
VOLUME I

PREPARED FOR



Massachusetts Port Authority

DRAFT ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL ASSESSMENT
EEA# 15665

Logan Airport Parking Project

Boston-Logan International Airport
EAST BOSTON, MASSACHUSETTS

PREPARED BY



IN ASSOCIATION WITH

WSP USA

Arrowstreet

MAY 2019

***Draft Environmental Impact Report/
Environmental Assessment***

EEA No. 15665

Logan Airport Parking Project

Boston-Logan International Airport

East Boston, Massachusetts

Prepared for **Massachusetts Port Authority**

Prepared by



In association with **WSP USA
Arrowstreet**

May 31, 2019

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

A handwritten signature in blue ink that reads "R. Dorell".

Responsible FAA Official
Environmental Program Manager
FAA New England Region

May 31, 2019

Date



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May 31, 2019

The Honorable Kathleen Theoharides, Secretary
Executive Office of Energy and Environmental Affairs

Attn: MEPA Office

Page Czepiga

100 Cambridge Street, Suite 900,
Boston, Massachusetts 02114

Richard Doucette

Federal Aviation Administration

New England Region

1200 District Avenue

Burlington, MA 01803

Re: Logan Airport Parking Project, Draft EIR/EA (EEA No. 15665), Boston, MA

Dear Secretary Theoharides and Mr. Doucette,

On behalf of the Massachusetts Port Authority (Massport), we are pleased to submit for your review the **Draft Environmental Impact Report/Environmental Assessment (Draft EIR/EA)** for the **Logan Airport Parking Project**. This Project addresses implementation of Massport's plan to add 5,000 new on-Airport commercial parking spaces at Boston-Logan International Airport. The additional parking spaces are one element of Massport's overall strategy to reduce local and regional vehicle miles traveled (VMT) and vehicle air emissions associated with ground access to Logan Airport. This Draft EIR is combined with a federal EA for review by the Federal Aviation Administration (FAA) under the National Environmental Policy Act (NEPA). FAA's involvement in the Project is tied primarily to its need to approve a change to the Airport Layout Plan (ALP) showing the proposed garage additions.

Since Massport's filing of the ENF in March 2017, the Massachusetts Department of Environmental Protection (MassDEP) on June 30, 2017 approved an amendment to the Logan Airport Parking Freeze Regulation (310 CMR 7.30) that allows for 5,000 more on-Airport parking spaces. This Project is fully consistent with that amendment. The U.S. Environmental Protection Agency (EPA) has also approved the Parking Freeze amendment and memorialized those changes in its update to the Massachusetts State Implementation Plan (SIP) under the Federal Clean Air Act (42 U.S.C. §7401 et seq. [1970]) on March 6, 2018 with the rule going into effect on April 5, 2018.

As originally described in the ENF, the constrained parking supply at Logan Airport continues to cause an avoidable increase in the drop-off/pick-up activity at Logan Airport. Drop-off/pick-up are the least desirable mode choices from an environmental and ground access perspective since they can generate up to four vehicle trips (and their associated emissions) as compared to two vehicle trips for passengers who drive and park at the Airport.

Since no single current on-Airport site could efficiently accommodate all 5,000 spaces, Massport plans to construct the additional parking in two locations: approximately 2,000 spaces are proposed to be added in a new garage in front of Terminal E where there is an existing surface parking lot, and an additional 3,000 spaces are planned to be added to the existing Economy Garage. Although Massport intends to build the new parking structure in front of Terminal E first, this Draft EIR/EA fully addresses both phases of the Project. Massport plans to commence construction of the first spaces in 2020 and have all 5,000 additional commercial parking spaces in service by the end of 2025.

As modes of ground access to Logan Airport continue to evolve, the need for additional on-Airport parking persists. In 2017, with continued growth in air passenger activity and insufficient on-Airport parking, Massport diverted or valet-parked just over 40,000 passenger vehicles on 81 days of the year. Vehicle diversions are anticipated to increase as air passenger travel at Logan Airport increases over time. In 2018, Logan reached a new passenger record of 40.9 million annual passengers and this trend continues. Furthermore, many temporary locations used during peak travel periods are currently unavailable as a result of ongoing construction.

Most recently, in an effort to reduce ground access trips to or from Logan Airport without passengers by the Transportation Network Companies (TNCs) such as Lyft and Uber, Massport is planning to convert approximately 1,000 commercial parking spaces in the Central and West Garage complex to a TNC drop-off and pick-up area. Massport has also committed to adding parking spaces at the Framingham and Braintree Logan Express locations. Within the next few years, approximately 3,000 additional spaces at these locations will go into service, more than at Logan Airport during the same time period. Together with other operational measures, Massport hopes to substantially reduce the nearly 5 million annual deadhead TNC trips and increase the number of high-occupancy vehicle (HOV) trips to the Airport, all of which will reduce the amount of vehicle trips on the key transportation gateways surrounding the Airport.

This Draft EIR/EA reconfirms the need for additional on-Airport parking, the benefits of reduced drop-off/pick-up activity and anticipated roadway congestion and air quality improvements. The document also expands the ENF discussion on how this Parking Project fits into Massport's overall Ground Access Strategy and the range of new on- and off-Airport HOV strategies that the Massport Board of Directors has recently adopted to manage ground traffic growth at the Airport. As described in Chapter 3, *Existing/Affected Environment*, Massport's strategy to mitigate growing traffic congestion focuses on reducing "deadhead" trips by the TNCs and growing the successful Logan Express program. Together, these measures have the potential to eliminate more than 3 million annual trips to and from Logan Airport.

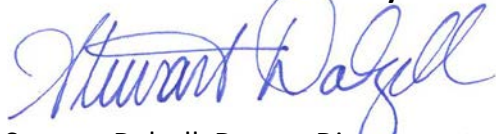
The public comment period for the Draft EIR/EA will begin on June 10, 2019, the publication date of the next *Environmental Monitor*. Because the required 30-day public comment period overlaps the Fourth of July holiday, Massport respectfully requests a 47-day extended comment period for the Draft EIR/EA. Based on this extended comment period, comments would be due on or before July 26, 2019, with the Certificate to be issued on August 2, 2019.

All parties on the distribution list will be sent a printed copy of the Draft EIR/EA or a Notice of Availability. The Draft EIR/EA will be available for review at a number of public libraries (as shown on the distribution list) and on Massport's website (<http://www.massport.com/massport/about-massport/project-environmental-filings/>). A Draft EIR/EA public meeting will be held at 6:00 PM on Tuesday, June 25, 2019, at the Logan Airport Rental Car Center in East Boston. While not required by the regulations, we have invited both the MEPA Office and FAA to attend this public meeting.

We look forward to your review of this document and to close consultation with you and other reviewers in the coming weeks. Please feel free to contact me at (617) 568-3524, if you have any questions.

Sincerely,

Massachusetts Port Authority



Stewart Dalzell, Deputy Director,
Environmental Planning and Permitting
Strategic & Business Planning Department

cc: Distribution List (Chapter 7)
J. Barrera, H. Morrison, D. Gallagher, S. Sleiman, R. MacNulty/Massport

LOGAN AIRPORT PARKING PROJECT

Boston-Logan International Airport
East Boston, Massachusetts

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Acronyms

ACEIT	Airport Construction Emissions Inventory Tool
ACRP	Airport Cooperative Research Program
AEDT	Aviation Environmental Design Tool
APM	Automated People Mover
BTU	British thermal units
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ eq	Carbon dioxide equivalent
dB	Decibel
dBA	A-weighted decibels
DEIR	Draft Environmental Impact Report
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EDR	Environmental Data Report
ENF	Environmental Notification Form
EPA	U.S. Environmental Protection Agency
ESPR	Environmental Status and Planning Report
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HOV	High-Occupancy Vehicle
IECC	International Energy Conservation Code
IPCC	Intergovernmental Panel on Climate Change
kWh	Kilowatt-hour
LED	Light emitting diode
LEED®	Leadership in Energy and Environmental Design
LIAG	Logan Impact Advisory Group
LOS	Level of Service
MAP	Million Annual Passengers
MassDEP	Massachusetts Department of Environmental Protection

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MBTA	Massachusetts Bay Transportation Authority
MCP	Massachusetts Contingency Plan
MEPA	Massachusetts Environmental Policy Act
MMT	Million metric tons
MOVES	Motor Vehicle Emission Simulator
MWh	Megawatt hour
MWRA	Massachusetts Water Resources Authority
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NONROAD	Nonroad Engines, Equipment, and Vehicles
NPDES	National Pollutant Discharge Elimination System
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
O ₃	Ozone
Pb	Lead
PCB	Polychlorinated biphenyls
PM	Particulate Matter
RCNM	Roadway Construction Noise Model
SIDA	Security Identification Display Area
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TAF	Terminal Area Forecast
TIA	Transportation Impact Assessment
TNC	Transportation Network Company
Tpy	Tons Per Year
QATAR	Quick Analysis Tool for Airport Roadways
VMT	Vehicle miles traveled
VOC	Volatile organic compounds

Executive Summary

Introduction

The Massachusetts Port Authority (Massport) has developed and continues to implement a comprehensive strategy to diversify and enhance ground transportation options for air passengers and employees to and from Boston-Logan International Airport (Logan Airport or the Airport). Massport's ground transportation strategy is designed to maximize the use of transit, shared-ride, and other high-occupancy vehicle (HOV) modes for travel to and from Logan Airport, and to minimize regional and local vehicle trips and corresponding emissions. Massport is particularly focused on reducing the number of private vehicles that access the Airport via environmentally undesirable drop-off/pick-up modes,¹ which generate up to four vehicle trips per passenger compared to two vehicle trips for passengers who drive and park.

For the Logan Airport Parking Project (the Proposed Project), Massport is proposing to construct 5,000 new commercial parking spaces in structured parking facilities on two sites at Logan Airport in accordance with the amendment to the Logan Airport Parking Freeze (the Parking Freeze).² The Proposed Project would first construct approximately 2,000 spaces in a new garage on existing surface parking lots in front of Terminal E, followed by approximately 3,000 spaces at the Economy Garage through an expansion of the existing facility. The new garage in front of Terminal E is expected to open in 2022, while the Economy Garage expansion would open by the end of 2025. This joint Draft Environmental Impact Report/ Environmental Assessment (DEIR/EA) fulfills the requirements of the Massachusetts Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA).

The Proposed Project is anticipated to achieve the following key outcomes:

- Accommodate existing and anticipated air passenger demand for on-Airport parking;
- Reduce the drop-off/pick-up mode share to/from the Airport and improve regional air quality;
- Locate the proposed garages entirely on-Airport in areas selected with community input that are already developed, are currently used for commercial parking, and are separated from nearby residential communities by other Airport structures or by local/regional transportation networks;
- Reduce regional vehicle miles traveled (VMT) by 10 percent compared to the No-Build Alternative both in 2022 upon completion of the new garage in front of Terminal E and in 2030 - five years after the expected opening of the Economy Garage expansion;

¹ Drop-off/pick-up modes can include private vehicles, taxis, transportation network companies (TNCs) such as Uber and Lyft, and limousine or black car services. For example, if an air passenger is dropped off when they depart on an air trip and is picked-up when they return, that single air passenger generates a total of four ground access trips: two for the drop-off trip (one inbound to Logan Airport, one outbound from Logan Airport) and two for the pick-up trip (one inbound to Logan Airport, one outbound from Logan Airport). The air passenger may be dropped off and picked up in a private vehicle or in a taxi or black car service that may not carry a passenger during all segments of travel to and from Logan Airport.

² The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts State Implementation Plan (SIP) under the federal Clean Air Act [42 U.S.C. §7401 et seq. (1970)].

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- Decrease annual emissions of nitrogen oxides (NO_x) and volatile organic compounds (VOC) in 2030 by 11 percent and 12 percent, respectively, through regional VMT reductions;
- Reduce on-Airport VMT and associated air emissions by minimizing drop-off/pick-up activity and related circulation on Airport roadways;



10%

REDUCTION IN REGIONAL
VEHICLE MILES TRAVELED

- Further reduce on-Airport VMT from circulating vehicles at the new garage in front of Terminal E by providing a secondary public parking entrance and vehicular bridge connection to the Central Garage complex (inclusive of the West and Central Garages);



11%

REDUCTION IN NITROGEN OXIDES

- Provide Massport's Ground Transportation Unit with operational efficiencies in managing the Airport's parking supply through the vehicular bridge at the new garage in front of Terminal E, which would allow for the efficient movement of vehicles between parking facilities during overflow conditions;



12%

REDUCTION IN VOLATILE ORGANIC
COMPOUNDS

- Accommodate the short-term loss of terminal area commercial parking spaces due to ongoing and planned projects, while still maintaining full compliance with the Parking Freeze once these spaces return to service;

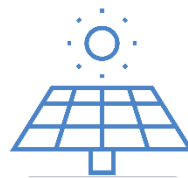
- Partially offset the loss of spaces in the Central Garage complex resulting from the new transportation network company (TNC) area;³



861

TONS PER YEAR REDUCTION IN
CARBON DIOXIDE EMISSIONS

- Reduce total stationary source energy consumption at the garages by 28.6 percent compared to a base case by adhering to Massport's Sustainable and Resilient Design Standards and Guidelines and incorporating sustainability measures from the U.S. Green Building Council's Parksmart rating system (e.g., lower lighting power densities);



116

TONS PER YEAR IN CARBON
DIOXIDE OFFSETS FROM SOLAR
PHOTOVOLTAICS

- Realize a reduction of 861 tons per year (tpy) in carbon dioxide (CO₂) emissions from stationary and mobile sources;

- Incorporate on-site renewable energy through the installation (in the case of the new garage in front of Terminal E) and relocation (in the case of the Economy Garage expansion) of solar photovoltaic systems to offset approximately 116 tpy in CO₂ emissions;

³ As part of a new initiative to reduce congestion at the Airport, Massport will improve TNC operations (such as those belonging to Uber and Lyft) at Logan Airport by consolidating TNC operations at dedicated areas on the ground floor of the Central Garage complex.

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- Provide additional noise barrier benefits, in conjunction with the Terminal E Modernization Project, enhancing screening of community and neighborhood recreation areas from aircraft ground noise in the North Apron Area;
- Collect and treat a portion of the stormwater at the new garage in front of Terminal E for use in the cooling tower at the Airport's Central Heating Plant;
- Reduce the number of parkers diverted or valeted to non-designated parking areas, including off-Airport overflow lots, to improve the air passenger experience; and
- Support the Airport's role as an economic driver in the region, as well as generate temporary construction-related jobs.

Project Context

Logan Airport is New England's primary airport serving as a regional connecting hub with both domestic and international destinations. The local and regional economy drives passenger activity levels at the Airport, which is supported by the area's major industries such as finance, technology, higher education, and tourism. In 2018, passenger activity levels reached an all-time high of 40.9 million annual air passengers. There are challenges that accompany this growth, which Massport will continue to address to allow Logan Airport to grow in a sustainable and environmentally-responsible manner.

The nature of air travel presents unique conditions for Logan Airport's parking operations. Parking spaces at the Airport turnover much less frequently than at other urban parking facilities, requiring more parking capacity. Additionally, an urban core such as the City of Boston, daily/regular travel coupled with parking constraints encourage commuters to travel by HOV modes that are less environmentally harmful than other modes. Unlike urban commuters, however, air travelers do not travel to airports daily, so drop-off/pick-up modes and personal vehicle parking may be perceived as more convenient options. When parking at Logan Airport is constrained, this can have the unintended adverse environmental consequence of encouraging drop-off/pick-up modes, which comparatively increases VMT and air emissions.

To address operational challenges and environmental conditions caused by historically constrained parking at the Airport, Massport developed a Long-Term Parking Management Plan that was first published in the *2012/2013 Logan Airport Environmental Data Report (EDR)* and implemented and updated to the present. The Long-Term Parking Management Plan lays out a multi-part strategy for efficiently managing parking supply, pricing, and operations. Massport's goals under this plan are to maximize transit, shared-ride, and other HOV ground access, while both reducing parking demand and minimizing drop-off/pick-up activity.

Key efforts undertaken or planned by Massport to actively promote transit, shared-ride, and other HOV modes to and from Logan Airport are listed below:

- Massport operates its own extensive compressed natural gas (CNG) powered Logan Express Bus service, currently serving five locations and almost two million people annually. Service was added in Boston's Back Bay in May 2014. Massport regularly reviews these services and adjusts schedules as well as ride and parking rates to enhance ridership by both air passengers and Airport employees.

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- Massport subsidizes the MBTA Silver Line Logan Airport route (SL1), a bus rapid transit service originating from South Station to the Airport, and provides free outbound Silver Line trips from the Airport.⁴ Massport has committed to pay for eight additional Silver Line buses (bringing the total to 16) to operate on the SL1 route by December 2024 (dependent on MBTA procurement).
- Massport provides free, clean-fuel shuttle bus service for passengers and employees between the Massachusetts Bay Transportation Authority (MBTA) Blue Line Airport Station, all terminals, the Rental Car Center, and the Logan Airport water transportation dock along Harborside Drive.
- Massport is implementing substantial improvements to Logan Express Bus service over the next two years. This includes the goal of doubling use of the service to four million riders annually by improving and expanding Logan Express options:
 - Improving Back Bay Logan Express service and subsidizing fares;
 - Increasing frequencies and adding amenities at existing Logan Express locations;
 - Adding a new urban Logan Express service at North Station;
 - Increasing parking capacity at the Framingham and Braintree Logan Express locations by a total of 3,000 spaces; and
 - Identifying new suburban Logan Express locations.
- MBTA rapid transit services are supplemented by MBTA commuter ferry service and MBTA local and express bus service.⁵
- Massport provides priority, designated curb areas at all Airport terminals to support the use of public transit, and other HOV/shared-ride modes.
- As part of a new initiative to reduce congestion at the Airport, Massport will improve TNC operations (such as those belonging to Uber and Lyft) by consolidating them at dedicated areas on the ground floor of the Central Garage complex. This will allow passengers to:
 - Use climate-controlled walkways to and from the terminals;
 - Reduce wait times for passengers, as well as wait times between customers for the TNC drivers; and
 - Reduce roadway congestion and thus reduce on-Airport VMT and associated air emissions.

⁴ In June 2001, Massport and the MBTA executed an interagency agreement for the purchase of eight Silver Line dual-mode buses and the Massport Board approved the expenditure of approximately \$13 million for this purchase.

⁵ Route 171 Dudley Station to Logan Airport via Andrew Station, Express bus 448 and 449 from Marblehead to Downtown via Logan Airport, and Express bus 459 from Salem to Downtown Crossing via Logan Airport, according to www.MBTA.com accessed on December 28, 2018.

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Figure ES-1 Examples of Massport's Ground Access Services



Logan Airport Parking Freeze

The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts State Implementation Plan (SIP) under the federal Clean Air Act (42 U.S.C. §7401 et seq. [1970]). The Parking Freeze was originally adopted in 1975 by the U.S. Environmental Protection Agency (EPA). It was intended as part of a statewide program to reduce automobile emissions and to enable Massachusetts to achieve compliance with the National Ambient Air Quality Standards for carbon monoxide (CO) at localized sites and for ozone on a regional basis.

Massport recently worked with MassDEP and the EPA on an amendment to the Parking Freeze in parallel with the development of the Project's Environmental Notification Form (ENF). Massport filed the ENF in March 2017 concurrent with MassDEP's issuance of a draft regulation to amend the Parking Freeze, which is subject to the provisions of M.G.L. c. 30A, to increase the Parking Freeze limit by 5,000 spaces. Following a stakeholder and public engagement process in response to Massport's 2016 request to consider an amendment to the Parking Freeze, MassDEP approved the requested parking increase and issued the amended regulation on June 30, 2017. On December 5, 2017, the EPA proposed a rule approving the revision of the SIP incorporating the amended Parking Freeze. The EPA approved the proposed rule on March 6, 2018, and the rule went into effect on April 5, 2018.

As part of the amendment to the Parking Freeze, Massport proposed several broad mitigation commitments to MassDEP. These commitments included proposed studies to inform Massport's long-range efforts to address VMT and air quality impacts of different ground access modes to and from Logan Airport. These studies include:

- **Ways to improve HOV access to the Airport** - This study evaluates the feasibility and effectiveness of potential measures to improve HOV access to Logan Airport. It considers, among other things, improvements to Logan Express bus service, additional Logan Express sites, and the benefit of improvements to the Silver Line service to the Airport.
- **Strategies for reducing drop-off/pick-up modes** - This study evaluates the feasibility and effectiveness of potential operational measures to reduce drop-off/pick-up modes of access to Logan Airport.

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- **Parking pricing strategies** - This study assesses parking pricing strategies and their effect on customer behavior and VMT.

These studies are underway, and their status will be reported in the forthcoming *2017 Logan Airport Environmental Status and Planning Report (ESPR)* that is expected to be published in Summer 2019.

Project Purpose and Need

Massport diverted or valet-parked passenger vehicles on 81 days of the year in 2017 and on 47 days in 2018. As air passenger travel at Logan Airport increases over time, parking demand is anticipated to increase as well. Massport expects that within a 10- to 15-year planning horizon, the air passenger level at Logan Airport will reach approximately 50 million annual air passengers (MAP). Based on a continuation of existing mode shares, parking demand at 50 MAP would require valet operations on more than 100 occurrences per year. Massport consistently manages the parking supply in accordance with the requirements of the Parking Freeze.

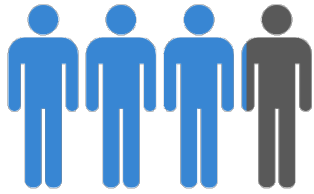
100+ THE NUMBER OF EXPECTED OCCURRENCES PER YEAR IN 2030 AND BEYOND WHEN PARKING DEMAND AT LOGAN AIRPORT WOULD REQUIRE VALET OPERATIONS.

Experience at Logan Airport has demonstrated that an insufficient parking supply results in short-term and long-term consequences. In the short-term, it creates operational challenges such as on-site and off-site parking diversions and forced valet service (see **Figure ES-2**) that result in an overall decrease in customer satisfaction and increases in on-Airport VMT from drivers circulating looking for parking. In the long-term, if parking is not consistently available to customers, they will opt to use alternative modes to access the Airport, such as environmentally undesirable drop-off/pick-up modes.

Figure ES-2 Examples of Valeted Overflow Parking in Non-Designated Parking Areas



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77%

**OF AIR PASSENGERS WOULD CHOOSE
 DROP-OFF/PICK-UP MODES IF PARKING
 WERE NOT AN AVAILABLE OPTION**

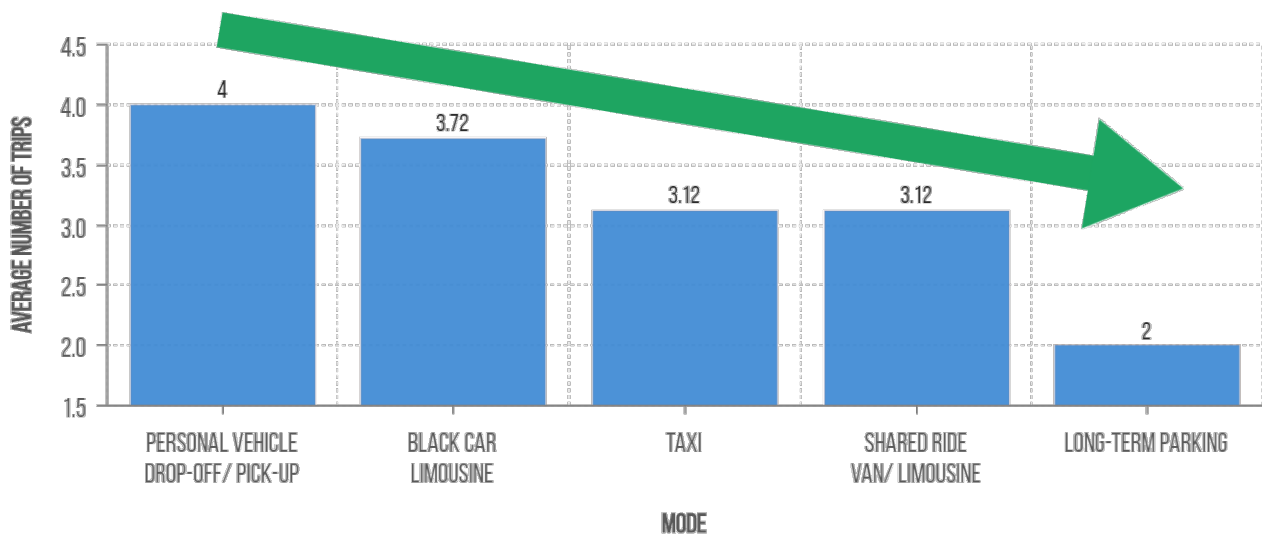
SOURCE: 2016 LOGAN AIRPORT AIR PASSENGER GROUND ACCESS SURVEY

If parking was not an available option at the Airport, according to the 2016 Logan Airport Air Passenger Ground Access Survey, 77 percent of surveyed air passengers said they would use drop-off/pick-up modes as an alternative.

Different travel modes to the Airport have a varying number of vehicle trips associated with them, ranging from transit trips (fewest number of trips, fewest emissions per air passenger), to drop-off/pick-up modes (highest number of trips, highest emissions per air passenger). Massport’s ground access strategy strives to

reduce the number of air passengers arriving by drop-off/pick-up and other single occupancy travel modes by encouraging those passengers to use less environmentally harmful modes. As shown in **Figure ES-3**, the average number of trips to support air passenger round-trip travel ranges from two (parking mode) to four trips (private vehicle drop-off/pick-up mode).

Figure ES-3 Average Number of Vehicle Trips to Support Air Passenger Round-Trip Travel



Source: Massport.

Ongoing and anticipated on-Airport construction and planning activities will remove a number of terminal area commercial spaces, both in the short- and long-terms. This includes Massport’s new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex, which would replace approximately 1,000 revenue-generating parking spaces. The planned TNC move is another measure, alongside the Logan Airport Parking Project, intended to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips).

The new garage to be constructed in front of Terminal E would help meet existing and future air passenger demand for on-Airport parking and more than offset some of the temporary losses in terminal area commercial spaces. Massport would continue to be in full compliance with the Parking Freeze even when short-term, out-of-service terminal area commercial parking spaces return to service.

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Based on the above demonstrated need, the purpose of the Logan Airport Parking Project is:

To accommodate air passenger parking demand, to reduce drop-off/pick-up activity, improve traffic congestion and regional air quality, and improve the passenger experience while minimizing community and environmental impacts by adding 5,000 commercial parking spaces (in accordance with the amendment to the Logan Airport Parking Freeze) entirely within the Airport footprint.

Alternatives Considered

As described in the Project's ENF, Massport conducted an initial site selection and screening process, with substantial input from the community. Massport initially considered six on-Airport sites before recommending two specific locations for the new structured parking facilities, as one site alone would not provide the 5,000 parking space total. Each of the on-Airport sites would be comparable in terms of regional VMT and emissions reduction since regional access routes generally would not vary. All sites considered would be already paved parcels currently used for parking or vehicle storage and, therefore, each would have similar, negligible localized environmental impacts.

For the better part of a year, Massport held numerous meetings with the East Boston Logan Airport Impact Advisory Group (LIAG) to discuss a range of Logan Airport-related topics including the Logan Airport Parking Project. The LIAG provided input on preferred locations for the proposed additional parking. Based on these and other community discussions, in addition to operational and environmental considerations, Massport is proposing to construct 5,000 new commercial parking spaces split between two sites: existing surface parking lots in front of Terminal E (with a parking capacity of approximately 2,000 spaces) and the Economy Garage with an added capacity of approximately 3,000 spaces (see **Figure ES-4**).




No-Build Alternative

Consistent with MEPA and NEPA requirements, Massport assessed a No-Build Alternative that reflects conditions as they are expected to exist in the future if Massport does not implement the Logan Airport Parking Project. Under the No-Build Alternative, passenger demand would increase as projected in the air passenger forecast (reaching 50 million MAP within a 10- to 15-year planning horizon), but there would be no additional on-Airport commercial parking spaces. The existing parking supply already fails to meet existing demand during significant peak parking events such as holiday weekends and school vacation weeks. Under the No-Build Alternative, the commercial parking supply would become more inadequate and the drop-off/pick-up mode share would increase. This would have substantial (and avoidable) adverse environmental consequences, as it would cause increased roadway congestion and air emissions due to the higher VMT associated with drop-off/pick-up modes.



FIGURE ES-4 Proposed Project Areas

Logan Airport Parking Project

-  New Garage in Front of Terminal E
-  Economy Garage Expansion
-  Select Roadways



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Build Alternatives

Massport evaluated several options for accommodating existing and anticipated air passenger demand for on-Airport parking. All include the construction of approximately 2,000 new parking spaces at a new garage in front of Terminal E and approximately 3,000 parking spaces at the Economy Garage through an expansion of the existing facility. The Build Alternatives developed for the Proposed Project were evaluated according to the following considerations:

1. Massing of the new garage in front of Terminal E (i.e., how parking levels would be sited and stacked);
2. Access to/from the new garage in front of Terminal E (i.e., how the garage would be accessed by public parkers and limousines, as well as by Massport's Ground Transportation Unit); and
3. Design of the Economy Garage expansion (i.e., the number of necessary additional parking levels).

EACH OF THE BUILD ALTERNATIVES WOULD IMPROVE REGIONAL AIR QUALITY COMPARED TO THE NO-BUILD ALTERNATIVE.

Proposed Logan Airport Parking Project Program

The Logan Airport Parking Project would include the following improvements:

New Garage in front of Terminal E:

- A new structured multi-story parking garage in the current location of existing surface parking lots in front of Terminal E;
- Two sections located on either side of the pedestrian bridge that connects Terminal E to the Central Garage complex - five parking levels would be placed on the west side and six levels on the east side;
- A solar photovoltaic system to offset a portion of the facility's electricity consumption;
- Separated primary access/egress points for public vehicles and limousines along the Terminal E Arrivals Level roadway – public vehicles would enter the garage just beyond the split with the main terminal roadway and exit on the facility's west side, north of the Central Heating Plant entrance/exit, while limousines would enter and exit at the facility's northeast corner;
- A secondary access point for public vehicles along the Terminal E Arrivals Level roadway on the facility's west side and co-located with the public vehicle exit, to further reduce on-Airport circulation;
- Modifications to the Terminal E Arrivals Level roadway to accommodate garage access/egress;⁶
- A vehicular bridge connection to the Central Garage complex from the fourth level of the facility's east side to increase Massport operational efficiencies with respect to overflow transfers;

⁶ Modifications would incorporate a main entrance along the easterly face at the southern corner of the proposed garage. The entry drive incorporates a pull off that allows emergency vehicles easterly access to the Central Heating Plant via a drive corridor along the garage's southern face. The easterly curb line near the garage's northeast corner allows entrance/egress for limousine parking. The northerly face of the garage would be curbed with raised pedestrian sidewalk access points to/from Terminal E. The westerly curb line would be modified to provide vehicle exit from the garage as well as a recirculation entrance. At the southwest side of the garage, the Central Heating Plant main entrance/egress gate along the Arrivals Level curb line would be modified to shift the point of entry/egress further south.

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- Pedestrian circulation accommodations, including three crosswalks connecting the facility to the outer curb at Terminal E and connections to the pedestrian bridge that connects Terminal E to the Central Garage complex;

Economy Garage Expansion:

- Three additional parking levels within the facility's existing footprint;
- An addition on the facility's south side with a footprint of approximately 18,000 square feet to include both parking spaces and additional vertical circulation;
- Associated improvements to garage entrance/exit plaza and along Prescott Street;⁷ and
- The relocation of the existing solar photovoltaic system to the top of the facility's new highest level.

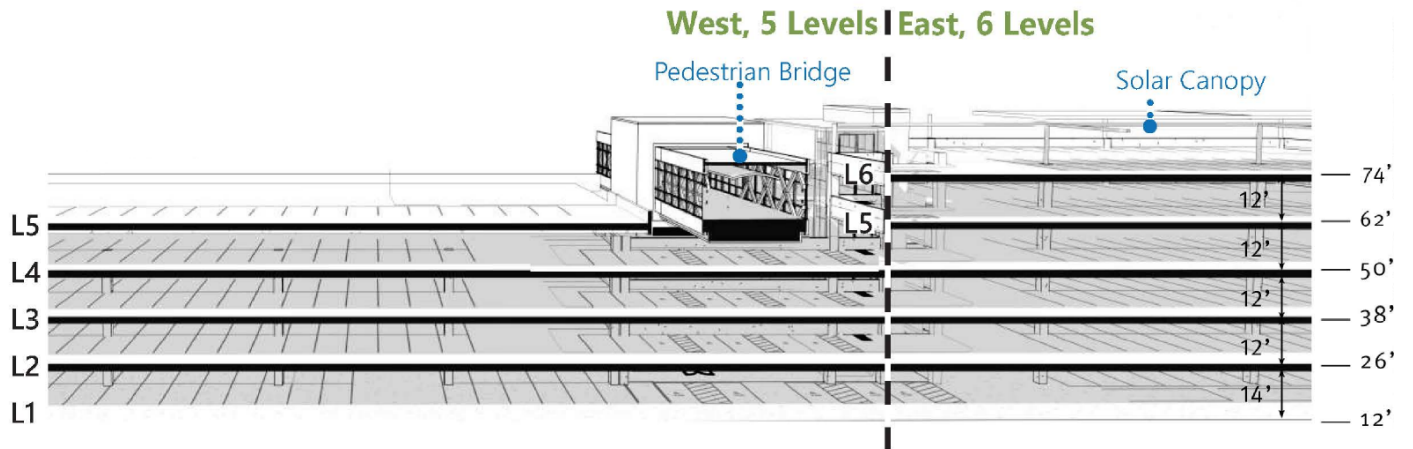
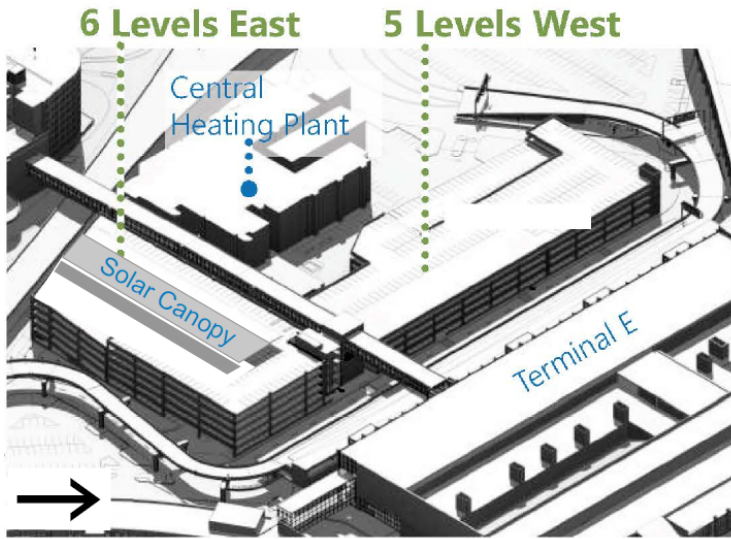
The massing concept for the new garage in front of Terminal E, as is current at the time of the filing of the DEIR/EA, is illustrated in **Figure ES-5**; **Figure ES-6** depicts the facility's proposed access and circulation. **Figure ES-7** shows the proposed additional parking levels at the Economy Garage.

Project Schedule and Costs

Massport proposes phased construction, with the new garage in front of Terminal E to be operational in 2022 and the Economy Garage expansion operational by the end of 2025. The new garage in front of Terminal E would be constructed first in order to deliver enhanced passenger experience benefits sooner (i.e., terminal area parking comes with convenient terminal building access) and to realize construction efficiencies with respect to other planned projects at the Airport, including Terminal E Modernization. In addition, the new garage in front of Terminal E would provide operational flexibility with respect to managing the on-Airport parking supply. Terminal area parking and the vehicular bridge connection to the Central Garage complex would better and more efficiently enable Massport's Ground Transportation Unit to shift vehicles under overflow conditions, minimizing distances traveled in comparison to the Economy Garage.

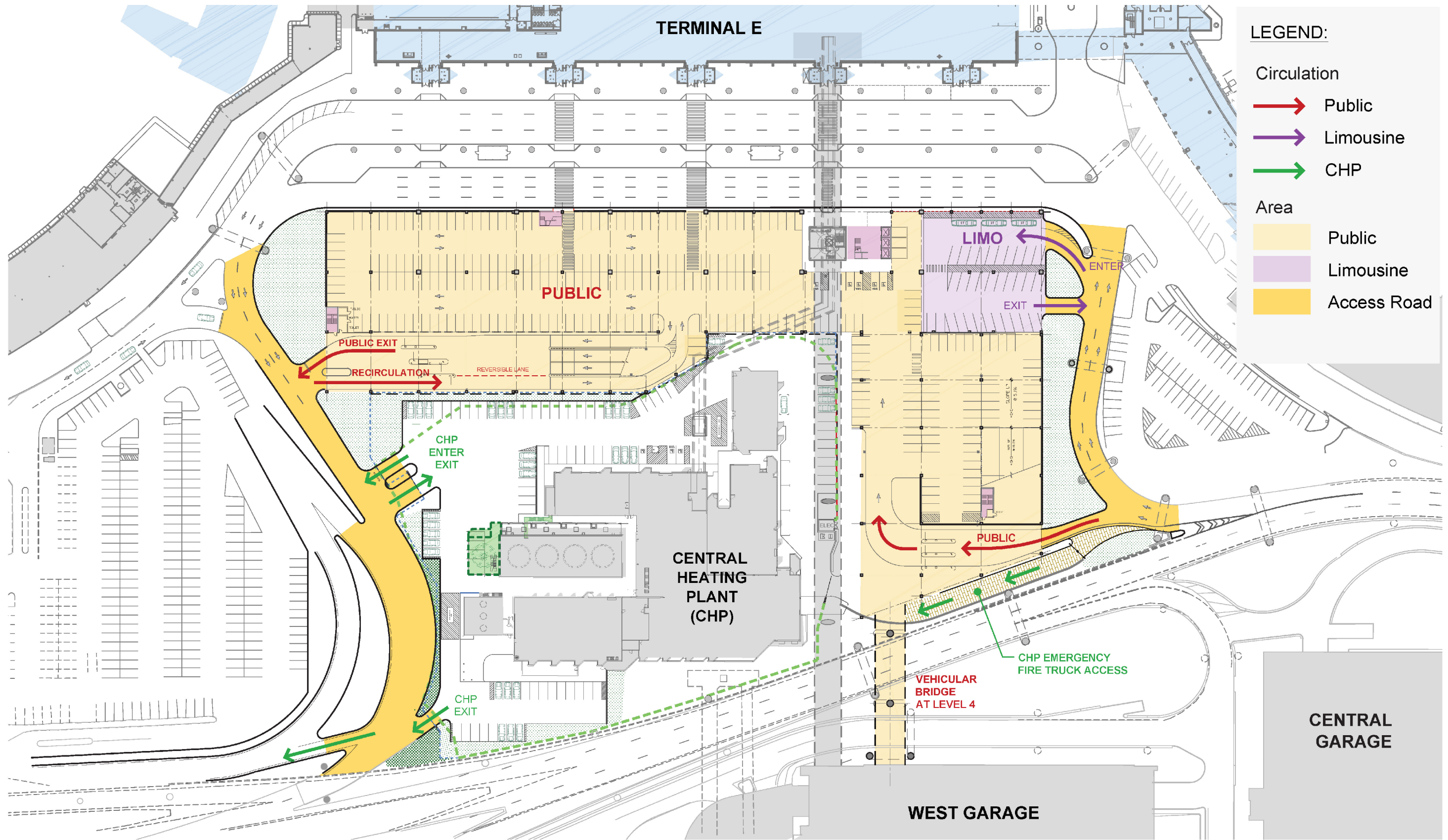
The total anticipated program cost of the new garage in front of Terminal E is approximately \$120 million, while the planned vehicular bridge between the facility and the Central Garage complex would cost an estimated \$4.7 million. The total program cost of the Economy Garage expansion is estimated to be approximately \$180 million.

