meeting spaces were not represented well enough to truly gauge the concern of the people in East Boston.</p> <p>Response: Massport will continue to hold public meetings for members of the community to attend and learn about projects at Logan Airport.</p>
30.7	<p>Comment: Added to this, the comment period is seeming to be deliberately in the middle of the holiday season. Claiming that "it's already longer than it is supposed to be" is not worthy reason for community members to be given the burden of having to rush their comments in during the holiday season.</p> <p>Response: Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015 requiring additional environmental review. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.</p>

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Czepiga, Page (EEA)

From: Lynds, Rebecca [Rebecca.Lynds@beirm.com]
Sent: Wednesday, December 09, 2015 9:22 AM
To: Czepiga, Page (EEA)
Subject: Logan Expansion

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

From transportation impacts, to noise, and most importantly, pollution and its effects on the residents of our community, this is an idea that should be adamantly denied.

As a mother and lifelong resident of East Boston, I will do all I can to stop this expansion. That includes boycotting Logan Airport if needed. I refuse to let my community members suffer because of an unnecessary expansion of an already over-expanded airport.

Please consider the requests of this community as you would your own.

Sincerely,

Rebecca Lynds

4 Thurston Street, East Boston

617-999-4972

Rebecca.Lynds@gmail.com

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Terminal E ENF Comments and Responses

Rebecca Lynds		
Comment #	Comment:	Response:
31.1	After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.	In this Environmental Assessment (EA), the Terminal E Modernization Project undergoes a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoped Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.

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Czepiga, Page (EEA)

From: rich.lockney [rich.lockney@gmail.com]
Sent: Tuesday, December 08, 2015 8:55 PM
To: Czepiga, Page (EEA)
Cc: salvatore.lamattina@boston.gov; anthony.petrucciell@masenate.gov; adrian.madarro@manouse.gov
Subject: ENF Terminal E Expansion (from a resident; data attached)
 Airport.zip

Follow Up Flag: Follow up
Flag Status: Flagged

To Whom It May Concern,

When I moved to East Boston in November of 2009 I knew it was a near the airport. Before fully committing to moving in -- and buying, therefore making a considerable investment and forsaking mobility -- I spent time around the area.

During that time, and for the first three or so years living here (at the corner of Brooks and Condor), the noise was manageable. In fact, it wasn't as bad as everyone had told me it was going to be. If it was loud enough to truly be noticeable, it was a notable event, or at least as notable as a brief period of steady background noise could be. It was mainly a string of landings on an overcast day.

It honestly didn't bother me all that much. I had heard that the houses in proximity to the airport were given noise-proof windows, but had learned that we weren't considered an "affected" area by Passport standards. I found that odd, but again, it was manageable.

However, maybe two or so years ago, something changed (as it turns out, it was the opening -- or re-opening -- of a runway and the adoption of a new aircraft navigation system meant to "optimize" it traffic). The noise levels increased dramatically. The truly noticeable plane noise was no longer a sporadic event - it was more days than not. These weren't landings a few minutes apart - they were loud, low take-offs in high frequency - up to once a minute, and for often sustained periods of time (and sometimes as late as 2AM).

Now, it became bothersome. Beyond bothersome, as there is no escaping it when it's at its worst, when you don't know when it's going to end, and when you can't do much of anything that requires any attention, as it's just that loud. I can't help but feeling a bit foolish investing money in an area where this is becoming the norm.

Sometime this spring I set up my wife with a button on her phone that she could press whenever she heard a plane. When the button was pressed, a timestamp and GPS/map location would be written to a document. While these are not complete logs (we work, we try to sleep, we sometimes can't get to the phone in time or have just given up), you can see the frequency of the flights on some days. It's intense.

Included are the complete logs in CSV format (plain-text, readable in a text editor or a spreadsheet application such as Excel, Numbers or Google Docs), as well as samples of some select days that I found more or less at random where the frequency and volume looked high. I didn't have to look too hard, and maybe there were worse days recorded while we were at home.

I can't imagine this getting better were the airport -- and flight volume -- to be expanded. While I don't think many more planes-per-hour could be sent over our house on a bad day, I envision the frequency of these "bad days" increasing. And it has an impact.

I can't go on for great lengths about the other concerns that go along with such an expansion, such as pollution, but they are of concern to me when I really think of them. However, those problems tend to manifest themselves over time, and can seem pretty abstract at times. The noise, however, has become impossible to ignore.

So, please look at the attached times and dates, especially the intervals/spaces in between those times, and the window of time in which they fall.

Given the increased concentration (key word) of flights already, were this expansion to happen, do we finally count as an "affected area"? Because I've seen (and am living through) the "before" and "after" of the RNAV system. I can't imagine the second "after" when the airport expands and traffic increases even more.

Thanks,

Rich Lockney
 231 Brooks Street
 781-718-9698
rich.lockney@gmail.com

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Terminal E ENF Comments and Responses

Rich Lockney	
Comment #	Response:
32.1	<p>I can't go on for great lengths about the other concerns that go along with such an expansion, such as pollution, but they are of concern to me when I really think of them.</p> <p>Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoped Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
32.2	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized.</p>

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Rowan Curran
27 Everett Street
East Boston, MA 02128

Czepiga, Page (EEA)

From: Rowan Curran [rcheavrin@gmail.com]
Sent: Wednesday, December 09, 2015 3:27 PM
To: Czepiga, Page (EEA)
Cc: salvatore.lamattina@boston.gov; anthony.petrucelli@masenate.gov; adrian.madaro@mahouse.gov; rowan.b.curran@gmail.com
Subject: Public Comment Submission for: The Environmental Notification form for the Terminal E Modernization Project

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport.

After reading the Environmental Notification Form (ENF) for the Terminal E Modernization Project (the Project) and reviewing the most recent version of the Boston-Logan International Airport 2014 Environmental Data Report, I have concerns about the detail and data quality of the ENF for the Project. Due to these concerns, I am not confident in the use of the ENF as a credible assessment of the impacts of the Project. My reservations about the document include:

1. **Limited consideration of project plan alternatives:** The ENF covers the alternatives to the proposed Project in a cursory manner. The No-Build and Partial Build alternatives are do not provide a sufficient amount of detail to legitimately consider them in opposition to the proposed Project. It is unclear from the ENF what the actual plans for Partial Builds would entail, as the components of this alternative are only listed and not explicated. Additionally, the alternatives as well as the main plan are only considered in the light of one model of projected growth.
2. **Lack of regional or strategic planning consideration:** Massport has stated that one of its goals in the continued improvement and upgrading of Massachusetts' transportation networks is to follow a plan which would offload significant operations onto other airports in the region (e.g. Worcester and Manchester). However, in the ENF's main plan, as well as the alternatives, no mention is made of how to address the need driving the Project in a regional context. Nor is there examination of how any alternative plans might incorporate regional airports to deal with the size or number of aircraft driving the need for the Project. (e.g. an alternative plan might examine how the now-in-progress Terminal E project could accommodate the larger aircraft designs, while some of the aircraft volume could be offset by upgrading Worcester, Providence, or Manchester to serve international passengers for smaller aircraft)
3. **Lack of support for key data points:** In the ENF's opening Summary of Project Size, Massport contends that there will be no additional vehicle trips generated to Logan Airport as a result of this project. There is no material or modelling support for this data point anywhere in the ENF, and projecting zero new vehicle trips run contrary to Massport's data in the section immediately following: "International passenger levels continue to grow at a faster rate than domestic, with international passengers forecast to grow at 3 percent per year." (p4). This discrepancy should require Massport to disclose the modelling behind this forecast. Specifically, they must offer the evidence giving them confidence that an increase in airport passenger capacity with limited concurrent High Occupancy Vehicle capacity would not lead to more vehicle trips per day.

Due to these concerns, I request that the Secretary choose to require an Environmental Impact Report on the ENF as well as deeper review of alternative planning options before allowing the Project to proceed further.

Respectfully yours,

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33.2

33.3

33.4

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Terminal E ENF Comments and Responses

Rowan Curran	Comment #	Comment:	Response:
	33.1	Limited consideration of project plan alternatives: The ENF covers the alternatives to the proposed Project in a cursory manner. The No-Build and Partial Build alternatives are do not provide a sufficient amount of detail to legitimately consider them in opposition to the proposed Project. It is unclear from the ENF what the actual plans for Partial Builds would entail, as the components of this alternative are only listed and not explicated. Additionally, the alternatives as well as the main plan are only considered in the light of one model of projected growth.	Chapter 3, Alternatives and Proposed Action, documents the various design layouts that were considered for the Terminal E Modernization Project. Options evaluated included a major expansion of the existing Terminal E building, a new centerfield concourse and an extended, connected concourse. Alternatives were evaluated in terms of their efficiency, constructability, costs, and environmental considerations. Consideration was also given to the regional context of the proposed Project and the role that Logan Airport plays as the primary international airport serving the New England area.
	33.2	Lack of regional or strategic planning consideration: Massport has stated that one of its goals in the continued improvement and upgrading of Massachusetts' transportation networks is to follow a plan which would offload significant operations onto other airports in the region (e.g. Worcester and Manchester). However, in the ENF's main plan, as well as the alternatives, no mention is made of how to address the need driving the Project in a regional context. Nor is there examination of how any alternative plans might incorporate regional airports to deal with the size or number of aircraft driving the need for the Project. (e.g. an alternative plan might examine how the now-in-progress Terminal E project could accommodate the larger aircraft designs, while some of the aircraft volume could be offset by upgrading Worcester, Providence, or Manchester to serve international passengers for smaller aircraft)	Logan Airport serves as New England's primary domestic and international airport plays, a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports. Massport has considered provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E. Chapter 3, Alternatives and Proposed Action reviews operational effects.
	33.3	Lack of support for key data points: In the ENF's opening Summary of Project Size, Massport contends that there will be no additional vehicle trips generated to Logan Airport as a result of this project. There is no material or modelling support for this data point anywhere in the ENF, and projecting zero new vehicle trips run contrary to Massport's data in the section immediately following: "International passenger levels continue to grow at a faster rate than domestic, with international passengers forecast to grow at 3 percent per year." (p4). This discrepancy should require Massport to disclose the modelling behind this forecast. Specifically, they must offer the evidence giving them confidence that an increase in airport passenger capacity with limited concurrent High Occupancy Vehicle capacity would not lead to more vehicle trips per day.	Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports. Chapter 5, Environmental Consequences, provides a full analysis of transportation as it relates to the Terminal E Modernization Project.

Terminal E ENF Comments and Responses

Rowan Curran Continued	
Comment #	Comment:
33.4	<p>Due to these concerns, I request that the Secretary choose to require an Environmental Impact Report on the ENF as well as deeper review of alternative planning options before allowing the Project to proceed further.</p>
	<p>Response: The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR). In the Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary states that "I have determined that additional information regarding the necessary details of design and development of the Terminal E expansion is warranted to properly assess potential impacts. The Scope for the EIR is narrowly tailored to the project and its specific impacts. It is intended to augment the federal review process, not duplicate it." This EA/DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>

Czepiga, Page (EEA)

From: Salvador Cartagena [s.a.cartagena@outlook.com]
Sent: Tuesday, December 08, 2015 9:28 PM
To: Czepiga, Page (EEA)
Cc: salvatore.lamattina@boston.gov; Anthony.Petruccelli@masenate.gov; Adrian.Madaro@mahouse.gov
Subject: Terminal E Modernization

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations.

Sincerely,

Salvador Cartagena

165 Saratoga St.
Boston MA, 02128

617-567-6959

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Terminal E ENF Comments and Responses

Salvador Cartagena	
Comment #	Response:
34.1	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project. Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	

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Czepiga, Page (EEA)

From: smh00a@gmail.com on behalf of Steve Holt [steve@thebostonwriter.com]
Sent: Wednesday, December 09, 2015 11:13 AM
To: Czepiga, Page (EEA)
Cc: Salvatore Lallaitina; Petrucci, Anthony (SEN); Adrian C. (HOU) Madaro
Subject: Comments on the Terminal E Expansion ENF: For our kids sake, halt airport expansion.

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114
Dear Sec. Beaton,

I am writing regarding the proposal to expand Terminal E at Logan International Airport. My wife and I are raising two young children in East Boston. We moved here a decade ago and found a community that works together to solve problems, is proud of where it came from and where it's going, and contributes greatly to the vibrancy of Boston and the Commonwealth. While we moved here with full knowledge of the airport on our doorstep, we also were touched by the stories of our older neighbors through the years who resisted Logan's land-taking expansion efforts in the 1960s and 1970s and have demanded transparency and accountability from Massport through the years. Logan Airport is arguably the most urban airport in the world, operating closer to a large residential population than any other. On its East Boston property -- with the neighborhood on one side and Boston Harbor on the other -- Logan's footprint is limited, along with its ability to expand. While the airport is quite economical with the space it has, we believe continued expansion that increases both vehicular and air traffic, should be halted -- for the sake of our community's children, ours included. Based on our reading of the Environmental Notification Form for this project, we are particularly concerned that the expansion currently being proposed will disproportionately and negatively impact the environment, and thus the quality of life of families living in the neighborhoods surrounding the airport.

Transportation Impacts
The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.

Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers

per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Noise

Even while Massport sends out marketing teams in search of more international business for Logan, and even as they will have doled out \$5.6 million over the next few years in incentives to bring business here (adding to what they predict will be a 30% increase in flights over the next 14 years), these same Port Authority officials claim that these flights would come whether or not they built a new terminal. Thus the Terminal E Modernization ENF repeatedly concludes wishful "findings of no significant impact" (FONSIs) in regards to the project. Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise. (which, as a neighborhood study concluded last year, already impacts the sleeping patterns of residents)

Health / Pollution

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for an a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project

will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project. The international airport on our doorstep presents enough ecological and public health challenges at its current capacity. Unlimited growth in its current footprint is simply unsustainable and should be stopped -- for the sake of the people and neighborhoods impacted by airport operations.