⁷ Improvements to the existing Economy Garage structure would involve a reconfigured entrance/exit plaza that easterly shifts the entry/egress point along Prescott Street. Roadway improvements would incorporate a garage entry lane after entering Prescott Street from the Service Road.



Source: WSP and Arrowstreet

FIGURE ES-5 New Garage in Front of Terminal E: Proposed Massing Logan Airport Parking Project



Source: WSP

FIGURE ES-6 New Garage in Front of Terminal E: Access and Circulation

Logan Airport Parking Project

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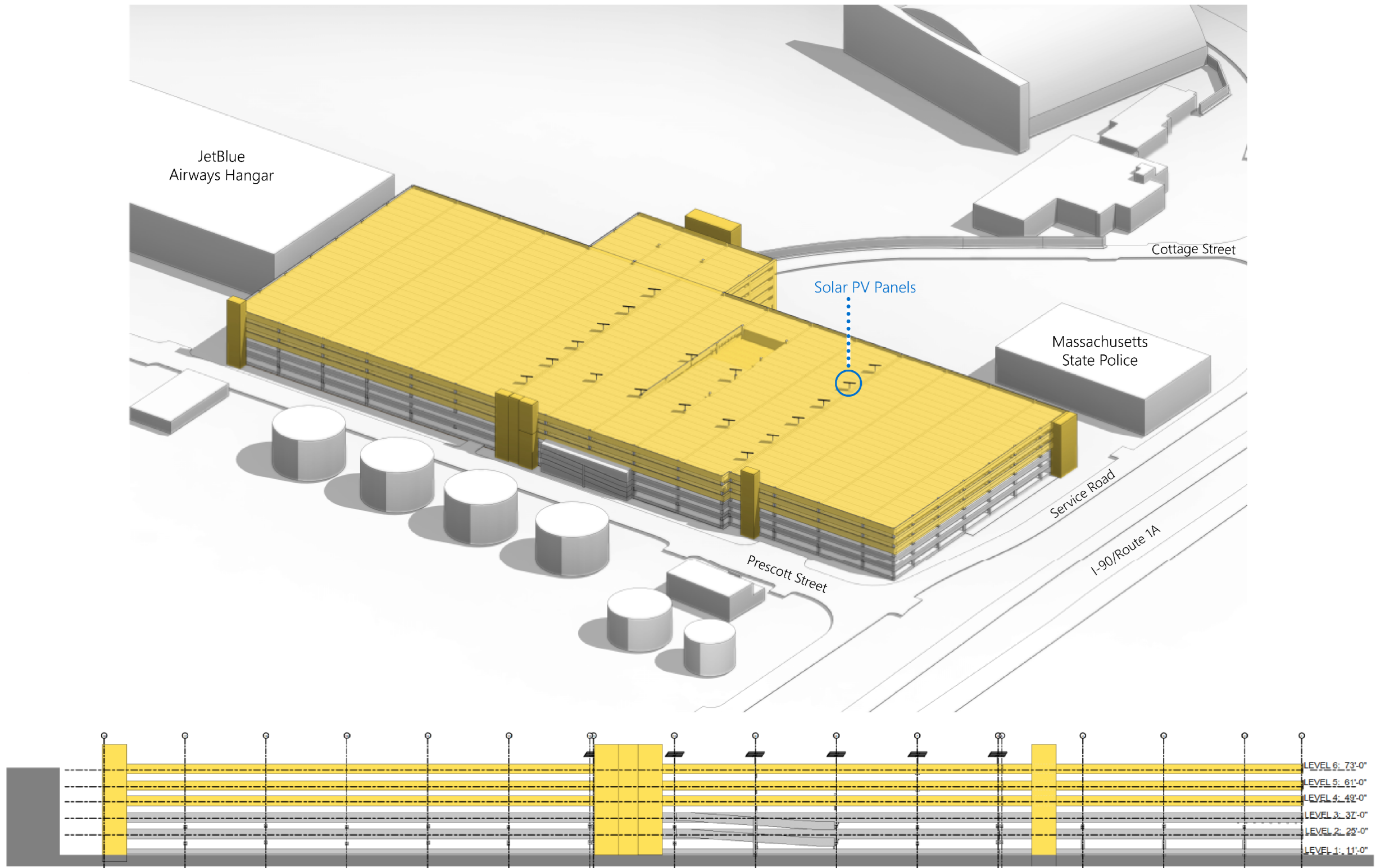


FIGURE ES-7 Economy Garage Expansion (View from the North Side)

Source: WSP

 New Parking Levels

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Construction Phasing and Sequencing

Massport expects to construct the new garage in front of Terminal E beginning with the six parking levels on the east side of the pedestrian bridge, followed by the five levels on the west side. Construction of the east side, including the vehicular bridge, would begin in early 2020 and be complete by early 2022, while construction of the west side would begin in Spring 2020. The entire facility would be operational in 2022. Construction of the Economy Garage expansion is anticipated to begin in mid-2023 and would likely start at the west end of the existing garage and sequentially proceed toward the facility's east end. The Economy Garage expansion would be operational by the end of 2025.

Massport is also in the process of upgrading Logan Airport terminal buildings and roadways. Projects currently under construction or in design near the Proposed Project include the Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction Project (currently under construction); the Terminal E Modernization Project (currently under design); and the Terminal C Canopy, B to C Connector, and Roadway Project (currently under design). These and other Logan Airport projects are described in detail in the *2016 EDR* and the upcoming *2017 ESPR*.

MEPA/NEPA Compliance

The Logan Airport Parking Project is subject to public review under both state and federal environmental regulations. The Project is subject to MEPA review under 301 Code of Massachusetts Regulations (CMR) 11.03 (6)(a)7, which requires a mandatory EIR for the "construction of 1,000 or more new parking spaces at a single location." Massport filed an ENF for the Logan Airport Parking Project that included a proposed scope for the DEIR; the Secretary of Energy and Environmental Affairs issued a certificate on May 5, 2017.⁸ The DEIR scope, as modified by the Secretary, includes analysis of ground access, air quality, greenhouse gas emissions and sustainability, and noise, as well as of construction period impacts related to noise, air quality, traffic, solid and hazardous waste, and water quality.

The Project also requires the preparation of an EA under NEPA, due to proposed changes to the Airport Layout Plan that would result from the Project's implementation. **Table ES-1** summarizes the potential effects of the Logan Airport Parking Project on the applicable MEPA/NEPA environmental resource categories.

⁸ Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for the Logan Airport Parking Project. May 5, 2017.

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Table ES-1 MEPA and NEPA Environmental Resources Evaluated in the DEIR/EA

Environmental Resource Category ¹	Potential Effects
Surface Transportation ² (MEPA)	<p>The same number of air passengers would be accommodated with or without the Logan Airport Parking Project. The Proposed Project, however, would reduce overall vehicle miles traveled (VMT) on- and off-Airport as compared to the future No-Build Alternative due to a reduction in drop-off/pick-up modes and recirculation of traffic at the terminal curb. All study area intersections would operate at an overall level of service (LOS) B or better. Traffic flow within the Terminal E roadways is anticipated to improve, but operations for curbside passenger pick-up would remain the same. The Massachusetts Bay Transportation Authority (MBTA) Blue Line is expected to have adequate capacity to handle anticipated peak hour passenger volumes at Airport Station through to 2030.</p> <p>Project construction would generate temporary construction trips; construction vehicles will be prohibited from using local roads. Vehicular traffic flow on the Airport roadway network during construction would be managed to maintain acceptable levels of service.</p>
Air Quality (MEPA/NEPA)	<p>The Logan Airport Parking Project would reduce criteria pollutant emissions when measured against the No-Build Alternative through reduced on- and off-Airport VMT. The Project would be in conformance with the General Conformity Rule, established under the federal Clean Air Act, as related emissions would be below <i>de minimis</i> thresholds.</p> <p>Project construction would generate temporary construction vehicle and equipment emissions; however, emissions would be well within the General Conformity thresholds.</p>
Natural Resources and Energy Supply (NEPA)	<p>The Proposed Project would not include unusual building materials or materials that are in scarce supply in the Boston metropolitan area or larger New England region, and would not result in a significant increase in potable water use in excess of regional supplies. It would not place undue burdens on the area's energy system compared to the No-Build Alternative, as there are sufficient energy resources in the region.</p> <p>Each of the proposed garages would be designed in accordance with Massport's <i>Sustainable and Resilient Design Standards and Guidelines</i> and incorporate measures from the U.S. Green Building Council's (USGBC) Parksmart rating system, an environmental and sustainability focused rating system specific to parking structure management, programming, design, construction, and technology. Both structures would include behind-the-meter³ solar photovoltaic systems to offset a portion of each of their energy consumption.</p> <p>Construction of the Proposed Project would require various sources of energy to power construction vehicles and equipment, as well as water for the purposes of controlling fugitive dust and stabilizing soil. Massport anticipates that adequate capacities of energy and water would be available to support these activities. No unique materials that are in short-supply in the region are anticipated to be required by the Proposed Project.</p>
Climate, Greenhouse Gas Emissions, and Sustainability (MEPA/NEPA)	<p>The Logan Airport Parking Project would reduce greenhouse gas emissions when measured against the No-Build Alternative through reduced off-Airport VMT. Further, the Proposed Project would incorporate sustainability and resiliency features consistent with Massport's policies and standards including its <i>Sustainable and Resilient Design Standards and Guidelines</i>. It would incorporate Parksmart sustainability certification measures into its technology, structural design, and operation. Energy efficiency measures would significantly reduce the energy consumption and related greenhouse gas emissions of the proposed garages as measured against a base design case. Both structures would be served by solar photovoltaic systems to offset a portion of their energy consumption and avoid greenhouse gas emissions.</p> <p>Consistent with Massport's <i>Floodproofing Design Guideline</i>, the new garage in front of Terminal E would elevate critical equipment and systems (e.g., electrical, mechanical, emergency and fire, etc.) above the designated design flood elevation. The Economy Garage expansion would be above the designated design flood elevation, and existing systems would be elevated where necessary.</p> <p>Project construction would generate temporary construction vehicle and equipment greenhouse gas emissions. Massport does not anticipate any other temporary construction-related impacts from the Proposed Project in relation to sustainability and resiliency.</p>

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Table ES-1 MEPA and NEPA Environmental Resources Evaluated in the DEIR/EA (Continued)

Environmental Resource Category ¹	Potential Effects
Noise and Noise-Compatible Land Use (MEPA/NEPA)	<p>The Proposed Project would not add new noise sources or change the character or intensity of operational noise sources associated with Airport activities. Negligible changes in roadway noise may occur due to the potential shift in vehicle travel patterns associated with use of the proposed garages. The Economy Garage expansion, in conjunction with the Terminal E Modernization Project, would have added noise barrier benefits by enhancing screening of community and neighborhood recreation areas from aircraft ground noise in the North Apron Area.</p> <p>During construction of the Logan Airport Parking Project, short-term noise associated with construction activities would be generated. These noise levels would be below the City of Boston's noise limits.</p>
Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, and Groundwater) (MEPA/NEPA)	<p>The Proposed Project would not increase impervious surfaces or pollutant-generating activities. It would be located on previously developed, already impervious land in Airport use. Additional flows from floor drains and a small, unisex staff bathroom would be minimal.</p> <p>The Proposed Project would require a specific Stormwater Pollution Prevention Plan in accordance with the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities. Massport does not anticipate construction-period impacts on water resources.</p>
Coastal Resources (MEPA/NEPA)	<p>The Proposed Project site is within paved areas of the Airport that are already in use for parking and would not change the manner of use or quality of land in the coastal zone.</p>
Hazardous Materials, Solid Waste, and Pollution Prevention (MEPA/NEPA)	<p>The Proposed 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.</p> <p>Massport does not anticipate construction-period impacts on hazardous materials, solid waste, and pollution prevention. During construction, Massport would promote and ensure special handling, dust control, and management and disposal of contaminated environmental media and hazardous building materials.</p>
Socioeconomics, Environmental Justice, and Children's Health and Safety Risks (MEPA/NEPA)	<p>By encouraging passengers to reduce use of drop-off/pick-up modes, the proposed new parking spaces would reduce on- and off-Airport VMT, thereby reducing congestion and improving local and regional air quality.</p> <p>The Proposed Project would be constructed on existing Airport property and in areas that are already in use for aviation activities. It would not result in any adverse environmental impacts and, therefore, would not cause a disproportionately high and adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as environmental justice communities.</p> <p>The construction of the Proposed Project would result in economic benefits in the form of temporary jobs (an average of 70 employees per month for the new garage in front of Terminal E and 80 employees per month for the Economy Garage expansion), along with direct, indirect, and induced spending.</p>
Department of Transportation Act, Section 4(f) (NEPA)	<p>The Proposed Project would not result in a direct or temporary use of a Section 4(f) property. There are no Section 4(f) properties within the Project footprint or the Airport in general, and no construction activities would take place outside the Airport property. No constructive (indirect) uses of Section 4(f) properties are anticipated.</p>

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Table ES-1 MEPA and NEPA Environmental Resources Evaluated in the DEIR/EA (Continued)

Environmental Resource Category¹	Potential Effects
Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	<p>The Proposed Project would not adversely impact the visual character of the Project Areas or surrounding areas. The new garage in front of Terminal E would not be 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 terminal area, including the adjacent Central Garage complex that includes the West Garage and Central Garage.</p> <p>The existing Economy Garage is separated from the community by the elevated Route 1A, the MBTA Blue Line corridor and is generally not visible from surrounding neighborhoods. Limited views of the garage are visible from select locations along the Bremen Street and MBTA Blue Line corridors, the East Boston Public Library, and some areas within Bremen Street Park. The Economy Garage expansion would not be significantly more visible to the community, as elevated roadways and vegetative screening would continue to provide buffering. The added parking levels would be aesthetically consistent with those already in place.</p> <p>Massport would shield lighting associated with the Proposed Project, where feasible, to limit light pollution.</p> <p>Some tall construction equipment such as mobile cranes would be visible from surrounding areas throughout the construction periods. Additionally, Massport may need to light such equipment to ensure the safety of workers during operation as well as for airspace obstruction safety purposes.</p>

Notes:

- 1 Environmental resource categories as referenced in ENF Certificate, MEPA regulations under 301 CMR 11.00, and specified in Federal Aviation Administration (FAA) Orders 1050.1F and 5050.4B.
- 2 Surface Transportation is typically addressed under socioeconomic considerations under FAA Order 1050.1F. For the DEIR/EA, surface transportation issues are addressed as a separate section.
- 3 A “behind-the-meter” solar photovoltaic system first supplies energy to the building for direct consumption, before sending energy to the grid. A “stand-alone” solar photovoltaic system sends energy directly to the grid.

Beneficial Measures/Mitigation Commitments

Table ES-2 provides a high-level summary of the beneficial measures and mitigation commitments that Massport would implement as part of the Logan Airport Parking Project. All measures would be implemented according to the Proposed Project’s phased schedule. The new garage in front of Terminal E, which would be located on existing parking lots, would be operational in 2022 and the Economy Garage expansion would be operational by the end of 2025. Each measure listed in **Table ES-2** has been included in the total program cost as described above.

Table ES-2 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures

Project Planning and Design	
<ul style="list-style-type: none"> ■ Accommodating existing and anticipated air passenger demand for parking, to reduce the environmentally undesirable drop-off/pick-up mode share and its associated vehicle miles traveled (VMT) and on- and off-Airport air emissions ■ Reusing existing developed areas (i.e., the Project Areas do not contain undeveloped, greenfield lands) ■ Selecting project sites with community input that are in areas already used for parking (i.e., not introducing a new use), are on existing bus/shuttle routes, and are separated from nearby residential communities 	<ul style="list-style-type: none"> ■ Providing convenient passenger access between the new garage in front of Terminal E and the terminal buildings and to the pedestrian bridge that connects Terminal E to the Central Garage complex (which includes the West and Central Garages) ■ Incorporating the following ground access features into the design of the new garage in front of Terminal E: <ul style="list-style-type: none"> ❑ A secondary entrance for public parkers to reduce on-Airport recirculation and associated VMT ❑ A vehicular bridge connected to the Central Garage complex to enable more efficient operational movements by Massport’s Ground Transportation Unit

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Table ES-2 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures (Continued)

Project Planning and Design (Continued)	
<ul style="list-style-type: none">■ Providing added noise barrier benefits to nearby residences and recreation areas, in conjunction with the Terminal E Modernization Project, through the expansion of the existing Economy Garage■ Providing drivers with important roadway and parking information through internal and external wayfinding systems to reduce on-Airport and in-garage circulation, as well as associated VMT and air emissions. Such systems will include:<ul style="list-style-type: none">□ Dynamic signage/messaging□ A parking reservation system□ Parking guidance via electronic level occupancy detection	<ul style="list-style-type: none">■ Relying on existing roadway infrastructure and signage for the Economy Garage expansion■ Encouraging parkers to pay their fees prior to returning to their vehicles via Massport's pay-by-foot system, which uses automated kiosks to enable the efficient flow of vehicles exiting the garages and reduce vehicle idling and associated air emissions
Sustainability and Resiliency	
<ul style="list-style-type: none">■ Incorporating measures from the U.S. Green Building Council's (USGBC) Parksmart rating system into the Proposed Project's technology, structural design, and operation■ Reducing lighting power densities for garage lighting■ Installing occupancy sensors and photocells on all applicable interior and exterior lighting■ Incorporating a solar photovoltaic system at the new garage in front of Terminal E to offset approximately 60 percent of electricity consumption associated with the garage interior lighting or about 15 percent of the total facility electrical consumption■ Relocating the existing solar photovoltaic system at the Economy Garage to the top of the facility's new highest level upon completion of Project construction (the installation of a newer, more efficient system will be evaluated for feasibility as that construction period gets closer)■ Performing building commissioning in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007■ Reserving priority parking spaces for alternative fuel vehicles (e.g., electric vehicles) amounting to at least 1 percent of total spaces and assigning preferred parking spaces for other low-emitting and fuel-efficient vehicles amounting to at least another 1 percent of total spaces■ Installing electric vehicle charging stations to accommodate 150 percent of demand; 15 charging stations are currently planned for the new garage in front of Terminal E and five are planned for the Economy Garage expansion■ Integrating landscaping into the façade of the new garage in front of Terminal E■ Planting water-conserving ground landscapes that apply the principles of xeriscaping (e.g., use of native plants)	<ul style="list-style-type: none">■ Harvesting stormwater at the new garage in front of Terminal E to offset a portion of cooling tower water consumption at the Central Heating Plant and for other potential reuse applications, as feasible, and assessing the feasibility of stormwater collection at the Economy Garage as its design proceeds■ Performing frequent sweeping (at least monthly) to reduce the need for constant pressure washing and associated water use■ Utilizing power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable■ Installing programmable thermostats, where applicable (i.e., mechanical/electrical rooms)■ Specifying water efficient fixtures and faucets in a staff restroom at the new garage in front of Terminal E■ Implementing an active recycling program to reduce the amount of waste sent to regional landfills/incinerators and to reduce greenhouse gas emissions associated with material disposal■ Applying durable design and conducting proactive maintenance to extend facility lifespan and avoid greenhouse gas emissions caused by future large-scale construction and renovation activities■ Complying with Massport's <i>Floodproofing Design Guide</i> and elevating critical equipment and systems above the designated design flood elevations■ Ensuring redundant or back-up power sources to reduce disruption from extreme weather conditions that may cause power outage■ Considering the following additional sustainability measures as design proceeds:<ul style="list-style-type: none">□ Applying no/low volatile organic compound (VOC) coatings, paints, and sealants□ Prioritizing product and material purchases based on their environmental sustainability (e.g., products that are refurbished, repurposed, or recycled)
Construction Period Mitigation	
<ul style="list-style-type: none">■ Providing on-Airport storage areas for construction materials■ Requiring Massport's 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□ Draft Construction Waste Management Plan	<ul style="list-style-type: none">■ Controlling rodents through routine inspection and treatment■ Prioritizing the use of construction equipment and materials that are repurposed, reused, or recycled, where feasible, to reduce the Proposed Project's consumption of virgin natural resources

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Table ES-2 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures (Continued)

Construction Period Mitigation (Continued)

- Implementing the following surface transportation construction-period mitigation measures:
 - ❑ All trucks will access the sites by Route 1A, Interstate 90, Coughlin Bypass road, and the main Airport roadway only
 - ❑ Trucks will be prohibited from using local streets
 - ❑ Truck routes will be specified in contractors' specifications
 - ❑ Concrete production and batching will occur in existing plants with access via Route 1A or Interstate 90
 - ❑ Massport will encourage construction workers to use Massachusetts Bay Transportation Authority (MBTA) transit services, Logan Express, the water shuttle, and other high-occupancy modes of travel
 - ❑ Construction companies will be encouraged to provide off-Airport parking for their employees and to provide shuttle services from these locations (shuttles will be required to use the Coughlin Bypass road to access the Airport)
- Implementing the following air quality construction-period mitigation measures:
 - ❑ Construction vehicle/equipment anti-idling
 - ❑ Using low- or zero-emissions equipment, where practicable
 - ❑ Retrofitting appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters
 - ❑ Reducing on-site vehicle speeds
 - ❑ Deploying air quality and fugitive dust management best practices such as reducing exposed erodible surface areas through appropriate materials and equipment staging, covering exposed surface areas with pavement or vegetation in an expeditious manner, and stabilizing soil with cover or periodic watering
- Using and maintaining construction equipment appropriately to avoid unnecessary noise and applying noise-reduction measures to reduce noise from pile driving by at least 5 A-weighted decibels (dBA) below their unmitigated levels¹
- Putting into place an Erosion and Sedimentation Control Program, in compliance with the Stormwater Pollution Prevention Plan, to protect water quality and to minimize construction phase impacts to Boston Harbor
- Deploying spill prevention measures and sedimentation controls throughout the construction phases to prevent pollution from construction equipment and erosion
- Using the following erosion and sedimentation controls throughout the construction phases:
 - ❑ Perimeter barriers such as straw wattles or compost-filled "silt sock" barriers will 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 sites will be protected with barriers (where appropriate) or silt sacks
 - ❑ Open soil surfaces will be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased
- Implementing the following surface transportation construction-period mitigation measures to address the simultaneous construction of projects at the Airport:
 - ❑ Hiring a Strategic Projects consultant (a process Massport is currently conducting separate from the Proposed Project) who will help develop and facilitate traffic management strategies Airport-wide and whose responsibility it will be to understand and react to the aggregate of construction projects and their potential impacts
 - ❑ Coordinating the arrival of large construction equipment among projects and limit their arrival or removal during peak travel hours (both Airport and commuter peaks)
 - ❑ Developing specific truck routing and/or staging plans for implementation by the various contractors

Note:

¹ Sound levels from activities associated with the construction of the Proposed Project would be voluntarily consistent with the City of Boston's noise criteria; therefore, no construction noise mitigation is anticipated.

Public Involvement

Public outreach and community input are important elements of Massport's environmental review processes, and of the overall Logan Airport Parking Project. Massport has a history of proactive and collaborative interaction with the Airport's adjacent communities. Massport engaged stakeholders and the public before filing the Project's ENF and continued such engagement during the ongoing permitting process. Massport staff have attended various community and public meetings to provide an overview of, and answer questions about, the Proposed Project. An important element of this process was a series of meetings with the Logan Airport Impact Advisory Group, that includes leaders of 17 East Boston community groups and local elected officials.

Other outreach efforts ranged from briefing local community groups in East Boston to meeting with public officials at the local, state, and federal levels. Other key stakeholders that Massport has engaged include major business groups and non-profit organizations such as the Massport Community Advisory Committee. A

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parallel community engagement progress was initiated by the MassDEP in response to Massport's 2016 request to consider an amendment to the Parking Freeze to increase the Parking Freeze limit by 5,000 spaces. MassDEP conducted a stakeholder process, followed by a public process that included three public meetings, to amend the Parking Freeze regulation.

Massport continues to update the community on the status of the Logan Airport Parking Project. This is performed through regularly scheduled community, neighborhood, and other civic meetings.

Following publication of the availability of the DEIR/EA in the *Environmental Monitor*, there will be a 47-day extended public comment period, during which an informational meeting will be scheduled. Community and agency outreach and coordination will continue through permitting, design, and construction of the Logan Airport Parking Project.

Availability of the DEIR/EA

The Logan Airport Parking Project DEIR/EA and all supporting documentation is available on Massport's website at: <http://www.massport.com/massport/about-massport/project-environmental-filings/logan-airport/>. Persons may request limited CD or printed copies from Stewart Dalzell, telephone (617) 568-3524, email: sdalzell@massport.com.

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Resumen ejecutivo

Introducción

La Autoridad Portuaria de Massachusetts (Massport) ha elaborado, y continúa implementando, una estrategia integral para diversificar y ampliar las opciones de transporte para pasajeros y empleados desde y hacia el Aeropuerto Internacional de Boston, Logan (en adelante, “Aeropuerto Logan” o “Aeropuerto”). La estrategia del transporte terrestre de Massport está diseñada para maximizar el uso del transporte público, los viajes compartidos y otros medios masivos de transporte (high-occupancy vehicle, HOV) para el traslado desde y hacia el Aeropuerto Logan, y para minimizar los viajes regionales y locales y las emisiones que les corresponden. Massport se centra particularmente en reducir la cantidad de vehículos privados que acceden al Aeropuerto con modalidades de traslado particular para recoger o dejar pasajeros que perjudican al medioambiente y que generan hasta cuatro viajes por pasajero en comparación con los dos viajes que hacen los pasajeros que conducen y estacionan.¹

Para el Proyecto de Estacionamiento del Aeropuerto Logan (el Proyecto Propuesto), Massport propone la construcción de 5000 nuevos espacios de estacionamiento comerciales en instalaciones con estructuras para el estacionamiento en dos sitios del Aeropuerto Logan, en virtud de la enmienda al congelamiento de estacionamiento del Aeropuerto (Congelamiento de Estacionamiento).² En el Proyecto Propuesto, primero se construiría un nuevo estacionamiento con aproximadamente 2000 espacios en los espacios de estacionamiento en superficie existentes frente a la Terminal E, seguidos de aproximadamente 3000 espacios en Economy Garage mediante una expansión de las instalaciones existentes. Se prevé que el nuevo estacionamiento frente a la Terminal E abra en 2022 y la expansión de Economy Garage para finales del 2025. Este documento que combina un Informe Preliminar de Impacto Ambiental (Draft Environmental Impact Report, DEIR) con una Evaluación Ambiental (EA) cumple con los requisitos de la Ley Nacional de Políticas Medioambientales de Massachusetts (Massachusetts Environmental Policy Act, MEPA) y de la Ley de Nacional de Políticas Medioambientales (NEPA).

Se prevé que con el Proyecto Propuesto se logren los siguientes resultados clave:

- Satisfacer la demanda existente y prevista de estacionamiento de los pasajeros en el Aeropuerto.

¹ Las modalidades de traslado particular para recoger o dejar pasajeros pueden incluir vehículos privados, taxis, empresas de red de transporte (transportation network companies, TNC), como Uber y Lyft, y limusinas y servicios de vehículos con chofer. Por ejemplo, cuando a un pasajero lo llevan al aeropuerto para partir en un vuelo y luego lo retiran cuando regresa, ese solo pasajero genera un total de cuatro viajes con acceso terrestre: dos en el viaje para dejarlo (un ingreso al aeropuerto Logan y una salida del aeropuerto Logan) y dos en el viaje para recogerlo (un ingreso al aeropuerto Logan y una salida del aeropuerto Logan). Este pasajero puede ser trasladado para su partida y llegada al aeropuerto en un vehículo privado, en un taxi o en un automóvil con chofer que, posiblemente, no lleve un pasajero en todos los segmentos del viaje desde y hacia el Aeropuerto Logan.

² La cantidad de espacios de estacionamiento comerciales y para empleados permitidos en el Aeropuerto Logan está regulada por el Departamento de Protección Medioambiental de Massachusetts (MassDEP) a través del Congelamiento de Estacionamiento (código 310 de las reglamentaciones de Massachusetts 7.30), que es un elemento del Plan de Implementación Estatal (State Implementation Plan, SIP) de Massachusetts en virtud de la Ley de Aire Limpio federal [42 U.S.C. §7401 et seq. (1970)].

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- Reducir la modalidad de traslado particular para recoger o dejar pasajeros desde y hacia el Aeropuerto, y mejorar la calidad del aire de la región.
- Ubicar todos los estacionamientos propuestos dentro del Aeropuerto en áreas seleccionadas según la opinión de la comunidad, que ya están desarrolladas, que se usan actualmente para estacionamiento comercial y están separadas de comunidades residenciales cercanas por otras estructuras del Aeropuerto o por redes de transporte locales/regionales.
- Reducir las millas viajadas por vehículos (vehicle miles traveled, VMT) regionales en un 10 por ciento en comparación con la alternativa de no construcción tanto en 2022, tras la finalización del nuevo estacionamiento frente a la Terminal E, como en 2030 (cinco años después de la esperada apertura de la expansión de Economy Garage).
- Reducir las emisiones anuales de óxidos de nitrógeno (nitrogen oxides, NOx) y de compuestos orgánicos volátiles (volatile organic compounds, VOC) en un 11 por ciento y en un 12 por ciento, respectivamente, para 2030, a través de la reducción de las VMT regionales.
- Reducir las VMT en el Aeropuerto y las emisiones atmosféricas asociadas al minimizar la actividad del traslado particular para recoger o dejar pasajeros y la circulación relacionada en las calles del Aeropuerto.
- Reducir aún más las VMT dentro del Aeropuerto de los vehículos que circulan en el nuevo estacionamiento frente a la Terminal E al proporcionar una segunda entrada para el estacionamiento del transporte público y una conexión con el complejo Central Garage (que incluye West y Central Garage) a través de un puente vehicular.
- Brindar eficiencia operativa al sistema de transporte terrestre de Massport para el manejo de la oferta de estacionamiento del Aeropuerto a través del puente vehicular en el nuevo estacionamiento frente a la Terminal E, que permitiría un movimiento eficiente de los vehículos entre las instalaciones de los estacionamientos en situaciones de exceso de vehículos.



10%

DE REDUCCIÓN EN MILLAS REGIONALES VIAJADAS POR VEHÍCULOS



11%

DE REDUCCIÓN EN ÓXIDOS DE NITRÓGENO



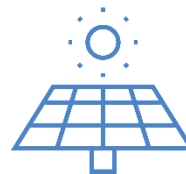
12%

DE REDUCCIÓN EN COMPUESTOS VOLÁTILES ORGÁNICOS



861

TONELADAS POR AÑO MENOS DE EMISIONES DE DIÓXIDO DE CARBONO



116

DE TONELADAS POR AÑO DE DIÓXIDO DE CARBONO COMPENSADAS A TRAVÉS DE SISTEMAS SOLARES FOTOVOLTAICOS

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- Manejar la pérdida temporal de espacios de estacionamiento comerciales del área de la terminal debido a los proyectos previstos y en curso, al mismo tiempo que se cumple estrictamente el Congelamiento de Estacionamiento una vez que estos espacios se utilicen nuevamente.
- Compensar parcialmente la pérdida de espacios en el complejo Central Garage derivada del área de la nueva empresa de red de transporte (TNC).³
- Reducir el consumo total de energía de fuentes estacionarias en los estacionamientos en un 28,6 % en comparación con un caso base al cumplir con las Pautas y Estándares de Diseño Sostenible y Resiliente de Massport y al incorporar las medidas de sustentabilidad del Sistema de calificación Parksmart del Consejo de Construcción Ecológica (p. ej., densidades de energía eléctrica más bajas) de los EE. UU.
- Reducir 861 toneladas por año (tpa) de emisiones de dióxido de carbono (CO₂) de fuentes estacionarias y móviles.
- Incorporar energía renovable en el lugar a través de la instalación (en el caso del nuevo estacionamiento frente a la Terminal E) y de la reubicación (en el caso de la expansión de Economy Garage) de sistemas solares fotovoltaicos para compensar las aproximadamente 116 tpa de emisiones de CO₂.
- Brindar beneficios adicionales de barrera acústica, junto con el Proyecto de modernización de la Terminal E, mejorando la protección de la comunidad y de las áreas recreativas del vecindario del ruido en tierra de los aviones en la zona de actividad aérea norte.
- Recolectar y tratar una parte del agua pluvial en el nuevo estacionamiento frente a la Terminal E para utilizarla en la torre de refrigeración de la planta de calefacción central del Aeropuerto.
- Reducir la cantidad de personas que son redirigidas y a las que se les estaciona el vehículo en áreas no designadas para este fin, incluidos los espacios excedidos con vehículos que se encuentran fuera del Aeropuerto, para mejorar la experiencia de los pasajeros aéreos.
- Apoyar la función del Aeropuerto como motor económico en la región y generar empleos temporales relacionados con la construcción.

Contexto del Proyecto

El Aeropuerto Logan es el principal aeropuerto de New England y se utiliza como centro de conexión regional con destinos nacionales e internacionales. La economía local y regional impulsa los niveles de actividad de pasajeros en el Aeropuerto, lo que son respaldados por las principales industrias del área, como las finanzas, la tecnología, la educación superior y el turismo. En 2018, los niveles de actividad de pasajeros alcanzaron la cifra sin precedentes de 40,9 millones de pasajeros aéreos anuales. Existen desafíos junto con este crecimiento que Massport seguirá abordando para permitir que el Aeropuerto Logan crezca de manera sustentable y responsable con respecto al medioambiente.

La naturaleza del transporte aéreo presenta condiciones únicas para las operaciones de estacionamiento del Aeropuerto. Los espacios de estacionamiento en el Aeropuerto tienen un recambio mucho menos frecuente que

³ Como parte de una nueva iniciativa para reducir la congestión de vehículos en el Aeropuerto, Massport mejorará las operaciones de la TNC (como las de Uber y Lyft) en el Aeropuerto Logan al consolidar las operaciones de la TNC en áreas específicas en la planta baja del complejo de Central Garage.

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en otros estacionamientos urbanos, lo que exige una capacidad de estacionamiento mayor. Además, en un centro urbano como la ciudad de Boston, el traslado diario/habitual sumado a las limitaciones de estacionamiento alienta a los viajeros pendulares a usar medios de transporte HOV, que no perjudican tanto al medioambiente como otros medios. Sin embargo, a diferencia de los viajeros pendulares, los pasajeros aéreos no se trasladan diariamente a los aeropuertos, por lo que las modalidades de traslado particular para recoger o dejar pasajeros y el estacionamiento de vehículos personales pueden ser percibido como opciones más convenientes. La restricción del estacionamiento en el Aeropuerto Logan puede derivar en consecuencias medioambientales no deseadas, como la de alentar las modalidades de traslado particular para recoger o dejar pasajeros, que, en comparación, aumenta las VMT y las emisiones atmosféricas.

Para abordar los desafíos operativos y las condiciones ambientales provocadas por las restricciones históricas de estacionamiento en el Aeropuerto, Massport desarrolló un Plan de administración de estacionamiento de largo plazo, que se publicó por primera vez en el *Informe de Datos Medioambientales (Environmental Data Report, EDR) del Aeropuerto Logan 2012/2013*, e implementó y actualizó hasta la fecha del EDR de 2016. El Plan de administración de estacionamiento de largo plazo establece una estrategia de varias partes para la administración eficiente de la oferta de estacionamiento, de los precios y de las operaciones. Las metas de Massport, en virtud de este plan, son maximizar los ingresos terrestres del transporte público, de viajes compartidos y de otros HOV al mismo tiempo que busca reducir la demanda de estacionamiento y la actividad de traslados particulares para recoger o dejar pasajeros.

A continuación, se enumeran las iniciativas clave tomadas o previstas por Massport para promover activamente el transporte público, los viajes compartidos y otras modalidades de HOV desde y hacia el Aeropuerto.

- Massport opera su propio amplio servicio de autobuses Logan Express que utiliza gas natural comprimido (compressed natural gas, CNG), actualmente en cinco ubicaciones y para casi dos millones de personas anualmente. Se agregó el servicio en Back Bay de Boston en mayo de 2014. Massport revisa regularmente estos servicios y ajusta los horarios y las tarifas de los viajes y del estacionamiento para mejorar la cantidad de usuarios tanto para los pasajeros aéreos como para los empleados.
- Massport subsidia la ruta de la línea Silver de la MBTA del Aeropuerto Logan (SL1), un servicio de autobuses públicos que va desde South Station hasta el Aeropuerto y brinda viajes gratis de salida en la línea Silver desde el Aeropuerto.⁴ Massport se ha comprometido a pagar ocho autobuses más de la línea Silver (lo que da un total de 16) para operar en la ruta SL1 para diciembre de 2024 (según el aprovisionamiento de la MBTA).
- Massport brinda un servicio de autobuses de enlace, gratis, que utiliza combustible limpio, para que utilicen los pasajeros y los empleados para trasladarse entre la estación del Aeropuerto de la línea Blue de la Autoridad de Transporte de la Bahía de Massachusetts (Massachusetts Bay Transportation Authority, MBTA), todas las terminales, el centro de alquiler de automóviles y el muelle, para el servicio de transporte acuático del Aeropuerto Logan junto a Harborside Drive.
- Massport está incorporando mejoras sustanciales al servicio de autobuses Logan Express que se implementarán durante los próximos dos años. Esto incluye el objetivo de duplicar el uso del servicio a cuatro millones de pasajeros anualmente, al mejorar y expandir las opciones de Logan Express:

⁴ En junio de 2001, Massport y la MBTA celebraron un acuerdo interinstitucional para la compra de ocho autobuses híbridos para la línea Silver y la Junta de Massport aprobó el desembolso de aproximadamente \$13 millones para esta compra.

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- ❑ Mejorar el servicio de Logan Express para Back Bay y subsidiar las tarifas.
- ❑ Aumentar las frecuencias y agregar servicios en las ubicaciones existentes de Logan Express.
- ❑ Agregar un nuevo servicio urbano de Logan Express en North Station.
- ❑ Aumentar la capacidad de estacionamiento a 3000 espacios en las ubicaciones de Logan Express de Framingham y Braintree.
- ❑ Identificar las nuevas ubicaciones suburbanas de Logan Express.
- Los servicios de transporte público rápidos de la MBTA se complementan con el servicio de ferry para viajeros pendulares de la MBTA y el servicio de autobuses locales y expresos de la MBTA.⁵
- Massport brinda vías de acceso prioritarias designadas en todas las terminales para respaldar el uso del transporte público y otras modalidades de HOV/viajes compartidos.
- Como parte de una nueva iniciativa para reducir la congestión de vehículos en el Aeropuerto, Massport mejorará las operaciones de la TNC (como las de Uber y Lyft) al consolidarlas en áreas específicas en la planta baja del complejo Central Garage. Esto permitirá a los pasajeros lo siguiente:
 - ❑ Utilizar senderos peatonales climatizados desde y hacia las terminales.
 - ❑ Reducir el tiempo de espera para los pasajeros, así como el tiempo de espera entre los clientes para los conductores de las TNC.
 - ❑ Reducir la congestión en las calles y, de ese modo, reducir las VMT en el Aeropuerto y las emisiones atmosféricas asociadas.

Figura ES-1 Ejemplos de servicios de acceso terrestre de Massport



⁵ Ruta 171 desde Dudley Station hasta el Aeropuerto Logan pasando por Andrew Station, autobús expreso 448 y 449 desde Marblehead hasta el centro pasando por el Aeropuerto Logan y autobús expreso 459 desde Salen hasta Downtown Crossing pasando por el Aeropuerto Logan, según lo detallado en www.MBTA.com, consultado el 28 de diciembre de 2018.

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Congelamiento del Estacionamiento en el Aeropuerto Logan

La cantidad de espacios de estacionamiento comerciales y para empleados permitidos en el Aeropuerto Logan está regulada por el Departamento de Protección Medioambiental de Massachusetts (MassDEP) a través del Congelamiento de Estacionamiento (código 310 de las reglamentaciones de Massachusetts 7.30), que es un elemento del Plan de Implementación Estatal (State Implementation Plan, SIP) de Massachusetts en virtud de la Ley de Aire Limpio federal [42 U.S.C. §7401 et seq. [1970]]. El congelamiento del Estacionamiento fue adoptado originalmente en 1975 por la Agencia de Protección Ambiental (Environmental Protection Agency, EPA) de los EE. UU. Era parte de un programa estatal para reducir las emisiones de automóviles y para permitir que Massachusetts logre cumplir con los Estándares Nacionales de Calidad Ambiental del Aire para el monóxido de carbono (CO) en determinados sitios y para el ozono en el plano regional.

Massport trabajó recientemente con MassDEP y con la EPA en una enmienda al Congelamiento de Estacionamiento en paralelo con el desarrollo del Formulario de Notificación Ambiental (Environmental Notification Form, ENF) del Proyecto. Massport presentó el ENF en marzo de 2017 al mismo tiempo que MassDEP emitió una reglamentación provisoria para enmendar el Congelamiento del Estacionamiento, sujeta a la norma M.G.L c. 30A, para aumentar el límite del Congelamiento de Estacionamiento en 5000 espacios. Después de un proceso con participación pública y de las partes interesadas, en respuesta a la solicitud de Massport de 2016 de considerar la posibilidad de una enmienda al Congelamiento de Estacionamiento, MassDEP aprobó el aumento del estacionamiento solicitado y emitió la reglamentación enmendada el 30 de junio de 2017. El 5 de diciembre de 2017, la EPA propuso una norma aprobando la revisión del SIP en la que se incorporó la enmienda al Congelamiento de Estacionamiento. La EPA aprobó la norma propuesta el 6 de marzo de 2018 y la nueva norma entró en vigor el 5 de abril de 2018.

Como parte de la enmienda al Congelamiento de Estacionamiento, Massport propuso numerosos y amplios compromisos de mitigación a MassDEP. Estos compromisos incluyeron estudios propuestos para informar las iniciativas de gran alcance de Massport para abordar las VMT y los impactos de la calidad del aire de las diferentes modalidades de acceso terrestre desde y hacia el Aeropuerto Logan. Estos estudios incluyen lo siguiente:

- **Modos de mejorar el acceso de HOV al Aeropuerto:** este estudio evalúa la viabilidad y la eficacia de posibles medidas para mejorar el acceso de HOV al Aeropuerto Logan. Toma en cuenta, entre otras cosas, posibles mejoras al servicio de autobuses Logan Express, más sitios de Logan Express y el beneficio de las mejoras al servicio de la línea Silver para el Aeropuerto.
- **Estrategias para reducir las modalidades de traslado particular para recoger o dejar pasajeros:** este estudio evalúa la viabilidad y la eficacia de las posibles medidas operativas para reducir las modalidades de acceso particular para recoger y dejar pasajeros en el Aeropuerto Logan.
- **Estrategias de precios del estacionamiento:** este estudio evalúa estrategias de precios, y su efecto en el comportamiento de los clientes y en las VMT.

Se están llevando a cabo estos estudios y se informarán sus estados en el próximo *Informe del Estado y de la Planificación Ambiental del Aeropuerto Logan (Logan Airport Environmental Status and Planning Report, ESPR) de 2017* y está prevista su publicación en el verano de 2019.

PROYECTO DE ESTACIONAMIENTO DEL AEROPUERTO LOGAN

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Objetivo y necesidad del proyecto

Massport redirigió o utilizaron guardacoches para estacionar pasajeros durante 81 días en 2017 y 47 días en 2018. Con el tiempo, a medida que aumentan los viajes de pasajeros aéreos en el Aeropuerto Logan, se prevé que la demanda de estacionamiento también aumentará. Massport prevé que, en un lapso de 10 a 15 años, el nivel de pasajeros aéreos en el Aeropuerto Logan alcanzará aproximadamente 50 millones de pasajeros aéreos anuales (million annual air passengers, MAP). Si continúan las modalidades compartidas existentes, la demanda de estacionamiento de 50 MAP excedería la capacidad de estacionamiento comercial actual en más de 100 oportunidades por año. Massport administra de manera constante el suministro de estacionamiento de conformidad con los requisitos del Congelamiento de Estacionamiento.

La experiencia en el Aeropuerto Logan ha demostrado que un suministro insuficiente de

estacionamiento deriva en consecuencias a corto y a largo plazo. En el corto plazo, crea desafíos operativos, como derivaciones a estacionamientos dentro y fuera del Aeropuerto, y obliga a la utilización del servicio de guardacoches (consulte la **Figura ES-2**) que deriva en una disminución general de la satisfacción del cliente. También aumentan las VMT dentro del Aeropuerto por parte de los conductores que circulan en busca de un lugar para estacionar. A largo plazo, si no hay estacionamiento disponible en forma constante para los clientes, estos optarán por el uso de medios alternativos para acceder al Aeropuerto, como las modalidades de traslado particular para recoger o dejar pasajeros que son perjudiciales para el medioambiente.

100+

OPORTUNIDADES POR AÑO PREVISTOS EN QUE LA DEMANDA TOTAL DE ESTACIONAMIENTO REQUIERE USO DE GUARDACOCHE EN EL AEROPUERTO DE LOGAN A PARTIR DEL 2030.

Figura ES-2 Ejemplos de desbordamiento de estacionamiento de guardacoches en áreas no designadas como estacionamiento

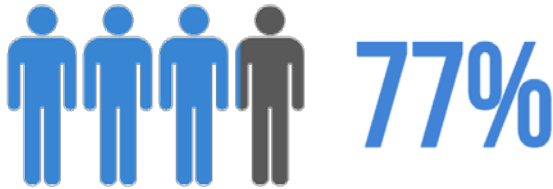


Si el estacionamiento no fuera una opción disponible en el Aeropuerto, según la *Encuesta sobre el acceso terrestre de pasajeros aéreos al Aeropuerto Logan de 2016*, el 77 por ciento de los pasajeros encuestados usarían las modalidades de traslado particular para recoger o dejar pasajeros como alternativa.

Las distintas modalidades de traslado al Aeropuerto se asocian a diferentes cantidades de viajes en vehículos, que varían desde los viajes en transporte público (la menor cantidad de viajes y la menor cantidad de emisiones

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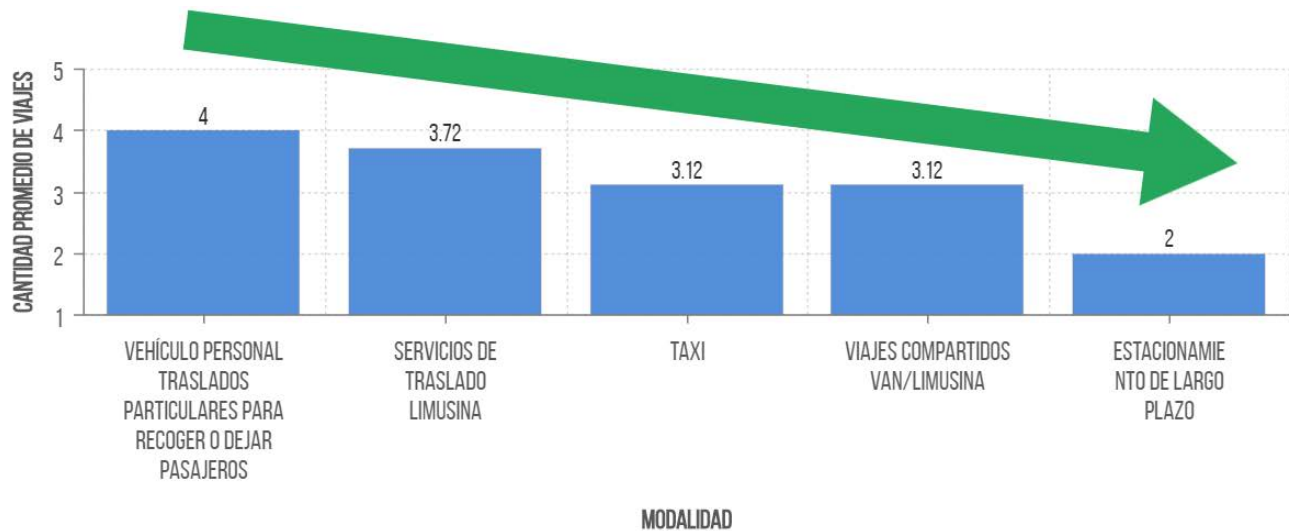


SERÍA LA CANTIDAD DE PASAJEROS AÉREOS QUE ELIGIRÍAN LAS MODALIDADES DE TRASLADO PARTICULAR PARA RECOGER O DEJAR PASAJEROS SI LA OPCIÓN DE ESTACIONAMIENTO NO ESTUVERA DISPONIBLE

FUENTE: ENCUESTA SOBRE EL ACCESO TERRESTRE DE PASAJEROS AÉREOS AL AEROPUERTO LOGAN DE 2016

atmosféricas por pasajero aéreo) hasta las modalidades de traslado particular para recoger o dejar pasajeros (la mayor cantidad de viajes y la mayor cantidad de emisiones atmosféricas por pasajero aéreo) Las estrategias de acceso terrestre a Massport intentan reducir la cantidad de pasajeros aéreos que ingresan mediante el traslado particular para recoger o dejar pasajeros, y otras modalidades en las que viaja solo un pasajero, al alentar a los pasajeros a usar modalidades menos perjudiciales para el medioambiente. Como se muestra en la **Figura ES-3**, la cantidad necesaria de viajes promedio para los viajes de ida y vuelta de los pasajeros aéreos varía de dos (modalidad de estacionamiento) a cuatro viajes (modalidad de traslado particular para recoger o dejar pasajeros).

Figura ES-3 Cantidad promedio de viajes en vehículo necesarios para los viajes de ida y vuelta de los pasajeros aéreos



Fuente: Massport.

La construcción y las actividades de planificación en curso y previstas en el Aeropuerto eliminarán espacios comerciales en el área de la terminal, en el largo y en el corto plazo. Esto incluye el nuevo plan de Massport de centralizar las operaciones de la TNC (es decir, recoger o dejar pasajeros) en la planta baja del complejo Central Garage, que reemplazaría aproximadamente 1000 espacios de estacionamiento que generan ingresos, de manera provisional. El traslado previsto de la TNC es otra medida, junto con el Proyecto de Estacionamiento del Aeropuerto Logan, que tiene el objetivo de reducir la congestión fuera de las terminales y disminuir la cantidad de conductores de TNC que se van del Aeropuerto sin pasajeros (es decir, viajes vacantes).

El nuevo estacionamiento a construirse frente a la Terminal E ayudaría a satisfacer la demanda existente y la futura demanda de los pasajeros aéreos de estacionamiento dentro del Aeropuerto y compensaría sobradamente algunas de las pérdidas temporarias de espacios comerciales en la terminal. Massport continuaría con el total cumplimiento del Congelamiento del Estacionamiento incluso cuando los espacios comerciales de estacionamiento en el área de la terminal fuera de servicio a corto plazo vuelvan a estar en funcionamiento.

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En función de las necesidades demostradas anteriormente, el objetivo del Proyecto de Estacionamiento del Aeropuerto Logan es el siguiente:

Satisfacer la demanda de estacionamiento de los pasajeros aéreos, reducir la actividad de traslado particular para recoger o dejar pasajeros, mejorar la congestión de tráfico y la calidad del aire en la región, y mejorar la experiencia de los pasajeros al mismo tiempo que se minimizan los impactos medioambientales y en la comunidad al agregar 5000 espacios de estacionamiento comercial (de conformidad con la enmienda al Congelamiento de Estacionamiento del Aeropuerto Logan) dentro de la superficie del Aeropuerto.

Alternativas analizadas

Tal como se describe en el ENF, Massport llevó a cabo una selección inicial del sitio y procesos de evaluación, con un aporte sustancial de la comunidad. Originalmente, Massport analizó seis sitios dentro del Aeropuerto antes de recomendar dos ubicaciones específicas para las nuevas instalaciones con estructura de estacionamientos, ya que un solo sitio no brindaría los 5000 espacios de estacionamiento totales. Cada uno de los sitios dentro del Aeropuerto sería similar, en cuanto a las VMT y a la reducción de emisiones atmosféricas, ya que las vías de acceso, en general, no variarían. Todos los sitios analizados serían parcelas ya pavimentadas que actualmente se usan para estacionamiento o almacenamiento de vehículos y, por lo tanto, todos tendrían impactos ambientales similares, localizados e ínfimos.




Gran parte del año, Massport llevó a cabo numerosas reuniones con el Grupo Asesor del Impacto del Aeropuerto Logan de East Boston (East Boston Logan Airport Impact Advisory Group, LIAG) para analizar diferentes temas relacionados con el Aeropuerto Logan, incluido el Proyecto de Estacionamiento del Aeropuerto Logan. El LIAG brindó sugerencias sobre las ubicaciones preferidas para el estacionamiento adicional propuesto. En función de estas y de otros análisis con la comunidad, además de las consideraciones operativas y ambientales, Massport propone construir 5000 nuevos espacios de estacionamiento comercial divididos en dos sitios: superficie de estacionamiento existente frente a la Terminal E (con una capacidad de estacionamiento de aproximadamente 2000 espacios) y Economy Garage, que tiene una capacidad adicional de aproximadamente 3000 espacios (consulte la **Figura ES-4**).

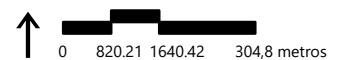
Alternativa sin construcción

Acorde a los requisitos de la MEPA y de la NEPA, Massport evaluó una alternativa sin construcción que refleja las condiciones que existirían en el futuro si Massport no implementa el Proyecto de Estacionamiento del Aeropuerto Logan. Con la alternativa sin construcción, la demanda de los pasajeros aumentaría según lo proyectado en la previsión de pasajeros aéreos (que alcanzaría 50 MAP en un lapso de 10 a 15 años), pero no habría espacios de estacionamiento comerciales adicionales. El suministro de estacionamiento existente no puede satisfacer la demanda actual durante eventos pico de estacionamiento importantes, como los fines de semana largos y las semanas de vacaciones escolares. Con la alternativa sin construcción, el suministro de estacionamiento comercial se tornaría más inadecuado y aumentaría la modalidad de traslado particular para recoger o dejar pasajeros. Esto tendría consecuencias ambientales adversas importantes (y evitables), ya que aumentaría la congestión en las calles y las emisiones atmosféricas que afectan la calidad del aire, debido a mayores VMT asociadas con la modalidad de traslado particular para recoger o dejar pasajeros.



FIGURA ES-4 Áreas propuestas del proyecto Proyecto de Estacionamiento del Aeropuerto Logan

-  Nuevo estacionamiento frente a la Terminal E
-  Expansión de Economy Garage
-  Calles elegidas



PROYECTO DE ESTACIONAMIENTO DEL AEROPUERTO LOGAN

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Alternativas de construcción

Massport evaluó numerosas opciones para satisfacer la demanda existente y prevista de estacionamiento dentro del Aeropuerto de los pasajeros aéreos. Todas incluyen la construcción de aproximadamente 2000 nuevos espacios de estacionamiento en un nuevo estacionamiento frente a la Terminal E y aproximadamente 3000 espacios de estacionamiento en Economy Garage mediante la expansión de las instalaciones existentes. Las alternativas de construcción desarrolladas para el Proyecto Propuesto se evaluaron en función de las siguientes consideraciones:

1. El volumen del nuevo estacionamiento frente a la Terminal E (es decir, cómo se ubicarían y apilarían los niveles de estacionamiento).
2. El acceso desde y hacia al nuevo estacionamiento frente a la Terminal E (es decir, cómo accederían al estacionamiento el transporte público y las limusinas, así como la Unidad de Transporte Terrestre de Massport).
3. Diseño de la expansión de Economy Garage (es decir, la cantidad de niveles de estacionamiento necesarios).

CADA UNA DE LAS ALTERNATIVAS DE CONSTRUCCIÓN MEJORARÍA LA CALIDAD DEL AIRE DE LA REGIÓN EN COMPARACIÓN CON LA ALTERNATIVA SIN CONSTRUCCIÓN.

Programa del Proyecto Propuesto de Estacionamiento del Aeropuerto Logan

El Proyecto de Estacionamiento del Aeropuerto Logan incluiría las siguientes mejoras:

Nuevo estacionamiento frente a la Terminal E:

- Un nuevo estacionamiento con estructura, de varios pisos, en la ubicación actual de la superficie existente de espacios de estacionamiento frente a la Terminal E.
- Dos secciones ubicadas a cada lado del puente peatonal que conecta la Terminal E con el complejo Central Garage: se ubicarían cinco niveles de estacionamiento en el lado oeste y seis niveles en el este.
- Un sistema solar fotovoltaico para compensar parte del consumo de electricidad de las instalaciones.
- Puntos de acceso y egreso principales separados para los vehículos públicos y las limusinas junto a la calle del nivel de arribos de la Terminal E: los vehículos públicos ingresarían al estacionamiento justo después de la división con la calle de la terminal principal y egresarían en el lado oeste de las instalaciones, al norte del ingreso/de la salida de la planta de calefacción central, mientras que las limusinas ingresarían y egresarían por la esquina noreste de las instalaciones.
- Un punto de acceso secundario para los vehículos públicos junto a la calle del nivel de arribos de la Terminal E en el lado oeste de las instalaciones y ubicada en el mismo lugar que la salida de vehículos públicos, para reducir aún más la circulación dentro del Aeropuerto.

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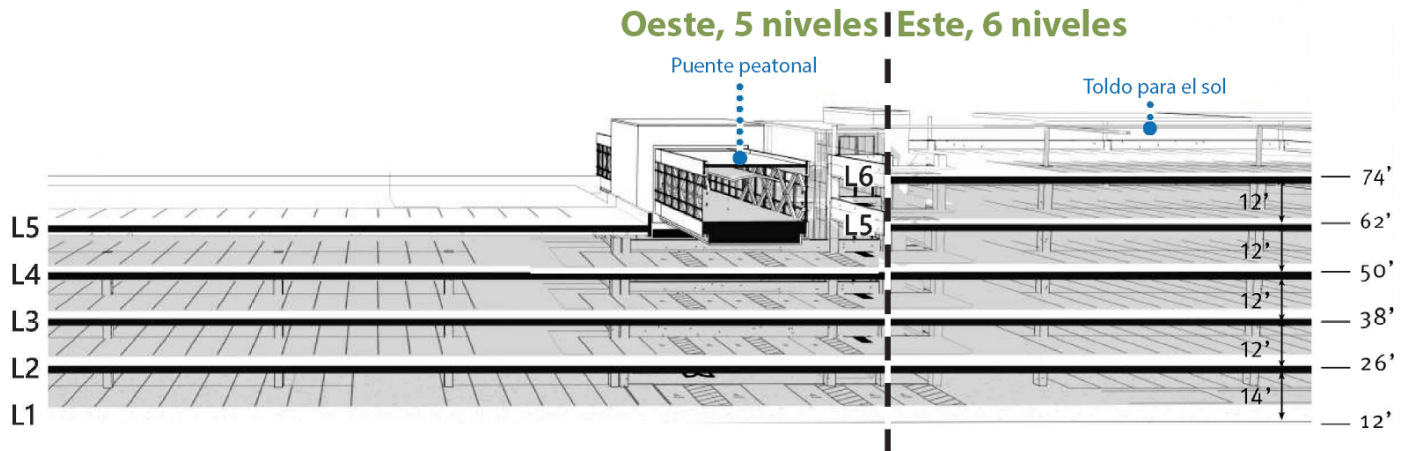
- Modificaciones a la calle del nivel de arribos de la Terminal E para adaptar el acceso al estacionamiento y el egreso de este.⁶
- Una conexión a través de un puente vehicular con el complejo Central Garage del cuarto nivel del lado este de las instalaciones para aumentar la eficiencia operativa de Massport con respecto al exceso de transferencias.
- Adaptaciones de la circulación peatonal, incluidos tres cruces que conecten las instalaciones con la edificación exterior de la Terminal E y conexiones con el puente peatonal que conecta la Terminal E con el complejo Central Garage.

Expansión de Economy Garage:

- Tres niveles de estacionamiento adicionales dentro de la superficie existente de las instalaciones.
- Una adición en el lado sur de las instalaciones, de aproximadamente 1672 metros cuadrados para incluir espacios de estacionamiento y circulación vertical adicional.
- Mejoras asociadas a la plaza de ingreso y egreso del estacionamiento, y junto a Prescott Street.⁷
- Reubicación del sistema solar fotovoltaico existente en la parte superior del nivel más alto de las nuevas instalaciones.
- El volumen conceptual para el nuevo estacionamiento frente a la Terminal E, tal como se encuentra al momento de la presentación del DEIR/de la EA, se muestra en la **Figura ES-5**; la **Figura ES-6** ilustra el acceso a las instalaciones y la circulación propuestos. La **Figura ES-7** muestra los niveles de estacionamiento adicionales propuestos en Economy Garage.

⁶ Las modificaciones incorporarían una entrada principal junto a la cara oriental en la esquina sur del estacionamiento propuesto. La calle de ingreso incorpora un lugar para detenerse y permitir el acceso oriental de los vehículos de emergencia a la planta de calefacción central a través de una calle lateral junto a la cara sur del estacionamiento. La línea de edificación oriental cerca de la esquina noreste del estacionamiento permite el ingreso/egreso para el estacionamiento de limusinas. La cara norte del estacionamiento estaría edificada con puntos de acceso a través de una vereda elevada desde y hacia la Terminal E. La línea de edificación se modificaría para proporcionar una salida del estacionamiento para los vehículos, así como una entrada de recirculación. En el lado suroeste del estacionamiento, la puerta de entrada y salida principal de la planta de calefacción central junto a la línea de edificación del nivel de arribos se modificaría para cambiar el punto de ingreso y egreso más al sur.

⁷ Las mejoras a la estructura existente de Economy Garage implicarían la reconfiguración de la plaza de ingreso y egreso que hacia el lado este el punto de ingreso y egreso junto a Prescott Street. Las mejoras a la calle incorporarían un camino de ingreso al estacionamiento después e ingresar a Prescott Street desde Service Road.



Fuente: WSP y Arrowstreet

FIGURA ES-5 Nuevo estacionamiento frente a la Terminal E: volumen propuesto

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Cronograma y costos del proyecto

Massport propone una construcción en fases. El nuevo estacionamiento frente a la Terminal E estaría en funcionamiento en 2022 y la expansión de Economy Garage para finales del 2025. El nuevo estacionamiento frente a la Terminal E se construiría primero para brindar los beneficios de una mejor experiencia para los pasajeros antes (es decir, el área de estacionamiento de la terminal va de la mano del práctico acceso al edificio de la terminal) y para tener una idea de la eficiencia constructiva con respecto a otros proyectos previstos en el Aeropuerto, incluida la modernización de la Terminal E. Además, el nuevo estacionamiento frente a la Terminal E brindaría flexibilidad operativa con respecto al manejo del suministro del estacionamiento dentro del Aeropuerto. El área del estacionamiento de la terminal y la conexión a través del puente vehicular con el complejo Garage Central permitiría derivar que la Unidad de Transporte Terrestre de Massport derive vehículos de mejor manera y en forma más eficiente en condiciones de exceso de vehículos, minimizando las distancias viajadas en comparación con Economy Garage.

El costo total previsto del programa del nuevo estacionamiento frente a la Terminal E es de aproximadamente USD 120 millones, mientras que el puente vehicular previsto entre las instalaciones y el complejo Central Garage costaría aproximadamente USD 4,7 millones. Se calcula que el costo total del programa de la expansión de Economy Garage es de USD 180 millones.

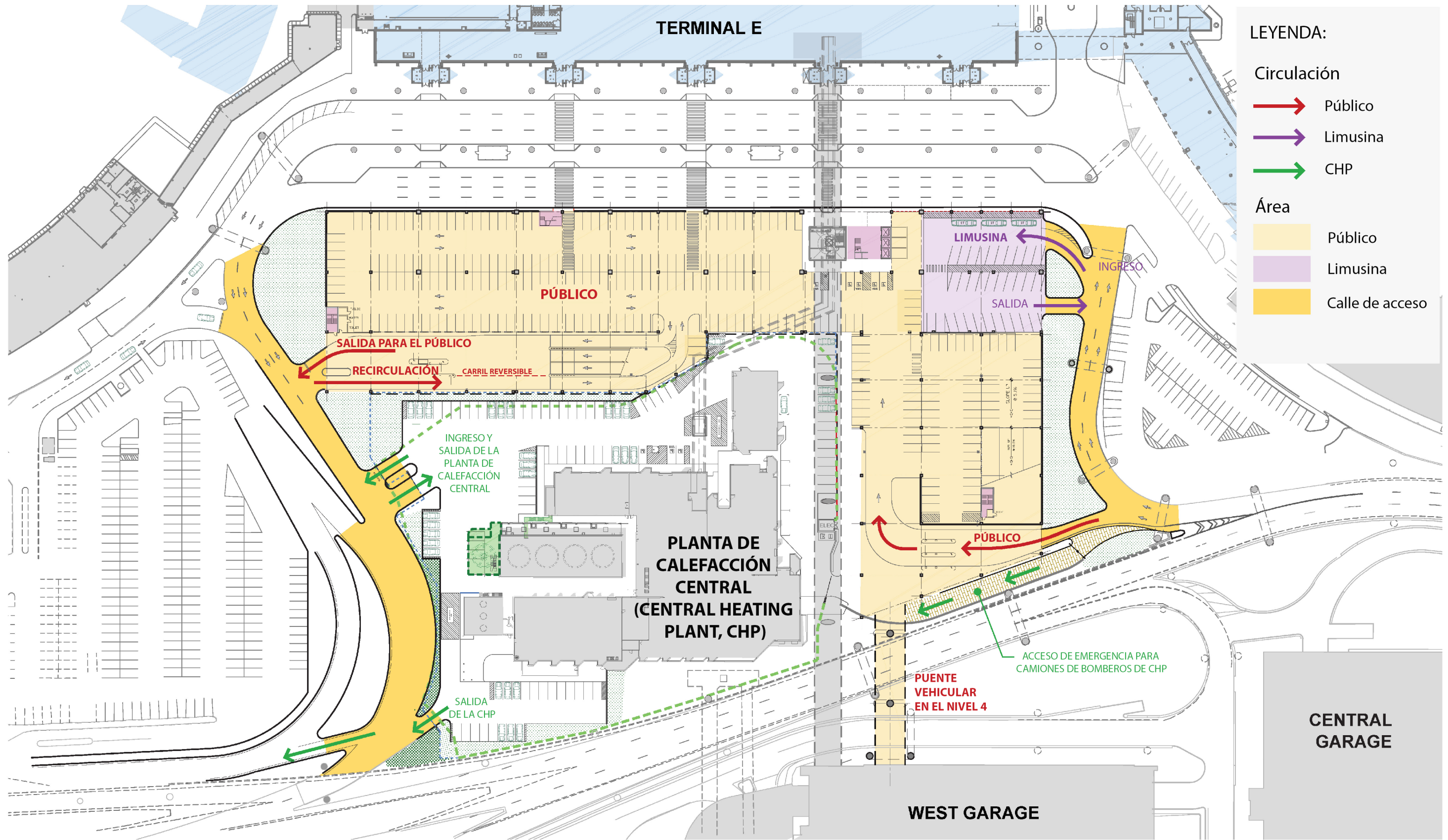
Fases y secuenciación de la construcción

Massport prevé comenzar la construcción del nuevo estacionamiento frente a la Terminal E con los 6 niveles de estacionamiento en el lado este del puente peatonal, seguidos de los cinco niveles en el lado oeste. La construcción del lado este, incluido el puente vehicular, comenzaría a principios de 2020 y finalizaría a principios de 2022, mientras que la construcción del lado oeste comenzaría en la primavera del hemisferio norte de 2020. Las instalaciones estarían en funcionamiento en su totalidad en 2022. Se prevé que la construcción de la expansión de Economy Garage comenzará a mediados de 2023 y probablemente se comenzaría en el lado oeste del estacionamiento existente y se continuaría en forma secuencial hacia el lado este de las instalaciones. La expansión de Economy Garage estaría en funcionamiento para finales del 2025.

Massport también está en proceso de mejorar los edificios y las calles de la terminal del Aeropuerto Logan. Los proyectos que actualmente se están construyendo o están siendo diseñados cerca del Proyecto Propuesto incluyen la demolición de la rampa del estacionamiento de la Terminal B y el proyecto de reconstrucción del puente vehicular de acceso (actualmente en construcción), el proyecto de modernización de la Terminal E (actualmente en proceso de diseño) y el proyecto de toldos de la terminal C, la conexión entre las Terminales B y C, y la calle (actualmente en proceso de diseño). Estos y otros proyectos del Aeropuerto Logan se describen en detalle en el *EDR de 2016* y en el próximo *ESPR de 2017*.

Cumplimiento con la NEPA y la MEPA

El Proyecto de Estacionamiento del Aeropuerto Logan está sujeto a revisión pública en virtud de las normas ambientales estatales y federales. El Proyecto está sujeto a revisión de la MEPA en virtud del Código 301 de las Normas de Massachusetts (Code of Massachusetts Regulations, CMR) 11.03 (6)(a)7, que exige un Informe de Impacto Ambiental (Environmental Impact Report, EIR) obligatorio para la "construcción de 1000 o más



Fuente: WSP

FIGURA ES-6 Nuevo estacionamiento frente a la Terminal E: acceso y circulación

Proyecto de Estacionamiento del Aeropuerto Logan

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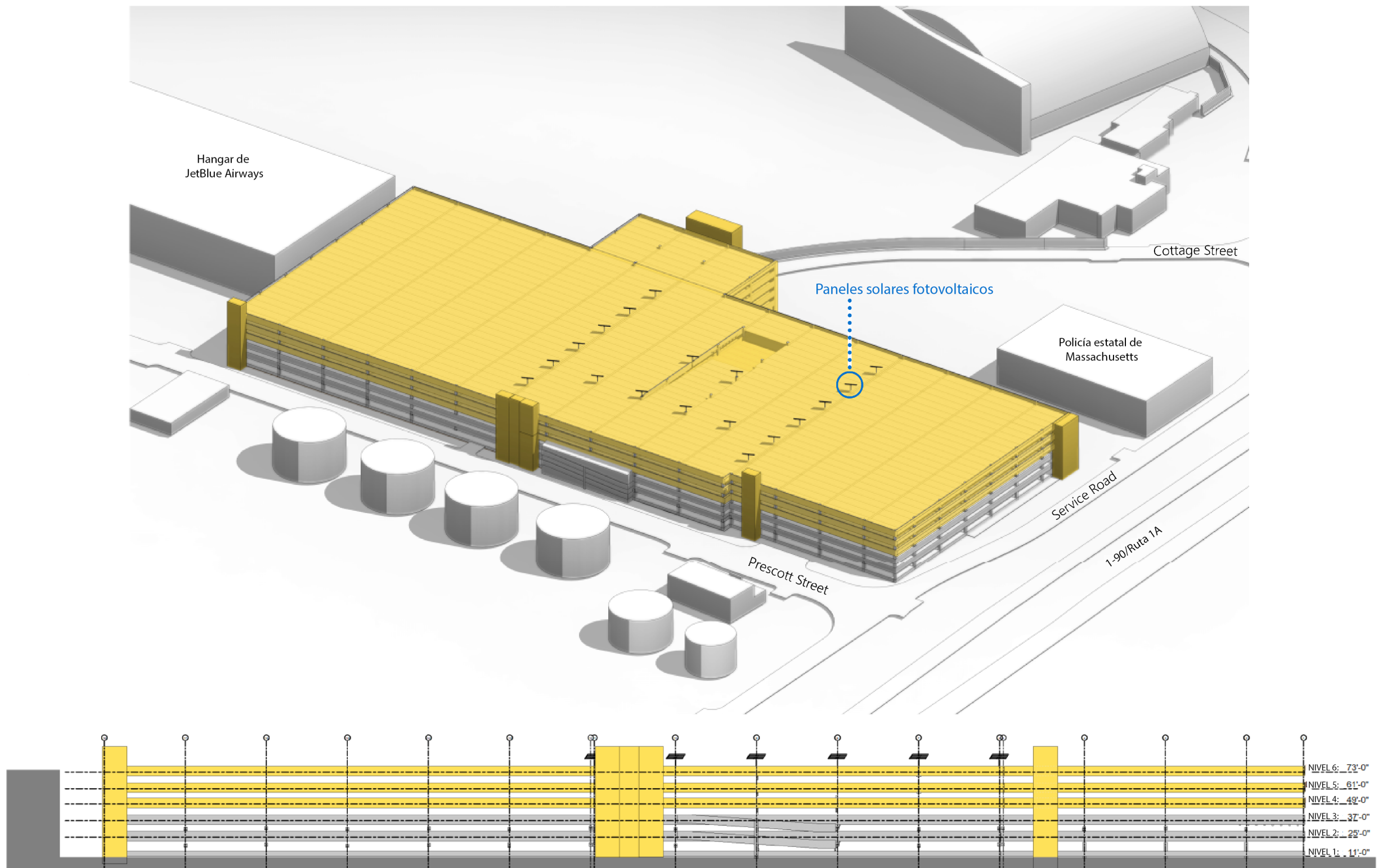


FIGURA ES-7 Expansión de Economy Garage (vista del lado norte)

Proyecto de Estacionamiento del Aeropuerto Logan

Fuente: WSP

Nuevos niveles de estacionamiento

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espacios de estacionamiento nuevos en una sola ubicación”. Massport presentó un ENF para el Proyecto de Estacionamiento del Aeropuerto Logan que incluyó un alcance propuesto para el DEIR. La Secretaría de Energía y Asuntos Ambientales emitió un certificado el 5 de mayo de 2017.⁸ El alcance del DEIR, según las modificaciones realizadas por la Secretaría, incluye el análisis del acceso terrestre, de la calidad del aire, de las emisiones de gases de efecto invernadero y de sustentabilidad, y de ruidos, así como de los impactos de los períodos de construcción relacionados con los ruidos, con la calidad del aire, con el tráfico, con los desperdicios sólidos y peligrosos, y con la calidad del agua.

El Proyecto también requiere la preparación de una EA en virtud de la NEPA, debido a cambios propuestos al plano de disposición espacial del Aeropuerto que resultaría de la implementación del Proyecto. La **Tabla ES-1** resume los posibles efectos del Proyecto de Estacionamiento del Aeropuerto Logan sobre las categorías de recursos ambientales de la MEPA/NEPA correspondientes.

Tabla ES-1: Recursos ambientales evaluados en el DEIR/la EA por la MEPA y la NEPA

Categoría de recurso ambiental ¹	Posibles efectos
Transporte terrestre ² (MEPA)	<p>Se manejaría la misma cantidad de pasajeros aéreos con el Proyecto de Estacionamiento del Aeropuerto Logan y sin este. Sin embargo, el Proyecto Propuesto reduciría las millas viajadas por vehículos (VMT) dentro y fuera del Aeropuerto, en comparación con la alternativa sin construcción futura debido a la reducción de la modalidad de traslado particular para recoger o dejar pasajeros, y a la recirculación de tráfico en la terminal. Todas las intersecciones de las áreas estudiadas funcionarían en un nivel de servicio (level of service, LOS) general B o superior. Se prevé que el flujo de tráfico en las calles de la Terminal E mejorará, pero las operaciones para recoger pasajeros en la acera seguirían siendo las mismas. Se prevé que la línea Blue de la Autoridad de Transporte de la Bahía de Massachusetts (MBTA) tendrá una capacidad adecuada para manejar los volúmenes de pasajeros previstos en las horas pico en Airport Station hasta el 2030.</p> <p>La construcción del Proyecto generaría viajes relacionados con la construcción temporarios; se prohibirá que los vehículos de la construcción usen las calles locales. Se controlaría el flujo de tráfico vehicular en la red de calles del Aeropuerto durante la construcción para mantener niveles aceptables de servicio.</p>
Calidad del aire (MEPA/NEPA)	<p>El Proyecto de Estacionamiento del Aeropuerto Logan reduciría las emisiones de sustancias contaminantes cuando se miden en comparación con la alternativa sin construcción mediante la reducción de las VMT dentro y fuera del Aeropuerto. El Proyecto cumpliría con la Regla de Conformidad General, establecida en virtud de la Ley de Aire Limpio, ya que las emisiones relacionadas se encontrarían debajo de los límites mínimos.</p> <p>La construcción del Proyecto generaría emisiones atmosféricas temporarias por parte de los vehículos y de los equipos; sin embargo, las emisiones estarían perfectamente dentro de los límites de la Regla de Conformidad General.</p>
Recursos naturales y suministro de energía (NEPA)	<p>El Proyecto Propuesto no incluiría materiales de construcción inusuales ni materiales de escaso suministro en el área metropolitana de Boston y en la región más amplia de New England, y no derivarían en un aumento significativo del uso del agua potable por encima de los suministros regionales. No representaría una carga excesiva en el sistema energético del área en comparación con la alternativa sin construcción, ya que existen suficientes recursos energéticos en la región.</p> <p>Cada uno de los estacionamientos propuestos estarían diseñados de conformidad con las <i>Pautas y Estándares de Diseño Sustentable y Resiliente de Massport</i> e incorporarían medidas del sistema de calificación Parksmart del Consejo de Construcción Sustentable de los EE. UU. (US Green Building Council, USGBC), un sistema de calificación centrado en el medioambiente y en la sustentabilidad, específico para el manejo, la construcción el diseño y la tecnología de las estructuras de estacionamiento.</p>

⁸ Certificado de la Secretaría de Energía y Asuntos Ambientales sobre el Formulario de Notificación Ambiental para el Proyecto de Estacionamiento del Aeropuerto Logan. 5 de mayo de 2017.

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Tabla ES-1: Recursos ambientales evaluados en el DEIR/la EA por la MEPA y la NEPA (cont.)