Sincerely,

Steve and Chrissy Holt

68D Marginal Street, East Boston

steve@thebostonwriter.com

CC:

City Councillor Salvatore LaMattina

State Senator Anthony Petrucci

State Representative Adrian Madaro

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Terminal E ENF Comments and Responses

Steve and Chrisy Holt		
Comment #	Comment:	Response:
35.1	While the airport is quite economical with the space it has, we believe continued expansion that increases both vehicular and air traffic, should be halted -- for the sake of our community's children, ours included.	Thank you for your comment.
35.2	Based on our reading of the Environmental Notification Form for this project, we are particularly concerned that the expansion currently being proposed will disproportionately and negatively impact the environment, and thus the quality of life of families living in the neighborhoods surrounding the airport.	As documented in Chapter 5, Environmental Consequences, there are no significant noise or air quality impacts associated with the Terminal E Modernization Project, thus there are no disproportionate impacts to Environmental Justice communities in the vicinity of Logan Airport. Massport is committed to collaborating with impacted surrounding communities. Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. These Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) have tracked and reported on environmental conditions associated with the Airport. For example, since 1990 the population located within the Federal Aviation Administration (FAA) defined noise level of 65 dB (which is considered to be incompatible with residential land use) has dropped from 44,142 to 8,922 people in 2014. Massport has an extensive sound insulation program which has treated over 11,515 impacted dwellings since the start of the program in 1996. In the same period, modeled daily carbon monoxide (CO) emissions have dropped from 17,457 kg/day to 6,987 kg/day. See Chapters 6 and 7 of the 2014 EDR.

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Czepiga, Page (EEA)

From: Cindy L. Christiansen [clicmilton@gmail.com]
Sent: Wednesday, December 09, 2015 6:03 PM
To: Czepiga, Page (EEA)
Cc: Stewart Dalzell; Annemarie Fagan
Subject: Comment letter - ENF for Logan Airport Terminal E

Via email to: Page.Czepiga@state.ma.us

December 9, 2015

Mr. Matthew Beaton
 Executive Office of Energy and Environmental Affairs
 Attn: Page Czepiga, EEA No. 15434
 100 Cambridge Street Suite 900
 Boston, MA 02114

Dear Secretary Beaton,

Although I am listed on the distribution list for the ENF document about the Terminal E expansion, I received no material from Massport on this topic. I am the Logan CAC representative for Milton MA. Had I received the material, I would have brought it to the attention of Milton's elected officials, especially our Board of Selectmen, who are extremely concerned about the negative health and quality of life impacts Logan airport operations has on our town. I also would have encouraged input from our residents who suffer almost daily from the unfair and unjust number, timing, concentration, and persistence of airplane traffic over our town.

Because I did not receive information about this ENF and comment period until last night (via another town's post to Facebook), citizens of Milton have been denied an opportunity to voice their concerns about the consequences we face due to the expansions and increase in air traffic planned for Massport.

I request an extension to your comment deadline to Friday January 12, 2016 which is approximately one week after the next Logan CAC meeting.

Although I have had little time to review the material, here are my initial concerns:

1. Massport seems to have a total disregard for how their operations affect residents on the ground. The overnight operations, the early morning and late into the night arrivals and departures are shifting costs that should be "owned" by Massport and the airlines to residents and communities who are paying with their health, loss of productivity, property values, sleep, and the peaceful enjoyment of their homes. **To add more planes, more service, more flights, more noise, more night time flights, and more pollution is unethical.**
2. Any improvements to infrastructure should first be those that will facilitate the goal to fairly distribute the operations at Logan, not at an improvement that will exacerbate this problem. Massport has runways that it doesn't use, others that it overuses, some with the bells and whistles, and others without. Why not first build the infrastructure that Logan now lacks so that it can handle the operations it currently has without torturing and abusing some communities, like Milton? Once Massport has that right, then consider expansion.
3. Runway 4R is overused because of "**demand**". Even though Massport and the FAA like to tell the public that runway choice is primarily a function of wind direction and speed, Runway 4R is the first choice arrival runway when demand is high even when winds or northwest, north, northeast, east, and southeast. To ensure

that current and future demand can be met, improvements to Runway 4L have been made in anticipation of the FAA adopting two new RNAV arrival paths over Milton. Now Massport wants to add planes the size of cruise ships flying over our homes at 1700 feet. Where will this stop? Who is making these poor decisions? Has their been any consideration for what these super jumbo jets will do to the communities that they overfly? Show me where that was considered please.

4. Even in a poorly designed and implemented study Logan Airport pollution has been shown to be associated with a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also associated with a 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, and a 300% increase in risk of heart attack. Jet pollution has been shown to follow predictable patterns under flight paths, exposing thousands upon thousands of Milton and Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes. When will Massport be required to study this and protect Massachusetts residents from these known and substantial health risks? Shouldn't this happen before we invite more jets over our communities?

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations across the region.

Again, I request an extension to your comment period so that I can more closely review the material that I am only seeing for the first time today and so that Milton residents can be fairly notified of the material and comment period.

- Cindy L. Christiansen
 ++++++
 Cindy L. Christiansen, Ph.D.
 59 Collamore Street
 (617) 322-9323
 Town Meeting Member Pct. 7
 Logan CAC Representative, Milton

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 Cont.

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Terminal E ENF Comments and Responses

Cindy L. Christiansen, Ph.D.	
Comment #	Response:
36.1	<p>I request an extension to your comment deadline to Friday January 12, 2016 which is approximately one week after the next Logan CAC meeting.</p>
36.2	<p>Massport requested and was granted an extension of the Environmental Notification Form (ENF) comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015. The public will have additional opportunities to comment on the Project with the filing of this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR).</p> <p>The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impact of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Milton is an active member of this group. Detailed information from the studies can be found at https://www.bostonoverflightnoisestudy.com. That study continues to be the appropriate forum for those discussions. For over three decades, Massport has provided an annual report on the noise environment of Logan Airport, as documented in the EDRs and ESPRs. These annual reports also provide updates on the BLANS study and other FAA initiatives.</p> <p>As documented in this EA/DEIR (see Chapter 5, Environmental Consequences), the Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
36.3	<p>Runway 4R is overused because of "demand". Even though Massport and the FAA like to tell the public that runway choice is primarily a function of wind direction and speed, Runway 4R is the first choice arrival runway when demand is high even when winds or northwest, north, northeast, east, and southeast. To ensure that current and future demand can be met, improvements to Runway 4L have been made in anticipation of the FAA adopting two new RNAV arrival paths over Milton. [..] Has their been any consideration for what these super jumbo jets will do to the communities that they overfly? Show me where that was considered please.</p>
36.4	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

Terminal E ENF Comments and Responses

Cindy L. Christiansen, Ph.D. Continued		
Comment #	Comment:	Response:
36.5	Again, I request an extension to your comment period so that I can more closely review the material that I am only seeing for the first time today and so that Milton residents can be fairly notified of the material and comment period.	Massport requested and was granted an extension of the ENF comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.

Czepiga, Page (EEA)

From: Betsy Lewenberg [blewenberg@gmail.com]
Sent: Thursday, December 10, 2015 9:16 PM
To: Czepiga, Page (EEA)
Cc: garrett.bradley@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; PLemnios@town.hull.ma.us; KRichardson@town.hull.ma.us; DSestito@town.hull.ma.us; CMitchell@town.hull.us.ma; JReilly@town.hull.us.ma
Subject: Terminal E expansion proposal

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street Suite 900
Boston, MA 02114

Dear Secretary Beaton,

Following on the heels of last week's community forum at Milton High School where the message came through loud and clear that airplane noise has reached an intolerable level, Massport announced that it plans to expand Terminal E. Expansion of this terminal can only mean an increase in flights, which is especially troublesome if it means an increase in late night and early morning flights. This is an outrage and blatant disregard of the toll that airplane noise is taking upon the residents of Hull.

I have lived at 36 Western Avenue in Hull since 1974. Although airplane traffic has increased gradually over the decades, it was this past summer when it reached intolerable levels. Up until the past few years, planes flew north of Hull over the water on takeoff, keeping the noise level down. The landing pattern too was considerate of Hull residents. All that has changed due to a new protocol that allegedly reduces noise. Yet, this past summer my family was unable to have conversations on the porch, watch television, listen to the radio or talk on the phone with windows open and were even sometimes unable to get a good night's sleep. My experience this past summer was validated by the dozens of speakers at the Milton forum.

Before any expansion of any airplane traffic is considered, a thorough, **independent** and open study must take place that **honestly** assesses the impact any potential plans would have upon the affected communities. 37.1

Sincerely,

Betsy Lewenberg

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Terminal E ENF Comments and Responses

Betsy Lewenberg		
Comment #	Comment:	Response:
37.1	<p>Before any expansion of any airplane traffic is considered, a thorough, independent and open study must take place that honestly assesses the impact any potential plans would have upon the affected communities.</p>	<p>This Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) provides a detailed assessment of the anticipated environmental effects of the proposed Terminal E Modernization Project. As documented in Chapter 5, Environmental Consequences, the Project would have beneficial impacts in the areas of noise, air quality, and ground access. The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations.

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Czepiga, Page (EEA)

From: Elke O'BRIEN [elke.obrien@gmail.com]
Sent: Wednesday, December 09, 2015 2:27 PM
To: Czepiga, Page (EEA)
Cc: P Lemnios@town.hull.ma.us; rbratt@robhediund.com; brannan@town.hull.ma.us; KRichardson@town.hull.ma.us; DSesitto@town.hull.ma.us; CjMitchell@town.hull.us.ma; JReilly@town.hull.us.ma
Subject: Comment Letter on Terminal E Expansion

Dear Secretary Beaton,

I understand that there is a proposal to expand Terminal E at Logan Airport. I am a resident of Hull, MA whose home and family is bombarded around the clock on a daily basis by airplane noise and vibration. I regularly register complaints with Massport and cheered Congressman Stephen Lynch when he pushed for a public forum with the FAA so we could voice our complaints about air traffic noise and pollution. As I write this, I am hearing non-stop flights leaving Logan heading right towards our town. Enough is enough.

Based on my experience of living in Hull for the past 13 years and talking with our neighbors, you cannot add flights into and out of Logan airport without significantly depreciating the quality of life of the citizens who live in Boston and the surrounding communities. Just look at the increase in the number of complaints that are being logged since the introduction of the NextGen program. Adding flights to Logan at any time of day or night is not a solution to this problem but rather a sign that other airports need to be utilized and other solutions found to handle the demand. We need curfews at Logan, not increases in flight activity.

38.1

I hope you will consider my concerns as my family is one of many regularly impacted in a negative way by the activities at Logan airport.

Sincerely,

Elke O'Brien
Hull, MA

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Terminal E ENF Comments and Responses

Elke O'Brien	
Comment #	Response:
38.1	<p>Logan Airport serves as New England's primary domestic and international airport plays, a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services. Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Massport has considered provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E. Chapter 3, Alternatives and Proposed Action reviews operational effects.</p> <p>Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and enhanced bad weather capabilities (Category III Instrument Landing System) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III as well as airfield taxiway improvements to bring Worcester Regional Airport up-to-par with the other regional airports.</p>

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Czepiga, Page (EEA)

From: Gisela Voss (giselavoss@comcast.net)
Sent: Wednesday, December 08, 2015 2:40 PM
To: Czepiga, Page (EEA)
Cc: garrettbradley@mahouse.gov; robert@robert-hedlund.com; lbrannan@town.hull.ma.us; PLemnos@town.hull.ma.us; KRichardson@town.hull.ma.us; DSeesito@town.hull.ma.us; CMitchell@town.hull.us.ma; JReilly@town.hull.us.ma; neighbors@quetersikes.org
Subject: Not more airplane noise over Hull, please. Less!

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA, No. 15434
100 Cambridge Street Suite 900
Boston, MA 02114

Dear Secretary Beaton,

We had just attended a meeting at Milton High expressing our concerns about the already existing excess of noise over Hampton Circle in Hull — sometimes a plane every 2-3 minutes from 2am-6am! We here hoping for a reduction in noise, and now hear about the proposal to expand Terminal E at Logan Airport.

39.1

We raise children in these communities. We work and live and love in these communities. Communities you will be adversely affecting with air quality pollution that can affect our lungs, and noise pollution that can affect our sanity.

Please reconsider.
Find another way.

Gisela Voss and Dan Kerman
77 Hampton Circle,
Hull, MA 02045

Further I did not want to just cut and paste a form letter.
We are real HUMANS here.
In your flight

After reading the Environmental Notification Form, I have concerns about the completeness of the consideration for the environmental impacts this expansion of international flight capacity will have on the region.

Environmental Impact of Increased International Flight Volume Insufficiently Considered
The Logan Airport 2011 Environmental Status and Planning Report (ESPR - http://www.massport.com/media/2891/Logan_ESPR_2011.pdf) projects an increase in flight operations at Logan Airport of 29% from 2011-2030. The ENF states that the number of projected international passengers at Logan will increase from 4.9 million in 2014 to 6 million in 2022 – a 22% increase. One can reasonably

1

assume based on the proposal to expand the International Terminal at Logan that a substantial amount of the ESPR's projected increase is going to come from international operations. This is important because Logan is capacity-constrained during the peak hours of 6am-9am and 4pm-7pm.

The current international flights are primarily arriving between 6pm-9pm and departing between 9pm-12am. There is also a scheduled flight to Hong Kong at 1:30am.

It is reasonable to assume:

1. Since there is no more runway capacity during the peak hours
2. The majority of current international flights arrive and depart between 6pm and 12am
3. There is additional capacity during that time period – there are currently only seven departures between 9pm-10pm, three between 10pm-11pm and two between 11pm-12am.

The communities in the vicinity of Logan can expect that there will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant and is not appropriately considered in the content of the Environmental Notification Form (ENF). The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.