Categoría de recurso ambiental ¹	Posibles efectos
Recursos naturales y suministro de energía (NEPA) (cont.)	<p>Ambas estructuras incluirían sistemas solares fotovoltaicos detrás del medidor³ para compensar una parte del consumo energética de cada una.</p> <p>La construcción del Proyecto Propuesto requeriría diferentes fuentes de energía para abastecer a los vehículos y al equipo de construcción, así como agua para controlar el polvo que se levanta por la construcción y para estabilizar la tierra. Massport prevé que habría disponibilidad de capacidades adecuadas de energía y agua para estas actividades. No se prevé la necesidad de materiales exclusivos que no existan en cantidades suficientes en la región para el Proyecto Propuesto.</p>
Clima, emisiones de gases de efecto invernadero y sustentabilidad (MEPA/NEPA)	<p>El Proyecto de Estacionamiento del Aeropuerto Logan reduciría las emisiones de gases de efecto invernadero cuando se miden en comparación con la alternativa sin construcción mediante la reducción de las VMT fuera del Aeropuerto. Además, el Proyecto Propuesto incorporaría características de sustentabilidad y resiliencia congruentes con las políticas y los estándares de Massport, incluidas las Pautas Y Estándares de Diseño Sustentable y Resiliente. Incorporaría las medidas de certificación de sustentabilidad Parksmart en su tecnología, en el diseño estructural y en la operación. Las medidas de eficiencia energética reducirían de manera significativa el consumo de energía y las emisiones de gases invernadero relacionadas de los estacionamientos propuestos, según las mediciones en comparación con un caso de diseño de base. Ambas estructuras serían abastecidas por sistemas solares fotovoltaicos para compensar una parte de su consumo energético y para evitar las emisiones de gases de efecto invernadero.</p> <p>De acuerdo con las <i>Pautas de Diseño a Prueba de Inundaciones</i> de Massport, el nuevo estacionamiento frente a la Terminal E elevaría los equipos y sistemas críticos (p. ej., eléctricos, mecánicos, de emergencia y contra incendios, etc.) sobre el nivel de inundación de diseño designado. La expansión de Economy Garage estaría por encima del nivel de inundación de diseño designado y los sistemas existentes se elevarían en donde fuera necesario.</p> <p>La construcción del Proyecto generaría emisiones de gases de efecto invernadero temporarias de los vehículos y de los equipos de construcción. Massport no prevé ningún otro impacto temporario relacionado con la construcción del Proyecto Propuesto en relación con la sustentabilidad y con la resiliencia.</p>
Ruido y uso de terrenos compatibles con el ruido (MEPA/NEPA)	<p>El Proyecto Propuesto no agregaría fuentes nuevas de ruidos ni cambiaría el carácter o la intensidad de las fuentes de ruido de las operaciones relacionadas con las actividades del Aeropuerto. Se pueden producir cambios ínfimos en el ruido en la calle debido al posible cambio en los patrones de viaje de los vehículos relacionados con el uso de los estacionamientos propuestos. La expansión de Economy Garage, junto con el proyecto de modernización de la Terminal E, tendría el beneficio adicional de la barrera acústica al proteger a la comunidad y a las áreas recreativas del vecindario del ruido en tierra de los aviones en la zona de actividad aérea norte.</p> <p>Durante la construcción del Proyecto de Estacionamiento del Aeropuerto Logan, se generaría ruido a corto plazo asociado con las actividades de construcción. Estos niveles de ruidos estarían por debajo de los límites de ruido de la ciudad de Boston.</p>
Recursos hídricos (incluidos humedales, llanuras aluviales, agua superficial, aguas residuales y agua subterránea) (MEPA/NEPA)	<p>El Proyecto Propuesto no aumentaría las superficies impermeables ni las actividades que generan contaminantes. Se ubicaría en tierras desarrolladas previamente, que ya son impermeables y están en uso en el Aeropuerto. Los flujos adicionales de los drenajes del piso y de un pequeño sanitario unisex para el personal serían mínimos.</p> <p>El Proyecto Propuesto requeriría un plan de prevención de contaminación de las aguas pluviales específico de conformidad con el permiso general para las actividades de construcción del sistema nacional de eliminación de residuos contaminantes (National Pollutant Discharge Elimination System, NPDES) de la Agencia de Protección Ambiental (EPA). Massport no prevé ningún efecto en los recursos hídricos durante el período de construcción.</p>
Recursos costeros (MEPA/NEPA)	<p>El sitio del Proyecto Propuesto se encuentra en áreas pavimentadas del Aeropuerto que ya se usan para el estacionamiento y no se cambiaría la manera en que se usan ni la calidad de la tierra en la zona costera.</p>

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Tabla ES-1: Recursos ambientales evaluados en el DEIR/la EA por la MEPA y la NEPA (cont.)

Categoría de recurso ambiental ¹	Posibles efectos
Materiales peligrosos, residuos sólidos y prevención de la contaminación (MEPA/NEPA)	<p>El Proyecto Propuesto no tendría un impacto adverso significativo relacionado con materiales peligrosos ni con residuos sólidos. Toda la contaminación detectada en el lugar se evaluaría y, de ser necesario, se rectificaría antes y durante las actividades de construcción, según el Plan de Contingencia de Massachusetts.</p> <p>Massport no prevé impactos durante el período de construcción en cuanto a materiales peligrosos, residuos sólidos ni prevención de la contaminación. Durante la construcción, Massport fomentaría y garantizaría el manejo especial, el control del polvo, y el manejo y la eliminación de medios ambientales contaminados y materiales de construcción peligrosos.</p>
Economía social, justicia medioambiental, y riesgos para la salud y para la seguridad de los niños (MEPA/NEPA)	<p>Al alentar a los pasajeros a reducir las modalidades de traslado particular para recoger o dejar pasajeros, los nuevos espacios de estacionamiento propuestos reducirían las VMT dentro y fuera del Aeropuerto, y, por ende, se reduciría la congestión de vehículos y se mejoraría la calidad del aire local y de la región.</p> <p>El Proyecto Propuesto se construiría en propiedad existente del Aeropuerto y en áreas que ya se usan para actividades de aviación. No derivaría en ningún impacto ambiental adverso y, por lo tanto, no causaría un impacto adverso ni desproporcionadamente alto a la vitalidad económica, a las poblaciones desfavorecidas ni a la salud ni a la seguridad de los niños de las comunidades vecinas, incluidas aquellas identificadas como comunidades de Justicia Ambiental.</p> <p>La construcción del Proyecto Propuesto derivaría en beneficios económicos a través de empleos temporarios (un promedio de 70 empleos por mes para el estacionamiento nuevo frente a la Terminal E y 80 empleos por mes para la expansión de Economy Garage), junto con gastos directos, indirectos e inducidos.</p>
Ley del Departamento de Transporte, sección 4(f) (NEPA)	<p>El Proyecto Propuesto no derivaría en el uso directo ni temporario de la propiedad de la sección 4(f). No existen propiedades de la sección 4(f) en la superficie del Proyecto ni en el Aeropuerto en general, y no se realizaría ninguna actividad de construcción fuera de la propiedad del Aeropuerto. No se prevén usos de construcción (indirectos) de propiedades de la sección 4(f).</p>
Recursos visuales/Efectos de carácter visual (incluidas las emisiones lumínicas) (NEPA)	<p>El Proyecto Propuesto no tendría un impacto adverso en el carácter visual de las áreas del Proyecto ni en las áreas circundantes. El nuevo estacionamiento frente a la Terminal E no se vería desde los vecindarios circundantes, ya que las calles elevadas, las parcelas abiertas y las pantallas vegetales proporcionan amortiguación. Sería congruente con el carácter de la arquitectura existente del área de la terminal, incluido el complejo Central Garage adyacente que incluye West Garage y Central Garage.</p> <p>Economy Garage, existente, está separado de la comunidad mediante la Ruta 1A elevada, el corredor de la línea Blue de la MBTA y, en general, no es visible desde los vecindarios circundantes. Se pueden ver pocas partes del estacionamiento desde ubicaciones determinadas a lo largo de Bremen Street y de los corredores de la línea Blue de la MBTA, de la Biblioteca Pública de East Boston y de algunas áreas de Bremen Street Park. La expansión de Economy Garage no sería significativamente más visible para la comunidad, ya que las calles elevadas y las pantallas vegetales continuarían brindando amortiguación. Los niveles de estacionamiento agregados serían congruentes estéticamente con los existentes.</p> <p>Massport protegería el alumbrado asociado con el Proyecto Propuesto, en donde sea posible, para limitar la contaminación lumínica.</p> <p>Durante los periodos de construcción, algunos equipos de construcción altos, como grúas, serían visibles desde áreas circundantes. Además, es posible que sea necesario iluminar dichos equipos para garantizar la seguridad de los trabajadores durante la operación, así como para la obstrucción del espacio aéreo, con fines de seguridad.</p>

Notas:

- 1 Categorías de recursos ambientales, según se hace referencia en el certificado del ENF, en las reglamentaciones de la MEPA en virtud del CMR 301 11.00 y en las órdenes 1050.1F y 5050.4B. de la Administración de Aviación Federal (Federal Aviation Administration, FAA).
- 2 El transporte terrestre es habitualmente abordado en las consideraciones socioeconómicas en virtud de la orden 1050.1F. de la FAA. Para el DEIR/la EA, las cuestiones de transporte terrestre son abordadas en una sección aparte.
- 3 Un sistema solar fotovoltaico "detrás del medidor" suministra primero energía al edificio para el consumo directo, antes de enviar energía a la red eléctrica. Un sistema solar fotovoltaico independiente envía energía directamente a la red eléctrica.

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Medidas beneficiosas/Compromisos de mitigación

La **Tabla ES-2** brinda un resumen de alto nivel de las medidas beneficiosas y de los compromisos de mitigación que Massport implementaría como parte del Proyecto de Estacionamiento del Aeropuerto Logan. Se implementarían todas las medidas de acuerdo con el cronograma en fases del Proyecto Propuesto. El nuevo estacionamiento frente a la Terminal E, que se ubicaría en espacios de estacionamiento existentes, estarían en funcionamiento en 2022 y la expansión de Economy Garage estaría en funcionamiento para finales del 2025. Cada medida enumerada en la **Tabla ES-2** ha sido incluida en el costo total del programa, como se escribió anteriormente.

Tabla ES-2 Resumen de las medidas beneficiosas y de mitigación del Proyecto de Estacionamiento del Aeropuerto Logan

Planificación y diseño del Proyecto

- Satisfacer la demanda de estacionamiento existente y prevista de los pasajeros aéreos, para reducir la modalidad de traslado particular para recoger o dejar pasajeros, que es perjudicial para el ambiente, y las millas viajadas por vehículos (VMT) asociadas a esto, y las emisiones atmosféricas dentro y fuera del Aeropuerto.
- Reutilizar las áreas desarrolladas existentes (es decir, en las áreas del Proyecto no existen terrenos no edificados, sin desarrollar).
- Seleccionar sitios para el proyecto con el aporte de la comunidad, que se encuentren en áreas que ya se usen para estacionamiento (es decir, no introducir un nuevo uso), que se encuentren en las rutas actuales de los autobuses/servicios de enlace y que estén separados de las comunidades residenciales cercanas.
- Brindar más beneficios de barrera acústica a las residencias cercanas y a las áreas de recreación, junto con el proyecto de modernización de la Terminal E, a través de la expansión de Economy Garage, existente.
- Brindar a los conductores importante información sobre calles y estacionamientos a través de sistemas de señalización internos y externos para reducir la circulación dentro del Aeropuerto y del estacionamiento, así como las VMT y las emisiones atmosféricas. Dichos sistemas incluirán lo siguiente:
 - Señalización/Mensajes dinámicos
 - Un sistema de reserva de estacionamiento
- Direcciones para el estacionamiento a través de la detección electrónica del nivel de ocupación
- Brindar prácticos accesos para los pasajeros entre el nuevo estacionamiento frente a la Terminal E y los edificios de la terminal, y con el puente peatonal que conecta la Terminal E con el complejo Central Garage (que incluye West Garage y Central Garage).
- Incorporar las siguientes características de acceso terrestre al diseño del nuevo estacionamiento frente a la Terminal E:
 - Una segunda entrada para los conductores particulares para reducir la recirculación dentro del Aeropuerto y las VMT asociadas.
 - Un puente vehicular conectado con el complejo de Central Garage para que la Unidad de Transporte Terrestre de Massport pueda realizar movimientos operativos más eficientes.
- Basarse en la infraestructura de las calles y en las señalizaciones existentes para la expansión de Economy Garage.
- Alentar a las personas que utilizan el estacionamiento a que paguen las tarifas antes de regresar a los vehículos, a través del sistema de pago peatonal, que usa cabinas automáticas para permitir el flujo eficiente de vehículos en los estacionamientos existentes y para reducir los vehículos en marcha y las emisiones atmosféricas asociadas.

Sustentabilidad y resiliencia

- Incorporar medidas del sistema de calificación del Consejo de construcción ecológica de los EE. UU. (USGBC) en la tecnología, en el diseño estructural y en la operación del Proyecto Propuesto.
- Reducir las densidades de energía lumínica para la iluminación del estacionamiento.
- Instalar sensores de ocupación y fotocélulas en todas las luminarias interiores y exteriores correspondientes.
- Recolectar agua pluvial en el nuevo estacionamiento frente a la Terminal E para compensar una parte del consumo de agua de la torre de enfriamiento en la planta de calefacción central y para otro tipo de reutilización posible, según sea viable, y evaluar la viabilidad de la recolección del agua pluvial en Economy Garage a medida que progresa su diseño.
- Barrer frecuentemente (al menos una vez al mes) para reducir la necesidad del hidrolavado constante y del uso de agua asociado.

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Tabla ES-2 Resumen de las medidas beneficiosas y de mitigación del Proyecto de Estacionamiento del Aeropuerto Logan (cont.)

Sustentabilidad y resiliencia (cont.)

- Incorporar un sistema solar fotovoltaico en el nuevo estacionamiento frente a la Terminal E para compensar aproximadamente el 60 por ciento del consumo eléctrico asociado con la iluminación interior del estacionamiento o alrededor del 15 por ciento del consumo eléctrico de todas las instalaciones.
- Reubicar el sistema solar fotovoltaico existente en Economy Garage en la parte superior del nuevo nivel más alto de las instalaciones, tras la finalización de la construcción del Proyecto (se evaluará la posibilidad de instalar un nuevo sistema más eficiente más cerca de ese período de la construcción).
- Puesta en marcha del edificio de conformidad con las Pautas 0-2005 y 1.1.1-2007 de la Sociedad Americana de Ingenieros de Calefacción, Refrigeración y Aire Acondicionado (American Society of Heating, Refrigerating and Air-Conditioning Engineers, ASHRAE).
- Reservar espacios de estacionamiento de prioridad para vehículos con combustible alternativo (p. ej., vehículos eléctricos) que alcancen al menos el 1 por ciento del total de los espacios y asignar espacios de estacionamiento preferencial para otros vehículos de bajas emisiones y que ahorran combustible, que alcancen al menos otro 1 por ciento del total de los espacios.
- Instalar estaciones para cargar vehículos eléctricos para satisfacer un 150 por ciento de la demanda. Están previstas 15 estaciones de carga en el nuevo estacionamiento frente a la Terminal E y se planificaron cinco en la expansión de Economy Garage.
- Integrar el paisaje en la fachada del nuevo estacionamiento frente la Terminal E.
- Incorporar paisajes con vegetación para la conservación del agua que apliquen los principios de la xerojardinería (p. ej., el uso de plantas nativas).
- Utilizar sistemas de lavado eléctricos/con presión con recuperación del agua y con la máxima capacidad de reciclaje posible.
- Instalar termostatos programables, en donde corresponda (p. ej., cuarto de maquinaria/sala eléctrica).
- Especificar accesorios y grifos eficientes en el sanitario de los empleados en el nuevo estacionamiento frente a la Terminal E.
- Implementar un programa de reciclaje activo para reducir la cantidad de residuos enviados a los basurales/incineradores regionales y para reducir la emisión de gases de efecto invernadero asociados con la eliminación de materiales.
- Utilizar un diseño durable y realizar un mantenimiento proactivo para extender la vida útil de las instalaciones y evitar las emisiones de gases de efecto invernadero provocadas por la futura construcción a gran escala y las actividades de renovación.
- Cumplir con la Guía de diseño a prueba de inundaciones de Massport, y elevar el equipo y los sistemas críticos por encima del nivel de diseño de inundación.
- Garantizar fuentes de energía redundantes o de seguridad para reducir las interrupciones que se pueden producir debido las condiciones climáticas, lo que podría provocar un corte en el suministro de energía.
- Tener en cuenta las siguientes medidas de sustentabilidad adicionales a medida que avanza el diseño:
 - Aplicar revestimientos, pinturas y selladores sin compuestos volátiles orgánicos (volatile organic compound, VOC) o con baja cantidad de estos.
 - Priorizar las compras de materiales y productos en función de la sustentabilidad ambiental (p. ej., productos renovados, readaptados o reciclados).

Mitigación del período de construcción

- Proporcionar áreas de almacenamiento para los materiales de construcción dentro del Aeropuerto.
- Solicitar al director de construcción de Massport que prepare lo siguiente:
 - Un plan preliminar para el manejo del suelo.
 - Un plan preliminar de prevención de contaminación de aguas pluviales.
 - Un plan preliminar de manejo de desecación (si es necesario).
 - Un plan preliminar de salud y seguridad.
 - Un plan preliminar de manejo de los residuos de construcción
- Control de los roedores a través de inspección y tratamiento de rutina.
- Priorizar el uso de equipos y materiales de construcción readaptados, reutilizados o reciclados, cuando sea posible, para reducir el consumo de fuentes naturales vírgenes para el Proyecto Propuesto.
- Implementar las siguientes medidas de mitigación para el transporte terrestre durante el período de construcción:
 - Todos los camiones accederán a los sitios únicamente por la Ruta 1A, Interestatal 90, la calle Coughlin Bypass y por la calle principal del Aeropuerto.
 - Los camiones estarán prohibidos usar las calles locales.
 - Las rutas de los camiones se especificarán en las especificaciones del contratista.
 - La producción y la división del concreto se realizará en plantas existentes con acceso a través de la Ruta 1A o Interestatal 90.
 - Massport alentará a los trabajadores de la construcción a que usen los servicios de transporte de la Autoridad de Transporte de la Bahía de Massachusetts (MBTA), Logan Express, el servicio de enlace por agua y otros medios masivos de transporte.
 - Se alentará a las empresas constructoras a que proporcionen estacionamiento fuera del Aeropuerto a sus empleados y que les proporcionen servicios desde estas ubicaciones (los servicios de enlace deberán usar la calle Coughlin Bypass para acceder al Aeropuerto).

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Tabla ES-2 Resumen de las medidas beneficiosas y de mitigación del Proyecto de Estacionamiento del Aeropuerto Logan (cont.)

Mitigación del período de construcción (cont.)

- Implementar las siguientes medidas de mitigación para la calidad del aire durante el período de construcción:
 - ❑ Apagar vehículos/equipos de construcción cuando no se usen (no dejar el motor marchar en vacío).
 - ❑ Utilizar equipos con emisiones atmosféricas nulas o bajas, cuando sea posible.
 - ❑ Acondicionar los equipos de construcción con catalizadores de oxidación para diésel y/o filtros de partículas.
 - ❑ Reducir la velocidad de los vehículos dentro del sitio.
 - ❑ Implementar las mejores prácticas para el manejo de la calidad del aire y del polvo, como reducir las superficies con tendencia a la erosión expuestas a través de materiales adecuados y de la utilización por etapas de los equipos, cubrir la superficie expuesta con pavimento o vegetación de manera rápida, y estabilizar el suelo con una cobertura o con riego periódico.
- Usar y mantener el equipo de construcción adecuadamente para evitar ruidos innecesarios y aplicar medidas de reducción de ruidos para reducir el ruido de los martinetes en al menos 5 decibeles A (dBA) por debajo del nivel sin mitigación.¹
- Poner en marcha un Programa de control de la erosión y de la sedimentación, de conformidad con el Plan de prevención de la contaminación de aguas pluviales, para proteger la calidad del agua y para minimizar los impactos de las fases de construcción en el Puerto de Boston.
- Implementar medidas de prevención de derrames y controles de sedimentación en todas las fases de la construcción para evitar la contaminación por parte del equipo de construcción y la erosión.
- Usar los siguientes controles de erosión y sedimentación en todas las fases de la construcción:
 - ❑ Se colocarán barreras perimetrales, como sacos de paja o sacos de abono alrededor de las áreas de trabajo en tierras altas para atrapar el sedimento transportado por la escorrentía antes de que llegue al sistema de drenaje o abandone el sitio de la construcción.
 - ❑ Se protegerán los desagües existentes con barreras (en donde corresponda) o con sacos de abono.
 - ❑ Se estabilizarán las superficies de tierra expuestas en un plazo de 14 días después de que las actividades de nivelación o de construcción hayan finalizado de manera temporal o permanente.
- Se implementarán las siguientes medidas de mitigación de la superficie de transporte durante el período de construcción para abordar los proyectos de construcción simultáneos en el Aeropuerto:
 - ❑ Se contratará a un asesor de proyectos estratégicos (actualmente, Massport está llevando a cabo este proceso de manera independiente del Proyecto Propuesto) quien ayudará a desarrollar y a facilitar las estrategias de manejo del tráfico en todo el Aeropuerto y cuya responsabilidad será comprender y reaccionar ante la adición de proyectos de construcción y sus posibles impactos.
 - ❑ Coordinar la llegada de grandes equipos de construcción entre los proyectos, y limitar el ingreso o egreso durante las horas pico de viajes (tanto las horas pico del Aeropuerto como la de los viajeros pendulares).
 - ❑ Desarrollar rutas para los camiones y/o planes de etapas para que los implementen los diferentes contratistas.

Nota:

¹ Se mantendrán voluntariamente los niveles de ruido de las actividades asociadas con la construcción del Proyecto Propuesto congruentes con los criterios de niveles de ruido de la ciudad de Boston. Por lo tanto, no se prevé mitigación del ruido de la construcción.

Participación de la población

La difusión pública y la opinión de la comunidad son elementos importantes del proceso de revisión ambiental de Massport y del Proyecto de Estacionamiento del Aeropuerto Logan en general. Massport tiene antecedentes de interacción proactiva y colaborativa con las comunidades adyacentes al Aeropuerto. Massport involucró a las partes interesadas y al público antes de presentar el ENF del Proyecto y continuó dicha participación durante el proceso de permiso en curso. El personal de Massport asistió a diferentes reuniones públicas y con la comunidad para brindar una descripción general del Proyecto Propuesto y para responder preguntas sobre este. Un elemento importante de este proceso fue una serie de reuniones con el Grupo Asesor sobre Impactos del Aeropuerto Logan, que incluye líderes de 17 grupos comunitarios de East Boston y funcionarios electos locales.

Otras medidas de difusión variaron desde informes resumidos a grupos comunitarios locales de East Boston hasta reuniones con funcionarios públicos locales, estatales y federales. Otras partes interesadas clave a las que Massport involucró incluyen grupos empresariales principales y organizaciones sin fines de lucro, como el Comité Asesor de la Comunidad de Massport. MassDEP inició un avance paralelo en la participación de la

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comunidad en respuesta a la solicitud de Massport de 2016 de analizar la enmienda al Congelamiento de Estacionamiento para aumentar el límite del congelamiento del estacionamiento en 5000 espacios. MassDEP llevó a cabo un proceso con las partes interesadas, seguido de un proceso público, que incluyó tres reuniones públicas, para enmendar la reglamentación del congelamiento del estacionamiento.

Massport continúa actualizando a la comunidad sobre el estado del Proyecto de Estacionamiento del Aeropuerto Logan. Esto se realiza a través de reuniones programadas con la comunidad y con el vecindario, y mediante otras reuniones cívicas.

Después de la publicación de la disponibilidad del DEIR/de la EA en el Environmental Monitor, habrá un período de 47 días para comentarios públicos, durante el cual se programará una reunión informativa. Continuará la difusión a la comunidad y a las agencias, y la coordinación con estas a través de permisos, de diseños y de la construcción del Proyecto de Estacionamiento del Aeropuerto Logan.

Disponibilidad del DEIR/de la EA

El DREI/La EA del Proyecto de Estacionamiento del Aeropuerto Logan y toda la documentación de respaldo está disponible en el sitio web de Massport: <http://www.massport.com/massport/about-massport/project-environmental-filings/logan-airport/>. Se pueden solicitar CD limitados o copias impresas a Stewart Dalzell, teléfono (617) 568-3524, correo electrónico: sdalzell@massport.com.

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Project Description/Purpose and Need

1.1 Introduction

The Massachusetts Port Authority (Massport) has developed and continues to implement a comprehensive strategy to diversify and enhance ground transportation options for air passengers and employees to and from Boston-Logan International Airport (Logan Airport or the Airport). Massport's ground transportation strategy aims to minimize impacts to the transportation system, environment, and community, while providing air passengers with as many alternatives as possible for convenient travel to and from Logan Airport. Massport's strategy is designed to maximize the use of transit, shared-ride, and other high-occupancy vehicle (HOV) modes for travel to and from Logan Airport, and to minimize regional and local vehicle trips. Massport is particularly focused on reducing the number of private vehicles that access the Airport via environmentally undesirable drop-off/pick-up modes,¹ which generate up to four vehicle trips per passenger compared to two vehicle trips for passengers who drive and park. Decreasing drop-off/pick-up activity also has the added benefit of reducing impacts at the Airport's regional gateways, as well as reducing on-Airport roadway and terminal curbside congestion and emissions. These strategies and investments have proven successful at Logan Airport, an industry leader in HOV access.

Massport proposes to construct new on-Airport parking facilities to provide 5,000 new commercial parking spaces in accordance with the amended Logan Airport Parking Freeze (the Parking Freeze).² The Logan Airport Parking Project (the Proposed Project or Proposed Action as referenced under the National Environmental Policy Act [NEPA]) would first construct approximately 2,000 spaces in front of Terminal E on existing surface parking lots, followed by approximately 3,000 spaces at the Economy Garage through an expansion of the existing facility. The new garage in front of Terminal E would open in 2022, while the Economy Garage expansion is projected to be operational by the end of 2025.

¹ Drop-off/pick-up modes can include private vehicles, taxis, transportation network companies (TNCs) such as Uber and Lyft, and limousine or black car services. For example, if an air passenger is dropped off when they depart on an air trip and is picked-up when they return, that single air passenger generates a total of four ground access trips: two for the drop-off trip (one inbound to Logan Airport, one outbound from Logan Airport) and two for the pick-up trip (one inbound to Logan Airport, one outbound from Logan Airport). The air passenger may be dropped off and picked up in a private vehicle or in a taxi or black car service that may not carry a passenger during all segments of travel to and from Logan Airport.

² The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts State Implementation Plan (SIP) under the federal Clean Air Act [42 U.S.C. §7401 et seq. (1970)].

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The analyses contained in this Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) demonstrates the environmental benefits of the Logan Airport Parking Project. The Proposed Project would result in fewer vehicle miles traveled (VMT) compared to the No-Build Alternative. The Proposed Project would enhance passenger experience by reducing the need to divert parkers to off-Airport satellite parking locations; parking in satellite locations increases the time it takes for air passengers to drop off their cars and access the terminal area, and also increases Airport ground access-related VMT. Providing sufficient parking would also reduce the need for Massport to employ operational counter-measures, such as valeting overflow parking during peak demand periods.

1.2 Project Context

Logan Airport is New England's primary airport serving as a regional connecting hub with both domestic and international destinations. The local and regional economy drives passenger activity levels at the Airport, which is supported by the area's major industries such as finance, technology, higher education, and tourism. In 2018, passenger activity levels reached an all-time high of 40.9 million annual air passengers (MAP). There are challenges that accompany this growth, which Massport will continue to address to allow Logan Airport to grow in a sustainable and environmentally-responsible manner.

Logan Airport has a ground access pattern determined by its primary role as an origin and destination airport rather than a "hub." Origin and destination activity refers to the passenger traffic that either originates or ends at a particular airport or market. Connecting hub airports have much smaller relative ground access activity since a high percentage of airport passengers are simply connecting between aircraft and never leave the Airport. A strong origin and destination market like the City of Boston generates significant local passenger demand, with many passengers starting and ending their journey at Logan Airport. Over 90 percent of Logan Airport travelers are origin and destination passengers and therefore use some form of local ground transportation to reach their final destinations.

Logan Airport's parking operations differ from other urban parking facilities in two important ways. First, due to the nature of air passenger travel, parking spaces at airports turn over (i.e., change vehicles) much less frequently. This requires more parking capacity than in an urban/workplace setting supporting the same number of vehicles. Second, in an urban core such as the City of Boston, daily/regular travel coupled with parking constraints encourage commuters to travel by HOV modes that are less environmentally harmful than other modes. Unlike urban commuters, however, air travelers do not travel to airports daily, so drop-off/pick-up modes and personal vehicle parking may be perceived as more convenient options. When parking at Logan Airport is constrained, this can have the unintended adverse environmental consequence of encouraging drop-off/pick-up modes, which comparatively increases VMT and air emissions.

To address operational challenges and environmental conditions caused by historically constrained parking at the Airport, Massport developed a Long-Term Parking Management Plan that was first published in the *2012/2013 Logan Airport Environmental Data Report* (EDR) and implemented and updated to the present. The Long-Term Parking Management Plan lays out a multi-part strategy for efficiently managing parking supply, pricing, and operations. Massport's goals under this plan are to maximize transit, shared-ride, and other HOV ground access, while both reducing parking demand and minimizing drop-off/pick-up activity.

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1.2.1 Massport's Ground Access Strategy

Since the mid-1970s, Massport has been committed to increasing the use of HOV ground transportation modes for passengers traveling to and from Logan Airport, with a current goal of 40 percent HOV by 2027. Measures implemented by Massport to increase HOV use include a robust suite of strategies related to pricing (incentives and disincentives), service availability, service quality, marketing, and traveler information. Because of the diverse market segments of the Airport's users, no single measure will accomplish the goal to increase HOV mode share. Key Massport efforts to actively promote transit, shared-ride, and other HOV modes to and from Logan Airport are listed below:

- Massport operates its own extensive compressed natural gas (CNG) powered Logan Express Bus service, currently serving five locations and almost two million people annually. Service was added in Boston's Back Bay in May 2014. Massport regularly reviews these services and adjusts schedules as well as ride and parking rates to enhance ridership by both air passengers and Airport employees.
- Massport subsidizes the MBTA Silver Line Logan Airport route (SL1), a bus rapid transit service originating from South Station to the Airport, and provides free outbound Silver Line trips from the Airport.³ Massport has committed to pay for eight additional Silver Line buses (bringing the total to 16) to operate on the SL1 route by December 2024 (dependent on MBTA procurement).
- Massport provides free, clean-fuel shuttle bus service for passengers and employees between the MBTA Blue Line Airport Station, all terminals, the Rental Car Center, and the Logan Airport water transportation dock along Harborside Drive.
- **Massport is** implementing planning substantial improvements to Logan Express Bus service to be implemented over the next two years. This includes the goal of doubling use of the service to four million riders annually by improving and expanding Logan Express options:
 - Improving Back Bay Logan Express service and subsidizing fares;
 - Increasing frequencies and adding amenities at existing Logan Express locations;
 - Adding a new urban Logan Express service at North Station;
 - Advancing plans for increasing parking capacity at the Framingham (by approximately 1,000 spaces and the Braintree (2,000 spaces) Logan Express locations by a total of 3,000 spaces; and
 - Identifying new suburban Logan Express locations.
- MBTA rapid transit services are supplemented by MBTA commuter ferry service and MBTA local and express bus service.⁴
- Massport provides priority, designated curb areas at all Airport terminals to support the use of public transit, and other HOV/shared-ride modes.

³ In June 2001, Massport and the MBTA executed an interagency agreement for the purchase of eight Silver Line dual-mode buses and the Massport Board approved the expenditure of approximately \$13 million for this purchase.

⁴ Route 171 Dudley Station to Logan Airport via Andrew, Express bus 448 and 449 from Marblehead to Downtown via Logan Airport, and Express bus 459 from Salem to Downtown Crossing via Logan Airport, according to www.MBTA.com, accessed on December 28, 2018.

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- As part of a new initiative to reduce congestion at the Airport, Massport will improve transportation network company (TNC) operations (such as those belonging to Uber and Lyft) at Logan Airport by consolidating TNC operations at dedicated areas on the ground floor of the Central Garage complex. This will allow passengers to:
 - ❑ Use climate-controlled walkways to and from the terminals;
 - ❑ Reduce wait times for passengers, as well as wait times between customers for the TNC drivers; and
 - ❑ Reduce roadway congestion and thus reduce on-Airport VMT and associated air emissions.

1.2.2 Logan Airport Parking Freeze Background

The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts State Implementation Plan (SIP) under the federal Clean Air Act (42 U.S.C. §7401 et seq. [1970]). The Parking Freeze was originally adopted in 1975 by the U.S. Environmental Protection Agency (EPA). It was intended to reduce automobile emissions and to enable Massachusetts to achieve compliance with the National Ambient Air Quality Standards for carbon monoxide (CO) at localized sites and for ozone on a regional basis.

Massport worked with MassDEP on an amendment to the Parking Freeze in parallel with the development of the Project's Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA). Massport filed the ENF concurrent with MassDEP's issuance of a draft regulation to amend the Parking Freeze, which is subject to the provisions of M.G.L. c. 30A, to increase the Parking Freeze limit by 5,000 spaces. Following an extensive stakeholder and public engagement process in response to Massport's 2016 request to consider an amendment to the Parking Freeze, MassDEP approved the requested parking increase and issued the amended regulation on June 30, 2017. On December 5, 2017, the EPA proposed a rule approving the revision of the SIP incorporating the amended Parking Freeze. The EPA approved the proposed rule on March 6, 2018, and the rule went into effect on April 5, 2018.

1.2.2.1 Status of MassDEP Studies

Massport proposed several broad mitigation commitments to MassDEP as part of the amendment to the Parking Freeze. These commitments included studies to inform Massport's long-range efforts to address VMT and air quality impacts of different ground access modes to and from Logan Airport. These studies include:

- **Ways to improve HOV access to the Airport** - This study evaluates the feasibility and effectiveness of potential measures to improve HOV access to Logan Airport. It considers, among other things, possible improvements to Logan Express bus service, additional Logan Express sites, and the benefit of improvements to the Silver Line service to the Airport.
- **Strategies for reducing drop-off/pick-up modes** - This study evaluates the feasibility and effectiveness of potential operational measures to reduce drop-off/pick-up modes of access to Logan Airport.
- **Parking pricing strategies** - This study assesses parking pricing strategies and their effect on customer behavior and VMT.

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These studies are underway, and their status will be updated in the forthcoming *2017 Logan Airport Environmental Status and Planning Report (ESPR)* that is expected to be published in Summer 2019.

1.3 Project Need

The inadequate supply of on-Airport parking at Logan Airport increases the number of air passenger ground access trips by shifting air passengers to drop-off/pick-up modes that generate higher VMT and associated vehicle emissions. Under overflow conditions, parkers are diverted or valeted to non-designated garaged parking areas, including overflow lots some of which are located off-Airport (see **Figure 1-1**). Diversions and valeting have become a regular occurrence at Logan Airport and these countermeasures decrease operational efficiency and compromise customer service.

Figure 1-1 Examples of Overflow Valet Parking in Non-Designated Parking Areas



1.3.1 Growth in Parking Demand

Massport's Ground Transportation Unit parking supervisor reports on peak-day parking demand were used to quantify the total Airport parking demand during the 2017 calendar year. These reports summarize the number of parked vehicles at each on-Airport parking facility (and off-Airport facility, if used) on each mid-week day (Tuesday, Wednesday, and Thursday) for every week of the year. Typically, Airport parking demand Friday through Monday is significantly lower (and below capacity) than on mid-week days.

Of the 156 peak days reviewed in 2017, Massport diverted or valet-parked passenger vehicles on 81 days of the year and on 47 days in 2018. As air passenger travel at Logan Airport increases over time, parking demand is anticipated to increase as well. Massport expects that within a 10- to 15-year planning horizon, the air passenger level at Logan Airport will reach approximately 50 MAP. At this level, it is anticipated that parking demand would require valet operations on more than 100 occurrences each subsequent year. Massport consistently manages the parking supply in accordance with the requirements of the Parking Freeze.

1.3.2 Implications of Insufficient Parking Supply

Experience at Logan Airport has demonstrated that an insufficient parking supply results in short-term and long-term consequences. In the short-term, an insufficient supply creates operational challenges for Massport

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such as on-site and off-site parking diversions and forced valet service that result in an overall decrease in customer satisfaction and increases in on-Airport VMT from drivers circulating looking for parking. In the long-term, if parking is not consistently available to customers, they will opt to use alternative modes to access the Airport, such as environmentally undesirable drop-off/pick-up modes.

Using data from the 2016 Logan Airport Air Passenger Ground Access Survey, Massport examined parkers, their places of origin, and the modes they would use if parking was not an available option, as presented in **Table 1-1**. Survey responses varied greatly depending on the area of origin (given both travel time and access to different alternative modes). As shown in **Table 1-1** and depicted in **Figure 1-2**, 77 percent of surveyed air passengers said they would use drop-off/pick-up modes as an alternative to parking if parking was not available. As the origin gets further from the Airport, there is a significant increase in air passengers being dropped-off by private vehicles with a significant decline in use of taxis and TNCs. Use of black car/limousine services as an alternative to parking increases further from the Urban Core (defined as Boston, Brookline, Cambridge, and Somerville), but declines sharply if originating from outside of Massachusetts. HOV/transit use generally increases outside of Route 128, most likely on Logan Express routes and private express bus carriers.

Table 1-1 Surveyed Parkers: Alternative Ground Access Mode if Parking was not an Option

	Urban Core (%)	Between Urban Core ¹ and Route 128 (%)	Between Route 128 and I-495 (%)	Outside I-495, within MA (%)	Outside of MA (%)	Overall Distribution to other Modes (%)
Curbside Drop-off Mode						
Drop-off by Private Vehicle	10	25	30	38	35	30
Drop-off by Taxi	36	27	13	10	17	18
Drop-off by TNC ²	22	28	14	13	8	16
Drop-off by Black Car/ Limousine Services	3	4	19	21	10	13
Total Drop-off	71	84	76	82	70	77
High-Occupancy Vehicle (HOV)/ Shared-ride Mode						
Shared-ride Van/Other Limousine Service	0	1	1	3	4	2
HOV/Transit	12	9	16	6	13	12
Total HOV	12	10	17	9	17	14
Other Modes						
Other	17	6	7	9	13	10

Source: Massport, 2016 Logan Airport Air Passenger Ground Access Survey.

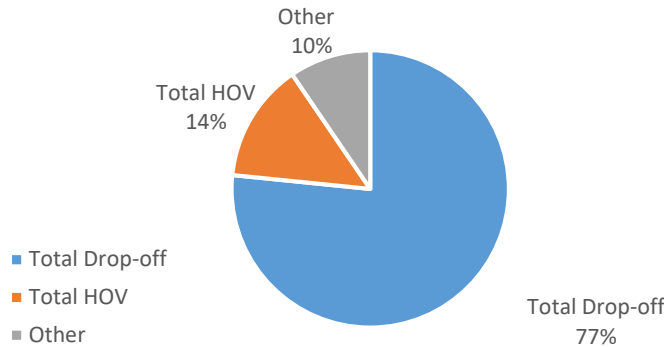
Notes:

1 "Urban Core" is defined as Boston, Brookline, Cambridge, and Somerville.

2 Transportation Network Company

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Figure 1-2 Alternative Ground Access Mode if Parking was not an Option



Source: Massport, 2016 Logan Airport Passenger Ground Access Survey.
Note: Pie chart does not total to 100 percent due to rounding.