There is a reference on page 10 of the ENF to environmental analysis that was included in the 2011 ESPR but this is in no way an adequate consideration of the potential impact such a substantial potential increase in flight operations in the evening/night time frame and overnight time periods. The DNL metric used by the FAA in their analysis of changes in flight operations is antiquated and was developed for a radar-based mode of air traffic control. The impact of these increases in flight volume is exacerbated by the continued implementation by the FAA of RNAV satellite-based flight path routing under their Performance-based Navigation (PBN) initiatives under the umbrella of their NextGen modernization program. These new international flights will be large, heavy (full of freight) and in some cases old, aircraft. They tend to gain altitude more slowly and have a much louder noise profile than smaller jets. So the residents in close-in communities as well as those under concentrated flight paths further away from the airport who are already experiencing significant negative effects from current operations will be subjected to what will be a significant impact – regardless of what is reflected in the FAA's captive analysis.

I request that the State of Massachusetts require Massport and the FAA to provide detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan – especially in the evening/night hours – and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory Committee (CAC). This real-world impact should include the analysis of all flight paths that could be used to accommodate this increase in flights and supplemental metrics such as N65, Lmax and SEL in addition to DNL. I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Now, despite the chronic health effects caused by Logan Airport pollution and significant negative noise impacts of NextGen/PBN/RNAV concentration of flight paths, Massport's solution for Massachusetts' international air travel needs seems solely focused on expansion at Logan. We have regional airports such as Worcester that are under-utilized. MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Health / Pollution

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and

2

200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, and a 300% increase in risk of heart attack. Jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for significant expansion of passenger volume that will have a corresponding increase in NOx. With the expanded Terminal E expected to contribute 57% to the growth in passenger volume, the project will cause a 14% increase in NOx by itself, a fact that must be weighed by MEPA in considering the environmental impacts of this project.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking. There should be greater required investments to enhance alternative and more environmentally friendly modes of transportation to and from Logan.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations across the region.

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Terminal E ENF Comments and Responses

Gisela Voss and Dan Kernan	
Comment #	Response:
39.1	<p>The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impacts of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Detailed information from the studies can be found at: http://www.bostonoverflightnoise.study.com. That study continues to be the appropriate forum for those discussions. Milton is an active member in the CAC. The FAA NextGen initiative is a national effort to improve the daily operations of the entire National Airspace System. This has resulted in changes in flight track and airspace around the country with resultant changes in the noise environment. The FAA prepared an Environmental Assessment (EA) that studies the change in RNAV, which enables aircraft to fly on any desired flight path within the coverage of ground- or space-based navigation aids, within the limits of the capability of the self-contained systems, or a combination of both capabilities. RNAV aircraft have better access and flexibility for point-to-point operations.</p>
	Comment:
	<p>We had just attended a meeting at Milton High expressing our concerns about the already existing excess of noise over Hampton Circle in Hull - sometimes a plane every 2-3 minutes from 2am-6am! We here hoping for a reduction in noise, and now hear about the proposal to expand Terminal E at Logan Airport.</p>

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Czepiga, Page (EEA)

From: Herb Zeller [ze2lerhg@gmail.com]
Sent: Wednesday, December 09, 2015 4:36 PM
To: Czepiga, Page (EEA)
Cc: garrett.bradley@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; Lemmos, Philip; KRichardson@town.hull.ma.us; DSestito@town.hull.ma.us; CMitchell@town.hull.us.ma; JRhilly@town.hull.us.ma

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street Suite 900
Boston, MA 02114

Dear Secretary Beaton,

I am opposed to an increase capacity of inbound and outbound flights at Logan Airport Terminal E that will inevitably increase flyovers and flight paths adjoining the Town of Hull.

40.1

Sincerely,

H. Gerald Zeller
21 Bradford Ave
Hull, MA 02045

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Terminal E ENF Comments and Responses

Herb Zeller	
Comment #	Response:
40.1	Thank you for your comment.
Comment:	Response:
I am opposed to an increase capacity of inbound and outbound flights at Logan Airport Terminal E that will inevitably increase flyovers and flight paths adjoining the Town of Hull.	Thank you for your comment.

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Czepiga, Page (EEA)

From: Jeff Kerr [jskerr@verizon.net]
Sent: Wednesday, December 09, 2015 2:27 PM
To: Czepiga, Page (EEA)
Cc: garrett.bradley@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; PLermios@town.hull.ma.us; KRichardson@town.hull.ma.us; DSesito@town.hull.ma.us; CMitchell@town.hull.us.ma; JReilly@town.hull.us.ma
Subject: Have you no conscience

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434

Dear Secretary Beaton,

Regarding the proposal to expand Terminal E at Logan Airport

Is it always about money. You are already dropping bombs on the sounds of, on our poor insignificant (apparently) heads and strafing us with jet fuel particulates.. If this was a different time .. A time where we were initially provided and promised the right to life, liberty and pursuit of happiness, people would come for you with bodies and brooms and sticks, rocks and whatever else they could muster, to take back what is there 's. We, today try and appeal civilly, with common sense and dignity and we get smoke blown up our backsides and hollow nods with no meaning nor consideration. On second thought, there actually is a level of consideration in your actions and proposals, it's just not for the people it's for the money.. Where do people like you come from..? Directly speaking, only a bad person or persons would even suggest increasing traffic flow and noise. We citizens are already in a battle to take back our peace and quiet, are health and our sanity caused by the incessant flights over our heads. More..seriously..grow a set and stand up FOR the people instead of the corporations...

Jeff Kerr
Hull, MA.

Sent from my iPhone

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Terminal E ENF Comments and Responses

Jeff Kerr		
Comment #	Comment:	Response:
41	General Concern	<p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

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Czepiga, Page (EEA)

From: Jeff Kerr [jskerr@verizon.net]
Sent: Wednesday, December 09, 2015 4:20 PM
To: Czepiga, Page (EEA)
Cc: garrett.bradley@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; Plemnios@town.hull.ma.us; KRichardson@town.hull.ma.us; DSestito@town.hull.ma.us; CMitchell@town.hull.ma.us; JReilly@town.hull.us.ma
Subject: Re: Have you no conscience

A message I previously sent is intended solely for those that would attempt to expand the runway and increase flights from Terminal E. In no way is it intended for those examining the impact of such a harmful endeavor or those helping to oppose the horrific airplane noise many citizens are being subjected too. 42.1

Thank you,
Jeff Kerr

Sent from my iPhone

> On Dec 9, 2015, at 2:27 PM, Jeff Kerr <jskerr@verizon.net> wrote:

> Mr. Matthew Beaton
 > Executive Office of Energy and Environmental Affairs
 > Attn: Page Czepiga, EEA No. 15434

> Dear Secretary Beaton,

> Regarding the proposal to expand Terminal E at Logan Airport

> Is it always about money. You are already dropping bombs or the sounds of, on our poor insignificant (apparently) heads and strafing us with jet fuel particulates.. If this was a different time .. A time where we were initially provided and promised the right to life, liberty and pursuit of happiness, people would come for you with bodies and brooms and sticks, rocks and whatever else they could muster, to take back what is there's. We, today try and appeal civilly, with common sense and dignity and we get smoke blown up our backsides and hollow nods with no meaning nor consideration. On second thought, there actually is a level of consideration in your actions and proposals, it's just not for the people it's for the money.. Where do people like you come from..? Directly speaking, only a bad person or persons would even suggest increasing traffic flow and noise. We citizens are already in a battle to take back our peace and quiet, are health and our sanity caused by the incessant flights over our heads. More...seriously..grow a set and stand up FOR the people instead of the corporations...

> Jeff Kerr
 > Hull, MA.
 > Sent from my iPhone

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Terminal E ENF Comments and Responses

Jeff Kerr		
Comment #	Comment:	Response:
42.1	A message I previously sent is intended solely for those that would attempt to expand the runway and increase flights from Terminal E. In no way is it intended for those examining the impact of such a harmful endeavor or those helping to oppose the horrific airplane noise many citizens are being subjected to.	<p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>

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Czepiga, Page (EEA)

From: Joe Berkeley [berkeley.joseph@gmail.com]
Sent: Wednesday, December 09, 2015 7:03 PM
To: Czepiga, Page (EEA)
Subject: Mercy

Hi, Page.

I live in Hull, Massachusetts and we get hammered with airplane noise. I understand you are considering expanding Logan. If you could move the takeoff pattern one nautical mile to the north over Boston Light instead of over Hull, it would make life better. Thank you for your considerations.

Best,

Joe

... joberkeley.com
(617) 529-0609

Skype: joe.berkeley
twitter: joberkeley

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43.1

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Terminal E ENF Comments and Responses

Joe Berkeley		
Comment #	Comment:	Response:
43.1	I live in Hull, Massachusetts and we get hammered with airplane noise. I understand you are considering expanding Logan. If you could move the takeoff pattern one nautical mile to the north over Boston Light instead of over Hull, it would make life better.	The Federal Aviation Administration (FAA) has been actively studying the noise and other environmental impacts of proposed flight path changes to Logan Airport's runways. The Boston Logan Airport Noise Study, or BLANS, has been going on since 2008 and there has been a Logan Airport Community Advisory Committee (CAC) working with the FAA and Massport on providing community representation. Detailed information from the studies can be found at: http://www.bostonoverflightnoisestudy.com . That study continues to be the appropriate forum for those discussions. Milton is an active member in the CAC. The FAA NextGen initiative is a national effort to improve the daily operations of the entire National Airspace System. This has resulted in changes in flight track and airspace around the country with resultant changes in the noise environment. The FAA prepared an Environmental Assessment (EA) that studies the change in RNAV, which enables aircraft to fly on any desired flight path within the coverage of ground- or space-based navigation aids, within the limits of the capability of the self-contained systems, or a combination of both capabilities. RNAV aircraft have better access and flexibility for point-to-point operations.

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Czepiga, Page (EEA)

From: Karis North [karis.north@verizon.net]
Sent: Wednesday, December 09, 2015 11:49 AM
To: Czepiga, Page (EEA)
Cc: Garrett.Brady@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; PLemire@town.hull.ma.us; KRichardson@town.hull.ma.us; DSesito@town.hull.ma.us; Mitchell@town.hull.us.ma; JReilly@town.hull.us.ma
Subject: Comments on Terminal E Modernization Project ENF - EEA #15434.

December 9, 2015
Secretary Matthew Beaton (VIA EMAIL ONLY)
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114
RE: Comments on Terminal E Modernization Project ENF - EEA #15434.

Dear Secretary Beaton:

As a resident of Hull, and someone regularly impacted by the increased airplane traffic over my town, I am submitting the following comments on the Logan International Airport Terminal E "Modernization" project Environmental Notification Form (ENF), EEA #15434.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.

Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces.

Failure to Consider Alternatives

Surrounding community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, Massport studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Massport is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require Massport to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally impacts of this proposal.

Health / Pollution

Current Massport plans call for a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute to 57% of this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

I understand that the United States Environmental Protection Agency ("EPA") is going to be implementing a new rulemaking process to set forth standards for emissions from airplane engines. The EPA administrator intends to make a finding that emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride from engines used in commercial aircraft endanger the public health and the environment.

There is data available which demonstrates that aircraft emissions, particularly of fine particulates impacts public health directly, by depositing particulates into the lungs and indirectly, by contributing to ozone and smog. FAA's own analysis of aviation emissions cites to research that indicates "fine particulate matter is responsible for the majority of the health risks from aviation emissions."⁽¹⁾ These particulates contribute to increased heart and lung disease, including increased hospital admissions, emergency room visits, and work absences. No project that increases airport operations and resulting aircraft emissions in the communities that surround Logan Airport should be approved without a complete and thorough review of the public health impacts of the proposal. That complete review has not been done here.

Finally, noise pollution from ongoing Logan Airport operations is also a serious public health concern and has been the subject of much complaint, discussion, and press. Massport is tone deaf if it thinks I can ignore these ongoing concerns and wave through a proposal to increase airport operations and thus ongoing noise pollution. Please protect the health of the Logan Airport communities and require a fuller study and evaluation of these impacts.

Extended Comment Period

Massport has not sufficiently publicized this project, its impacts, and the fact that this ENF was filed with EOOEA. It only held one public meeting, in the Noddle Room on the airport grounds. The full range of impacted communities have not had the opportunity to fully comment on this ENF, therefore I request you extend the comment period a further 30 days.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by Logan airport operations.

Sincerely,

Karis L. North
146 Atlantic Avenue
Hull, Massachusetts 02045
karis.north@verizon.net

⁽¹⁾ Aviation Emissions, Impacts & Mitigation: A Primer (FAA, Office of Environment and Energy), January 2015.

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Terminal E ENF Comments and Responses

Karis North	
Comment #	Response:
<p>44.1</p> <p>No project that increases airport operations and resulting aircraft emissions in the communities that surround Logan Airport should be approved without a complete and thorough review of the public health impacts of the proposal. That complete review has not been done here.</p>	<p>In the December 16, 2015 Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary required that additional analyses be conducted in a "focused" Draft Environmental Impact Report (DEIR) covering areas of ground access, energy, water quality, air quality, greenhouse gas, and others.</p> <p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study.</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>44.2</p> <p>Massport is tone deaf if it thinks I can ignore these ongoing concerns and wave through a proposal to increase airport operations and thus ongoing noise pollution. Please protect the health of the Logan Airport communities and require a fuller study and evaluation of these impacts.</p>	<p>In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoped DEIR, which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
<p>44.3</p> <p>The full range of impacted communities have not had the opportunity to fully comment on this ENF, therefore I request you extend the comment period a further 30 days.</p>	<p>Massport requested and was granted an extension of the ENF comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.</p>

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Czepiga, Page (EEA)

From: Paul Paquin [Paul.Paquin@umb.edu]
Sent: Wednesday, December 09, 2015 11:48 AM
To: Czepiga, Page (EEA)
Cc: Jeanne-Paquin@ComCast.net
Subject: ENF Terminal E MEPA expansion

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is not the time to expand. This is the time to fix the problems first.