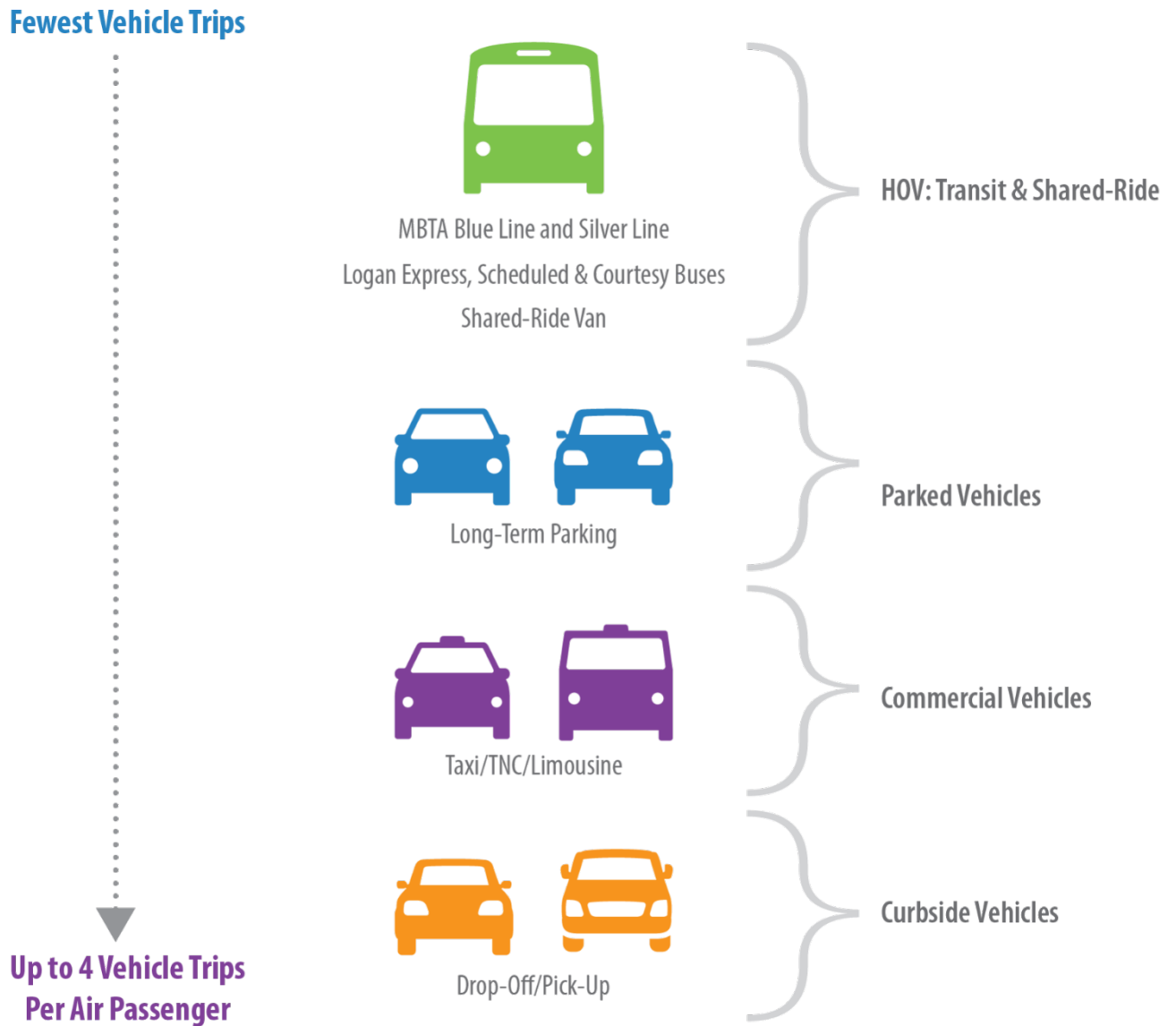
1.3.2.1 Trips by Access Mode

Figure 1-3 shows the hierarchy of ground access mode share options available to Logan Airport air passengers, ranked by their environmental performance, and the associated number of trips with each mode choice. Different travel modes to the Airport have a varying number of vehicle trips associated with them, ranging from transit trips (fewest number of trips, fewest emissions per air passenger), to drop-off/pick-up modes (highest number of trips, highest emissions per air passenger). Massport’s ground access strategy strives to reduce the number of passengers arriving by drop-off/pick-up and other single occupancy travel modes by encouraging those passengers to use less environmentally harmful modes.

Compared with all other curbside drop-off modes, parkers result in fewer trips than drop-off/pick-up (e.g., a resident traveling on a business trip typically will make one trip to the Airport from their place of residence, park their vehicle, make their round-trip flight, and make one return trip back to their place of residence). Personal vehicle drop-off/pick-up modes typically will make four trips to support an air passenger (e.g., a resident traveling on a business trip is dropped off at the Airport, the drop-off driver returns to their residence, and the driver returns to the Airport when the air passenger returns and drives the air passenger back to the place of residence). Taxis and black car/limousine modes do not always have passengers for each inbound and outbound trip. Often, these modes will travel empty in one direction to or from the Airport. For example, if a cab from outside Boston drops off a passenger at Logan Airport, it cannot pick up a return fare, as taxis are required to have a valid Boston Hackney License to recirculate into the taxi pool.

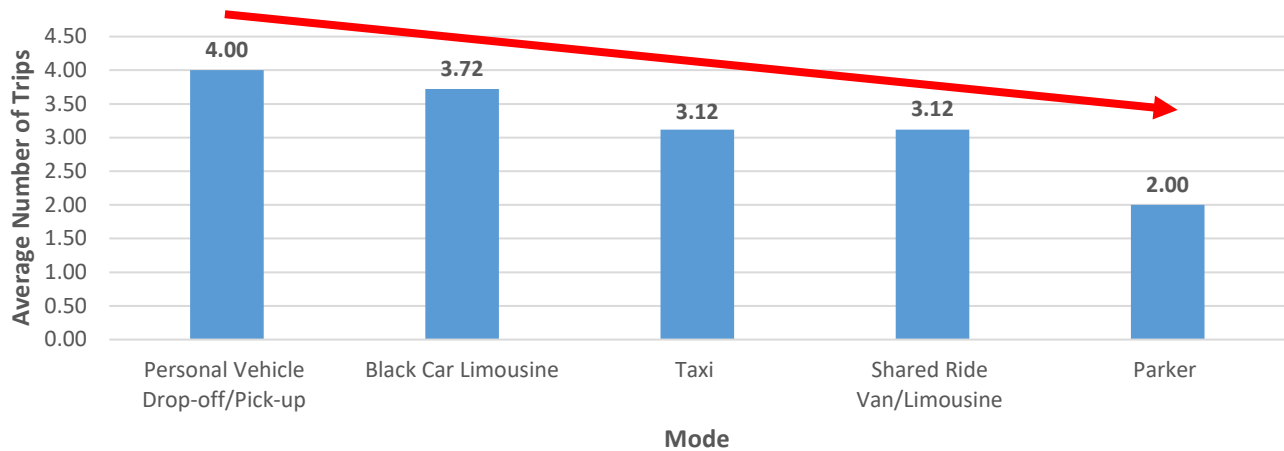
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Figure 1-3 Hierarchy of Ground-Access Mode Choices (Based on Vehicle Trips per Air Passenger)



Notes: Short-term parking is included under "drop-off/pick-up."
 Rental cars are included in the "Parked Vehicles" category.

Figure 1-4 Average Number of Vehicle Trips to Support Air Passenger Round-Trip Travel



Source: Massport.

As shown in **Figure 1-4**, the average number of trips to support air passenger round-trip travel ranges from two (parking mode) to four trips (private vehicle drop-off/pick-up mode). Given that trips by taxi and black car/limousine services to the Airport do not always involve a deadhead or empty return trip, the average number of trips for these modes is less than four, but still greater than three.

1.3.3 Construction Coordination

Ongoing and anticipated on-Airport construction and planning activities will remove a number of terminal area commercial spaces, both in the short- and long-terms. This includes Massport’s new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex, which would replace approximately 1,000 revenue-generating parking spaces. The planned TNC move would be another measure, alongside the Logan Airport Parking Project, intended to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips).

The new garage (to be constructed first), located in front of Terminal E, would help meet existing and future air passenger demand for on-Airport parking and more than offset some of the temporary losses in terminal area commercial spaces. Massport would continue to be in full compliance with the Parking Freeze even when short-term, out-of-service terminal area commercial parking spaces return to service.

1.4 Project Purpose

The purpose of the Logan Airport Parking Project is to accommodate air passenger parking demand, to reduce drop-off/pick-up activity, improve traffic congestion and regional air quality, and improve the passenger experience while minimizing community and environmental impacts by adding 5,000 commercial parking spaces (in accordance with the amendment to the Logan Airport Parking Freeze) entirely within the Airport footprint.

The Proposed Project would enhance passenger experience by reducing the need to divert parkers to off-Airport satellite parking locations, which increases the time it takes for air passengers to drop off their cars and access the terminal area. Diminished passenger experience related to constrained parking (without the Proposed

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Project) could have long lasting implications as air passengers are likely to choose other travel modes to and from the Airport with increased environmental impacts (i.e., drop-off/pick-up modes). The Proposed Project, coupled with maintaining and enhancing HOV capacity, would address the undesired air quality effects of drop-off/pick-up activity by increasing parking supply and decreasing the number of passengers choosing drop-off/pick-up modes to access the Airport.⁵ Decreasing drop-off/pick-up activity also has the added benefit of reducing on-Airport roadway and terminal curbside congestion.

1.5 Proposed Project/Proposed Action

Massport is proposing to construct 5,000 new commercial parking spaces in structured parking facilities at two on-Airport sites selected with community input (see **Figure 1-5**). Approximately 2,000 spaces would be sited in a new garage on existing surface parking lots in front of Terminal E, and approximately 3,000 spaces would be accommodated at the Economy Garage through an expansion of the existing facility. The proposed improvements would include:

New Garage in front of Terminal E:

- A new structured multi-story parking garage in the current location of existing surface parking lots in front of Terminal E;
- Two sections located on either side of the pedestrian bridge that connects Terminal E to the Central Garage complex - five parking levels would be placed on the west side and six levels on the east side;
- A solar photovoltaic system to offset a portion of the facility's electricity consumption;
- Separated primary access/egress points for public vehicles and limousines along the Terminal E Arrivals Level roadway – public vehicles would enter the garage just beyond the split with the main terminal roadway and exit on the facility's west side, north of the Central Heating Plant entrance/exit, while limousines would enter and exit at the facility's northeast corner;
- A secondary access point for public vehicles along the Terminal E Arrivals Level roadway on the facility's west side and co-located with the public vehicle exit, to further reduce on-Airport circulation;
- Modifications to the Terminal E Arrivals Level roadway to accommodate garage access/egress;⁶
- A vehicular bridge connection to the Central Garage complex from the fourth level of the facility's east side to increase Massport operational efficiencies with respect to overflow transfers;
- Pedestrian circulation accommodations, including three crosswalks connecting the facility to the outer curb at Terminal E and connections to the pedestrian bridge that connects Terminal E to the Central Garage complex;

⁵ Massport, 2016 Logan Airport Air Passenger Ground Access Survey.

⁶ Modifications would incorporate a main entrance along the easterly face at the southern corner of the proposed garage. The entry drive incorporates a pull off that allows emergency vehicles easterly access to the Central Heating Plant via a drive corridor along the garage's southern face. The easterly curb line near the garage's northeast corner allows entrance/egress for limousine parking. The northerly face of the garage would be curbed with raised pedestrian sidewalk access points to/from Terminal E. The westerly curb line would be modified to provide vehicle exit from the garage as well as a recirculation entrance. At the southwest side of the garage, the Central Heating Plant main entrance/egress gate along the Arrivals Level curb line would be modified to shift the point of entry/egress further south.

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Economy Garage Expansion:

- Three additional parking levels within the facility's existing footprint;
- An addition on the facility's south side with a footprint of approximately 18,000 square feet to include both parking spaces and additional vertical circulation;
- Associated improvements to garage entrance/exit plaza and along Prescott Street;⁷ and
- The relocation of the existing solar photovoltaic system to the top of the facility's new highest level.

The massing concept for the new garage in front of Terminal E is illustrated in **Figure 1-6**; **Figure 1-7** depicts the facility's proposed access and circulation. **Figure 1-8** shows the proposed additional parking levels at the Economy Garage. Chapter 2, *Alternatives Analysis* presents the manner by which Massport arrived at the Proposed Project.

Massport is committed to constructing and operating the new garage in front of Terminal E and Economy Garage expansion in an environmentally sound and responsible manner. It would incorporate sustainability and resiliency requirements, such as those presented in its *Sustainable and Resilient Design Standards and Guidelines*, as well as industry standards in green building, such as the U.S. Green Building Council's Parksmart rating system. Parksmart is an environmental and sustainability focused rating system specific to parking structure management, programming, design, construction, and technology. The specific sustainability and resiliency integrations anticipated for the new garage in front of Terminal E and Economy Garage expansion, including the installation (in the case of the new garage in front of Terminal E) and relocation (in the case of the Economy Garage expansion) of solar photovoltaic arrays, are detailed in Chapter 4, *Assessment of Impacts/Environmental Consequences* and summarized in Chapter 5, *Beneficial Measures/Mitigation*.




As presented in the Project's ENF, which was noticed in the Environmental Monitor on April 5, 2017 per MEPA, and confirmed in the analysis presented in Chapter 4, *Assessment of Impacts/Environmental Consequences* of this DEIR/EA, the Project would have a range of environmental benefits and would create no long-term adverse environmental impacts. Implementation of the Project would allow Massport to avoid adverse environmental impacts if no action were taken. Such impacts would include higher regional VMT and associated air emissions from an increasing drop-off/pick-up mode share resulting from a parking supply that fails to meet air passenger demand during peak travel periods. Furthermore, because the Project proposes to add structured parking at two on-Airport locations that are fully developed and currently in use for parking, many traditional greenfield site impacts are fully avoided.

⁷ Improvements to the existing Economy Garage structure would involve a reconfigured entrance/exit plaza that easterly shifts the entry/egress point along Prescott Street. Roadway improvements would incorporate a garage entry lane after entering Prescott Street from the Service Road.

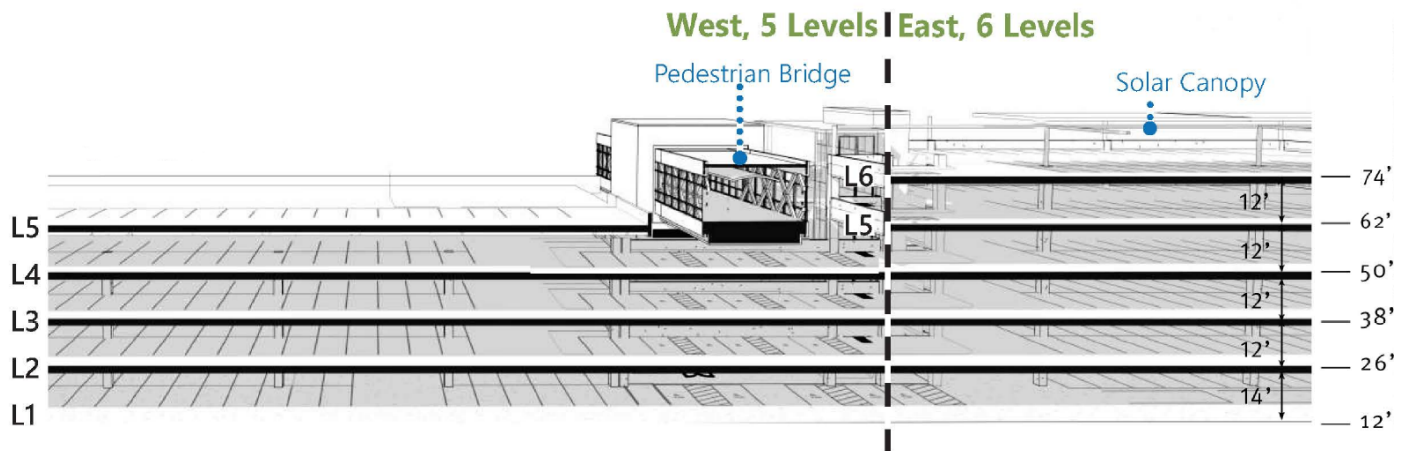
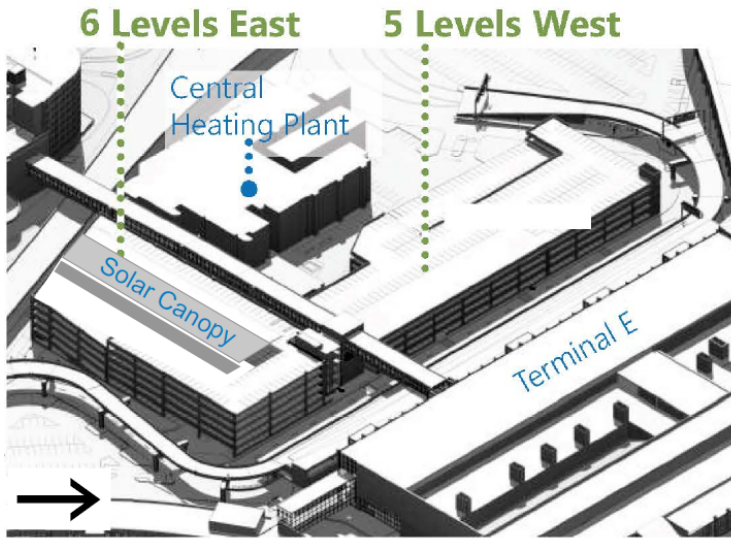


FIGURE 1-5 Proposed Project Areas

Logan Airport Parking Project

-  New Garage in Front of Terminal E
-  Economy Garage Expansion
-  Select Roadways





Source: WSP and Arrowstreet

FIGURE 1-6 New Garage in Front of Terminal E: Proposed Massing Logan Airport Parking Project

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1.5.1 Project Phasing and Costs

Massport proposes phased construction, with the new garage in front of Terminal E to be operational in 2022 and the Economy Garage expansion operational by the end of 2025. The new garage in front of Terminal E would be constructed first in order to:

- Provide operational flexibility to Massport with respect to managing the on-Airport parking supply. The additional terminal area parking, as well as the bridge connection from the new garage in front of Terminal E to the Central Garage complex, would better and more efficiently enable Massport's Ground Transportation Unit to relocate vehicles under overflow conditions, minimizing distances traveled in comparison to the Economy Garage.
- Realize construction efficiencies with respect to other planned projects at the Airport, including the Terminal E Modernization Project. Examples of construction efficiencies include the use of common staging areas and one-time site disturbances.

A secondary benefit of constructing the new garage in front of Terminal E first is that Massport would be able to deliver enhanced passenger experience sooner. The proximity of this proposed garage within the terminal area, particularly its proximity to Terminal E, would reduce passenger time traveling to/from the terminals compared to the Economy Garage. Accessing the terminal area from the Economy Garage would necessitate use of the Airport's free shuttle bus system.

In addition, ongoing and anticipated on-Airport construction and planning activities will remove a number of terminal area commercial spaces, both in the short- and long-terms. This includes Massport's new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex, which would replace approximately 1,000 revenue-generating parking spaces. The planned TNC move is another measure, alongside the Logan Airport Parking Project, designed to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips).

The new garage to be constructed in front of Terminal E would help meet existing and future air passenger demand for on-Airport parking and more than offset some of the temporary losses in terminal area commercial spaces. Massport would continue to be in full compliance with the Parking Freeze even when short-term, out-of-service terminal area commercial parking spaces return to service.

Massport expects to sequence the construction of the new garage in front of Terminal E beginning with the six parking levels on the east side of the pedestrian bridge, followed by the five levels on the west side. Construction of the east side, including the vehicular bridge, would begin in early 2020 and be complete by early 2022, while construction of the west side would begin in Spring 2020. The entire facility would be operational in 2022. The total anticipated program cost of the new garage in front of Terminal E is approximately \$120 million, while the planned vehicular bridge between the structure and the Central Garage complex would cost an estimated \$4.7 million.

The Economy Garage expansion would be operational by the end of 2025. Construction is anticipated to begin in mid-2023 and would likely start at the west end of the existing garage and sequentially proceed toward the facility's east end. The total program cost of the Economy Garage expansion is estimated to be approximately \$180 million.

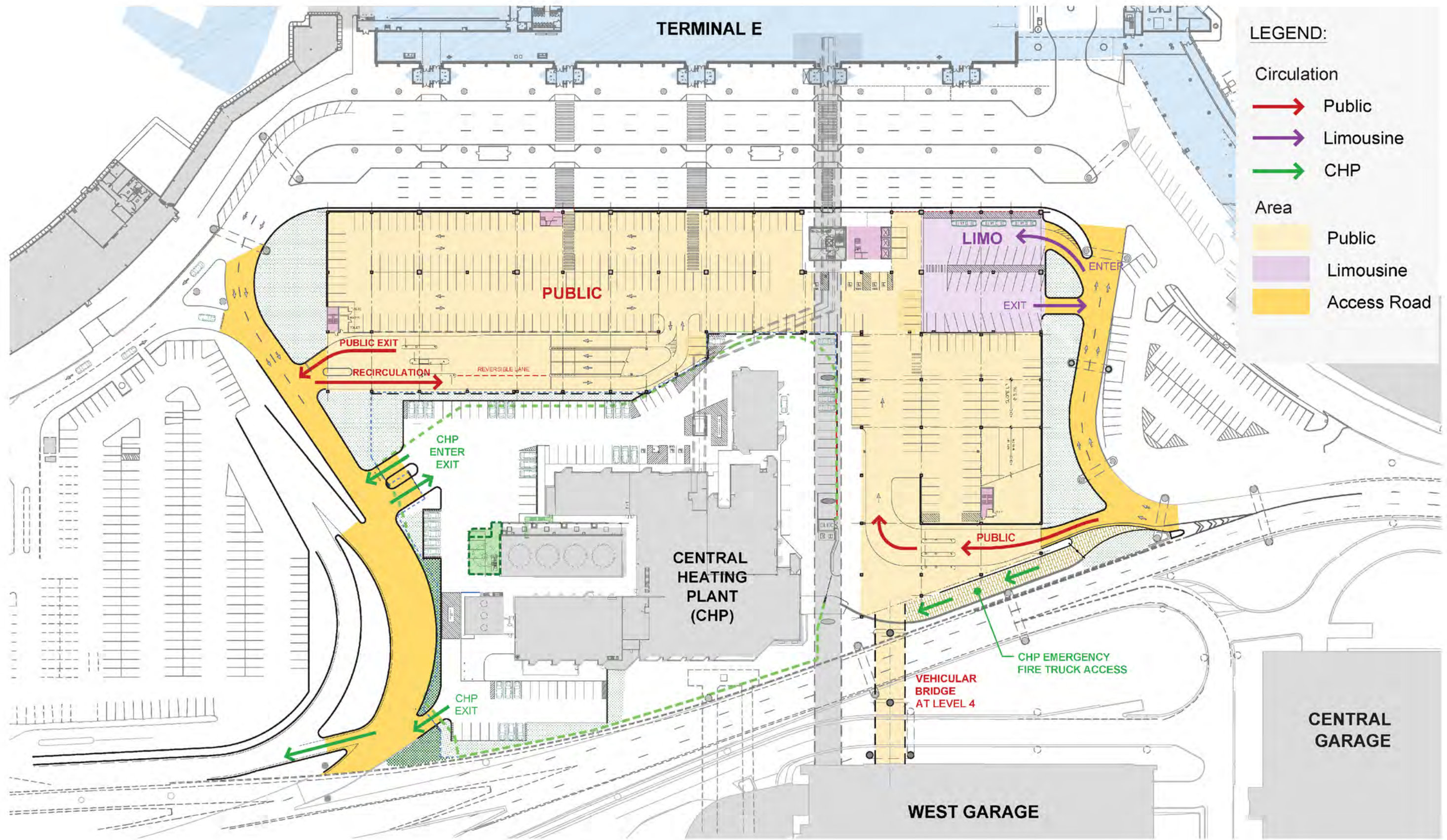


FIGURE 1-7 New Garage in Front of Terminal E: Access and Circulation

Source: WSP

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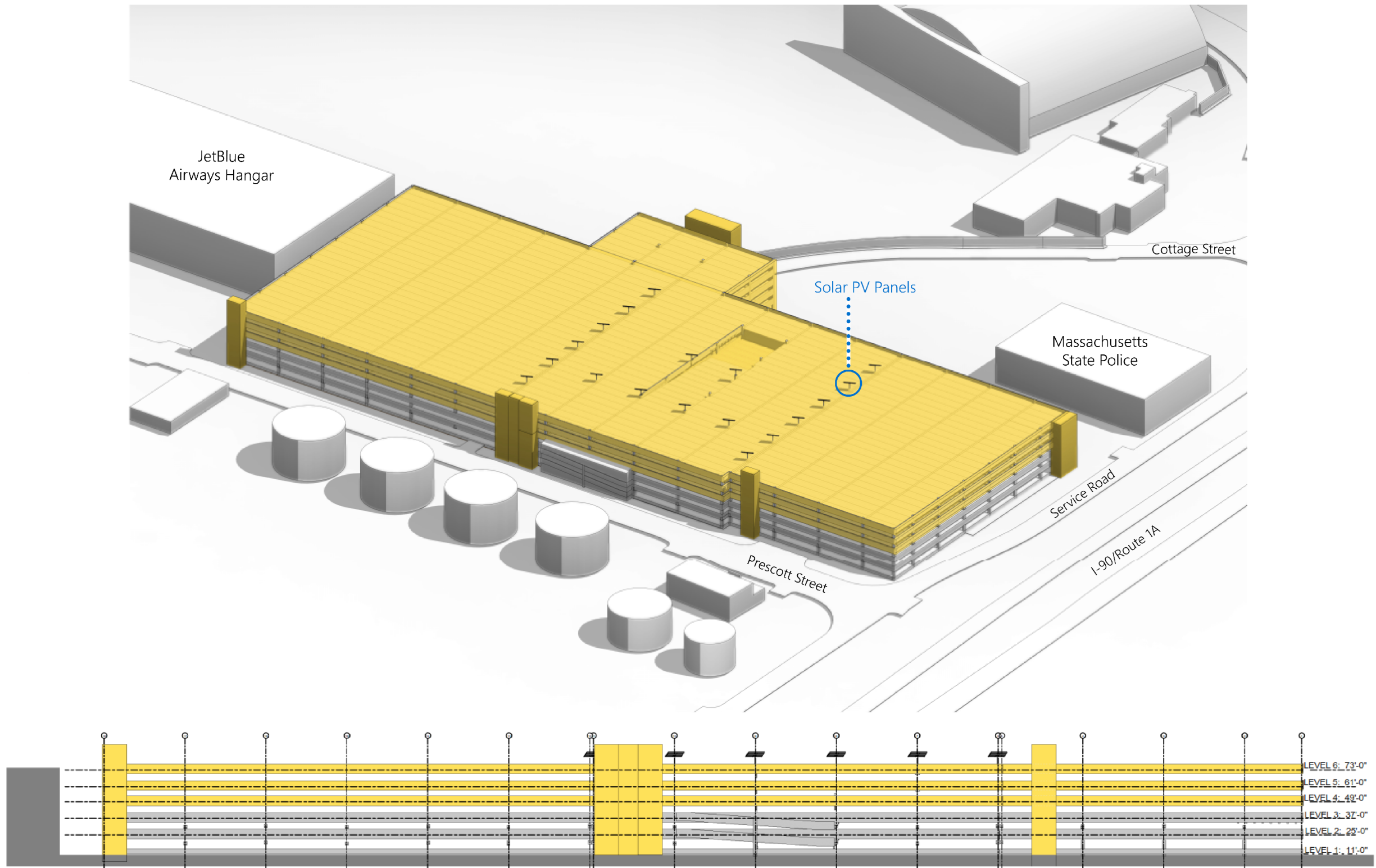


FIGURE 1-8 Economy Garage Expansion (View from the North Side)

Logan Airport Parking Project

Source: WSP

 New Parking Levels

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1.6 MEPA/ NEPA Compliance

The Logan Airport Parking Project is subject to public review under both state and federal environmental regulations. The Project is subject to MEPA review under 301 Code of Massachusetts Regulations (CMR) 11.03 (6)(a)7, which requires a mandatory EIR for the “construction of 1,000 or more new parking spaces at a single location.” The FAA has determined that the Proposed Project requires an EA under NEPA, due to changes to the Airport Layout Plan that would result from the Proposed Project’s implementation.

Massport filed an ENF for the Logan Airport Parking Project that included a proposed scope for the DEIR; the Secretary of Energy and Environmental Affairs issued a certificate on May 5, 2017.⁸ The DEIR scope, as modified by the Secretary includes analysis of ground access, air quality, greenhouse gas emissions and sustainability, and noise, as well as of construction period impacts related to noise, air quality, traffic, solid and hazardous waste, and water quality.

1.6.1 Changes to the Proposed Project since the Filing of the ENF

The Project’s ENF described proposed sites and locations for the new parking spaces, selecting with community input the combination of a new garage in the location of existing surface parking lots in front of Terminal E and additional floors atop the existing Economy Garage.

1.7 Anticipated Permits

Table 1-2 lists the anticipated state and federal permits and approvals required for the Proposed Project along with their respective statuses.

Table 1-2 Anticipated Permits and Approvals for the Proposed Project

Issuing Agency	Approval or Permit	Status
Massachusetts Executive Office of Energy and Environmental Affairs	Secretary’s Certificate under the Massachusetts Environmental Policy Act	Draft Environmental Impact Report (DEIR) submitted herein. A Final Environmental Impact Report (FEIR) will be prepared and circulated following the close of the comment period and issuance of the Secretary’s Certificate on the DEIR.
Federal Aviation Administration	Finding of No Significant Impact under the National Environmental Policy Act (NEPA)	Environmental Assessment submitted herein; finding expected at the conclusion of the NEPA process.
	Airport Layout Plan Approval	Approval to be issued.
	Air Quality General Conformity Determination	Determination made in this document. See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
	14 Code of Federal Regulations (CFR) Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction.

⁸ Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for the Logan Airport Parking Project. May 5, 2017.

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Table 1-2 Anticipated Permits and Approvals for the Proposed Project (Continued)

Issuing Agency	Approval or Permit	Status
U.S. Environmental Protection Agency Region 1	National Pollutant Discharge Elimination System (NPDES) Individual Permit	The Proposed Project will meet the standards included in Logan Airport's individual NPDES permit (No. MA0000787). See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
	NPDES Construction General Permit	A construction-related Stormwater Pollution Prevention Plan will be developed by the contractor. See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
Massachusetts Department of Environmental Protection (MassDEP)	Massachusetts Contingency Plan (MCP)	As required. Hazardous materials encountered during the development would be addressed in accordance with applicable MCP regulations. See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
Massachusetts Water Resources Authority (MWRA)	Modification to existing MWRA Sewer Use Discharge Permit	If required, prior to construction.

1.8 Public Involvement

Public outreach and community input are important elements of Massport's environmental review processes, and of the overall Logan Airport Parking Project. Massport has a history of proactive and collaborative interaction with the Airport's adjacent communities. Massport engaged stakeholders and the public before filing the Project's ENF and continued such engagement during the ongoing permitting process. Massport staff have attended various community and public meetings to provide an overview of, and answer questions about, the Proposed Project.

An important element of this process was a series of meetings with the Logan Impact Advisory Group (LIAG), that included leaders of 17 East Boston community groups and local elected officials that preceded the ENF filing. For the better part of a year, Massport held numerous meetings with the LIAG to discuss a range of Logan Airport-related topics, including the Logan Airport Parking Project. As part of these discussions, the LIAG provided input on its preferred locations for the proposed additional parking; it is those recommended locations that Massport is advancing through the permitting process.

Other meetings ranged from briefing local community groups in East Boston to meeting with public officials at the federal, state, and local levels. Other key stakeholders that Massport has engaged include major business groups and non-profit organizations such as the Massport Community Advisory Committee. Massport and local community leaders have worked together with a common goal of minimizing the impact of specific Massport developments on local East Boston neighborhoods. Massport has worked hard to meet this goal and fulfill its commitments to the community. A parallel community engagement progress was initiated by the MassDEP in response to Massport's 2016 request to consider an amendment to the Parking Freeze to increase the Parking Freeze limit by 5,000 spaces. MassDEP conducted a stakeholder process, followed by a public process that included three public meetings, to amend the Parking Freeze regulation.

Massport continues to update the community on the status of the Logan Airport Parking Project. This is performed through regularly scheduled community, neighborhood, and other civic meetings.

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Massport described the Logan Airport Parking Project in the Project's ENF, which was made available at: <http://www.massport.com/massport/about-massport/project-environmental-filings/logan-airport/>. The most recent environmental filings, including this DEIR/EA and all supporting documentation, will also be available on this website. Following publication of the availability of the DEIR/EA in the *Environmental Monitor*, there will be a 47-day extended public comment period, during which an informational meeting will be scheduled. Community and agency outreach and coordination will continue through Project permitting, design, and construction.

1.9 Contents of this DEIR/EA

The remainder of this DEIR/EA includes:

Chapter 2, *Alternatives Analysis*: This chapter describes the alternatives investigated and the extent to which each alternative addresses the Proposed Project's purpose and need, as well as Massport's goals for the Proposed Project. It concludes with the presentation of the preferred alternative.

Chapter 3, *Existing/Affected Environment*: This chapter describes the Project Areas, including their natural and built environmental features, as they exist today.

Chapter 4, *Assessment of Impacts/Environmental Consequences*: This chapter presents the results of the studies and technical analyses completed to identify the environmental effects of the Proposed Project as compared to the No-Build Alternative. The discussion includes an analysis of temporary and permanent effects of the Proposed Project on the natural and built environments related to the resource areas:

- Surface Transportation;
- Air Quality;
- Natural Resources and Energy Supply;
- Climate, Greenhouse Gas Emissions, and Sustainability;
- Noise and Noise-Compatible Land Use;
- Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater);
- Coastal Resources;
- Hazardous Materials, Solid Waste, and Pollution Prevention;
- Socioeconomics, Environmental Justice, and Children's Health and Safety Risks;
- Department of Transportation Act, Section 4(f); and
- Visual Effects (including Light Emissions).

Chapter 5, *Beneficial Measures/Mitigation*: This chapter lists Massport's commitments and additional considerations for the protection of natural and built environments during the construction period of the Logan Airport Parking Project and in the long-term.

Chapter 6, *Regulatory Compliance and Public/Agency Coordination*: This chapter lists the local, state, and federal environmental permits required for the Proposed Project to be built.

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Chapter 7, *Distribution*: This chapter provides the list of the interested parties and public libraries to which Massport provided a copy of this DEIR/EA.

Chapter 8, *List of Preparers*: This chapter lists the consultant team involved with the preparation of this DEIR/EA and its technical analyses and related documents.

The extensive technical material and references used to support the analyses summarized in this DEIR/EA are included as appendices.

Appendix A, *MEPA Certificate on the Environmental Notification Form (ENF) and Comment Letters*

Appendix B, *Responses to Comments on the Environmental Notification Form*

Appendix C, *Draft Section 61 Findings*

Appendix D, *Federal Aviation Administration Terminal Area Forecast*

Appendix E, *Surface Transportation Technical Appendix*

Appendix F, *Air Quality/Emissions Reduction Technical Appendix*

Additional materials referenced in the text are available on the Massport website at:
www.massport.com/environment/environmental-reporting/environmental-filings/.

Alternatives Analysis

2.1 Introduction

In accordance with requirements under the Massachusetts Environmental Policy Act (MEPA),¹ including recent guidance issued for filing an Environmental Impact Report (EIR),² and the National Environmental Policy Act (NEPA), this alternatives analysis identifies criteria for selecting the Preferred Alternative and compares and contrasts the environmental impacts associated with each Build/Action Alternative, along with the No-Build/No-Action Alternative (Build and No-Build Alternative, respectively). This chapter describes the process undertaken by the Massachusetts Port Authority (Massport) to identify and evaluate reasonable and feasible alternatives to the Logan Airport Parking Project (the Proposed Project). In identifying the Preferred Alternative, consideration was given to avoid, minimize, and mitigate environmental impacts to the maximum extent practicable. Alternatives are considered according to their ability to meet the purpose and need of the Proposed Project.

As discussed in Chapter 1, *Project Description/Purpose and Need*, the purpose of the Proposed Project is to accommodate air passenger parking demand, to reduce drop-off/pick-up activity, improve traffic congestion and regional air quality, and improve the passenger experience while minimizing community and environmental impacts by adding 5,000 new commercial parking spaces (in accordance with the amendment to the Logan Airport Parking Freeze³ [the Parking Freeze]) entirely within the Airport footprint.

This chapter carries forward and expands upon the site selection process described in the Project's Environmental Notification Form (ENF) prepared under MEPA.⁴ Through this process, which incorporated community input, Massport determined that the Surface Lot⁵ in front of Terminal E and the Economy Garage were the most appropriate sites within the Airport's boundary to add new structured parking to accommodate 5,000 new commercial parking spaces.

1 MEPA Office. May 2013. 301 Code of Massachusetts Regulations (CMR) 11.00: MEPA Regulations. Accessed February 4, 2019, from <https://www.mass.gov/regulations/301-CMR-1100-mepa-regulations>.

2 MEPA Office. January 2019. Notice regarding MEPA project submittals. Email attachment.

3 The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts State Implementation Plan under the federal Clean Air Act [42 U.S.C. §7401 et seq. (1970)].

4 MEPA Office. 2017. Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for Logan Airport Parking Garage. May 5, 2017.

5 The Terminal E Surface Lot is comprised of three surface lots immediately adjacent to the terminal.

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With the sites for new structured parking identified, the planning of the proposed garages entered the concept design phase. Associated design options comprise the Build Alternatives and can be generally grouped into the following categories:

- Massing of the new garage in front of Terminal E (i.e., how parking levels would be sited and stacked);
- Access to/from the new garage in front of Terminal E (i.e., how the garage would be accessed by public parkers and limousines, as well as by Massport's Ground Transportation Unit); and
- Design of the Economy Garage expansion (i.e., the number of necessary additional parking levels).

Figure 2-1 illustrates the evaluation process of the Build Alternatives for the Proposed Project. All Build Alternatives described in this chapter are on previously developed land within the Airport boundary and are expected to have similar, negligible adverse environmental impacts. The Proposed Project is expected to reduce regional vehicle miles traveled (VMT) and associated emissions by providing an alternative to drop-off/pick-up modes for air passengers who are outside of the public transit, Logan Express Bus service, and other high-occupancy vehicle (HOV) mode catchment areas. The addition of 5,000 on-Airport parking spaces, coupled with on-going and continued improvements to HOV access to the Airport (Massachusetts Bay Transportation Authority [MBTA] transit, Logan Express, private bus carriers, and other services), would accommodate the proportional growth in demand as passenger levels at Logan Airport increase.