It is time to reduce the amount of growth at Logan. It is time to subsidize the Boston – New York and Washington trains such that their cost to the consumer will be the same as an airline ticket. This would reduce some of the traffic. This is not difficult to justify because the airlines are significantly subsidized.

It is time to say that quality of life for the majority trying to sleep is more important than the profits of a handful of people. Please close the airport down to scheduled traffic from 2300-0700 now!

After we have seen some efforts on these quality of life issues, then we might be more inclined to address smart growth.

Please consider the lives and health of the majority of people who live in proximity of Logan Airport, or readily admit that you are representing the handful who will benefit from the expansion.

Paul Paquin
43 Edgewater Road
Hull, MA 02045-2761
paul.paquin@umb.edu
617-201-1816

PS. I attended the recent noise problem meeting in Milton. There are a lot of very angry people who clearly don't get enough sleep. This expansion only adds salt to our wounds with no remedies to a 24/7 operation that is very disruptive to the area.

45.1

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Terminal E ENF Comments and Responses

Paul Paquin		
Comment #	Comment:	Response:
45.1	Please consider the lives and health of the majority of people who live in proximity of Logan Airport, or readily admit that you are representing the handful who will benefit from the expansion.	In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoped Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.

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Czepiga, Page (EEA)

From: Priscilla [priscilla@beadleftul.com]
Sent: Wednesday, December 09, 2015 4:25 PM
To: Czepiga, Page (EEA)
Cc: garrettbradley@mahouse.gov; robert@robert-hedlund.com; jbrannan@town.hull.ma.us; Plemnios@town.hull.ma.us; KRichardson@town.hull.ma.us; DSestito@town.hull.ma.us; CMitchell@town.hull.ma.us; JReilly@town.hull.us.ma
Subject: Logan Airport Noise

Mr. Matthew Beaton
 Executive Office of Energy and Environmental Affairs
 Attn: Page Czepiga, EEA No. 15434
 100 Cambridge Street Suite 900
 Boston, MA 02114

Dear Secretary Beaton,

Life is already miserable for us in Hull and now I hear about the expansion of international flight capacity and runway E. And with no time to reply!

Logan is already capacity-constrained during the peak hours of 6am-9am and 4pm-7pm. And worse, those flights go over Hull under the next-gen pilot program.

The current international flights are primarily arriving between 6pm-9pm and departing between 9pm-12am. There is also a scheduled flight to Hong Kong at 1:30am.

There will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant. The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.

46.1

Currently, I hear the Next Gen flights inside my home in the evening, through my double pane windows, with the TV louder than normal since I am hand of hearing! And envision your family on my back deck in the summer trying to eat dinner and talk about family matters...impossible!

I request that the State of Massachusetts require Massport and the FAA to provide detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan especially in the evening/night hours - and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory Committee (CAC).

46.2

I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.

46.3

Please consider my request.

Sincerely,

Priscilla Beadle
23Andrew Ave

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Terminal E ENF Comments and Responses

Priscilla Beadle	
Comment #	Response:
46.1	<p>Like all commercial service airports in the United States, Logan Airport is subject to federal laws. The federal Airport Noise and Capacity Act (or ANCA) severely restricts Massport's ability to impose access restrictions. Since its enactment in 1990, no access restriction on stage 3 aircraft has been approved by the Federal Aviation Administration (FAA). Massport's most recent analysis of Logan Airport's fleet shows that 97% (2014) of aircraft jet operations at Logan Airport meet stage 4 requirements, the latest and highest standard for noise and emissions currently adopted by the FAA. This latest technology also reflects the most recent advancements in fuel burn efficiency and air emissions reductions. Massport has also implemented a comprehensive noise abatement program that includes soundproofing the homes of our closest neighbors; noise abatement procedures to minimize overflights over residences and reduce engine noise on the airport surface; and a 24/7 noise complaint line for concerned residents to call. One critical noise abatement action is the late night, over-the-water departure/arrival (or "head-to-head") procedure. This procedure is utilized by the FAA, when wind and weather allow, during the sensitive overnight period and places aircraft over Boston Harbor away from Logan Airport's surrounding communities and the urban core.</p> <p>It is unlikely that future growth of international service will result in more late night flights. Opportunities for more nonstop service to Asia are limited given the service Logan Airport has today. Also, it is expected that the main driver for future growth is Europe/other markets not requiring late night arrivals or departures. Since most of Logan Airport's international service is to Europe and the Caribbean, these markets are expected to operate during the current daily peak period of 6:00 PM to 10:00 PM.</p>
46.2	<p>In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the FAA. Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p>
46.3	<p>Like all commercial service airports in the United States, Logan Airport is subject to federal laws. The federal Airport Noise and Capacity Act (or ANCA) severely restricts Massport's ability to impose access restrictions. Since its enactment in 1990, no access restriction on stage 3 aircraft has been approved by the FAA. Massport's most recent analysis of Logan Airport's fleet shows that 97% (2014) of aircraft jet operations at Logan Airport meet stage 4 requirements, the latest and highest standard for noise and emissions currently adopted by the FAA. This latest technology also reflects the most recent advancements in fuel burn efficiency and air emissions reductions. Massport has also implemented a comprehensive noise abatement program that includes soundproofing the homes of our closest neighbors; noise abatement procedures to minimize overflights over residences and reduce engine noise on the airport surface; and a 24/7 noise complaint line for concerned residents to call. One critical noise abatement action is the late night, over-the-water departure/arrival (or "head-to-head") procedure. This procedure is utilized by the FAA, when wind and weather allow, during the sensitive overnight period and places aircraft over Boston Harbor away from Logan Airport's surrounding communities and the urban core.</p> <p>It is unlikely that future growth of international service will result in more late night flights. Opportunities for more nonstop service to Asia are limited given the service Logan Airport has today. Also, it is expected that the main driver for future growth is Europe/other markets not requiring late night arrivals or departures. Since most of Logan Airport's international service is to Europe and the Caribbean, these markets are expected to operate during the current daily peak period of 6:00 PM to 10:00 PM.</p>

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Czepliga, Page (EEA)

From: Amelia Cardona [acarona@excelacademy.org]
Sent: Wednesday, December 09, 2015 4:09 PM
To: Czepliga, Page (EEA)

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project. Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes. Current Massport plans call for an a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations.

Sincerely, Amelia

NOTE: This email is from a Student Account at Excel Academy

47.1

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Terminal E ENF Comments and Responses

Amelia Cardona	
Comment #	Response:
47.1	<p>In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the FAA. Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p> <p>As shown in Chapter 5, Environmental Consequences, the analysis demonstrates that the Terminal E Modernization Project would improve noise conditions through the construction of the terminal extension, which acts as an effective noise barrier between the Airport and Stadium Park and the East Boston community. Air quality conditions would also improve through reducing aircraft idling by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units.</p>
<p>After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project. Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 - 100% greater risk of cardiovascular and lung cancer deaths, 100 - 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 - 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	

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Czepiga, Page (EEA)

From: Billy Avalos [billyavalos24@gmail.com]
Sent: Wednesday, December 09, 2015 4:02 PM
To: Czepiga, Page (EEA)

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project. Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for an a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations.

Sincerely,

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48.1

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Terminal E ENF Comments and Responses

<p>Billy Avalos</p>		<p>Comment:</p> <p>48.1 After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project. Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 - 100% greater risk of cardiovascular and lung cancer deaths, 100 - 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 - 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	<p>Response:</p> <p>In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the FAA. Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoping Draft Environmental Impact Report (DEIR), which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p> <p>As shown in Chapter 5, Environmental Consequences, the analysis demonstrates that the Terminal E Modernization Project would improve noise conditions through the construction of the terminal extension, which acts as an effective noise barrier between the Airport and Stadium Park and the East Boston community. Air quality conditions would also improve through reducing aircraft idling by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units.</p>
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Carl J. John

From: Czepiga, Page (ENV) <page.czepiga@state.ma.us>
Sent: Wednesday, December 09, 2015 9:13 AM
To: Dalzell, Stewart
Subject: FW: MEPA public comment

Stewart,
See below comment letter, received this morning.
Thanks!

From: Buckley, Deirdre (EEA)
Sent: Wednesday, December 09, 2015 8:57 AM
To: Czepiga, Page (EEA)
Subject: FW: MEPA public comment

From: Chipman, Peter [mailto:Peter.Chipman@hnhco.com]
Sent: Wednesday, December 09, 2015 8:41 AM
To: Buckley, Deirdre (EEA)
Subject: MEPA public comment

(I'm not sure whom to direct this comment to; the part of the MEPA website that provides information on "[Submitting Comments](#)" says that comments can be submitted electronically, but it doesn't tell the user how to do so; no email address or link to a form is provided.)

I'm writing to express my opposition to Massport's proposed expansion of Terminal E at Logan International Airport. Massport has as yet failed to adequately address the concerns of community residents in East Boston regarding the disproportionate impact airport expansion will have on the health and quality of life of the tens of thousands of people who live close to the airport. As a parent of two young children living less than a mile from the airport, I am deeply troubled by the thought that their health may be permanently impaired by the increased pollution both from the airplanes themselves and from the increased volume of auto traffic that will inevitably result from the expansion of Logan's parking facilities.

Yours,
Peter Chipman
617.895-9055

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Terminal E ENF Comments and Responses

Peter Chipman		
Comment #	Comment:	Response:
49.1	Massport has as yet failed to adequately address the concerns of community residents in East Boston regarding the disproportionate impact airport expansion will have on the health and quality of life of the tens of thousands of people who live close to the airport.	As documented in Chapter 5, Environmental Consequences, there are no significant noise or air quality impacts associated with the Terminal E Modernization Project, thus there are no disproportionate impacts to Environmental Justice communities in the vicinity of Logan Airport. Massport is committed to collaborating with impacted surrounding communities. The Project would result in noise and air quality benefits once constructed.

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Czepiga, Page (EEA)

From: Tina Kelly [tinastgelais@yahoo.com]
Sent: Wednesday, December 09, 2015 10:14 PM
To: Czepiga, Page (EEA)
Cc: Salvatore LaMaitina; adrian.madaro@gmail.com; senator peltruccelli
Subject: I formally oppose expansion of terminal E

I need you all to know, until there is a proper study on the effects of increasing airport traffic, the amount of airport traffic they currently have coming into Logan (which Massport did not know or did not provide data on) how many flights they will be increasing with the expansion (which Massport did not know or did not provide data on) and until they start providing an actual independent health study on airports and cancer rates of people that live by airports, All expansion needs to cease. I would also request all parties involved stop treating Logan's piece meal projects as just that and really start looking at Logan as one continually expanding entity. I would also request that entity is looked at environmentally as one entity and the continuing impacts it has on Boston.

I oppose the terminal E expansion at Logan airport.
Tina St. Gelais Kelly
Sent from my iPad

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Terminal E ENF Comments and Responses

Tina St. Gelais Kelly	
Comment #	Response:
<p>50.1</p> <p>I need you all to know, until there is a proper study on the effects of increasing airport traffic, the amount of airport traffic they currently have coming into Logan (which Massport did not know or did not provide data on) how many flights they will be increasing with the expansion (which Massport did not know or did not provide data on) and until they start providing an actual independent health study on airports and cancer rates of people that live by airports.</p>	<p>In the December 16, 2015 Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary required that additional analyses be conducted in a "focused" Draft Environmental Impact Report (DEIR) covering areas of ground access, energy, water quality, air quality, greenhouse gas, and others.</p> <p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study.</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>50.2</p> <p>I would also request all parties involved stop treating Logan's piece meal projects as just that and really start looking at Logan as one continually expanding entity.</p>	<p>In this Environmental Assessment (EA), the Terminal E Modernization Project will undergo a full environmental assessment according to the federal National Environmental Policy Act (NEPA) requirements as administered by the Federal Aviation Administration (FAA). Following the Secretary's guidance to provide additional information regarding the necessary details of design and development of the Terminal E extension to assess potential impacts, this document is a combined EA with a narrowly tailored scoped DEIR, which augments the federal review process. The DEIR focuses on the specific items as identified by the Secretary, namely climate change adaptation and resiliency analysis, greenhouse gas emissions, noise, air quality, and construction.</p> <p>In addition, Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. This process was developed to allow individual projects at Logan Airport to be considered and analyzed in the broader, Airport-wide context. A brief overview of that long-standing process follows. Massport has been producing annual reports to the state and the public since 1979. Initially called the Generic Environmental Impact Report (GEIR), now called Environmental Status and Planning Reports (ESPR) with interim Environmental Data Reports (EDR), the report assesses the environmental effect of overall changes in operations at Logan Airport. The report provides an overall context within which changes in total environmental impacts caused by routine operations at Logan Airport could be assessed.</p> <p>As stated in the introduction to the 1999 ESPR, "While the Logan ESPR and EDRs provide the broad planning context for projects proposed for Logan Airport and future planning concepts under consideration by Massport, no specific projects can be built solely on the basis of inclusion and discussion in the 1999 ESPR." Projects that require state (Massachusetts Environmental Policy Act [MEPA]) or federal (National Environmental Policy Act [NEPA]) review undergo a separate review process. In short, Massport's annual reports provide the planning context which complements the individual project-specific filings. The most recent EDR reports on 2014 conditions and the 2015 EDR will be published later this year and will continue to provide a baseline impact assessment of changes in aircraft operations/passenger activity levels on noise conditions, air quality, ground access, regional transportation options, and water quality. In addition, the EDRs and ESPRs provide updates on Massport's plans for Airport improvements through 2030.</p>

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Czepigaj, Page (EEA)

From: Dan Bailey [j.dan.bailey@gmail.com]
Sent: Tuesday, December 08, 2015 8:59 PM
To: Czepigaj, Page (EEA)
Cc: salvatore.lamattina@boston.gov; anthony.petrucci@masenate.gov; adrian.nadaro@mahouse.gov
Subject: Terminal E Environmental Notification Form Response

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Dear Secretary Beaton,

I'm writing as a resident of East Boston to voice my opposition to the proposed Terminal E expansion at Logan Airport.

Since its founding nearly a century ago, Logan has continually expanded at great cost to the existing East Boston community. Today, East Boston is one of the most environmentally overburdened communities in Massachusetts, due in large part to the nearby presence of Logan Airport. The Terminal E expansion will only increase our neighborhood's environmental burden: increased air and vehicular traffic will lead to a substantial uptick in noise and air pollution throughout our neighborhood. 51.1

For 92 years, East Boston has been forced to shoulder an ever-increasing environmental burden associated with hosting Logan for the benefit of the New England region. Enough is enough.

Sincerely,
Dan Bailey

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Terminal E ENF Comments and Responses

Dan Bailey		
Comment #	Comment:	Response:
51.1	The Terminal E expansion will only increase our neighborhood's environmental burden: increased air and vehicular traffic will lead to a substantial uptick in noise and air pollution throughout our neighborhood.	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized.</p> <p>As shown in Chapter 5, Environmental Consequences, the analysis demonstrates that the Terminal E Modernization Project would improve noise conditions through the construction of the terminal extension, which acts as an effective noise barrier between the Airport and Stadium Park and the East Boston community. Air quality conditions would also improve through reducing aircraft idling by enabling aircraft to park at a gate and connect to electric power rather than parking remotely and operating auxiliary power units.</p>

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Form Letter X Commenter List

Name	Organization
Arnie Freedman	
Bonita Koelker	
Brian Carney	
Carol Taylor	
Christine Thompson	
Cindy Borges-Peralta	
Colleen MacDonald	
Commonwealth Land Trust	
David Flynn	
Debbie Ellerin	
Dennis Saide	
Donna Goes	
Eileen M. Boylen	
Elda and Mark Prudden	
Ellen M. Tan	Commonwealth Land Trust
Evie Rose	
Frank Ciano	Town of Arlington, Logan CAC and Massport CAC
Frank Kerr	Hull Neighbors for Quiet Skies
George and Diane Nassopoulos	
Gisela Voss and Dan Kernan	
Harvey Rowe	
Hull Neighbors for Quiet Skies	
Ira Fleishman	
Jason Burrell	
Jason Hibbard	
Larry Butler	
Lois Freedman	
Lynn Marie Ray	
Maria Graceffa	
Marie & James Fraher	
Myron Kassaraba	Town of Belmont, Logan CAC, Massport CAC
Nicole Al Rashid	
Nancy Plotkin	
Neill K. Ray	
Patricia Waddleton	
Richard Amenia	
Robyn Riddle	
Stephen Cooper and Lory Newmyer	
Tara Ten Eyck	
Thomas Hardey	

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Via email to: Page.Czepliga@state.ma.us

December 9, 2015

Mr. Matthew Beaton

Executive Office of Energy and Environmental Affairs

Attn: Page Czepliga, EEA No. 15434

100 Cambridge Street Suite 900

Boston, MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the completeness of the consideration for the environmental impacts this expansion of international flight capacity will have on the region.

Environmental Impact of Increased International Flight Volume Insufficiently Considered

The Logan Airport 2011 Environmental Status and Planning Report (ESPR - http://www.massport.com/media/2891/Logan_ESPR_2011.pdf) projects an increase in flight operations at Logan Airport of 29% from 2011-2030. The ENF states that the number of projected international passengers at Logan will increase from 4.9 million in 2014 to 6 million in 2022 – a 22% increase. One can reasonably assume based on the proposal to expand the international Terminal at Logan that a substantial amount of the ESPR's projected increase is going to come from international operations. This is important because Logan is capacity-constrained during the peak hours of 6am-9am and 4pm-7pm.

The current international flights are primarily arriving between 6pm-9pm and departing between 9pm-12am. There is also a scheduled flight to Hong Kong at 1:30am.

It is reasonable to assume:

1. Since there is no more runway capacity during the peak hours
2. The majority of current international flights arrive and depart between 6pm and 12am
3. There is additional capacity during that time period – there are currently only seven departures between 9pm-10pm, three between 10pm-11pm and two between 11pm-12am.

The communities in the vicinity of Logan can expect that there will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant and is not appropriately considered in the content of the Environmental Notification Form (ENF). The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.

There is a reference on page 10 of the ENF to environmental analysis that was included in the 2011 ESPR but this is in no way an adequate consideration of the potential impact such a substantial potential increase in flight operations in the evening/night time frame and overnight time periods. The DNL metric used by the FAA in their analysis of changes in flight operations is antiquated and was developed for a radar-based mode of air traffic control. The impact of these increases in flight volume is exacerbated by the continued implementation by the FAA of RNAV satellite-based flight path routing under their Performance-based Navigation (PBN) initiatives under the umbrella of their NextGen modernization program. These new international flights will be large, heavy (full of freight) and in some cases old, aircraft. They tend to gain altitude more slowly and have a much louder noise profile than smaller jets. So the residents in close-in communities as well as those under concentrated flight paths further away from the airport who are already experiencing significant negative effects from current operations will be subjected to what will be a significant impact – regardless of what is reflected in the FAA's captive analysis.

I request that the State of Massachusetts require Massport and the FAA to provide detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan – especially in the evening/night hours - and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory

Committee (CAC). This real-world impact should include the analysis of all flight paths that could be used to accommodate this increase in flights and supplemental metrics such as N65, Lmax and SEL in addition to DNL. I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Now, despite the chronic health effects caused by Logan Airport pollution and significant negative noise impacts of NextGen/PBN/RNAV concentration of flight paths, Massport's solution for Massachusetts' international air travel needs seems solely focused on expansion at Logan. We have regional airports such as Worcester that are under-utilized. MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Health / Pollution

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, and a 300% increase in risk of heart attack. Jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

Current Massport plans call for significant expansion of passenger volume that will have a corresponding increase in NOx. With the expanded Terminal E expected to contribute 57% to the growth in passenger volume, the project will cause a 14% increase in NOx by itself, a fact that must be weighed by MEPA in considering the environmental impacts of this project.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking. There should be greater required investments to enhance alternative and more environmentally friendly modes of transportation to and from Logan.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations across the region.

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Terminal E ENF Comments and Responses

Form Letter X	Comment #	Comment:	Response:
X.1		<p>The Logan Airport 2011 Environmental Status and Planning Report (ESPR http://www.massport.com/media/2891/Logan_ESPR_2011.pdf) projects an increase in flight operations at Logan Airport of 29% from 2011-2030. The ENF states that the number of projected international passengers at Logan will increase from 4.9 million in 2014 to 6 million in 2022 – a 22% increase. One can reasonably assume based on the proposal to expand the International Terminal at Logan that a substantial amount of the ESPR’s projected increase is going to come from international operations. This is important because Logan is capacity-constrained during the peak hours of 6am-9am and 4pm-7pm.</p>	<p>The increase in international passengers and associated operations is expected to grow faster than the domestic passenger count and associated operations based on current forecasts for Logan Airport. This is due to a more significant demand in travel to and from international destinations with service to Boston.</p> <p>Massport is unique among state agencies and airports in the U.S. for publishing annual environmental reports specifically designed to describe, analyze, and project the cumulative effects of Logan Airport operations based on current and anticipated future operating conditions. These Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs) include passenger and aircraft operations forecasts through 2030 and have tracked and reported on environmental conditions associated with the Airport. For example, even with increased operations, since 1990 the population located within the Federal Aviation Administration (FAA) defined noise level of 65 dB (which is considered to be incompatible with residential land use) has dropped from 44,142 to 8,922 people in 2014. Massport has an extensive sound insulation program which has treated over 11,515 impacted dwellings since the start of the program in 1996. In the same period, modeled daily carbon dioxide (CO) emissions have dropped from 17,457 kg/day to 6,987 kg/day. See Chapters 6 and 7 of the Logan Airport 2014 EDR.</p>
X.2		<p>The communities in the vicinity of Logan can expect that there will be a significantly higher frequency of flights in the evening/night/overnight time period. Most people are at home in the evening and trying to sleep at night so the potential for increased disruption of quality of life and sleep is significant and is not appropriately considered in the content of the Environmental Notification Form (ENF).</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations.
X.3		<p>The scheduling of arrivals and departures in the overnight time period from 12am-6am should not be allowed under any future scenario.</p>	<p>The FAA is responsible for managing Logan Airport’s airspace and for ensuring the safe and expeditious flow of air traffic. Massport is responsible for operating and maintaining Logan Airport facilities and for ensuring runways (and taxiways and other facilities) are in good working conditions, meet FAA regulations, and are available for use. Massport has no control over airline and flight scheduling. The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. Massport does not have control over the scheduling of aircraft arrivals and departures.</p>
X.4		<p>I request that the State of Massachusetts require Massport and the FAA to provide detailed analysis of how the expansion of Terminal E will enable increased flight operations at Logan – especially in the evening/night hours - and what the real-world impact of that increase will be on residents and communities represented on the Logan Community Advisory Committee (CAC).</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p>

Terminal E ENF Comments and Responses

Form Letter X Continued	
Comment #	Response:
<p>X.5</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. Chapter 5, Environmental Consequences, documents sound exposure levels (SEL) and equivalent sound levels (Leq) in addition to day-night average sound level (DNL).</p> <p>For over three decades Massport has prepared EDRs and ESPRs that annually report on noise, air, ground access, water quality, and sustainability at Logan Airport. The EDRs/ESPRs include several supplemental metrics including Time Above a certain threshold and the Cumulative Noise Index. The 2015 EDR, which will be published later in 2016, will report on noise conditions for 2015 and will compare them to previous years back to 1990.</p>
<p>X.6</p>	<p>I also ask that you consider mandating that Massport establish an overnight curfew to prevent an increase in flights in the 12am-6am time period that could be required to accommodate the increased capacity enabled by this proposed expansion.</p> <p>Like all commercial service airports in the United States, Logan Airport is subject to federal laws. The federal Airport Noise and Capacity Act (or ANCA) severely restricts Massport's ability to impose access restrictions. Since its enactment in 1990, no access restriction on stage 3 aircraft has been approved by the FAA. Massport's most recent analysis of Logan Airport's fleet shows that 97% (2014) of aircraft jet operations at Logan Airport meet stage 4 requirements, the latest and highest standard for noise and emissions currently adopted by the FAA. This latest technology also reflects the most recent advancements in fuel burn efficiency and air emissions reductions. Massport has also implemented a comprehensive noise abatement program that includes soundproofing the homes of our closest neighbors; noise abatement procedures to minimize overflights over residences and reduce engine noise on the airport surface; and a 24/7 noise complaint line for concerned residents to call. One critical noise abatement action is the late night, over-the-water departure/arrival (or "head-to-head") procedure. This procedure is utilized by the FAA, when wind and weather allow, during the sensitive overnight period and places aircraft over Boston Harbor away from Logan Airport's surrounding communities and the urban core.</p> <p>It is unlikely that future growth of international service will result in more late night flights. Opportunities for more nonstop service to Asia are limited given the service Logan Airport has today. Also, it is expected that the main driver for future growth is Europe/other markets not requiring late night arrivals or departures. Since most of Logan Airport's international service is to Europe and the Caribbean, these markets are expected to operate during the current daily peak period of 6:00 PM to 10:00 PM.</p>

Terminal E ENF Comments and Responses

Form Letter X Continued	
Comment #	Response:
<p>X.7</p> <p>Community residents have promoted regional air travel planning for over 30 years. Now, despite the chronic health effects caused by Logan Airport pollution and significant negative noise impacts of NextGen/PBN/RNAV concentration of flight paths, Massport's solution for Massachusetts' international air travel needs seems solely focused on expansion at Logan. We have regional airports such as Worcester that are under-utilized. MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.</p>	<p>Massport plays an important role in supporting and furthering multimodal transportation in the region. Massport is investing in its family of airports including:</p> <ol style="list-style-type: none"> 1. Acquiring and modernizing Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region. 2. Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. As a result of this collaboration, JetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013. 3. Massport recently started construction on Worcester Regional Airport's Category III Instrument Landing System to enhance operational and safety conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport's all-weather reliability, a long-standing impediment to greater utilization of this airport. 4. Hanscom Field continues to maintain its role as a corporate reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. New England's second busiest airport, Hanscom Field is a full-service general aviation airport and popular choice for business executives traveling to Eastern Massachusetts and "America's Technology Region" situated along the Route 128/95 and Route 495/3 corridors. <p>In addition, as documented in Chapter 4, Regional Transportation, of the 2014 EDR, the aim of regional transportation planning efforts is to reduce reliance on Logan Airport, and to provide New England travelers with a variety of viable transportation options. The New England Regional Airport System Plan, conducted in 2006, has helped to develop the primary commercial airport system in New England in order to support these benefits. Meanwhile, the Conference of New England Governors and Eastern Canadian Premiers works to coordinate the highway, aviation, freight, and commuter rail transportation networks. Rail service such as the Amtrak Northeast Corridor and proposed improvements such as the Boston-South Station Expansion, also help to balance the passenger load among various forms of transportation.</p>
<p>X.7 Continued</p>	<p>Other supporting planning forums include GreenDOT, the Healthy Transportation Compact, and the Boston Region Metropolitan Planning Organization. Massport supports several regional transportation cooperation planning efforts including: New England Regional Airport System Plan, New England Regional Airport System Plan – General Aviation, and the Conference of New England Governors and Eastern Canadian Premiers. Regional rail transportation initiatives that Massport tracks and supports include: Northeast Corridor Infrastructure Master Plan and Next-Generation High Speed Rail Plan, and the Boston-South Station Expansion. Recognizing that Logan Airport is a substantial trip generator and key transportation resource in the metropolitan area, Massport participates in several interagency transportation planning forums pertaining to enhancing a variety of travel modes. Massport supports GreenDOT's smart growth development goal by actively working to improve public transportation in the metropolitan area, a key component of smart growth principles (information on GreenDOT is provided at www.massdot.state.ma.us/GreenDOT.aspx). Massport supports multimodal transportation planning and improving integration with its facilities through its permanent voting membership on the Boston Region Metropolitan Planning Organization, providing input on policy and programming decisions. Massport plays an active role on the Metropolitan Planning Organization's decision-making board, participating in policy decisions related to the Long-range Regional Transportation Plan and project programming for the Transportation Improvement Program. The Metropolitan Planning Organization also guides the work conducted by Central Transportation Planning Staff via its Unified Planning Work Program. Central Transportation Planning Staff are occasionally used by Massport to support its ground transportation planning initiatives. Massport is also an ex-officio member of the Metropolitan Area Planning Council, which is a regional planning agency serving the people who live and work in Metropolitan Boston. As directed by the Secretary of Energy and Environmental Affairs, this Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) focuses on the Project specific aspects. The 2015 EDR, which will be published later in 2016, will describe Massport's support of regional multimodal activities.</p>