2.2 Initial Site Selection Screening Process

As described in the Project's ENF, Massport conducted a site selection and screening process with substantial input from the community. Following the stakeholder and public engagement process in response to Massport's 2016 request to consider an amendment to the Parking Freeze, the Massachusetts Department of Environmental Protection (MassDEP) approved the requested parking increase and issued the amended regulation on June 30, 2017. On December 5, 2017, the U.S. Environmental Protection Agency (EPA) proposed a rule approving the revision of the Massachusetts State Implementation Plan under the federal Clean Air Act (42 U.S.C. §7401 et seq. [1970]) incorporating the amended Parking Freeze. The EPA approved the proposed rule on March 6, 2018, and the rule went into effect on April 5, 2018.

The goal of the site selection process was to identify the most appropriate site(s) to construct one or more structured parking facilities to accommodate the 5,000 new commercial parking spaces at the Airport allowed under the amendment to the Parking Freeze. Massport initially considered six on-Airport sites before recommending two specific locations for the new structured parking facilities, as one site alone would not provide the 5,000-parking space total. These initial sites, along with their potential space capacity, are listed below. Their distinguishing advantages and disadvantages based on an initial operational and environmental screening and discussions with the stakeholders are also included.

- **Site 1, Economy Garage** – additional floors atop the existing garage
 - Parking capacity estimate: 3,000 spaces
 - **Advantages:** In existing use for parking; could serve as an additional noise barrier between airfield ground operations in the North Apron Area and the community; could rely on existing roadway infrastructure and signage

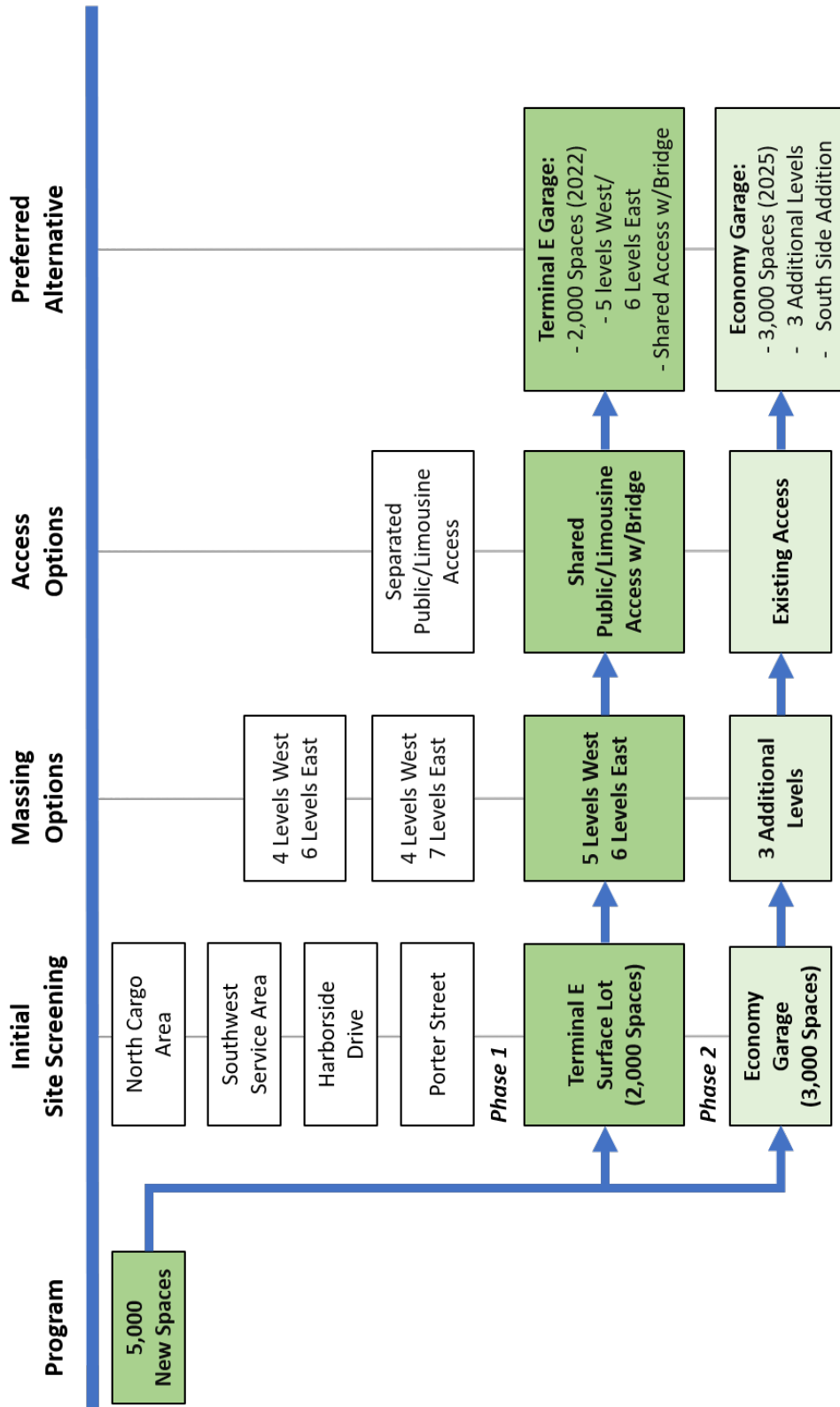
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- Disadvantages:** Need to increase frequency of shuttle bus operations between the Economy Garage and the terminal area
- **Site 2, Terminal E Surface Lot** – a new garage in the location of existing surface parking lots
 - Parking capacity estimate: 2,000 spaces
 - Advantages:** In existing use for parking; close proximity to terminals and the existing pedestrian bridge between Terminal E and the Central Garage complex (inclusive of the West and Central Garages); location in the terminal area could result in fewer VMT due to reduced recirculating vehicles
 - Disadvantages:** Need to avoid impacts to Central Heating Plant and associated access/egress
- **Site 3, Southwest Service Area** – a new garage at the bus/limousine pool
 - Parking capacity estimate: 4,000 spaces
 - Advantages:** In an area already dedicated to ground transportation uses; easily accessible to the Ted Williams Tunnel
 - Disadvantages:** Could preclude potential intermodal transportation options within the Airport boundary; would require additional shuttle bus operations
- **Site 4, North Cargo Area** – the lateral expansion of Economy Garage into the location of existing surface parking and the site of the Massachusetts State Police Building
 - Parking capacity estimate: 1,700 spaces
 - Advantages:** Adjacent to existing parking facility; could serve as an additional noise barrier between airfield ground operations in the North Apron Area and the community; could rely on existing roadway infrastructure and signage
 - Disadvantages:** Substantial relocation required for State Police, K9 facility, and United Airlines Ground Service Equipment; impacts to compressed natural gas fueling station access
- **Site 5, Harborside Drive** – a new garage in the location of the newly relocated Taxi Pool (previously described in the Project’s ENF as the existing vehicle layover/overflow space)
 - Parking capacity estimate: 1,400 spaces
 - Advantages:** Has a long history of parking use
 - Disadvantages:** Limited size; Possible wayfinding and operational challenges
- **Site 6, Porter Street** – a new garage over the existing transportation network company (TNC) lot (previously described in the Project’s ENF as the existing Taxi Pool)
 - Parking capacity estimate: 2,300 spaces
 - Advantages:** Relatively efficient site usage and garage operations
 - Disadvantages:** The closest to adjacent communities among the six possible sites; potential shadow impacts to the East Boston Memorial Stadium; complex signage required from Airport gateways; constrained intersection operations at Porter Street/Harborside Drive

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Figure 2-1 Alternatives Evaluation Process



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Each of the considered on-Airport sites are comparable in terms of regional VMT and emissions reductions since regional access routes generally will not vary as a result of the garage siting. All sites considered are already paved parcels currently used for parking or vehicle storage and, therefore, each would have similar, negligible localized environmental impacts.

2.2.1 Stakeholder Input in the Site Selection Process

Massport has a history of proactive and collaborative interaction with the Airport's adjacent communities through various stakeholders such as elected officials, municipalities, and community groups. In addition to the public outreach conducted under MEPA for several recent projects at the Airport, Massport also engages the public through the East Boston Logan Airport Impact Advisory Group (LIAG). For the better part of a year, Massport held numerous meetings with the LIAG to discuss a range of Logan Airport-related topics including the Logan Airport Parking Project. As part of these discussions, the LIAG provided input on preferred locations for the proposed additional parking; it is those recommended locations that Massport is advancing through the permitting process. At the time of the discussions, the group included leaders of 17 East Boston community groups and local elected officials, including:

- Neighborhood of Affordable Housing, Inc.;
- East Boston Piers Project Advisory Council;
- Eagle Hill Civic Association;
- East Boston Chamber of Commerce;
- East Boston Neighborhood Health Center;
- Jeffries Point Neighborhood Association;
- Airport Impacts Relief, Inc.;
- Vilma's Boutique;
- East Boston Greenway Council;
- Orient Heights Neighborhood Council;
- Gove Street Citizens Association;
- Friends of the East Boston Greenway;
- Mayor's Office, City of Boston;
- City of Boston Transportation Department;
- Former East Boston District City Councilor Sal LaMattina;
- East Boston State Representative Adrian Madaro; and
- East Boston State Senator Joe Boncore.

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2.2.2 Results of Site Selection

Based on discussions with community representatives, in addition to operational and environmental considerations, Massport is proposing to construct 5,000 new commercial parking spaces split between two sites: the Terminal E Surface Lot (with a parking capacity of approximately 2,000 spaces) and the Economy Garage (with an added capacity of approximately 3,000 spaces). These sites are within the Airport boundary, located on previously developed land, and currently in use for commercial parking.

2.3 Facility and Planning Requirements

This section discusses the facility and planning requirements that informed the sizing, layout, and design of the Proposed Project.

2.3.1 Parking Space Requirements and Allocations

As identified in the Project's ENF and the amendment to the Parking Freeze, a total of 5,000 new parking spaces are proposed to accommodate current and anticipated air passenger demand for on-Airport parking, particularly during peak periods such as school vacation weeks and summer vacation peaks. The increase in the Parking Freeze cap of 5,000 spaces provides the capacity to support projected future parking demand on a typical busy day (peak-days). Depending on the growth rate of Airport parking demand, the relief provided in the Parking Freeze cap will enable Massport to provide sufficient parking to accommodate peak-day parking demand for up to 10 years. A portion of the proposed increase in parking capacity is to backfill parking supply and meet current and short-term parking needs. The remainder of the requested increase is to meet the anticipated growth in air passengers and parking demand.

As identified during the site selection process and confirmed as the design of the proposed garages proceeded, a new garage in front of Terminal E can accommodate approximately 2,000 spaces. This would fit with the construction phasing of the Terminal E Modernization Project and other terminal area construction and planning activities (see Section 2.3.2, *Coordination with Other Terminal Area Projects* below). The remaining approximately 3,000 spaces allowed under the amendment to the Parking Freeze would be constructed at the Economy Garage through an expansion of the existing facility.

2.3.2 Coordination with Other Terminal Area Projects

Massport is in the process of upgrading Logan Airport terminal buildings and roadways. Projects currently under construction or in design near the Logan Airport Parking Project include the Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction Project (currently under construction); the Terminal E Modernization Project (currently under construction); and the Terminal C Canopy, Connector, and Roadway Project (currently under design). These and other Logan Airport projects are described in the *2016 Environmental Data Report* (EDR).

- **Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction:** This project will demolish the existing ramp between the Terminal B Departures and Arrivals Levels and the Terminal B Garage and construct a new temporary entrance to the Terminal B Garage from the Arrivals Level roadway.

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- **Terminal E Modernization Project:** This project will add the three gates originally approved in 1996 as part of the International Gateway West Concourse Project but never constructed, plus four additional aircraft gates to Terminal E. The new building will be aligned to function as a noise barrier.
- **Terminal C Canopy, Connector, and Roadway Project:** This project will renovate the Terminal C building to connect Terminals C and B, post security; replace deteriorating roadway infrastructure; improve traffic flow between Terminals B and C (both Arrivals and Departures levels); and improve safety and reduce roadway backups.

Table 2-1 lists the expected overall and peak construction schedules for these projects, along with the Logan Airport Parking Project. Massport will coordinate construction activities to maximize construction efficiencies and minimize operational disruptions.

Table 2-1 Construction Schedules for the Logan Airport Parking Project and Other Ongoing and Planned Logan Airport Projects

Project	Construction Period	Peak Construction Quarters ¹
Logan Airport Parking Project	Q1 2020 to Q1 2022 (New Garage in front of Terminal E); Q3 2023 to Q1 2025 (Economy Garage)	Q3 to Q4 2020 (New Garage in front of Terminal E); Q4 2023 to Q1 2024 (Economy Garage)
Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction	Present through Q4 2019	Q3 2019
Terminal E Modernization Project	Q2 2019 to Q1 2022	2020 to 2021
Terminal C Canopy & Upper Deck	Q1 2019 to Q2 2020	Q3 to Q4 2019; Q1 2020
Terminal C Elevated Roadways	Q1 2020 to Q2 2022	Q3 to Q4 2020; Q1 to Q4 2021
Terminal C Optimization & Terminal C-B Connector Project	Q3 2019 to Q4 2021	Q1 2020 to Q3 2021

Source: WSP, Massport.

Note:

Q Calendar quarter

Massport is considering several potential on-Airport solutions to address roadway and curbside congestion. Currently at peak periods, the terminal area roadways and curbsides at Logan Airport experience congestion, causing delays and vehicle idling. As passenger levels grow to meet regional demand, the congestion experienced at peak periods today will worsen without operational and facility improvements. Massport is studying a range of alternatives to improve roadway operations; current concepts under consideration include an enhanced shuttle bus system, a dedicated HOV lane, and an automated people mover (APM), among others. Once Massport selects a strategy, those projects will advance through planning and eventually, environmental review and permitting.

In addition, Massport has recently adopted a phased program of on- and off-Airport transportation improvements focused on reducing single occupancy trips to and from the Airport. These include measures to expand Massport's Logan Express system, and measures to reduce TNCs (e.g., Uber and Lyft) trips without a passenger. One such TNC measure includes Massport's new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips). Massport's ground access strategy is described in Section 1.2, *Project Context*.

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2.3.3 Sustainability and Resiliency

As discussed throughout this Draft Environmental Impact Report/Environmental Assessment (DEIR/EA), Massport is committed to constructing and operating the new garage in front of Terminal E and the Economy Garage expansion in an environmentally sound and responsible manner. Accordingly, to-date, Massport planned and designed the Proposed Project to include specific sustainability and resiliency standards and measures such as those presented in Massport's *Sustainable and Resilient Design Standards and Guidelines* and the U.S. Green Building Council's Parksmart rating system. Parksmart is an environmental and sustainability focused rating system specific to parking structure management, programming, design, construction, and technology.

The specific sustainability and resiliency integrations anticipated for the new garage in front of Terminal E and the Economy Garage expansion are detailed in Chapter 4, *Assessment of Impacts/Environmental Consequences* and summarized in Chapter 5, *Beneficial Measures/Mitigation*.

2.4 Alternatives Evaluation Criteria

As initially provided in the Project's ENF, Massport used the following evaluation criteria to evaluate the Build Alternatives for the Proposed Project.

- **Roadways and circulation:** efficiency of access and egress to/from the terminal area and impact to existing transportation infrastructure;
- **Terminal access:** potential for safe and direct pedestrian connections to the terminals and impact on shuttle bus circulation;
- **Parking configuration and operations:** efficiency of vehicle circulation within the parking garage and in relation to surrounding parking facilities;
- **Land use:** consistency with existing land use and opportunities to improve adjacent Airport activities through garage design;
- **Consistency with future land use:** consistency with near- and long-term strategic plans at Logan Airport;
- **Environmental impacts:** consideration of likely impacts or benefits of the Proposed Project on air quality, noise, open space, visual context, etc.;
- **Constructability:** site access, operational impacts, and other facility impacts; and
- **Phasing:** ability to meet short-term parking needs at Terminal E and to efficiently coordinate with other ongoing projects at the Airport.

2.5 No-Build Alternative

This alternatives assessment considers the No-Build Alternative as a source for comparison in compliance with both MEPA and NEPA guidance. The No-Build Alternative reflects conditions as they are expected to exist in the future if Massport does not implement the Proposed Project. The No-Build Alternative takes into account existing conditions in addition to Massport's planned projects at the Airport, including the Terminal E

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Modernization Project and Terminal C Canopy, Connector, and Roadway Project, along with anticipated passenger activity levels. These projects are discussed in greater detail under Section 2.3.2, *Coordination with Other Terminal Area Projects*, as well as in the 2016 EDR.⁶

Under the No-Build Alternative, passenger demand would increase as projected in the air passenger forecast, but there would be no additional commercial parking spaces on-Airport. The existing parking supply already fails to meet existing demand during significant peak parking events such as holiday weekends and school vacation weeks. Under the No-Build Alternative, the commercial parking supply would become more inadequate and the drop-off/pick-up mode share would increase, as approximately 77 percent of “would-be parkers” would switch to drop-off/pick-up modes.⁷ The No-Build Alternative would have substantial (and avoidable) adverse environmental consequences. The No-Build Alternative would cause increased roadway congestion and air quality emissions due to the higher VMT associated with the drop-off/pick-up mode.

The No-Build Alternative does not meet the purpose and need for the project. Further, it would not mitigate any of the adverse operational, environmental, or customer service effects of future increased operations and passenger volumes that the amendment to the Parking Freeze was designed to help mitigate. Chapter 4, *Assessment of Impacts/Environmental Consequences* discusses the impacts of the No-Build Alternative.

2.6 Build Alternatives

This section describes the proposed Build Alternatives developed and evaluated for the Proposed Project. These alternatives were evaluated according to the following considerations:

- Massing of the new garage in front of Terminal E (i.e., how parking levels would be sited and stacked);
- Access to/from the new garage in front of Terminal E (i.e., how the garage would be accessed by public parkers and limousines, as well as by Massport’s Ground Transportation Unit); and
- Design of the Economy Garage expansion (i.e., the number of necessary additional parking levels).

Each of the Build Alternatives would improve regional air quality compared to the No-Build Alternative. The availability of 5,000 new on-Airport parking spaces would reduce curbside drop-off/pick-up activity, which increases regional air passenger-related VMT and associated air emissions.

Costs for the new garage in front of Terminal E were prepared for the overall program and are presented with the massing options discussed below.

2.6.1 New Garage in front of Terminal E: Massing Options

To accommodate 2,000 spaces, due to the presence of the pedestrian bridge connecting Terminal E to the Central Garage complex, the massing of the new garage in front of Terminal E needs to be separated into two sections located on either side (east and west) of the bridge. Each option presented below includes a solar photovoltaic system, on the facility’s east side, to offset a portion of the facility’s electricity consumption. More information on this on-site renewable energy system is provided in Chapter 4, *Assessment of Impacts/Environmental Consequences* and Chapter 5, *Beneficial Measures/Mitigation*.

⁶ The 2016 EDR is available online at: http://www.massport.com/media/2817/2016_loganairport_edr_cd_.pdf.

⁷ Massport, 2016 Logan Airport Air Passenger Ground Access Survey.

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Massport considered three massing options for this proposed garage, the defining characteristics of which are presented in **Table 2-2**. These options generally include various combinations of four to seven levels on the facility's east and west sides. A higher number of levels is always presented on the east side due to passenger convenience benefits from being closer to Terminal C and the need to reduce massing on the west side to minimize visual obstructions of the Terminal E Modernization Project.

Table 2-2 Defining Characteristics of the New Garage in front of Terminal E Massing Options

Item	Massing Option A 4 Floors West/6 Floors East	Massing Option B 4 Floors West/7 Floors East	Massing Option C (Preferred) 5 Floors West/6 Floors East
Public Spaces (Planned)	2,059	2,264	2,348
Public Spaces (Displaced)	237	237	237
Total Net New Public Spaces	1,822	Up to 2,000	Up to 2,000
Total Program Cost	\$113,689,000	\$120,185,000	\$121,555,000
Garage Construction Cost/Parking Space	\$43,946	\$42,367	\$41,350

Source: WSP.

Note: Total program cost include costs beyond construction of the parking spaces, including access improvements. It does not include the costs for a vehicular bridge. As discussed in Section 2.6.2, *New Garage in front of Terminal E: Access Options*, a vehicular bridge would be included at an estimated cost of \$4,700,000.

2.6.1.1 New Garage in front of Terminal E: Massing Option A - 4 Levels West/6 Levels East

Option A provides a four-level section to the west of the pedestrian bridge accompanied by a six-level section on the east side (see **Figure 2-2**). It provides 1,822 new spaces, which falls short of the program goal of providing 2,000 new spaces in front of Terminal E. The reduced overall number of floors in Option A compared to Options B and C requires less internal circulation. The lower height on the west side compared to Option C would result in less visual obstruction at the existing Terminal E building and on the Terminal E Modernization Project. Option A has the lowest overall cost at approximately \$113.7 million; however, it has the highest construction cost per space at \$43,946.

2.6.1.2 New Garage in front of Terminal E: Massing Option B - 4 Levels West/7 Levels East

Option B provides a four-level section to the west of the pedestrian bridge accompanied by a seven-level section on the east side (see **Figure 2-2**). This option can meet the program goal of providing up to 2,000 new spaces in front of Terminal E. Option B has a greater overall number of floors than Option A and the highest number of floors on the east side compared to Options A and C - a feature that requires more internal circulation and increases the number of parking levels air passengers need to traverse to exit the structure. Due to the lower number of floors on the west side, Option B would result in less visual obstruction at the existing Terminal E building and on the Terminal E Modernization Project compared to Option C. In terms of cost, Option B falls in the middle of Options A and C; it has an overall cost of approximately \$120.2 million and a construction cost per space of \$42,367.

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2.6.1.3 New Garage in front of Terminal E: Massing Option C - 5 levels West/ 6 Levels East (Preferred)

Option C provides a five-level section to the west of the pedestrian bridge accompanied by a six-level section on the east side (see **Figure 2-2**). This option can meet the program goal of providing 2,000 new spaces in front of Terminal E. Option C has a greater overall number of floors than Option A, which would require more internal circulation. Unlike Options A and B, Option C would provide direct connections to the pedestrian bridge on either side of the new garage in front of Terminal E, which would improve the passenger's experience in the facility. Due to the higher number of floors on the west side compared to Options A and B, Option C would result in more visual obstruction at the existing Terminal E building and on the Terminal E Modernization Project. This option has the highest overall cost at approximately \$121.6 million; however, it has the lowest construction cost per space at \$41,350.

2.6.1.4 Comparison of New Garage in front of Terminal E Massing Options

Table 2-3 provides an evaluation of the new garage in front of Terminal E massing options as measured against the evaluation criteria listed under Section 2.4, *Alternatives Evaluation Criteria*.

Table 2-3 Comparison of New Garage in front of Terminal E Massing Options with Evaluation Criteria

Criteria	Massing Option A 4 Floors West/6 Floors East	Massing Option B 4 Floors West/7 Floors East	Massing Option C (Preferred) 5 Floors West/6 Floors East
Meets Purpose and Need	Does not provide adequate number of parking spaces	Yes	Yes
Roadways and Circulation	Proximate to Terminal E; does not require significant changes to roadway	Proximate to Terminal E; does not require significant changes to roadway	Proximate to Terminal E; does not require significant changes to roadway
Terminal Access	Provides a connection to the pedestrian bridge	Provides a connection to the pedestrian bridge	Provides two access points to the pedestrian bridge, increasing passenger convenience
Parking Configuration and Operations	Less internal circulation required than Options B and C	More floors than Option A results in greater internal circulation	More floors than Option A results in greater internal circulation
Consistency with Existing Land Use	Consistent; less view obstruction to/from Terminal E than Option C	Consistent; less view obstruction to/from Terminal E than Option C	Consistent; greater view obstruction to/from Terminal E than Options A and B
Consistency with Strategic Plan and Future Land Use	Consistent; less view obstruction to/from Terminal E Modernization than Option C	Consistent; less view obstruction to/from Terminal E Modernization than Option C	Consistent; greater view obstruction to/from Terminal E Modernization than Options A and B
Environmental Impacts	Improved regional and local air quality	Improved regional and local air quality	Improved regional and local air quality
Constructability	Feasible	Feasible	Feasible
Phasing	Compatible with other ongoing/planned projects	Compatible with other ongoing/planned projects	Compatible with other ongoing/planned projects

2.6.2 New Garage in front of Terminal E: Access Options

Massport considered two options that provide alternative means of access/egress for public vehicles and limousines at the new garage in front of Terminal E. Each option would pull traffic from the terminal roadway, but only one would utilize the Terminal E Arrivals Level roadway for both vehicle types. Both options would

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provide safe pedestrian accommodations by incorporating three crosswalks from the proposed garage to the outer curb at Terminal E. Neither option would adversely impact the Central Heating Plant; adequate access/egress at this facility would be maintained according to the needs of its function and staff. Taxi access would continue to operate in its current location between Terminals E and C. The Proposed Project would not alter the Terminal E curbsides, though, as part of the Terminal E Modernization Project, Curbside 2 would be increased from three lanes to four lanes.

Both options also incorporate a vehicular bridge connecting the fourth level of the east side of the new garage in front of Terminal E to the Central Garage complex. This bridge is not intended to be used as an alternative means of access for public vehicles or limousines, rather it would increase operational efficiencies for Massport's Ground Transportation Unit by providing a direct connection between the parking facilities for the transfer of vehicles under overflow conditions. The bridge connection would result in a minor reduction in on-Airport VMT and congestion by removing such transfers from the Airport roadways, thus improving local air quality.

2.6.2.1 New Garage in front of Terminal E: Access Option A - Separated Access from the Terminal Roadway

Option A provides for separated access to the new garage in front of Terminal E for public vehicles and limousines. Public vehicles would enter the garage direct from the main terminal roadway and exit onto the Arrivals Level roadway from the facility's west side north of the Central Heating Plant entrance/exit. Limousines would enter and exit the garage along the Arrivals Level roadway at the facility's northeast corner.

This option would require the public drivers to stop and make a sharp turn into the garage, rather than a fluent departure from the main terminal roadway. This could lead to abrupt stops due to quick decision making to enter the garage and cause potential safety concerns for traffic not anticipating this stop. Additionally, this option may cause congestion on the main terminal roadway due to a backup of drivers entering the garage and collecting their tickets at the garage gate, particularly during evening peak conditions at Terminal E.

2.6.2.2 New Garage in front of Terminal E: Access Option B - Shared Access from the Terminal Roadway with Vehicular Bridge Connection to the Central Garage Complex (Preferred)

Under Option B, both public vehicles and limousines would access the garage from the Arrivals Level roadway (**Figure 2-3**). The primary entrance for public vehicles would be just beyond the split with the main terminal roadway to the east of the pedestrian bridge. Similar to Option A, public vehicles would exit onto the Arrivals Level roadway from the facility's west side north of the Central Heating Plant entrance/exit. Access and egress for limousines would be the same as under Option A.

Option B includes a secondary access point for public vehicles co-located with the public vehicle exit. This secondary access point would provide drivers with an alternate entrance in cases when they miss the primary garage entrance or when their passengers are not ready for pick-up. The secondary entrance would result in a minor reduction in on-Airport VMT and congestion by providing these drivers with the option to park in the short-term instead of recirculating on Airport roadways, thus improving local air quality.

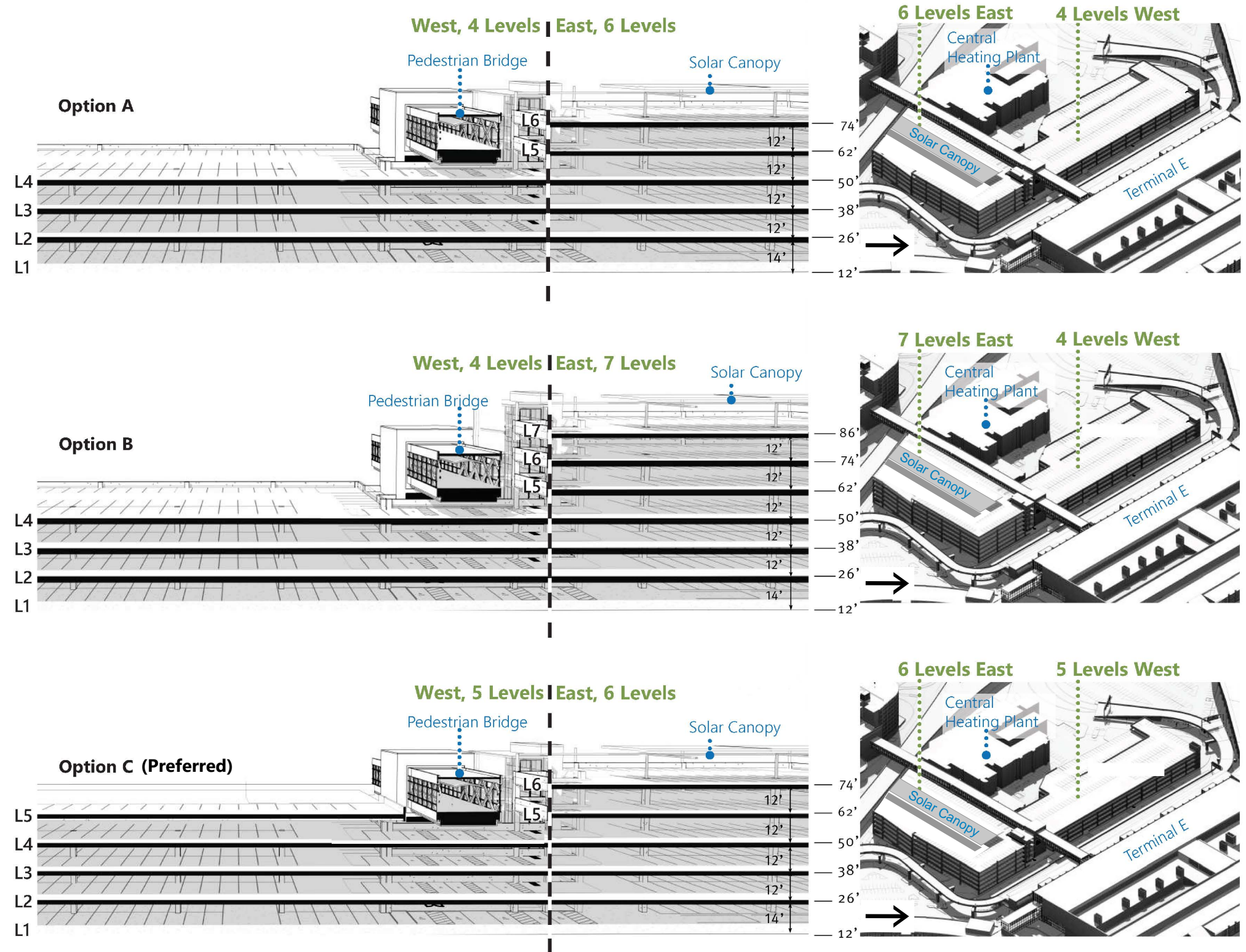


FIGURE 2-2 New Garage in Front of Terminal E: Massing Options

Source: WSP

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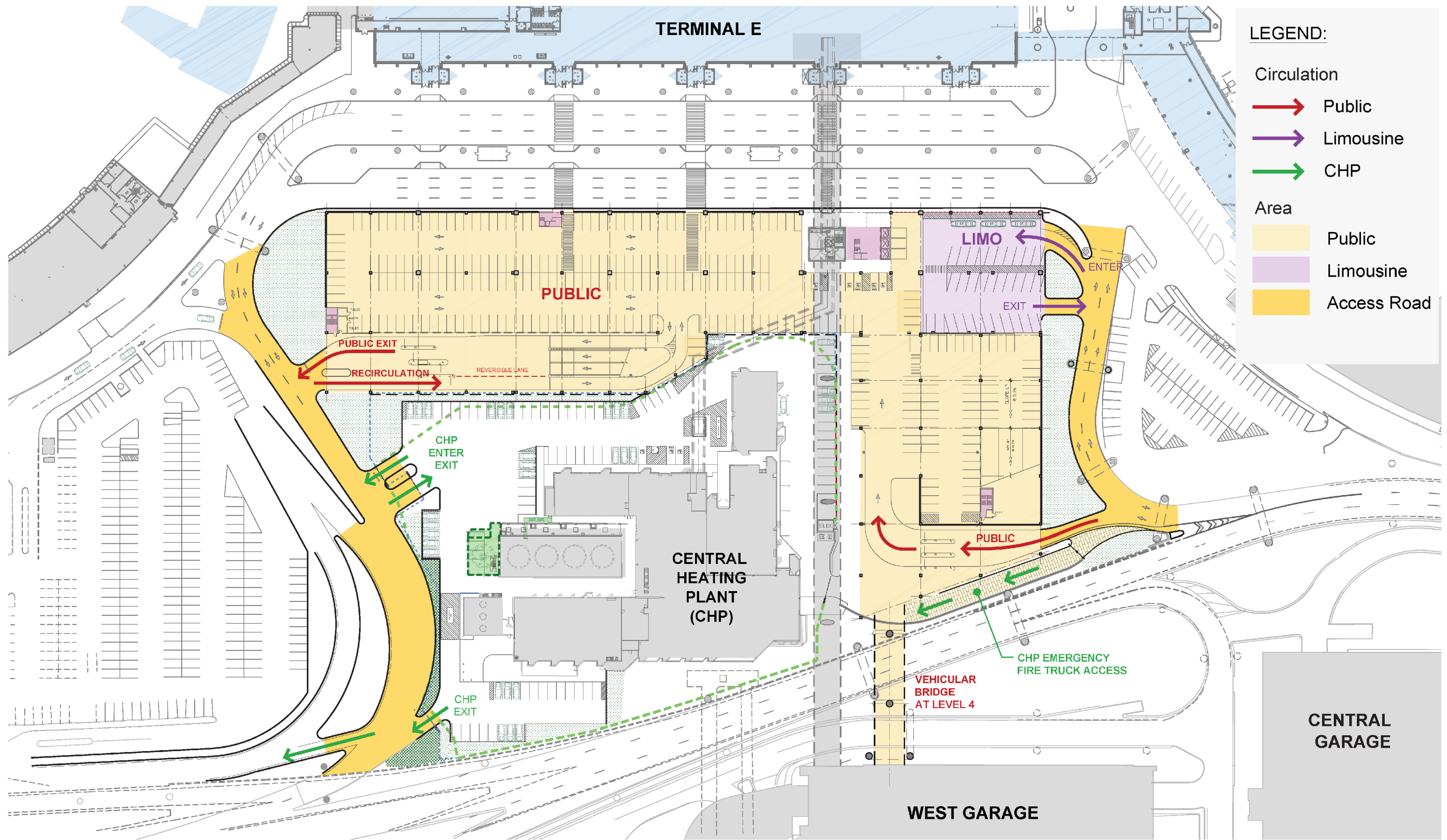


FIGURE 2-3 New Garage in Front of Terminal E: Access and Circulation

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Source: WSP

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2.6.2.3 Comparison of New Garage in front of Terminal E Access Options

Table 2-4 provides the evaluation of Access Option B for the new garage in front of Terminal E as measured against the evaluation criteria listed under Section 2.4, *Alternatives Evaluation Criteria*. Access Option A was determined to be infeasible in the early stages of concept design due to safety concerns and, therefore, was not considered for further evaluation.

Table 2-4 Comparison of New Garage in front of Terminal E Access Options with Criteria

Criteria	Access Option B (Preferred) Shared Access from the Terminal Roadway
Meets Purpose and Need	Yes
Roadways and Circulation	Results in a reduction in on-Airport VMT due to the provision of a public secondary garage entrance option
Terminal Access	Provides pedestrian crosswalks to the outer curb at Terminal E
Parking Configuration and Operations	Potential operational efficiencies from the vehicular bridge connection to the Central Garage complex
Consistency with Existing Land Use	Consistent
Consistency with Strategic Plan and Future Land Use	Consistent
Environmental Impacts	Improved regional air quality (same as Option A) and marginally improved local air quality compared to Option A
Constructability	Feasible
Phasing	Compatible with other ongoing/planned projects

2.6.3 Economy Garage Design

There are no alternatives associated with the Economy Garage expansion, although other potential sites were previously considered. To accommodate approximately 3,000 new spaces at the Economy Garage, the Economy Garage expansion involves three additional parking levels on top of the facility's existing building footprint (approximately 295,000 square feet) and a six-level addition on the facility's south side with a footprint of approximately 18,000 square feet (see **Figure 2-4**). The six-level addition would accommodate both parking spaces and new vertical circulation.

Parking access and control systems would be adjusted to accommodate the additional parking spaces, and connecting access points, such as those along Prescott Street, would be improved. The total program cost at the Economy Garage is estimated to be \$180 million, while the cost per parking space is approximately \$35,000.

When built in 2010, the Economy Garage was constructed with no additional capacity for additional floors. Accordingly, the Economy Garage expansion would require strengthening of existing foundations by installing micropiles, or other types of underpinning, as well as a new precast seismic frame.

There are 18 existing solar-panel structures on top of the existing Economy Garage. These structures would be relocated on top of the facility's new highest level upon completion of construction; as needed or where feasible, Massport would install a newer, more efficient solar photovoltaic system. The additional height added to the garage, which is approximately 36 feet (12 feet per parking level), plus accommodation for the solar photovoltaic panels and light poles, falls within Federal Aviation Regulation (FAR) Part 77 airspace height restrictions (see **Figure 2-5**).

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As previously noted, the additional parking spaces at the Economy Garage would necessitate an increase in shuttle bus service to/from the facility. Raising the height of the Economy Garage by three parking levels would have added noise barrier benefits, in conjunction with the Terminal E Modernization Project, enhancing screening of community and neighborhood recreation areas from aircraft ground noise in the North Apron Area. The Economy Garage expansion would not be significantly more visible to the community than under existing conditions, as elevated roadways and vegetative screening would continue to provide buffering.

2.7 Proposed Project/Preferred Alternative

Based on an operational, cost, and environmental screening, and discussions with community representatives, Massport is proposing to construct 5,000 new commercial parking spaces in structured parking facilities at two on-Airport sites (see **Figure 1-5**). Approximately 2,000 spaces would be sited on existing surface parking lots in front of Terminal E and approximately 3,000 spaces would be accommodated at the Economy Garage through an expansion of the existing facility. Based on the above alternatives evaluation, the Preferred Alternative meets the purpose and need and includes:

New Garage in front of Terminal E:

- A new structured multi-story parking garage in the current location of existing surface parking lots in front of Terminal E;
- Two sections located on either side of the pedestrian bridge that connects Terminal E to the Central Garage complex - five parking levels would be placed on the west side and six levels on the east side;
- A solar photovoltaic system to offset a portion of the facility's electricity consumption;
- Separated primary access/egress points for public vehicles and limousines along the Terminal E Arrivals Level roadway – public vehicles would enter the garage just beyond the split with the main terminal roadway and exit on the facility's west side, north of the Central Heating Plant entrance/exit, while limousines would enter and exit at the facility's northeast corner;
- A secondary access point for public vehicles along the Terminal E Arrivals Level roadway on the facility's west side and co-located with the public vehicle exit, to further reduce on-Airport circulation;
- Modifications to the Terminal E Arrivals Level roadway to accommodate garage access/egress;⁸
- A vehicular bridge connection to the Central Garage complex from the fourth level of the facility's east side to increase Massport operational efficiencies with respect to overflow transfers;
- Pedestrian circulation accommodations, including three crosswalks connecting the facility to the outer curb at Terminal E and connections to the pedestrian bridge that connects Terminal E to the Central Garage complex;

⁸ Modifications would incorporate a main entrance along the easterly face at the southern corner of the proposed garage. The entry drive incorporates a pull off that allows emergency vehicles easterly access to the Central Heating Plant via a drive corridor along the garage's southern face. The easterly curb line near the garage's northeast corner allows entrance/egress for limousine parking. The northerly face of the garage would be curbed with raised pedestrian sidewalk access points to/from Terminal E. The westerly curb line would be modified to provide vehicle exit from the garage as well as a recirculation entrance. At the southwest side of the garage, the Central Heating Plant main entrance/egress gate along the Arrivals Level curb line would be modified to shift the point of entry/egress further south.

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Economy Garage Expansion:

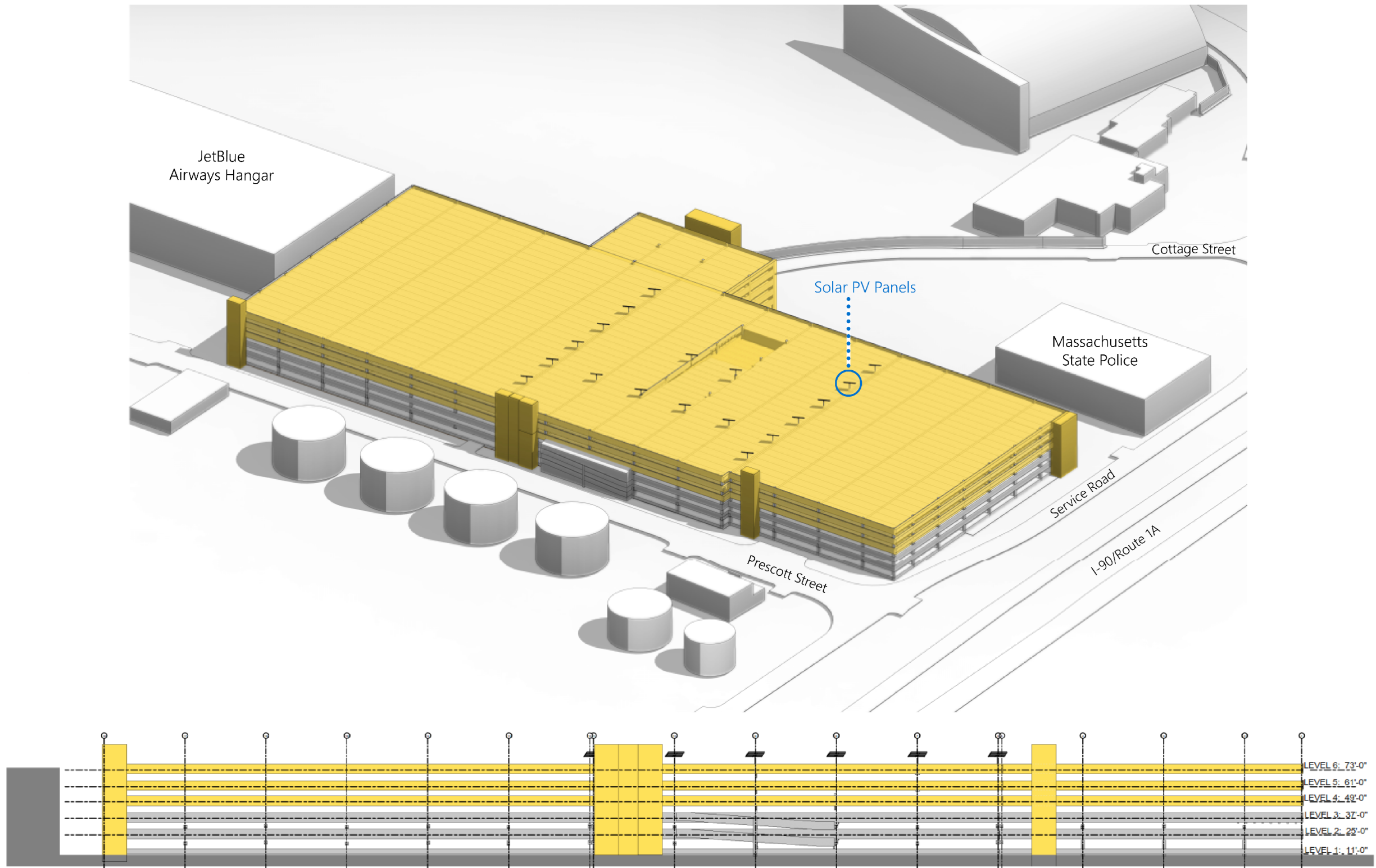
- Three additional parking levels within the facility's existing footprint;
- An addition on the facility's south side with a footprint of approximately 18,000 square feet to include both parking spaces and additional vertical circulation;
- Associated improvements to garage entrance/exit plaza and along Prescott Street;⁹ and
- The relocation of the existing solar photovoltaic system to the top of the facility's new highest level.

A No-Build Alternative was examined; however, it does not meet the purpose and need for the Proposed Project. It does not provide the 5,000 new commercial parking spaces to accommodate existing and anticipated air passenger demand for on-Airport parking. Further, as evaluated in Chapter 4, *Assessment of Impacts/Environmental Consequences*, it would not mitigate any of the adverse operational, environmental, or customer service effects of future increased operations and air passenger volumes.

⁹ Improvements to the existing Economy Garage structure would involve a reconfigured entrance/exit plaza that easterly shifts the entry/egress point along Prescott Street. Roadway improvements would incorporate a garage entry lane after entering Prescott Street from the Service Road.

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Source: WSP

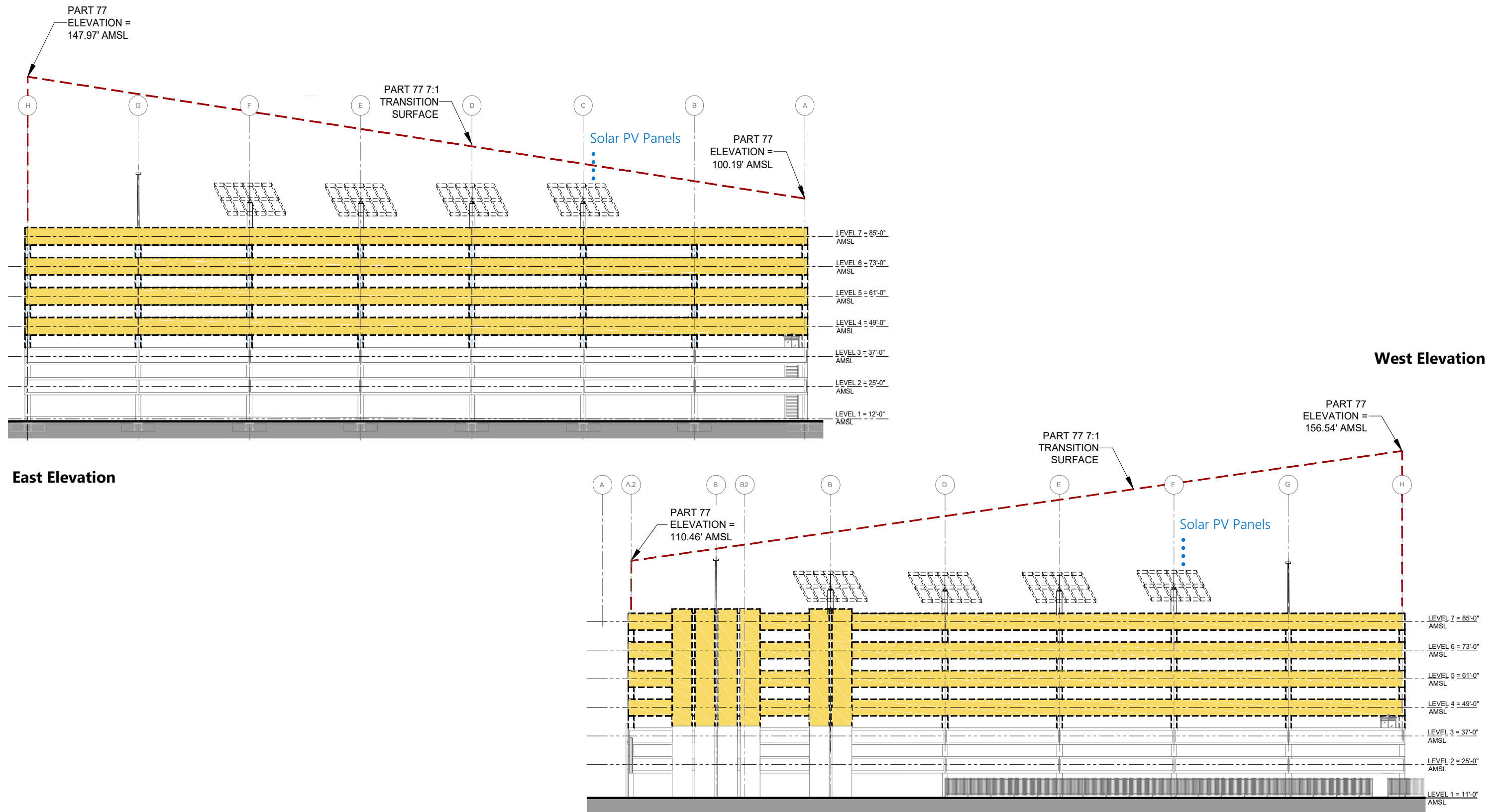
FIGURE 2-4 Economy Garage Expansion (View from the North Side)

Logan Airport Parking Project

 New Parking Levels

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Source: WSP

FIGURE 2-5 Federal Aviation Regulation Part 77 Height Restrictions- Economy Garage Expansion

Logan Airport Parking Project

New Parking Levels

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Existing/Affected Environment

3.1 Introduction

This chapter of the Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) describes the character of the existing environment in which the Logan Airport Parking Project (the Proposed Project or the Project) would occur. It fulfills the requirements specified in the Secretary's Certificate on the Project's Environmental Notification Form (ENF);¹ the Secretary requires an assessment of a focused set of topics in this DEIR/EA and consideration of existing conditions. This chapter also documents the affected environment for the Proposed Project under the National Environmental Policy Act (NEPA) relative to applicable environmental resource categories specified in Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policies and Procedures*² and Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.³

Massport proposes to construct new parking facilities at Boston-Logan International Airport (Logan Airport or the Airport) to provide 5,000 new commercial parking spaces entirely on the Airport in accordance with the amended Logan Airport Parking Freeze (the Parking Freeze).⁴ The Proposed Project would include approximately 2,000 spaces on existing surface parking lots in front of Terminal E and approximately 3,000 spaces to be accommodated at the Economy Garage through an expansion of the existing facility. The new garage in front of Terminal E would open in 2022, while the Economy Garage expansion would be operational by the end of 2025.

The following sections describe the existing environmental conditions specific to the Project Areas for the new garage in front of Terminal E and the Economy Garage expansion, and where applicable, the Airport in general. **Figure 3-1** depicts the physical setting of Logan Airport and **Figure 3-2** depicts the Project Areas within the larger Airport setting.

¹ Massachusetts Executive Office of Energy and Environmental Affairs. 2017. *Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for Logan Airport Parking Project*.

² Federal Aviation Administration. 2015. Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

³ Federal Aviation Administration. 2006. Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

⁴ The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Massachusetts Department of Environmental Protection (MassDEP) through the Parking Freeze (310 Code of Massachusetts Regulations [CMR] 7.30), which is an element of the Massachusetts State Implementation Plan (SIP) under the federal Clean Air Act [42 U.S.C. §7401 et seq. (1970)].



FIGURE 3-1 Logan Airport Physical Setting

Logan Airport Parking Project




— Select Roadways





FIGURE 3-2 Proposed Project Areas

Logan Airport Parking Project

-  New Garage in Front of Terminal E
-  Economy Garage Expansion
-  Select Roadways



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3.2 Project Environmental Setting

Logan Airport is one of the most land-constrained airports in the nation. Its boundary encompasses approximately 2,400 acres in East Boston and the City of Winthrop, including approximately 700 acres underwater in Boston Harbor. It is located primarily on filled land and is surrounded by water on three sides. The Airport is close to downtown Boston and is accessible by both public transit and a well-connected regional roadway system. The Airport's airfield comprises six runways, approximately 15 miles of taxiway, and approximately 240 acres of concrete and asphalt apron. Logan Airport has four passenger terminals (Terminals A, B, C, and E), each with its own ticketing, baggage claim, and ground transportation facilities. Commercial parking is provided in the Central Garage complex that includes the West and Central Garages, in the Terminal B Garage, in front of Terminal E, and in the Economy Garage in the North Service Area. Massport continues to evaluate and implement enhancements to Logan Airport's safety, security, operational efficiency, and accessibility to and from the Boston metropolitan area, while carefully monitoring the environmental effects of Logan Airport operations.

3.2.1 Project Areas

The Project Areas, as **Figure 3-2** shows, are on already developed land within the existing Airport footprint. The Project Area for the new garage in front of Terminal E consists of existing surface parking lots in front of the terminal; it is bisected by the elevated pedestrian walkway connecting Terminal E to the Central Garage complex. The Project Area for the Economy Garage expansion encompasses the footprint of the existing Economy Garage, along with an addition on the facility's southern side of approximately 18,000 square feet.

3.3 Environmental Resource Categories Evaluated

This chapter describes the existing environment in accordance with applicable environmental resource categories identified in Section 11.07 of MEPA implementing regulations, 301 Code of Massachusetts Regulations (CMR) 11.00, and FAA Order 1050.1F and 5050.4B under NEPA. The Proposed Project would not affect or be affected by the Airport's airside operations and aircraft activity; therefore, this DEIR/EA focuses on landside operations with exception of noise and noise-compatible land use for the purposes of assessing cumulative conditions.

This DEIR/EA provides a detailed assessment of existing conditions where relevant. **Table 3-1** identifies the MEPA and NEPA resource categories that this document evaluates, along with a description of the potential effects to these categories from any of the alternatives. Categories that apply to the Proposed Project and that are evaluated in this DEIR/EA are noted in **Table 3-1** with a "Yes." Chapter 4, *Assessment of Impacts/Environmental Consequences* evaluates the direct, indirect, and construction-period impacts of these applicable categories.

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Table 3-1 MEPA and NEPA Environmental Resource Categories Evaluated

DEIR/EA Section	Environmental Resource Category ¹	Yes/No	Explanation
3.3.1	Surface Transportation ² (MEPA)	Yes	The goal of the Proposed Project is to reduce trips to and from the Airport by providing sufficient parking and allowing Airport users to shift from drop-off/pick-up modes. This would result in reductions in off-Airport vehicle miles traveled (VMT) and improvements to on-Airport roadway operations. It would also alter the Terminal E Arrivals Level roadway (not including the Terminal E curbsides) to accommodate the proposed new garage in that area. Project construction would generate temporary construction vehicular trips.
3.3.2	Air Quality (MEPA/NEPA)	Yes	The Proposed Project is anticipated to enhance air quality by reducing drop-off/pick-up modes, which would result in reductions in off-Airport VMT and improvements to on-Airport roadway operations. Project construction would result in temporary construction vehicle and equipment emissions.
3.3.3	Natural Resources and Energy Supply (NEPA)	Yes	This category is included to assess the demand for natural resources, including potable water, consumable materials, and energy during construction, operation, and maintenance of the Proposed Project. The Proposed Project would have limited additional demands on energy supplies and other resources, which could be accommodated by Massport's current power suppliers and regional capacities. Project construction would cause limited short-term demands on energy supply and other resources.
3.3.4	Climate, Greenhouse Gas Emissions, and Sustainability (MEPA/NEPA)	Yes	This category assesses the Proposed Project's potential impact on climate change and also assesses how climate change might impact the Proposed Project. A reduction in off-Airport VMT and improvements to on-Airport roadway operations would reduce greenhouse gas emissions. The Proposed Project would follow Massport's <i>Sustainable and Resilient Design Standards and Guidelines</i> and <i>Floodproofing Design Guide</i> for enhanced sustainability and resiliency. The new garage in front of Terminal E and the Economy Garage expansion would also be constructed in accordance with the U.S. Green Building Council's (USGBC) Parksmart rating system. Proposed Project construction would generate greenhouse gas emissions from the temporary transport and use of construction vehicles and equipment.
3.3.5	Noise and Noise-Compatible Land Use (MEPA/NEPA)	Yes	This category is included primarily to assess short-term construction period impacts. The Proposed 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-Build Alternative. The proposed expansion of the Economy Garage is anticipated to act as an additional noise barrier to the adjacent neighborhood. During construction, short-term noise associated with construction activities would be generated. These levels are expected to be below the City of Boston's noise limits.

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Table 3-1 MEPA and NEPA Environmental Resource Categories Evaluated (Continued)

DEIR/EA Section	Environmental Resource Category ¹	Yes/ No	Explanation
3.3.6	Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, Groundwater, and Wild and Scenic Rivers) (MEPA/NEPA) ⁴	Yes	<p>This category is included to assess the Proposed Project's potential to impact surface waters during construction, operation, and maintenance. There are no wetlands, floodplains, or Wild and Scenic Rivers within the area of the Project footprint;^{3,4} thus, only surface waters and groundwater are considered. Massport would direct stormwater associated with the new garage in front of Terminal E to the existing stormwater system, which would be treated prior to discharge to Boston Harbor. Stormwater from the Economy Garage expansion would continue to be treated and discharged as under current conditions.</p> <p>A portion of the stormwater at the new garage in front of Terminal E would be collected and treated and then pumped to the Central Heating Plant cooling tower, resulting in a reduction in overall runoff volumes and peak rates.</p> <p>Massport would develop dewatering and discharge plans for the Proposed Project. If required, groundwater treatment and discharge construction practices would be developed. As a result, the Proposed Project is not anticipated to adversely impact groundwater quality. The Proposed Project would not significantly increase overall site wastewater generation.</p>
3.3.7	Coastal Resources (MEPA/NEPA)	Yes	<p>Logan Airport is located within the Massachusetts Coastal Zone. The Project Areas are entirely within previously developed/disturbed portions of the Airport and well removed from Boston Harbor. The Proposed Project is limited to paved areas that are already in use for aviation or transportation purposes and would not change the manner of use or quality of land in the coastal zone.</p>
3.3.8	Hazardous Materials, Solid Waste, and Pollution Prevention (MEPA/NEPA)	Yes	<p>This category is included due to the potential to encounter hazardous materials during construction. The Proposed Project includes excavation for foundations and utilities, which may encounter contaminated soils. Management of any such soils would follow all applicable federal and state regulations.</p>
3.3.9	Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (MEPA/NEPA)	Yes	<p>Environmental justice communities are proximate to the Project Areas, particularly the Economy Garage expansion, but are buffered by Interstate 90/Route 1A and parklands. Several schools operate in the East Boston neighborhood. The Proposed Project would not result in changes that would cause disproportionate adverse impacts to any communities.</p> <p>The construction of the Proposed Project would result in economic benefits in the form of temporary jobs and direct, indirect, and induced spending.</p>
3.3.10	Department of Transportation Act, Section 4(f) (NEPA)	Yes	<p>There are no Section 4(f) properties within the Project Areas or larger Airport. Two Section 4(f) parkland properties are adjacent to the Project Areas: East Boston Memorial Park and Bremen Street Park. No impacts to these resources are anticipated.</p>
3.3.11	Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	Yes	<p>Due to the configuration of the roadways and existing on-Airport structures, the new garage in front of Terminal E would not be highly visible from within the East Boston neighborhood. Interstate 90 and Route 1A separate residents from the Project Areas, which are entirely on-Airport. The Project Area for the Economy Garage expansion is buffered from the adjacent East Boston community by the elevated Route 1A, the Massachusetts Bay Transportation Authority (MBTA) Blue Line corridor and Bremen Street Park.</p>

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Table 3-1 MEPA and NEPA Environmental Resource Categories Evaluated (Continued)

DEIR/EA Section	Environmental Resource Category ¹	Yes/ No	Explanation
-	Land Use (MEPA/NEPA)	No	The Project Areas and all proposed work is within the existing Airport footprint on land that is currently paved and in aviation or transportation-related use. All uses associated with the Proposed Project are transportation-related and compatible with existing land uses.
-	Farmlands (NEPA)	No	No prime or unique farmlands or farmlands of state or local importance, as the Farmland Protection Policy Act defines, ⁵ exist within the Airport boundaries. This environmental resource category is not applicable to the Proposed Project.
-	Historical, Architectural, Archaeological, & Cultural Resources (MEPA/NEPA)	No	No known historic resources exist within the Project Areas. This environmental resource category is not applicable to the Proposed Project.
-	Biological Resources (including fish, wildlife, and plants) (MEPA/NEPA)	No	No biological resources are present within the Project Areas. All proposed elements are outside state Priority Habitats near the Airport. No federally-listed species are likely to occur within the Project Areas. This environmental resource category is not applicable to the Proposed Project.

Notes:

- 1 Environmental resource categories as specified in MEPA regulations under 301 CMR 11.07 and FAA Order 1050.1F and Order 5050.4B.
- 2 Surface Transportation is typically addressed under socioeconomic considerations under FAA Order 1050.1F. For this DEIR/EA, surface transportation issues are addressed as a separate section.
- 3 As defined by the Wild and Scenic Rivers Act, 16 U.S.C. § 1271 et seq. (1968).
- 4 Federal Emergency Management Agency (FEMA) flood insurance mapping.
- 5 Farmland Protection Policy Act, 7 U.S.C. §§ 4201-4209 (1981).

3.3.1 Surface Transportation

This section describes the roadway network within and surrounding the Proposed Project. As specified in the Secretary’s Certificate on the Project’s ENF and the proposed scope of the DEIR as attached to the ENF, this section provides a description of existing conditions including access to the Airport, on-Airport circulation, and Airport parking. This section also reports on existing traffic volumes and recent crash statistics at the Airport. The traffic and parking analysis includes a review of the existing parking inventory and demand in the context of the Parking Freeze and a description of existing parking management programs. In addition to this filing, Airport-wide ground transportation conditions are documented annually in Massport’s Environmental Data Report (EDR) and Environmental Status and Planning Report (ESPR) filings.⁵

In accordance with FAA Order 1050.1F and FAA Order 5050.4B paragraph 706(e) under NEPA, surface transportation is typically considered under the resource category related to socioeconomics. Surface transportation is discussed as a separate category in this DEIR/EA, as the Proposed Project has the potential to disrupt on-Airport traffic patterns.

3.3.1.1 Surface Transportation System

As described in the 2016 EDR, Logan Airport is proximate to downtown Boston and is accessible by two public transit lines (the Massachusetts Bay Transportation Authority [MBTA] Blue and Silver Lines), the Logan Express

⁵ The 2016 EDR was published in May 2018 and is the most recent annual update available. The 2017 ESPR is expected to be published in Summer 2019.

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Bus system, the MBTA commuter ferry service, and a well-connected regional and interstate roadway system. Major gateways serving as Airport access points include the Sumner/Callahan Tunnels (Route 1A), the Ted Williams Tunnel (Interstate 90), Frankfort Street/Neptune Road, and Maverick Street (which is gated to limit traffic to East Boston residents only). The Surface Transportation Study Area for the Proposed Project generally encompasses the Terminal E roadways and the service roads leading to Economy Garage.

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 sidewalks 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. Sidewalks are also provided along Service Road from the Terminal E area to Wood Island. Massport provides free shuttle bus service from the MBTA Airport Station to the terminals and the Airport's Rental Car Center.

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

3.3.1.2 Massport Ground Access Strategy

Since the mid-1970s, Massport has been committed to increasing the use of high-occupancy vehicle (HOV) ground transportation modes for passengers traveling to and from Logan Airport, with a current goal of 40 percent HOV by 2027. Measures implemented by Massport to increase HOV use include a robust suite of strategies related to pricing (incentives and disincentives), service availability, service quality, marketing, and traveler information. Because of the diverse market segments of the Airport's users, no single measure will accomplish the goal to increase HOV mode share. Key Massport efforts to actively promote transit, shared-ride, and other HOV modes to and from Logan Airport are listed below:

- Massport operates its own extensive **compressed natural gas (CNG) powered** Logan Express Bus service, currently serving five locations and almost two million people annually. Service was added in Boston's Back Bay in May 2014. Massport regularly reviews these services and adjusts schedules as well as ride and parking rates to enhance ridership by both air passengers and Airport employees.
- Massport subsidizes the MBTA Silver Line Logan Airport route (SL1), a bus rapid transit service originating from South Station to the Airport, and provides free outbound Silver Line trips from the Airport.⁶ Massport has committed to pay for eight additional Silver Line buses (bringing the total to 16) to operate on the SL1 route by December 2024 (dependent on MBTA procurement).
- Massport provides free, clean-fuel shuttle bus service for passengers and employees between the MBTA Blue Line Airport Station and all terminals.

⁶ In June 2001, Massport and the MBTA executed an interagency agreement for the purchase of eight Silver Line dual-mode buses and the Massport Board approved the expenditure of approximately \$13 million for this purchase.

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- Massport is implementing substantial improvements to Logan Express Bus service over the next two years. This includes the goal of doubling use of the service to four million riders annually by improving and expanding Logan Express options:
 - ❑ Improving Back Bay Logan Express service and subsidizing fares;
 - ❑ Increasing frequencies and adding amenities at existing Logan Express locations;
 - ❑ Adding a new urban Logan Express service at North Station;
 - ❑ Increasing parking capacity at the Framingham and Braintree Logan Express locations by a total of 3,000 spaces; and
 - ❑ Identifying new suburban Logan Express locations.
- MBTA rapid transit services are supplemented by MBTA commuter ferry service and MBTA local and express bus service.⁷
- Massport provides priority, designated curb areas at all Airport terminals to support the use of public transit, and other HOV/shared-ride modes.
- As part of a new initiative to reduce congestion at the Airport, Massport will improve transportation network company (TNC) operations (such as those belonging to Uber and Lyft) at Logan Airport by consolidating TNC operations at dedicated areas on the ground floor of the Central Garage complex. This will allow passengers to:
 - ❑ Use climate-controlled walkways to and from the terminals;
 - ❑ Reduce wait times for passengers, as well as wait times between customers for the TNC drivers; and
 - ❑ Reduce roadway congestion and thus reduce on-Airport VMT and associated air emissions.

3.3.1.3 Roadway Infrastructure

The Proposed Project would make improvements and access changes in front of Terminal E and at the existing Economy Garage. **Figure 3-3** shows the roadway network that serves these facilities.

Terminal E Roadways and Parking Areas

Terminal E is accessed by a bi-level terminal area roadway system with direct connection to the Arrivals Level (lower) and Departures Level (upper) curbsides for both private and public transit vehicles. Two lanes of travel are provided entering and exiting the Terminal E curbsides. A U-shaped taxi stand alignment to the east of the curbside on the ground level has two lanes.

Terminal E is also served by three surface lots immediately adjacent to the terminal to facilitate short-term parking needs unique to an international terminal, where passengers tend to travel in larger groups with more luggage. The three surface lots provide approximately 700 spaces and are located south and west of the terminal curbsides. They are accessed from the Terminal E roadways and from Service Road. These parking spaces are

⁷ Route 171 Dudley Station to Logan Airport via Andrew, Express bus 448 and 449 from Marblehead to Downtown via Logan Airport, and Express bus 459 from Salem to Downtown Crossing via Logan Airport, according to www.MBTA.com accessed on December 28, 2018.

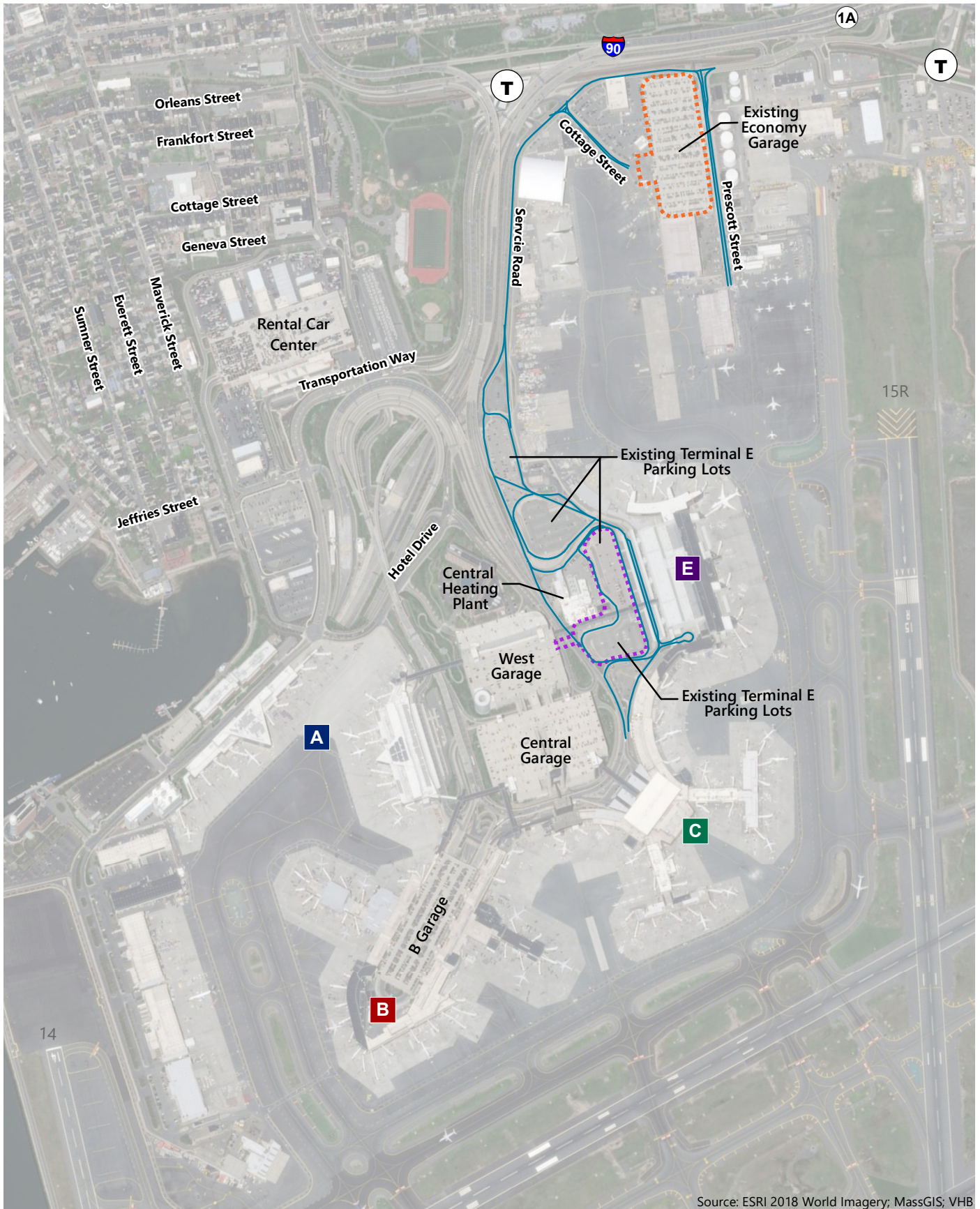


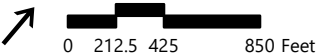


FIGURE 3-3 Logan Airport Roadway Network

Logan Airport Parking Project

-  New Garage in Front of Terminal E
-  Airport Roadway
-  Economy Garage Expansion



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available for all Airport passengers, regardless of duration of stay or type of trip (i.e., foreign or domestic). Given their proximity to Terminal E versus the rest of the Airport, however, the lots are primarily used by Terminal E patrons or by passengers directed there by Massport officials. Lot E1 is located directly across from Terminal E and provides approximately 237 parking spaces. This lot is the most frequently used and is fully occupied during certain times of the day, particularly the evening peak hour when both the Arrivals and Departures levels of Terminal E are experiencing peak activity. Lot E2 (249 parking spaces) serves as overflow capacity for Lot E1 and for the Central Garage complex. Lot E3 (217 parking spaces) experiences light use by Terminal E passengers, as it is the furthest from the terminal. This lot is often used as overflow parking redirected from the Central Garage complex. To access these surface parking lots, vehicles currently must drive through the private vehicle pick-up curbside. Egress from Lot E1 also requires travel through the private vehicle pick-up curbside. The three surface lots can also be accessed from Service Road, although the Airport signage does not direct passengers this way.

Active passenger pick-up by private vehicles is allowed on the Arrivals Level of Terminal E; however, private vehicles are encouraged to use parking located adjacent to Terminal E or the Central Garage complex and meet passengers in the terminal.

Economy Garage Roadways and Access

The existing Economy Garage is located at the intersection of Prescott Street and Service Road, and currently provides over 2,800 spaces on four levels. Access is via Service Road, which provides four-lanes with connections to the Cell Phone Lot, MBTA Blue Line Airport Station, State Police, Economy Garage, North Service Area, North Cargo Area, and other on-Airport areas including northern connections to Bremen Street Park and the East Boston Greenway. Massport provides free shuttle bus service between the Economy Garage and the terminals.

3.3.1.4 Surface Transportation Traffic Methodology

To analyze roadway impacts associated with the Proposed Project, Synchro⁸ analysis software was used to complete traffic analyses at key on-Airport intersections. Synchro results focus specifically on signalized and unsignalized intersections. The morning and evening peak hour conditions, which represent the critical time period for Airport activity, were analyzed. For the purposes of the traffic analyses, it should be noted that the peak hours differ somewhat from peak passenger activity. This is reflective of the requirement for passengers to arrive two hours in advance of all scheduled departures and considers the additional time required for arriving passengers at Terminal E to be processed by Customs and Border Protection and Immigration Services.

In support of the modeling analysis, field observations and traffic data collection were conducted in August 2018. This month is the peak international flight arrival and departure period. This information was used to assess roadway congestion and circulation conditions at Terminal E, including access to/from the loading area of the TNCs. 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. Field observations were also conducted along Service Road near the Economy Garage in August 2018. This information was used to help accurately represent existing operations and develop future conditions for this location. Section 4.5.1, *Surface Transportation* discusses an evaluation of Project-related regional VMT.

⁸ Trafficware LLC.2016. Synchro 9, Traffic Signal Coordination Software.

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3.3.1.5 Existing Parking Conditions

Massport manages Logan Airport's on-Airport parking supply to promote long-term rather than short-term parking (thus reducing the number of daily trips to the Airport), to support efficient utilization of parking facilities, provide good customer service, and to comply with the provisions of the Parking Freeze. Massport has a comprehensive parking monitoring and management program that includes tracking on-Airport parking conditions (i.e., parking facilities, supply, demand, and rates) and parking programs such as preferred parking for alternative fuel vehicles.

Logan Airport Parking Freeze

The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the Parking Freeze, which is an element of the Massachusetts State Implementation Plan (SIP) under the Clean Air Act. The Parking Freeze sets an upper limit to the supply of commercial and employee parking spaces at the Airport. The current number of parking spaces allowed on-Airport is 26,088 - allocated between 23,640 commercial and 2,448 employee spaces.

Under the Parking Freeze regulations, Massport must monitor the number of commercial and employee vehicles parked on-Airport and ensure that this total does not exceed the Parking Freeze limits. If the number of commercially parked vehicles exceeds the parking limit on any day, those additional vehicles are considered to be using "Restricted Use Parking Spaces." Use of Restricted Use Parking Spaces is allowed under the regulation when Logan Airport experiences "extreme peaks of air travel and corresponding demand for parking spaces" and may be made available for use only at such times, up to ten days in any calendar year. These spaces must be provided free of charge when demand exceeds the limit.

The intent of the Parking Freeze is to reduce air emissions by shifting air passengers to travel modes requiring fewer vehicle trips. Survey data since the 1970s, however, have consistently shown that constraining on-Airport parking has the unintended consequence of shifting air passengers to travel modes with higher numbers of vehicle trips, despite Massport's extensive efforts to provide and encourage the use of HOV travel modes. According to the *2016 Logan Airport Air Passenger Ground-Access Survey*, if parking was not an option for passengers who parked on-Airport, 77 percent of survey respondents indicated that they would use drop-off/pick-up modes (i.e., dropped off or picked up by private vehicles, taxi, TNC, or black car/limousine service). Prior surveys of Logan Airport air passengers have consistently shown similar results.

As air traveler numbers have increased, the constrained parking supply at Logan Airport has periodically had the unintended consequence of contributing to an increase in environmentally harmful drop-off/pick-up vehicle trips. Such trips generate up to four vehicle trips per air passenger, compared to two trips for those who drive and park.

Daily Parking Occupancy

On-Airport commercial parking occupancy typically peaks mid-week (Tuesday through Thursday) with lower occupancies occurring Friday through Monday. The number of vehicles parked at Logan Airport in commercial spaces over the course of any 24-hour period was obtained from parked vehicle count data for Tuesdays, Wednesdays, and Thursdays, which Massport collects throughout the year. **Figure 3-4** presents the peak daily parking occupancy data.

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Figure 3-4 Commercial Parking: Weekly Peak Daily Occupancy, 2017



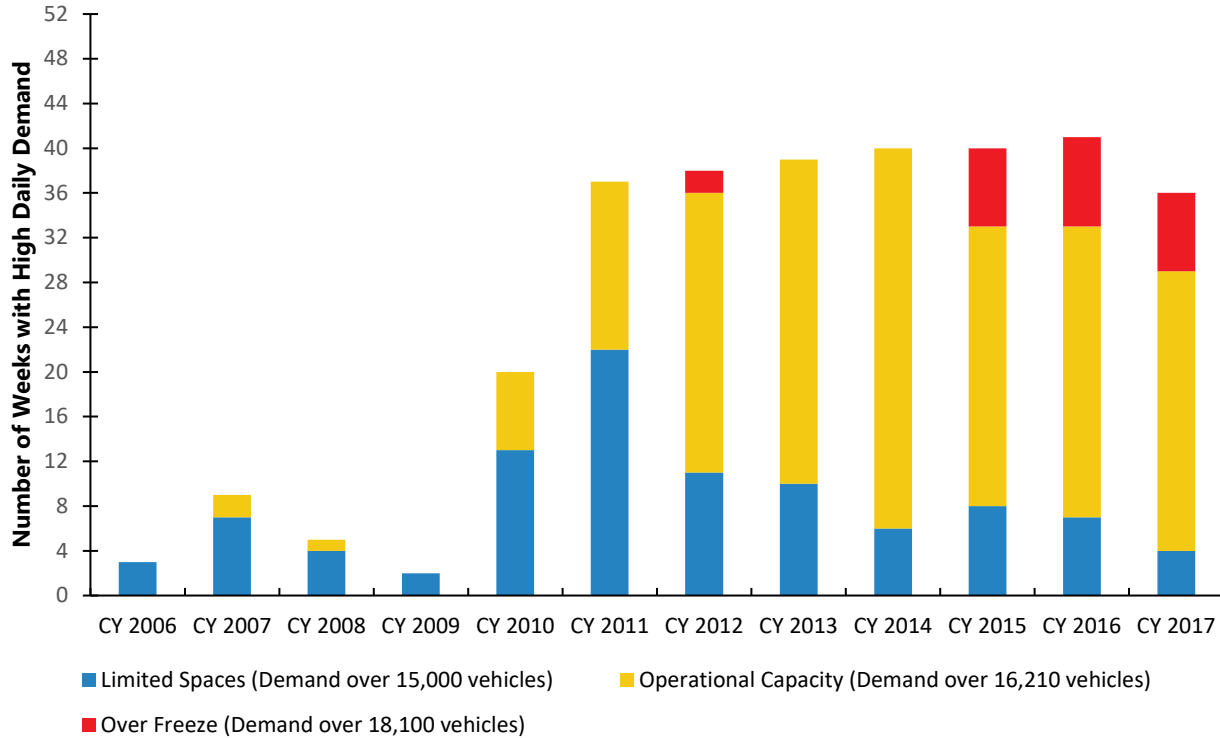
Source: Massport.