Terminal E ENF Comments and Responses

Form Letter X Continued	
Comment #	Response:
<p>X.8</p> <p>Jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	<p>In the December 16, 2015 Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary required that additional analyses be conducted in a "focused" DEIR covering areas of ground access, energy, water quality, air quality, greenhouse gas, and others.</p> <p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>X.9</p> <p>Current Massport plans call for significant expansion of passenger volume that will have a corresponding increase in NOx. With the expanded Terminal E expected to contribute 57% to the growth in passenger volume, the project will cause a 14% increase in NOx by itself, a fact that must be weighed by MEPA in considering the environmental impacts of this project.</p>	<p>The proposed terminal modernization would include several features that would improve air quality, including direct plug-in to 400 Hz power for aircraft and ground support equipment. In addition, the Project would reduce the number of passengers that would have to be bused from the apron to the terminal, reducing fuel usage. Chapter 5, Environmental Consequences, compares the No-Action Alternative to the Proposed Action and demonstrates the air quality benefits associated with the proposed Project. The Proposed Action would provide the following benefits that directly translate to reductions in emissions including: average aircraft taxi-time would decrease by 20%; aircraft auxiliary power unit usage would decrease by 74%; aircraft tractor usage for relocating aircraft between Terminal E gates and hardstands would decrease by 49%; curbside idle time would decrease by 13%; motor vehicle miles traveled would decrease by 4% and busing vehicle miles traveled would decrease by 97%; and the number of airside busing operations would decrease by 94%. The changes in emissions total under the Proposed Action in comparison to the No-Action Alternative (i.e., the Project-related emissions) are well within (i.e., below) the applicable General Conformity Rule de minimis levels for carbon monoxide (CO), volatile organic compounds (VOCs), and nitrogen oxide (NO). This important outcome signifies that the Terminal E Modernization Project conforms to the State Implementation Plan and would not cause, or contribute to, violations of any National Ambient Air Quality Standards (NAAQS).</p> <p>Under the Proposed Action alternative, total emissions of all pollutants are shown to decrease when compared to the No-Action Alternative. As shown, these reductions range from <1 to 26 tons/year (i.e., 1 to 55%) depending on the pollutant.</p>

Terminal E ENF Comments and Responses

Form Letter X Continued	
Comment #	Response:
<p>X-10</p> <p>The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking. There should be greater required investments to enhance alternative and more environmentally friendly modes of transportation to and from Logan.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Since the same number of passengers will be accommodated with or without the proposed Project, there will be no induced demand as a result of the Project. Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>The EA/DEIR provides a full analysis of transportation as it relates to the Terminal E Modernization Project. Massport continues to implement a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free Massachusetts Bay Transportation Authority (MBTA) Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans.</p>

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Form Letter Y Commenter List

Name	Organization
Alexis Daniels	
Alfred Pucillo	
Andrew Schmidt	
Angela Mroz	
Camille MacLean	
Carey Lam	
Caroline Sulick	
Christina Leshock	
Christine Passariello	
Collin Cameron	
David and Carissa	
Juengst	
Duane Eric Lock	
Edward MacLean	
Elizabeth Kay	
Elizabeth Stoy	
Georges Arnaout, Ph.D.	
James Linthwaite	
Jeannie Grieci	
Jeff Lee	
Jim Roberts	
Joanne Donatelli	
Joanne T. Pomodoro	
John Antonellis	
John Casamassima	
Kannan Thiruvengadam	
Kathryn Leeber	
Kathy Beitler	
Leanne Tirabassi	
Lisa Locke	
Lisa Rusch	
Mary Elizabeth Nofziger	
Lorraine Curry	
Magdalena Ayed	Neighborhood of Affordable Housing
Maria Ticono	
Mary J. Ryan	
Nancy Lagro	
Normairiis Casiano	
Pamela Loring	
Patricia D'Amore	
Rebecca Lock	
Renee MacLean	
Robin L. Maguire	
Sandra Downey	
Susanna Starrett	
Stephan Marin	
Theresa Turino	
Vera Schneider	

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December 8, 2015

LATE COMMENT

RECEIVED

DEC 11 2015

MEPA

Mr. Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, EEA No. 15434
100 Cambridge Street, Suite 900
Boston MA 02114

Dear Secretary Beaton,

This is a comment letter about the proposal to expand Terminal E at Logan Airport. After reading the Environmental Notification Form, I have concerns about the effects of this expansion on the community and the residents affected by the environmental impacts of the project.

Transportation Impacts

The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.

Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.

Failure to Consider Alternatives

Community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts'

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international air travel needs, without adequately weighing the societal, public health and related economic costs.

Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%.

MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives in order to properly assess the environmentally beneficial impacts of this proposal.

Noise

Even while Massport sends out marketing teams in search of more international business for Logan; and even as they will have doled out \$5.6 million over the next few years in incentives to bring business here (Adding to what they predict will be a 30% increase in flights over the next 14 years), these same Port Authority officials claim that these flights would come whether or not they built a new terminal. Thus the Terminal E Modernization ENF repeatedly concludes wishful 'findings of no significant impact' (FONSI) in regards to the project. Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.

Health / Pollution

Logan Airport pollution has been proven to cause a 360% increased risk of probable childhood asthma and 200% increased risk of chronic obstructive pulmonary disease. Transportation sources are also known to cause 50 – 100% greater risk of cardiovascular and lung cancer deaths, 100 – 300% greater risk of childhood autism, 300% increase in risk of heart attack. And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.

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Current Massport plans call for an a 43% expansion in passenger volume causing a 24% increase in NOx. With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.

It is my hope that you will carefully consider these concerns and act in the interests of the people and neighborhoods impacted by airport operations.

Y.6

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Terminal E ENF Comments and Responses

Form Letter Y	
Comment #	Response:
<p>Y.1</p> <p>The Massachusetts Port Authority has done an insufficient job of addressing the transportation impacts of the Terminal E Modernization. The project ENF does not provide credible evidence that the proposed expanded Terminal will not produce additional induced demand for vehicle trips and parking.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Since the same number of passengers will be accommodated with or without the proposed Project, there will be no induced demand as a result of the project. Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience.</p> <p>The Environmental Assessment/Draft Environmental Impact Report (EA/DEIR) provides a full analysis of transportation as it relates to the Terminal E Modernization Project. Massport continues to implement a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free Massachusetts Bay Transportation Authority (MBTA) Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans.</p>
<p>Y.2</p> <p>Without enhancements to Logan Express, extending the Blue Line and funding the Red / Blue Connector to provide alternative modes of transportation to and from Logan, MEPA should anticipate that 8 million additional passengers will produce demand for over 6,000 additional spaces and millions of additional trips. In fact, under the strain of current congestion, (with 31,000,000 passengers per year), Massport has already proposed increasing the number of available parking spaces at Logan to 26,088 spaces. And today, toll-evading taxis routinely invade East Boston streets, adding to local pollution and reducing the walkability of East Boston communities.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. Since the same number of passengers will be accommodated with or without the proposed Project, the parking demand will be the same.</p> <p>The Proposed Action is not anticipated to result in an increased parking demand. A separate project is evaluating overall on-Airport parking needs and this DEIR assesses the impacts of this action both with and without increased parking in place.</p> <p>As documented in the 2014 Environmental Data Report (EDR) and previous EDRs and Environmental Status and Planning Reports (ESPRs), Massport continues to implement a comprehensive ground transportation strategy designed to maximize transit and shared-ride options for travel to and from Logan Airport and minimize vehicle trips by providing convenient transit, shuttle, and pedestrian connections at the Airport. Massport invests in and operates Logan Airport with a goal of increasing the number of passengers arriving by transit or other high-occupancy vehicle/shared-ride modes. Logan Airport continues to rank at the top of U.S. airports in terms of high-occupancy vehicle/transit mode share. Programs include Logan Express bus service, free MBTA Silver Line boardings, water shuttle service, and free, frequent shuttle bus service to and from the MBTA Blue Line subway station. Massport provides priority, designated curb areas at all Airport terminals, to support the use of high-occupancy vehicle/transit modes, including privately-operated scheduled buses and shared-ride vans.</p>

Terminal E ENF Comments and Responses

Form Letter Y Continued	
Comment #	Response:
<p>Y.3</p> <p>Community residents have promoted regional air travel planning for over 30 years. Yet now, despite the chronic health crises caused by Logan Airport pollution, Massport's engineers are attempting to build their way to success; looking only at on airport solutions for Massachusetts' international air travel needs, without adequately weighing the societal, public health and related economic costs. Rather than studying viable regional project alternatives in the ENF, the Port Authority studied only a No Build, to a Partial Build, to a Full Build scenario. This is a serious failure, as it is clear that Logan will not be able to fulfill the travel needs of the New England region far into the future within the bounds of this small airport's landlocked footprint. Already, the Port Authority is planning to grow passenger volumes 43% over the next 14 years, increasing pollution by 24%. MEPA should require the Port Authority to thoroughly investigate a feasible range of alternatives; in order to properly assess the environmentally beneficial impacts of this proposal.</p>	<p>Logan Airport serves as New England's primary domestic and international airport, plays a key role in the metropolitan Boston and New England passenger and freight transportation networks, and is a significant contributor to the regional economy. Boston is a major destination for international travelers due to its strong educational and institutional resources, economic and social diversity, cultural and historic heritage, and natural beauty. Logan Airport fulfills a number of roles in the local, New England, and national air transportation networks. It serves as the primary airport serving the Boston metropolitan area, is the principal New England airport for long-haul services, and is a major U.S. international gateway airport for transatlantic services.</p> <p>Logan Airport has the local market demand (within Route 128), critical mass of airline service, and the necessary terminal and airfield facilities to support a broad international origin and destination service network which cannot be replicated at smaller, regional airports.</p> <p>Massport has considered provision of additional international service at regional airports numerous times during the analysis of Terminal E operations, both historically during previous airport improvement projects and during the conceptual design phase of the Project. Alternatives that consider provision of international service at regional airports such as T.F. Green or Manchester-Boston Regional airports were not developed further for a number of reasons. First, international air carriers choose to fly in and out of Logan Airport to satisfy passenger demand. The demand for international travel to these regional locations is considerably lower than that of Boston. Connecting international flights to and from these airports are limited when compared to the services already found at Logan Airport. Supporting infrastructure such as Customs and Border Protection facilities, are also limited at these airports and would require additional staffing by the Transportation Security Administration and Homeland Security agencies to support. Thus, off-Airport alternatives were not considered for the proposed modernization of Terminal E.</p>
<p>Y.3 Continued</p>	<p>Regional Airports such as Manchester-Boston Regional Airport, T.F. Green Airport, and Worcester Regional Airport provide critical alternatives to local passengers that otherwise would be driving to Logan Airport for the same service. For the most part, the air service from the regional airports is focused on short haul and medium haul nonstop, jet service to business and leisure destinations as well as to air carrier hubs to access longer haul options. Manchester-Boston Regional Airport and T.F. Green Airport have added new terminals, extended runways, and bad weather capabilities (Category III) that provide critical infrastructure to attract and sustain dependable, jet air service. Massport is currently upgrading Worcester Regional Airport's bad weather technology to Category III, as well as airfield taxiway improvements, to bring Worcester Regional Airport up-to-par with the other regional airports.</p> <p>Refer to the 2014 EDR, Chapter 4, Regional Transportation, for additional information on airports in the New England region.</p>
<p>Y.4</p> <p>Based upon current, real world fleet characteristics, MEPA should expect this project to bring with it an increase in airport noise which is commensurate with the volume of additional flights it promises to bring, accounting for at least a 17% increase in airport noise.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity whether or not Terminal E is modernized. The same number of passengers and aircraft would be accommodated under the No-Action Alternative and Proposed Action, however, the proposed Project would improve the efficiency of aircraft operations on the apron, reducing idling times, and would improve the entire passenger experience. The analysis finds that positioning the terminal to serve as a noise barrier results in a noise decrease up to 17 dB compared to the No-Action Alternative.</p>

Terminal E ENF Comments and Responses

Form Letter Y Continued	
Comment #	Response:
<p>Y.5</p> <p>And finally, jet pollution fallout has been proven to follow predictable patterns under flight paths, exposing thousands upon thousands of Boston region residents, even miles away from runway ends to pollution 6 – 8 times urban average levels, and thus exposing them to all of the heightened risks and adverse health outcomes.</p>	<p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
<p>Y.6</p> <p>With the expanded Terminal E expected to contribute 57% to this passenger growth, the project will cause a 14% increase in NOx by itself, a fact which must be weighed by MEPA in considering the environmental impacts of this project.</p>	<p>The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized and will not cause an increase in passenger activity.</p> <p>As documented in Chapter 5, Environmental Consequences, due to improved airport efficiency, air quality conditions would be improved with the proposed Project, compared to the No-Action Alternative. The Proposed Action would provide the following benefits that directly translate to reductions in emissions including: average aircraft taxi-time would decrease by 20%; aircraft auxiliary power unit usage would decrease by 74%; aircraft tractor usage for relocating aircraft between Terminal E gates and hardstands would decrease by 49%; curbside idle time would decrease by 13%; motor vehicle miles traveled would decrease by 4% and busing vehicle miles traveled would decrease by 97%; and the number of airside busing operations would decrease by 94%. The changes in emissions total under the Proposed Action in comparison to the No-Action Alternative (i.e., the Project-related emissions) are well within (i.e., below) the applicable General Conformity Rule de minimis levels for carbon monoxide (CO), volatile organic compounds (VOCs), and nitrogen oxide (NO_x). This important outcome signifies that the Terminal E Modernization Project conforms to the State Implementation Plan and would not cause, or contribute to, violations of any National Ambient Air Quality Standards (NAAQS).</p> <p>Under the Proposed Action alternative, total emissions of all pollutants are shown to decrease when compared to the No-Action Alternative. As shown, these reductions range from <1 to 26 tons/year (i.e., 1 to 55%) depending on the pollutant.</p>

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Form Letter Z Commenter List

Name

Daniel A. Cordon
Danielle Dell'Olio
Gillian B. Anderson
Jeeyoon Kim
Jesse Purvis
John Tyler
MaryBeth Hamwey
Maureen White
Name Illegible (A.V)
Name Illegible (B.R)
Name Illegible (D.P)
Name Illegible (E.F.)
Tanya Hahnel

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Mr. Matthew Beaton

Executive Office of Energy and Environmental Affairs

Attn: Page Czypiga, EEA No. 15434

100 Cambridge Street, Suite 900

Boston MA 02114

Dear Secretary Beaton,

Please review my comments below regarding the Logan International Airport Terminal E "Modernization" project Environmental Notification Form (ENF), EEA #15434, and its potential environmental impacts, lack of serious alternatives, inadequate mitigation measures, request for an Environmental Impact Report (EIR), Special Review Process and request for an extension on the ENF comment period.

In 2014 the Massachusetts Department of Public Health's Logan Airport Health Study confirmed a direct association between airport pollution and chronic diseases. To date, it showed a 360 % increased risk of probable childhood asthma and nearly 200% increased risk of chronic obstructive pulmonary disease. Given this direct link and the potential serious health impacts, **I strongly urge you to require an EIR in accordance with 301 CMR 11.06(7).**

The project alternatives in the ENF, (§ 2.4.1, § 2.4.2) are wholly inadequate given that the Port Authority could have studied economic, environmental and operational viability that would provide greater sustainable growth alternatives. The failure to address regionalized air travel as a common and widely viewed alternative demonstrates this need for further review. It is becoming increasingly clear that both for operational and public health impact reasons, Logan International Airport will not be able to fulfill its appetite for long term continued growth in a sustainable manner.

Massport has done an insufficient job of addressing mitigation and transportation matters in the ENF, particularly as it relates to managing traffic at Logan Airport. Given the expected increase in passenger traffic at Terminal E (§ 2.3.1.3), and the recent Massport community proposals in regards to lifting the long standing legal parking freeze, it should be assumed that demand for parking and vehicle trips will also increase. I suggest that MEPA further investigate this inconsistency of no new vehicle trips (§ 3.6.8) for an expansion project of this size in conjunction with its desire to

lift the parking freeze. The lack of serious mitigation beyond a pedestrian walkway (§ 2.8) is also an affront to idea that a large increase in passenger and aviation capacity in international travel will have no further mitigating impacts beyond the scope of the project.

Based upon the risks associated with airport developments and their specific nature, **I urge MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 30I CMR 11.09.** Massport proposals to expand or "modernize" Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments. In addition but not limited to, it should always require a thorough Environmental Impact Report, a more robust community engagement process, a longer comment period, and require an Environmental Justice Coordinator to promote thorough inclusion of these topics on all further MEPA related public processes.

Please consider extending the ENF comment period for the following reason: 6pm meetings held at the Airport's Noddle Island Community room do not allow adequate time for people working traditional work hours to attend. The venue, its size, and its lack of amplified audio facilities was inadequate and it was very difficult to hear everyone's comments also, many people had to stand due to the lack of seating. Limiting the comment period to just 30 days for large projects of this nature, especially during the winter and the holiday seasons, make it extremely difficult to gather the necessary information to make informed comments. The East Boston High School would have been a much better venue to enable community comment.

It is my hope that you will carefully consider these comments, concerns and recommendations, and act in the interests of the community.

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LATE COMMENT

Z.5

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Terminal E ENF Comments and Responses

Form Letter Z	Comment #	Comment:	Response:
Z.1	<p>In 2014 the Massachusetts Department of Public Health's Logan Airport Health Study confirmed a direct association between airport pollution and chronic diseases. To date, it showed a 360% increased risk of probable childhood asthma and nearly 200% increased risk of chronic obstructive pulmonary disease. Given this direct link and the potential serious health impacts, I strongly urge you to require an EIR in accordance with 301CMR 11.06(7).</p>	<p>In the December 16, 2015 Certificate on the Terminal E Modernization Project Environmental Notification Form (ENF), the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary required that additional analyses be conducted in a "focused" Draft Environmental Impact Report (DEIR) covering areas of ground access, energy, water quality, air quality, greenhouse gas, and others.</p> <p>Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs). The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>	
Z.2	<p>The project alternatives in the ENF,(2.4.1, §2.4.2) are wholly inadequate given that the Port Authority could have studied economic, environmental and operational viability that would provide greater sustainable growth alternatives. The failure to address regionalized air travel as a common and widely viewed alternative demonstrates this need for further review.</p>	<p>Massport plays an important role in supporting and furthering multimodal transportation in the region. Massport is investing in its family of airports including:</p> <ol style="list-style-type: none"> 1. Acquiring and modernizing Worcester Regional Airport to better serve the commercial airline travel demands of the central Massachusetts region. 2. Together with the City of Worcester, Massport is investing \$100 million over 10 years to revitalize and grow commercial operations at Worcester Regional Airport. As a result of this collaboration, JetBlue Airways has already handled over 250,000 passengers at Worcester Regional Airport since commencing operations in late 2013. 3. Massport recently started construction on Worcester Regional Airport's Category III Instrument Landing System to enhance operational and safety conditions to a level equal to that of all other commercial airports in New England. This project will significantly improve Worcester Regional Airport's all-weather reliability, a long-standing impediment to greater utilization of this airport. 4. Hanscom Field continues to maintain its role as a corporate reliever for Logan Airport and Hanscom Air Force Base as a leading technology center for the Department of Defense. New England's second busiest airport, Hanscom Field is a full-service general aviation airport and popular choice for business executives traveling to Eastern Massachusetts and "America's Technology Region" situated along the Route 128/95 and Route 495/3 corridors. <p>In addition, as documented in Chapter 4, Regional Transportation, of the 2014 EDR, the aim of regional transportation planning efforts is to reduce reliance on Logan Airport, and to provide New England travelers with a variety of viable transportation options. The New England Regional Airport System Plan, conducted in 2006, has helped to develop the primary commercial airport system in New England in order to support these benefits. Meanwhile, the Conference of New England Governors and Eastern Canadian Premiers works to coordinate the highway, aviation, freight, and commuter rail transportation networks. Rail service such as the Amtrak Northeast Corridor and proposed improvements such as the Boston-South Station Expansion, also help to balance the passenger load among various forms of transportation. Other supporting planning forums include GreenDOT, the Healthy Transportation Compact, and the Boston Region Metropolitan Planning Organization. Massport supports several regional transportation cooperation planning efforts including: New England Regional Airport System Plan, New England Regional Airport System Plan – General Aviation, and the Conference of New England Governors and Eastern Canadian Premiers.</p>	

Terminal E ENF Comments and Responses

Form Letter Z Continued	
Comment #	Response:
Z.3	<p>Comment: Massport has done an insufficient job of addressing mitigation and transportation matters in the ENF, particularly as it relates to managing traffic at Logan Airport. Given the expected increase in passenger traffic at Terminal E (§2.3.1.3), and the recent Massport community proposals in regards to lifting the long standing legal parking freeze, it should be assumed that demand for parking and vehicle trips will also increase.</p> <p>Response: The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized and will not cause an increase in passenger activity.</p>
Z.4	<p>Comment: I suggest that MEPA further investigate this inconsistency of no new vehicle trips (§3.6.8) for an expansion project of this size in conjunction with its desire to lift the parking freeze.</p> <p>Response: The historic growth at Logan Airport that occurred without additional gates demonstrates that demand at Logan Airport is driven by economic and market factors, not airport improvements. Thus, Logan Airport will handle the same level of increased international passenger activity and aircraft operations whether or not Terminal E is modernized and will not cause an increase in passenger activity.</p>
Z.5	<p>Comment: The lack of serious mitigation beyond a pedestrian walkway (§2.8) is also an affront to idea that a large increase in passenger and aviation capacity in international travel will have no further mitigating impacts beyond the scope of the project.</p> <p>Response: Chapter 6, Beneficial Measures/Mitigation, documents the mitigation commitments and Project benefits that Massport would implement as part of the Terminal E Modernization Project.</p>
Z.6	<p>Comment: Based upon the risks associated with airport developments and their specific nature, I urge MEPA to develop a supplemental review process as outlined in M.G.L. c. 30, section 301CMR 11.09, Massport proposals to expand or "modernize" Logan International Airport should require a MEPA special review process to help properly address the scope of potential public health impacts in assessments.</p> <p>Response: In the December 16, 2015 Certificate on the Terminal E Modernization Project ENF, the Secretary of Energy and Environmental Affairs stated that the Project "does not exceed a Mandatory EIR threshold." However, the Secretary required that additional analyses be conducted in a "focused" DEIR covering areas of ground access, energy, water quality, air quality, greenhouse gas, and others. Massport provides an update on the status and findings of a Massachusetts Department of Public Health Logan Airport Health Study and Massport's air quality studies in the annual EDRs and ESPRs. The next update on the health studies will be provided in the 2015 EDR which will be published later in 2016. The results of the health studies are available on Massport's website at https://www.massport.com/about-massport/logan-airport-health-study/</p> <p>The Terminal E Modernization Project is being designed to provide several features that would contribute to improving environmental conditions including:</p> <ul style="list-style-type: none"> - Designing the extended concourse to serve as a noise barrier for the community; - Providing for more efficient use of the North Apron, which reduces aircraft idling and in turn improves air quality. It would also allow aircraft to plug-in at the gate, reducing the usage of auxiliary power units; and - Improving curbside operations, thus reducing automobile idling and improving traffic operations. <p>These features would improve noise and air quality conditions compared to if the Project were not in place.</p>
Z.7	<p>Comment: In addition but not limited to, it should always require a thorough Environmental Impact Report, a more robust community engagement process, a longer comment period, and require an Environmental Justice Coordinator to promote thorough inclusion of these topics on all further MEPA related public processes.</p> <p>Response: Massport is committed to collaborating with impacted surrounding communities. Massport will provide notices in Spanish along with translation services at public meetings. Massport requested and was granted an extension to the public comment period on the ENF to allow additional time for public review and comment.</p>

Terminal E ENF Comments and Responses

Form Letter Z Continued		
Comment #	Comment:	Response:
Z.8	<p>Please consider extending the ENF comment period for the following reason: 6pm meetings held at the Airport's Noddle Island Community room do not allow adequate time for people working traditional work hours to attend. The venue, its size, and its lack of amplified audio facilities was inadequate and it was very difficult to hear everyone's comments also, many people had to stand due to the lack of seating. Limiting the comment period to just 30 days for large projects of this nature, especially during the winter and the holiday seasons, make it extremely difficult to gather the necessary information to make informed comments. The East Boston High School would have been a much better venue to enable community comment.</p>	<p>Massport requested and was granted an extension of the ENF comment period to provide additional time to review and comment on the ENF. The comment period for the ENF began on November 9, 2015 and ended on December 9, 2015. The Secretary of Energy and Environmental Affairs chose not to further extend the comment period and issued a Certificate on the ENF on December 16, 2015. The public will have additional opportunities to comment on the Project with the filing of this EA/DEIR.</p> <p>Massport will consider alternate locations for future public meetings. Holding public meetings at Logan Airport is a convenient central location for the full spectrum of airport users and affected community members.</p>

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Appendix B
Draft Section 61 Findings

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DRAFT PROJECT § 61 FINDINGS FOR TERMINAL E MODERNIZATION AT BOSTON-LOGAN INTERNATIONAL AIRPORT

PROPOSED RESOLUTION AND VOTE OF THE BOARD OF THE MASSACHUSETTS PORT AUTHORITY IN COMPLIANCE WITH M. G. L. c. 30, § 61

WHEREAS, Terminal E, the international terminal of Boston-Logan International Airport (“Logan Airport”) was originally constructed in 1974 with twelve (12) aircraft gates, and served 1.4 million passengers annually; and

WHEREAS, international travel demand at Logan Airport has grown substantially over the past four decades, and particularly in the past three years, and current forecasts project that Logan Airport will serve eight million international passengers annually by 2030 or sooner; and

WHEREAS, this growth of international demand at Logan Airport has occurred without any significant improvements to Terminal E; and

WHEREAS, current conditions at Terminal E, including the shortage of available gates, result in severe congestion inside the terminal and at the curbs and roadways associated with Terminal E, as well as extended aircraft taxi times and associated idling of aircraft in the airside areas nearest the terminal; and

WHEREAS, by adding, in two phases, a total of seven new gates to Terminal E (three of which were already approved under the Massachusetts Environmental Policy Act (MEPA) in 1996, but were never constructed), and by extending the existing concourse, terminal core, and terminal roadway frontages (collectively, the “Project”), implementation of the Project will better accommodate the current and projected increased demand for international travel that is expected to occur whether or not the Project is implemented; and

WHEREAS, implementation of the Project could also reduce aircraft-related ground noise and air pollutant emissions by enabling aircraft to taxi directly to Terminal E and shut down their engines, rather than idling on the apron or park remotely; and

WHEREAS, implementation of the Project could also enhance curbside and roadway access to the terminal and increase interior terminal space, thereby reducing noise and emissions from ground transportation, as well as delays for the traveling public; and overall congestion inside Terminal E; and

WHEREAS, implementation of the Project will better accommodate the current and projected increased demand for international travel that is expected to occur whether or not the Project is implemented; and

WHEREAS, on October 30, 2015, the Authority filed an Environmental Notification Form (“ENF”) pursuant to the Massachusetts Environmental Policy Act (“MEPA”), proposing the Terminal E Modernization Project for the purpose of making certain enhancements to Terminal E, and on December 16, 2015, the Secretary of the Executive Office of Energy and Environmental Affairs (the “Secretary”) issued a Certificate and Scope for the Project environmental studies under MEPA.

NOW THEREFORE BE IT RESOLVED AND VOTED:

- A. The Authority hereby finds that: (a) the selection and implementation of the Project’s Preferred Alternative and assessment of environmental impacts associated with the Project are properly and adequately described and evaluated in the EA/EIR; (b) the description of such environmental impacts set forth in said documents is adopted as a specific finding herein; and (c) by implementing the mitigation measures and environmentally beneficial measures set forth in the EA/Final EIR, as modified by and as authorized and directed by this resolution, all practicable means and measures will be taken to minimize damage to the environment. In making this finding, the Authority has considered reasonably foreseeable climate change impacts and effects, including greenhouse gas emissions and potential sea level rise.
- B. The Authority hereby further finds and determines that the improvements constituting the Preferred Alternative for the Project, as set forth in the EA/EIR, will enhance the operation of Logan Airport and better serve the travelling public.
- C. The Authority hereby makes the findings set forth below in accordance with M. G. L. c.30, § 61, and hereby authorizes and directs the CEO/Executive Director to implement the measures described herein:

1. Overall Project Benefits

Implementation of the Project itself is, in many ways, an environmentally beneficial measure, because it will have the overall effect of reducing air emissions and ground noise impacts associated with the operation of Terminal E. In addition, with the exception of the temporary environmental impacts during its construction, described below, no significant adverse environmental impacts resulting from the implementation of the Project have been identified.

The Project and its associated program elements will offer significant environmental and operational benefits including:

- Seven new aircraft gates (up to four during Phase I of the Project and three during Phase II of the Project) equipped with 400 Hz of power and pre-conditioned air will allow aircraft to plug-in at a gate rather than be serviced remotely. This will reduce the need for on-board engine/APU operation; thereby reducing aircraft air emissions, greenhouse gas (GHG) emissions, and energy consumption.

- The improvements to the terminal will be sited, designed, and constructed to serve as a noise barrier to the adjacent East Boston neighborhoods and Memorial Stadium Park, to the southwest of the North Cargo apron, where one does not currently exist.
- The roadway and curb improvements will improve vehicle flow and high occupancy vehicle (HOV) access at Logan Airport, thereby reducing vehicle emissions and vehicle miles traveled (VMT) at and to Logan Airport.
- Building a direct, weather-protected pedestrian connection to the MBTA Blue Line Airport Station to Logan Airport, thereby improving accessibility to and from Logan Airport. (Phase II of the Project).
- Sustainable design, construction, and operations guidelines will be implemented, which will lessen environmental impacts both locally and regionally during the construction phases and during long-term operation of the Project. The program will be designed, constructed and operated to achieve Leadership in Energy and Environmental Design (“LEED”) certification. The Authority will strive to achieve a LEED Silver rating or better as well as the goals of the Commonwealth of Massachusetts “LEED Plus” program (established by the Commonwealth’s Executive Office for Administration and Finance).

2. Specific Operational Benefits

Current conditions in the terminal are severely constrained by the existing facility and will only further deteriorate in the future, as the forecasted international passenger demand is realized.

The improvements proposed in this Project will provide several operational benefits, including:

- Facilitation of efficient management of international flights by allowing those flights to taxi directly to aircraft gates at Terminal E.
- Improved customer service in the terminal, as enhancement of the terminal will significantly reduce congestion and processing delays; and additional gates at the terminal will also avoid the flight delays that are currently caused both by aircraft waiting for gate availability at Terminal E and by remote parking of aircraft (and accompanying passenger busing).

3. Current and Future Terminal E Operations

Current forecasts demonstrate that the unprecedented growth of international passengers at Logan Airport will continue in the foreseeable future, regardless of whether the

proposed improvements are made to Terminal E. The proposed Project will significantly enhance the Authority's ability to efficiently accommodate the current and forecasted international operations and passenger volume through improved terminal, landside, and airside facilities at Terminal E and with reduced environmental impacts.

4. Site Planning and Sustainable Design

The Project site design:

- Makes efficient use of Terminal E and adjacent areas already in active aviation use, and is entirely within Logan Airport's footprint; and
- Improves the efficient use of existing airport access roadways and ground transportation infrastructure; and
- Follows sustainable principles/LEED criteria for siting/sustainable sites (e.g., walking distance to public transportation).

Project benefits related to planning and design include:

- Enhanced pedestrian access to airport facilities from the MBTA Airport Blue Line Station (as part of Phase II of the Project);
- Siting and design of the building additions buffer the adjacent neighborhoods from aircraft noise;
- Incorporation of sustainable design in all aspects of design, construction, and operations; and
- A project that is will seek LEED certification at the Silver level rating or better and meet or exceed the goals of the Massachusetts LEED Plus program.

5. Surface Transportation

The Project will make surface transportation operations more efficient at Logan Airport. For example, there will be some reduction in VMTs at the airport due to a reduction in recirculation of traffic (as part of Phase II of the Project).

6. Air Quality

There are no adverse air quality impacts associated with the Project. The Project benefits related to air quality include:

- The additional aircraft gates will result in reduced aircraft taxi-delay time due to less congestion in the terminal area; less use of aircraft APUs by alleviating the “hardstanding” of aircraft; the reduction of aircraft tractors, buses, and other ground support equipment (GSE) used to move aircraft, people, and cargo from the aircraft to the terminal.
- The enhancements to the curb will result in reduced curbside motor vehicle idle time, attributable to improved traffic conditions and less congestion in the terminal area; fewer VMT due to the reduction of vehicles re-circulating on the internal Airport roadways; and reduced curb roadway demand and enhanced traffic flows, thereby reducing congestion and dwell time and resulting in related improvements in air quality.
- With respect to the criteria pollutants, the Project is expected to result in a decrease in carbon monoxide (CO) emissions in the area of Terminal E and the associated aircraft apron by approximately 9%, nitrogen oxide (NO_x) emissions by approximately 44%, and sulfur oxides (SO_x) emissions by approximately 33% percent. Volatile organic compounds (VOCs) emissions in the project area are projected to decrease by approximately 6% and particulate matter (PM₁₀ and PM_{2.5}) emissions are projected to decrease by approximately 9% percent and 25% percent, respectively.
- With respect to climate change emissions, the Project is expected to result in a operational-related carbon dioxide (CO₂) emissions decrease by approximately 15% percent.
- Terminal building design features are expected to decrease CO₂ emissions by approximately 12%, compared to conventional building methods and materials.

7. Noise

There are no perceptible adverse noise impacts associated with the Project. Project benefits related to noise include:

- The design of the terminal expansion, which will wrap around the North Cargo Ramp to the existing Delta Hangar, will result in a reduction of aircraft ground noise levels at Jeffries Point, and other residential areas in East Boston, as well as at East Boston Memorial Park.
- In the Jeffries Point neighborhood, the building shielding/noise barrier provided by the expanded terminal will reduce DNL noise levels from aircraft ground operations near Terminal E, by 5 to 18 dB for a single aircraft event. The noise shielding component of the Project will also reduce single-event maximum noise levels in Jeffries Point Area by 2 to 15 dB.

- The Project will reduce DNL noise levels from aircraft ground operations near Terminal E, in the Bremen Street area south of Putnam Street to Route 1A, by 3 to 15 dB, primarily due to the noise barrier effect of the proposed seven-gate extension of the terminal and the pedestrian connection to MBTA Airport Station. The noise barrier component of the Project will also reduce single-event maximum noise levels in the Bremen Street area south of Putnam Street to Route 1A by 1 to 11 dB from aircraft ground operations near Terminal E.
- It is expected that there will not be an increase of DNL 1.5 dB in any noise-sensitive areas greater than or equal to DNL 65 dB near the terminal.

8. Stormwater Management

There are no adverse stormwater management impacts associated with this Project. Massport holds a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges at Logan Airport. Massport's Stormwater Pollution Prevention Plan (SWPPP) addresses stormwater pollutants. The areas of Terminal E proposed for improvements are already paved and the proposed Project would not result in increased impervious surface or pollutant-generating activities on the apron or ramp. Although the distribution of stormwater will shift from apron collection roof collection, the aggregate amount of stormwater and overall stormwater runoff quality will be unchanged. The Authority's stormwater discharge will be appropriately modified as necessary to accommodate the new roof area drainage. As part of the facility upgrades, the stormwater management system will be replaced and upgraded in the project area, resulting in water quality benefits.

9. Water and Wastewater

No direct or indirect water quality impacts are anticipated from the Project. The Project will connect to the MWRA wastewater system, which is ultimately treated at the Deer Island Sewage Treatment Plant in Boston Harbor. The Project is consistent with Massport's efforts to reduce the amount of wastewater generated through water efficiency strategies.

10. Soil and Groundwater

The Project will have no impact on soil or groundwater, as the Project is located on previously developed land already in use. Soil and groundwater handling and management during construction will be conducted in accordance with the appropriate submittals (i.e., Release Abatement Measures, Immediate Response Actions, and/or Safety Management Plans), including appropriate permits and permissions as appropriate.

11. Construction Period Impacts

The Authority will require all contractors to comply with certain construction guidelines that relate to:

- The Authority has committed to diverting and/or reducing (through recycling) construction waste to landfills by at least 75 percent;
- In accordance with DEP's Clean Air Construction Initiative, the Authority will require that construction contractors to install emission control devices such as diesel oxidation catalyst and/or particulate filters on certain equipment types (*i.e.*, front-end loaders, backhoes, excavators, cranes, and air compressors);
- Retrofitting of certain construction equipment types with emission controls such as diesel oxidation catalyst and/or particulate filters;
- Selection of high efficiency "temporary" space heating /cooling systems;
- Remediate subsurface contamination, as necessary, if encountered during tank removals or other excavation activities as part of construction (in compliance with the Massachusetts Contingency Plan);
- Soil treatment and reuse on site as part of a Soil Management Plan;
- Voluntary compliance with the requirements of City of Boston noise ordinances, including restrictions on the types of equipment that can be used, and limitations on the hours when certain activities can take place (the City of Boston noise ordinance establishes restrictions during the construction hours between 6:00 PM and 7:00 AM);
- Construction worker vehicle trip limitation, including requiring contractors to provide off-airport parking and use of high-occupancy vehicle transportation modes for employees;
- Implement Indoor Air Quality (IAQ) Management Plan during construction; and
- In accordance with DEP's Clean Air Construction Initiative, the Authority requires that construction contractors install emission control devices on certain equipment types (*i.e.*, front-end loaders, backhoes, excavators, cranes, and air compressors).

The Authority will employ a team of on-site resident engineers and inspectors to monitor all construction activities related to the Project, including the following management practices:

- Full coordination with all relevant agencies including the FAA, DEP, MWRA, City of Boston, BWSC, and utility companies, as appropriate.
- Preparation of detailed pre-construction plans for traffic maintenance, construction specifications for contractors, and coordinated scheduling of all construction activities (as well as the other measures noted in the ground transportation sections above).
- Construction mitigation measures in a number of categories are described below.

Construction Traffic Operations

- It is expected that there will be a maximum of approximately 60 daily construction truck trips associated with this Project.
- Construction-related traffic will be required to access and egress through the North Gate using only state and federal highways and the Airport roadway network. Construction-related traffic on local East Boston roadways will be prohibited.
- Construction employee parking spaces will not be permitted on the construction site nor will provisions be made for them elsewhere on-airport with the exception of a small number of spaces for supervisory personnel. The Authority will require contractors on this Project to implement construction worker vehicle trip management measures, including requiring off-Airport parking and HOV transportation modes for contractor employees.
- Police details will be employed, as needed, to manage traffic and ensure public safety.

Construction Air Quality

Construction emissions will be reduced and controlled by mandatory contractor implementation of the following best practices:

- Encouragement for construction-worker site access/egress using dedicated buses and vans;
- Reduction of exposed erodible surface areas to the extent feasible;
- Covering of exposed surface areas with pavement or vegetation in an expeditious manner and periodic watering;
- Minimizing equipment idling times;
- Reduction of on-site vehicle speeds;

- Ensuring contractor implementation of appropriate fugitive dust and equipment exhaust controls;
- Use of low- or zero-emissions equipment to the maximum extent feasible; and
- Use of covered haul trucks during materials transportation.

Construction Noise

The construction of the Project will generate some short-term noise with sound levels typical of those associated with construction activities. The sound levels from construction activities will employ measures to comply with the City of Boston's noise standards, therefore, no additional noise mitigation for construction is required. Construction equipment will use noise-reduction measures, including the use of proper mufflers, measures to limit noise from truck traffic, and will primarily operate only during daylight hours (7:00 a.m. to 7:00 p.m.).

12. Timing and Responsibility for Implementation

All measures described herein will be completed upon construction of the Project.

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