Notes: This chart shows the highest daily count for each week in 2017. In 2017, the operational capacity of in-service commercial spaces was 16,210. At no time in 2017 did the Parking Freeze limit on Restricted Use Spaces exceed the allowed 10 days.

Although overall parking demand was reduced in 2017 (possibly attributed to an increase in the use of TNCs), peak day demand for on-Airport parking (i.e., the number of weeks with daily demand exceeding 18,100 vehicles) has remained steadily high, resulting in daily demand nearing the Parking Freeze cap during those weeks (see **Figures 3-5** and **3-6**). Massport continues to be in full compliance with the Parking Freeze. Massport diverted or valet-parked passenger vehicles on 81 days of the year in 2017 and on 47 days in 2018. Vehicle diversions primarily occurred on Tuesdays and Wednesdays, during hours of peak parking demand.

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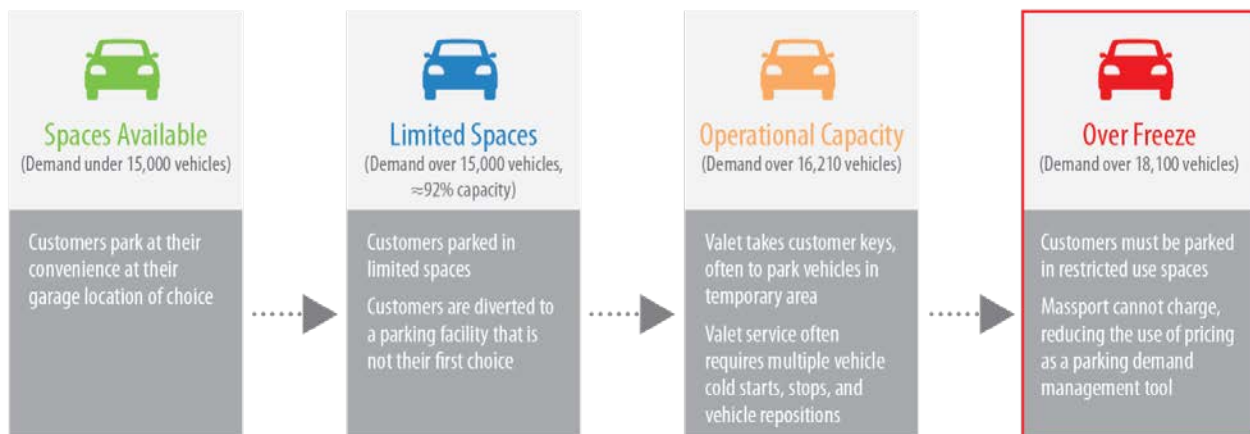
Figure 3-5 Demand for Parking: Number of Weeks per Calendar Year with High Daily Parking Demand



Source: Massport.

Figure 3-6 Parking Demand and Capacity, 2017

Parking Demand Above Capacity Lowers Customer Service Level and Increases Operating Costs



Source: Massport.

Notes: 18,100 represents the total number of on-Airport commercial parking spaces allocated within the Parking Freeze in 2017. Hotel, general aviation uses, and employee parking spaces, which are included in the 21,088 Parking Freeze Limit, are excluded from this figure.

Operational Adjustments to Meet Parking Demand

An inadequate supply of parking causes air passengers to circulate on Airport roadways to find parking. In overflow conditions, cars are diverted or moved to non-garage parking areas, including overflow lots, some of which are located off-Airport. Not only does parking demand activity above capacity increase on-Airport roadway vehicle emissions related to circulating traffic, it also lowers customer service levels. Diversions and valeting have become a regular occurrence at Logan Airport as a result of the Parking Freeze. These diversions decrease operational efficiency and compromise customer service. Inadequate parking supply also encourages passengers to be picked-up or dropped-off by others, adding needless additional regional trips. These vehicles often circulate around Airport roadways waiting for passenger(s) to arrive, further increasing VMT and related emissions, as well as congestion in and around the terminal areas.

The number of diverted and valeted vehicles has increased over the past decade. In 2017, just over 40,000 vehicles were diverted or valeted. These vehicle diversions increase on-Airport VMT. The peak of valet operations coincides with peak parking demand, requiring Massport to utilize available space to meet parking demand.

3.3.1.6 Existing Traffic Conditions

Traffic volume data were collected within the Surface Transportation Study Area using automated traffic recorders and turning movement counts at 10 locations over a three-day period in August 2018. The locations include the Terminal E surface parking lots and associated access roads and the Economy Garage and associated access roads.

- Departures Level Terminal Area Roadway between Terminals C and E (Terminal E Surface Parking);
- Terminal E Departures Level Curbside (Terminal E Surface Parking);
- Arrivals Level Terminal Area Roadway between Terminals C and E (Terminal E Surface Parking);
- Connector Roadway between Terminals C and E (former Terminal D) (Terminal E Surface Parking);
- Arrivals Level Terminal E Curbsides (Terminal E Surface Parking);
- Terminal E Recirculation Road (Terminal E Surface Parking);
- Entrance to the TNC Lot (Terminal E Surface Parking);
- Hotel Drive at Service Road/Ramp D-S (Terminal E Surface Parking and Economy Garage);
- Service Road at Cottage Street (Economy Garage); and
- Service Road at Prescott Street (Economy Garage).

Additional data at key locations were obtained through Massport's Ground Transportation Unit, including taxi dispatch data and parking entries/exits for relevant Massport public parking facilities.

Observed peak hour traffic volumes are illustrated in **Figures 3-7a, 3-7b, 3-8a, and 3-8b** for the Arrivals Level, Departures Level, and key on-Airport intersections. Weekday morning and evening conditions were evaluated for Service Road. Only weekday evening conditions were evaluated within the Terminal E roadway and parking areas, due to the unique peaking characteristics of the international terminal.

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3.3.1.7 Roadway Operations

Massport evaluated roadway operations around Terminal E and at key intersections along Service Road near Terminal E and Economy Garage. Observations of Terminal E traffic operations during peak passenger activity (generally the evening peak period between 5:00 and 8:00 PM) indicate the following:⁹

- Under typical peak conditions, queueing was observed on the Departures Level (upper) entry ramp to Terminal E.
- During the peak hour, minor congestion occurs curbside on both levels. This congestion does not impact roadway operations outside of the immediate Terminal E area.
- Locations where terminal area roadway ramps merge (join) or diverge (separate) operate under congested conditions, with lower vehicle speeds and stop and go traffic entering the Terminal E area.
- The Terminal C/E TNC pick-up area adds to the volume and congestion entering Terminal E, although the lot itself does not appear to affect operations.
- Weaving segments along the terminal area roadways and adjacent to Terminal E are nearing capacity and exceed capacity along the terminal area roadway during peak periods between Terminals C and E on the upper level.

Analysis of traffic operations at Airport intersections using Synchro indicates that all intersections along Service Road are currently operating at acceptable levels of service during the weekday morning and evening peak hours (see **Table 3-2**).

Table 3-2 Summary of Terminal E Service Road Peak Hour

Intersection Movement/Metric	2018 AM Peak Hour			2018 PM Peak Hour		
	Delay	LOS	95 th Queue	Delay	LOS	95 th Queue
Hotel Drive at Service Road	12.5	B	-	21.4	C	-
Hotel Drive (Eastbound Left Turn)	11.3	B	70	13.4	B	129
Hotel Drive (Eastbound Through)	8.7	A	46	6.9	A	41
Hotel Drive (Westbound Through)	26.7	C	90	34.5	C	235
Off-Ramp (Northbound Left Turn)	13.8	B	61	23.9	C	114
Off-Ramp (Northbound Through)	11.8	B	73	19.7	B	105
Service Road (Southbound Left Turn)	23.9	C	40	48.0	D	85
Service Road (Southbound Right Turn)	2.2	A	23	3.8	A	27
Service Road at Cottage Street	2.4	A	-	2.7	A	-
Transportation Way (Eastbound Through)	13.4	B	8	14.6	B	7
Cottage Street (Westbound Through)	0.2	A	0	0.0	A	0
Service Road (Northbound Left Turn)	1.3	A	4	1	A	4

⁹ Terminal roadways are not typically evaluated using Synchro software, as the connection ramps to/from the terminal are not reflective of "traditional" intersections.

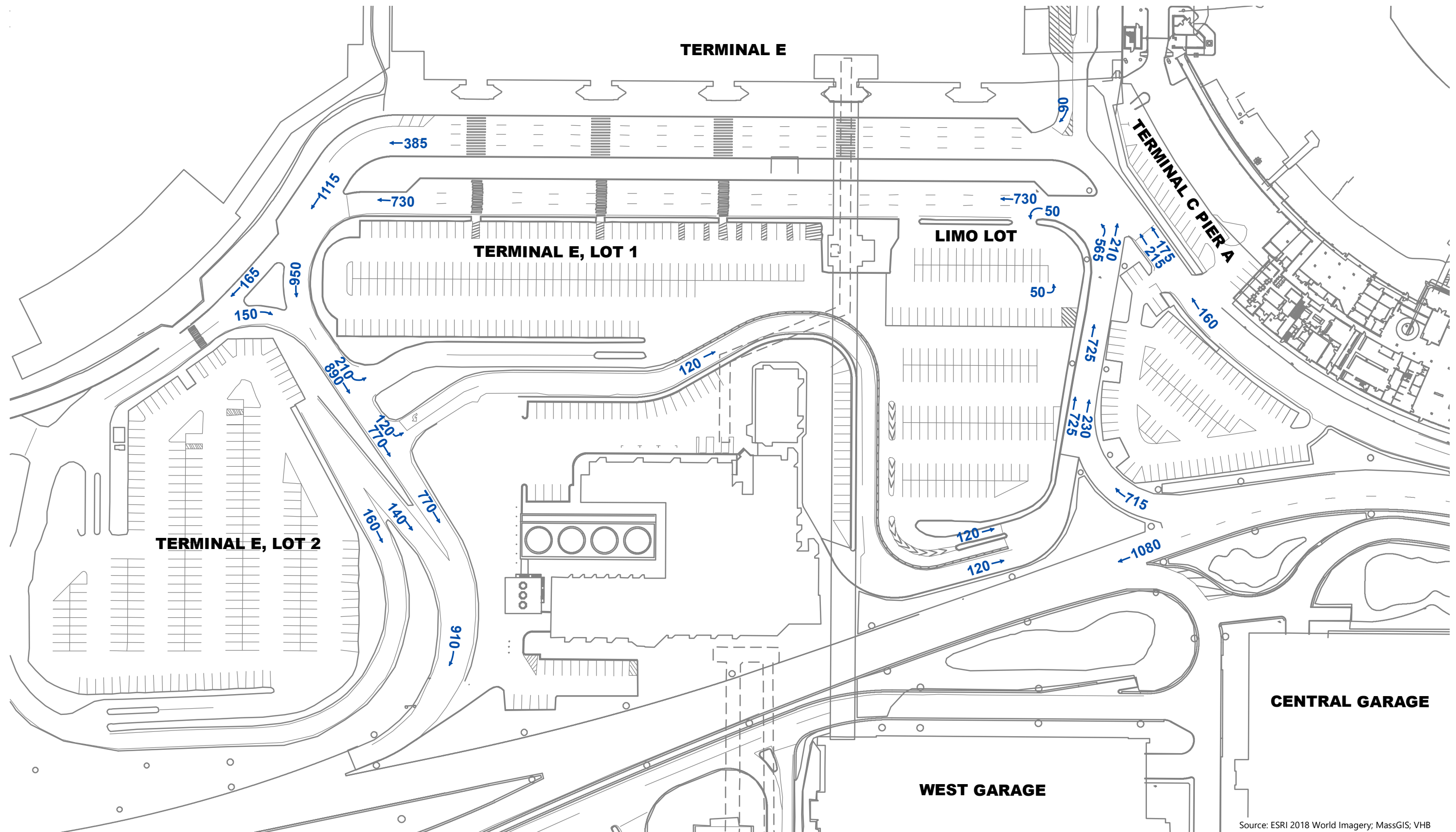


FIGURE 3-7a Terminal E 2018 Existing Conditions: Arrivals PM Peak Hour Traffic Volumes

Source: ESRI 2018 World Imagery; MassGIS; VHB

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Traffic Volume
 → Traffic Direction



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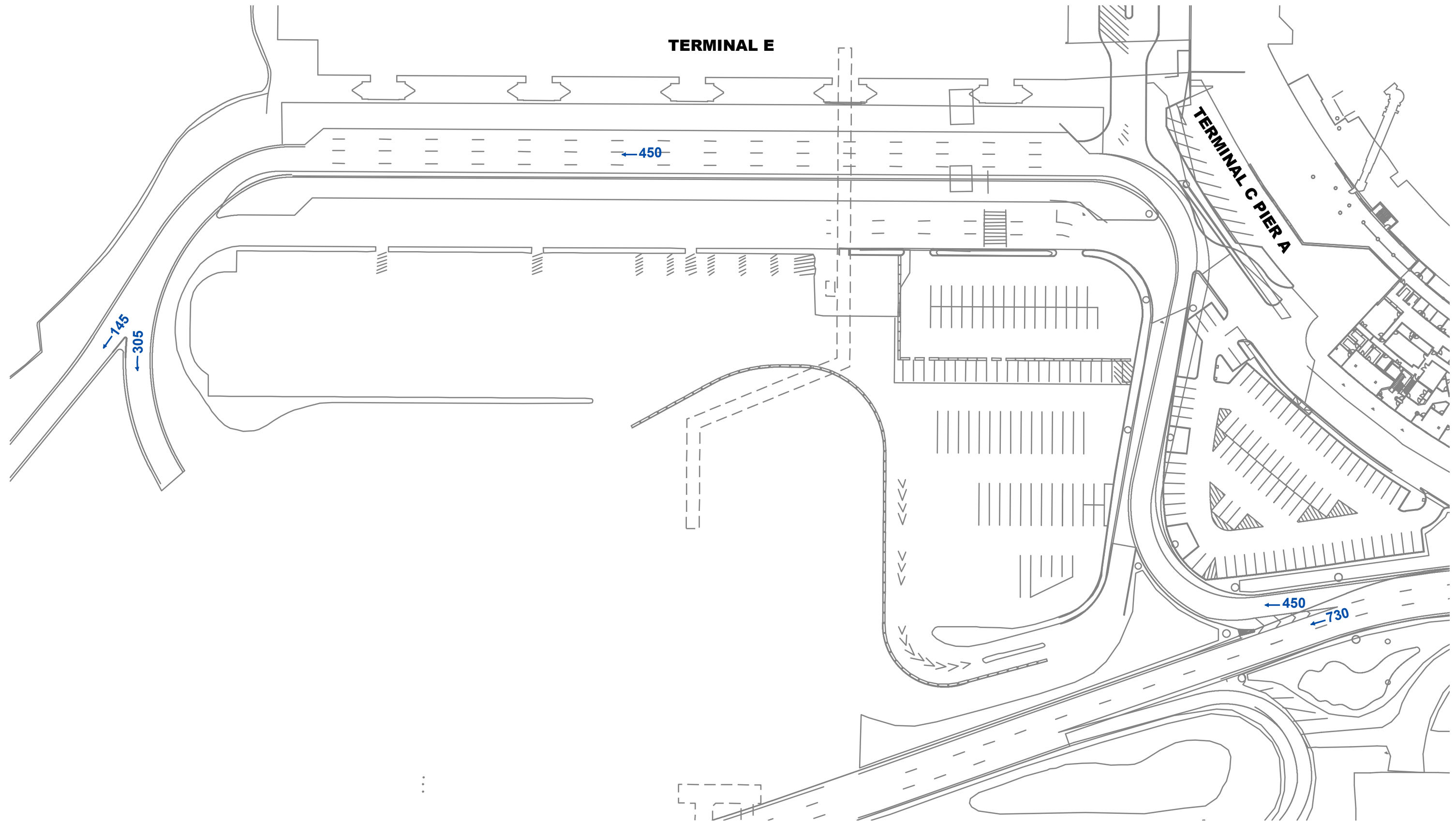


FIGURE 3-7b Terminal E 2018 Existing Conditions: Departures PM Peak Hour Traffic Volumes

Source: ESRI 2018 World Imagery; MassGIS; VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction



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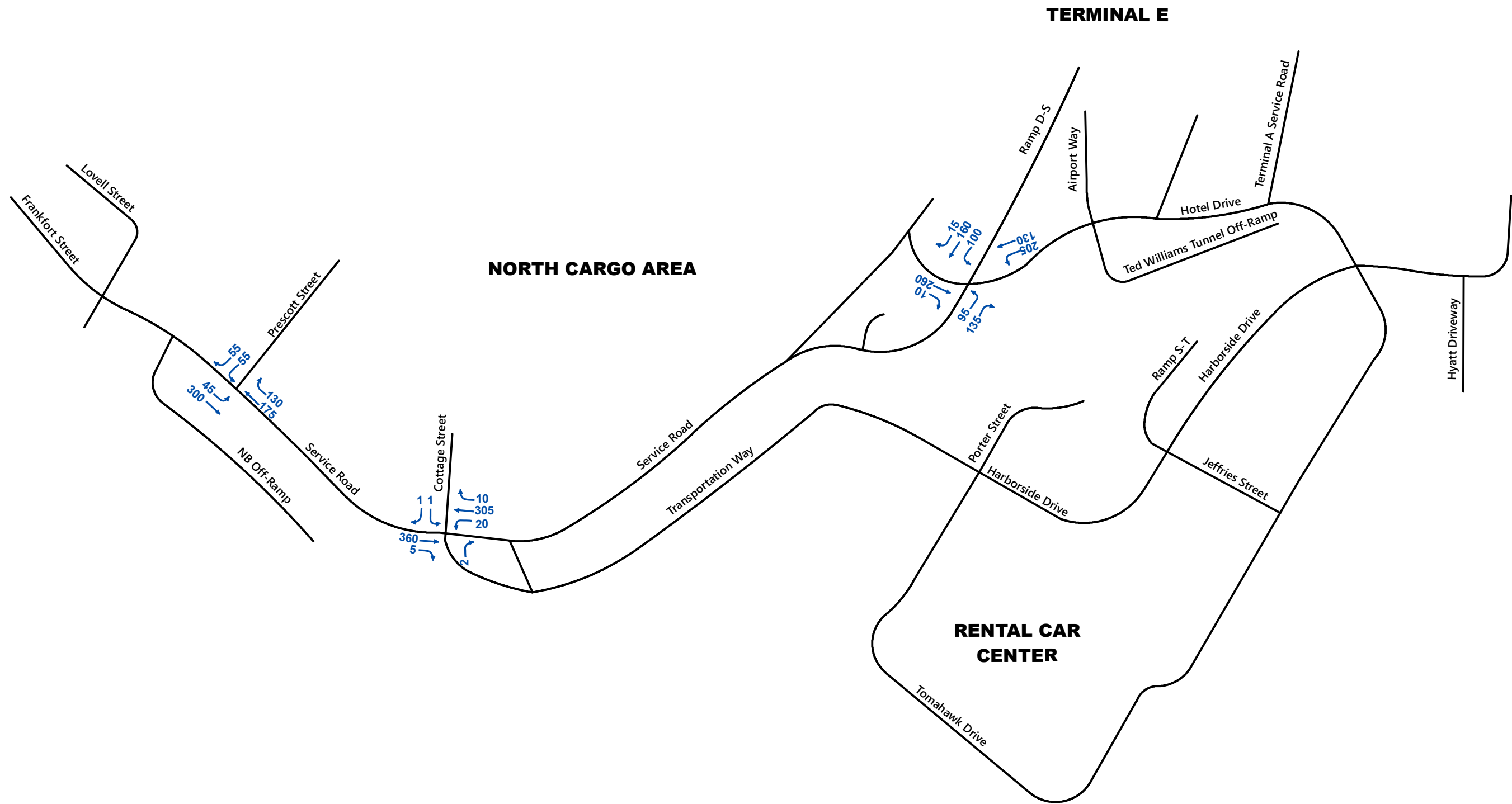


FIGURE 3-8a 2018 Existing Morning Peak Hour Traffic Volumes

Source: ESRI 2018 World Imagery; MassGIS; VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction



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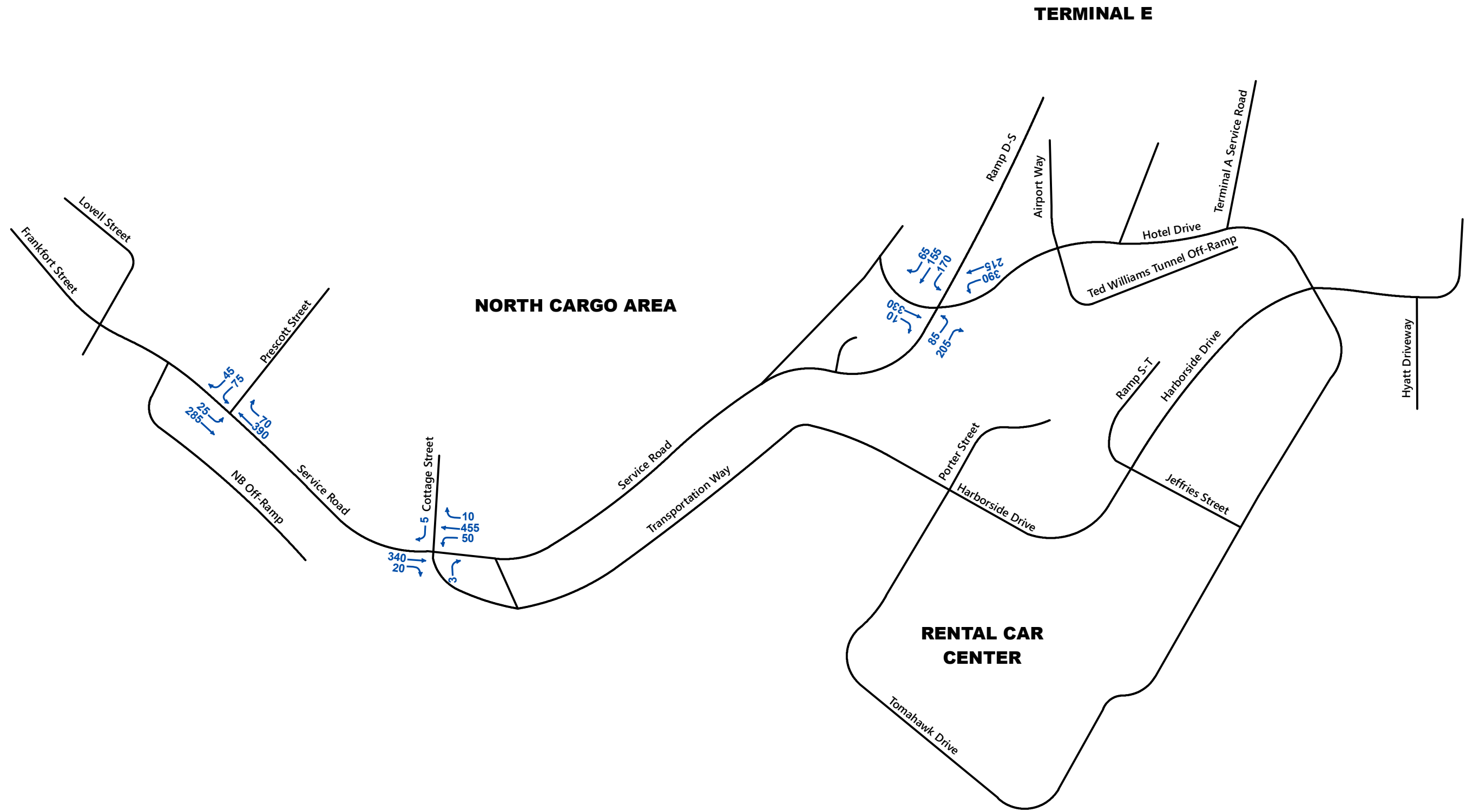


FIGURE 3-8b 2018 Existing Evening Peak Hour Traffic Volumes

Source: ESRI 2018 World Imagery; MassGIS; VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction



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Table 3-2 Summary of Terminal E Service Road Peak Hour (Continued)

Intersection Movement/Metric	2018 AM Peak Hour			2018 PM Peak Hour		
	Delay	LOS	95 th Queue	Delay	LOS	95 th Queue
Service Road (Northbound Through)	1.2	A	22	0.8	A	19
Service Road (Southbound Through)	4.0	A	82	5.2	A	19
Service Road at Prescott Street¹	2.2	A	-	2.1	A	-
Prescott Street (Westbound)	11.5	B	20	12.2	B	20

Source: WSP.

Notes:

1 Unsignalized

LOS Level-of-service

3.3.1.1 Safety

As requested by the Certificate on the Project’s ENF, this section describes safety and crash rates at Logan Airport. To identify potential vehicle crash trends and/or roadway deficiencies within the Surface Transportation Study Area, a review of the Massachusetts Department of Transportation (MassDOT) crash database was conducted to document the number of vehicle collisions that have taken place over the most recent three years (from 2014 to 2016). The database primarily contains records of crashes issued by the State Police, which is the responding authority at Logan Airport. The record set provided in **Table 3-3** below, therefore, is expected to be comprehensive. It should be noted that the location for some crashes cannot be precisely determined from the available information. In addition, crashes that are not reported or involved only property damage in an amount less than \$1,000 are not included in the database, and therefore, not included in this review.

For the purposes of this analysis, **Table 3-3** includes any reported crash in the immediate vicinity of Terminal E or along Service Road serving the Economy Garage. Due to the unique bi-level infrastructure of the terminal area roadways and supporting roadway network, crash rates cannot be calculated. The crash data do not always distinguish between the Departures and Arrivals Levels and traffic volume data can vary widely by crash location. Further, traffic volume data are not available for all locations where crashes were noted. The low number of overall crashes, combined with the high percentage of property damage-only crashes, is indicative of a low crash rate and crashes occurring at low speeds. The high percentage of rear-end and sideswipe incidents reported at Terminal E suggest crashes typical of those that would be expected along an active drop-off or pick-up curbside. The time of day crashes occur suggests crashes are occurring during the busiest passenger activity times at Terminal E, which is generally 6:00 to 8:00 PM.

There were two crashes that were noted to involve pedestrians. One crash occurred at the Terminal E curbside (Departures or Arrivals Level was not specified) and involved an injury to a pedestrian. The second crash occurred on the Departures Level roadway, where pedestrian activity is not common, and did not involve injury to the pedestrian.

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Table 3-3 Vehicular Crash Summary (2014 to 2016)

	Terminal E	Service Road
Year		
2014	3	3
2015	12	7
2016	8	6
Total	23	16
Collision Type		
Angle	3	6
Head-on	0	2
Rear-end	10	2
Sideswipe, opposite direction	0	1
Sideswipe, same direction	8	0
Single Vehicle Crash	2	0
Not reported	0	5
Severity		
Fatal Injury	0	0
Non-Fatal Injury	2	5
Property Damage Only	21	11
Time of day		
Weekday, 7:00 AM - 9:00 AM	3	0
Weekday, 4:00 PM – 6:00 PM	3	1
Saturday, 11:00 AM – 2:00 PM	1	0
Weekday, other time	11	10
Weekend, other time	5	5
Pavement Conditions		
Dry	20	9
Wet	3	5
Snow	0	2
Total	23	16
Non-Motorist (Pedestrian)	2	0

Source: MassDOT.

MassDOT 2015 Top Crash Locations Report

MassDOT published its *2015 Top Crash Locations Report* in March 2018, ranking the top 200 crash locations in Massachusetts based on crash data from the years 2013 to 2015. MassDOT uses weighted averages of crashes involving fatalities, injuries, and property damage only, as well as roadway classification to identify locations with prevailing safety issues. None of the locations within the Surface Transportation Study Area or on Logan Airport property are identified in the *2015 Top Crash Locations Report*.

Highway Safety Improvement Program

The Highway Safety Improvement Program was established under the *Moving Ahead for Progress in the 21st Century Act* as a Federal-aid funding program to achieve significant reduction in fatalities and serious injuries on all public roads. Projects using Highway Safety Improvement Program funding are selected based the top 5 percent regional crash location list and identified in the *Strategic Highway Safety Plan*. There are no locations

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within the Surface Transportation Study Area that are eligible for program funding. There is one location in the Ted Williams Tunnel, prior to the exit for the Airport, that is listed as eligible.

3.3.2 Air Quality

The Proposed Project is expected to improve traffic flow and reduce regional VMT, which would benefit air quality conditions. Guidance from the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) defines the air quality modeling and review criteria for analyses prepared pursuant to the Clean Air Act (42 U.S.C. §7401 et seq. [1970]) and its 1990 amendments and the Massachusetts SIP. Six main air pollutants have been identified by the EPA as being of nationwide concern, based on their potential effect on human health. According to FAA Order 1050.1F and Order 5050.4B, the project proponent must assess how a project would benefit or impact air quality conditions. 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 Airport-related roadway activity. In addition, a discussion of greenhouse gas emissions has been included in Section 3.3.4, *Climate, Greenhouse Gas Emissions, and Sustainability*.

3.3.2.1 Regulatory Context

The federal Clean Air Act and its subsequent amendments, National Ambient Air Quality Standards (NAAQS), and similar state laws govern air quality issues in Massachusetts. The NAAQS and the Massachusetts SIP, promulgated to demonstrate compliance with the Clean Air Act, regulate air quality issues in the Boston metropolitan area and the state, and are discussed below.

The EPA established the NAAQS for a group of criteria air pollutants to protect public health, the environment, and quality of life from the pollutant emissions. These NAAQS are set for the following six pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀, PM_{2.5}), and sulfur dioxide (SO₂). **Table 3-4** summarizes the NAAQS primary standards which are designed to protect human health.

Based on air monitoring data and in accordance with the Clean Air Act and its subsequent amendments, all areas within Massachusetts are designated as either attainment and/or maintenance with respect to the NAAQS.^{10,11} **Table 3-5** lists these regulatory designations for the Boston metropolitan area (inclusive of the area around Logan Airport.)

The Boston metropolitan area is currently designated as “Attainment/Maintenance” for CO, indicating that it is in transition back to “Attainment” for this pollutant. Historically, the entire Boston metropolitan area was designated as “Attainment” for all other criteria pollutants except O₃, for which it was designated as “Moderate/ Nonattainment” based on the former 1997 Eight-Hour O₃ NAAQS (see **Table 3-5**). This O₃ Nonattainment area encompassed 10 counties in Massachusetts including Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester.¹²

¹⁰ EPA. 2018. *Nonattainment Areas for Criteria Pollutants* (Green Book). <https://www.epa.gov/green-book>. Accessed January 9, 2019.

¹¹ An area with air quality better than the NAAQS is designated as attainment; an area with air quality worse than the NAAQS is designated as nonattainment; and an area that is in transition from nonattainment to attainment is designated as attainment/maintenance. An area may also be designated as unclassifiable when there is a temporary lack of data to form a basis for determining attainment status. Nonattainment areas can be further classified as extreme, severe, serious, moderate, and marginal by the degree of non-compliance with the NAAQS.

¹² Logan Airport is located in Suffolk County.

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In May 2012, the EPA issued a “Clean Data Finding” for the Boston metropolitan area signifying that it had attained the 1997 NAAQS for O₃. This re-designated the area as “Attainment/Maintenance,” so long as the area continued to demonstrate attainment based on ongoing monitoring data. In addition, the “Anti-Backsliding” requirements of the Clean Air Act - a rule established to ensure that air quality is not deteriorated due to changes in the NAAQS - still obligates MassDEP to enforce certain elements of the SIP that were established to attain the 1997 NAAQS.

In April 2012, the EPA also implemented the newer, stricter 2008 eight-hour O₃ NAAQS. Since that time, there have been no violations of this standard, and this trend has continued through 2016. Based on these recent findings, MassDEP submitted the SIP for O₃ to the EPA in 2014 for “Adequacy Review.” The Boston metropolitan area is presently designated as “Attainment/Unclassifiable” with respect to the 2008 standard.

Effective 2015, the EPA again revised the O₃ standard to make it stricter. The Boston metropolitan area has been designated as in attainment with this revised O₃ standard.

The 2016 EDR provides information on ultrafine particles, though there are no existing state or federal air quality standards for outdoor levels of ultrafine particles. Massport is actively tracking the research and regulatory status of this pollutant and will comply with future ultrafine particles standards if promulgated by the EPA.

Table 3-4 National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	Standard		Notes
		ppm ²	µg/m ³	
Carbon Monoxide (CO)	1 hour	35	40,000	Not to be exceeded more than once a year.
	8-hour	9	10,000	Not to be exceeded more than once a year.
Lead (Pb)	Rolling 3-Month Average	—	0.15	Not to exceed this level. Final rule October 2008.
Nitrogen Dioxide (NO ₂)	1 hour	0.100	188	The three-year average of the 98 th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm.
	Annual	0.05	100	Not to exceed this level.
Ozone (O ₃)	8-hour ¹	0.070	—	Annual fourth-highest daily maximum 8-hour concentration, average over three years.
Particulate Matter with a diameter ≤ 10µm (PM ₁₀)	24-hour	—	150	Not to be exceeded more than once a year on average over three years.
Particulate Matter with a diameter ≤ 2.5µm (PM _{2.5})	24-hour	—	35	The three-year average of the 98 th percentile for each population-oriented monitor within an area is not to exceed this level.
	Annual (Primary)	—	12	The three-year average of the weighted annual mean from single or multiple monitors within an area is not to exceed this level.

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Table 3-4 National Ambient Air Quality Standards (NAAQS) (Continued)

Pollutant	Averaging Time	Standard		Notes
		ppm ²	µg/m ³	
Sulfur Dioxide (SO ₂)	1 hour	0.075	196	Final rule signed June 2, 2010. The three-year average of the 99 th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed this level.

Source: EPA, 2017 (<https://www.epa.gov/criteria-air-pollutants>).

1 Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standard additionally remain in effect in some areas. Revocation of the 2008 standard and transitioning to the new standard will be achieved over the next three years.

2 Parts per million.

3 Micrograms per cubic meter.

Table 3-5 Attainment/Nonattainment Designations for the Boston Metropolitan Area

Pollutant	Designation
Carbon monoxide (CO)	Attainment/Maintenance ¹
Nitrogen Dioxides (NO ₂)	Attainment
Ozone (Eight-hour, 1997 Standard)	Attainment/Maintenance ¹
Ozone (Eight-hour, 2008 Standard)	Attainment/Unclassifiable ²
Ozone (Eight-hour, 2015 Standard)	Attainment/Unclassifiable ³
Particulate matter (PM ₁₀)	Attainment
Particulate matter (PM _{2.5})	Attainment
Sulfur Dioxide (SO ₂)	Attainment
Lead (Pb)	Attainment

Source: EPA, 2017 (<https://www.epa.gov/green-book>).

Notes :

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

2 Attainment/Unclassifiable means that the initial data shows Attainment, but additional data are needed to verify longer term conditions.

3 Attainment designation determined August 3, 2018.

The Clean Air Act and its subsequent amendments established procedures for General Conformity. These procedures are intended to integrate transportation and air quality planning in areas that are designated by the EPA as not meeting the NAAQS. Conformity requirements apply to projects funded or approved by the FAA in areas that do not meet or previously have not met air quality standards for O₃, CO, PM₁₀, PM_{2.5}, or NO₂. These areas are known as "nonattainment areas" or "maintenance areas," respectively. Projects proposed in these areas must demonstrate that they conform with the SIP for improving air quality, which establishes emission reduction requirements based on the area's attainment status. Alternatively, projects can demonstrate General Conformity by estimating project emissions and showing they are less than the EPA's *de minimis* thresholds. Additionally, if Federal Transit Administration or Federal Highway Administration funding were to be pursued, a transportation conformity determination would be required.

3.3.2.2 Massachusetts SIP

The Massachusetts SIP is the state's regulatory plan for bringing nonattainment areas into compliance with the NAAQS. As discussed previously, the entire Boston metropolitan area was formerly designated as "Moderate"

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Nonattainment for the 1997 eight-hour O₃ standard but has since received a “Clean Data Finding” from the EPA classifying the area as “Attainment/Maintenance.” Additionally, and as stated above, the area has since been designated Attainment/Unclassifiable for the 2008 and 2015 eight-hour O₃ standard. For the former CO attainment/maintenance designation, MassDEP has also developed another 10-year Maintenance Plan which is presently in place. **Table 3-6** summarizes the most current SIPs applicable to the Boston metropolitan area.

Table 3-6 SIP for the Boston Metropolitan Area

Standard	Title	Status	Comments
Carbon Monoxide	Maintenance Plan	Published in 2018	This Maintenance Plan is required for any area that was formerly designated as non-attainment to show that it will not regress to this status.
Ozone	2015 SIP	Submitted to EPA in September 2018	MassDEP has determined that the Boston area is still compliant with the 2015 standard.

Source: MassDEP (<http://www.mass.gov/eea/agencies/massdep/air/reports/state-implementation-plans.html>).

Notes: The number of commercial/employee parking spaces allowed at Logan Airport is regulated by the Parking Freeze, an element of the SIP under the Clean Air Act.

The Parking Freeze is an element of the Massachusetts SIP under the Clean Air Act. As part of the process to amend the Parking Freeze, MassDEP conducted a stakeholder process that was followed by a public process to amend the Parking Freeze regulation. MassDEP issued the amended regulation on June 30, 2017 approving the requested parking cap increase. On December 5, 2017, EPA proposed a rule approving the revision of the Massachusetts SIP incorporating the amended Parking Freeze cap. This amendment was finalized on March 6, 2018 and went into effect on April 5, 2018.

3.3.2.3 Existing Air Quality Conditions

Background concentrations were obtained from MassDEP, which maintains a network of ambient air monitors across the state. These monitoring locations are used in attainment determinations by the EPA. Background concentrations are added to Project-related emission sources to determine the total pollutant concentration at a receptor location for comparison to the NAAQS. The background concentrations were obtained from the MassDEP Annual Air Quality Reports¹³ and the EPA’s Air Quality Design Value Reports.¹⁴ **Table 3-7** presents only Nonattainment and Maintenance criteria pollutants; these concentrations represent the closest monitoring location to the Proposed Project with valid monitoring data for the respective pollutants. All background concentrations comply with the NAAQS.

Table 3-7 Background Concentrations of Transportation-Related Pollutants in Study Area

Pollutant	Units	Monitor	Averaging Period	Background Concentration	NAAQS Standard
Carbon Monoxide	ppm	Harrison Avenue	8-hour	0.9	9
	ppm	Harrison Avenue	1-hour	1.7	35
Ozone	ppm	Von Hillern Street	8-hour	0.061	0.070

Source: MassDEP Annual Air Quality Reports, 2015-2017 and EPA Air Quality Design Value Reports.

13 MassDEP. 2019. MassDEP Air Monitoring Plans, Reports & Studies. <https://www.mass.gov/lists/massdep-air-monitoring-plans-reports-studies>. Accessed January 9, 2019.

14 EPA. 2018. Air Quality Design Values. <https://www.epa.gov/air-trends/air-quality-design-values>. Accessed January 9, 2019.

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In addition, 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.¹⁵ This inventory includes emissions associated with aircraft engines, auxiliary power units, ground support equipment, fuel facilities, on-Airport vehicles, and a number of stationary sources such as boilers and back-up generators.

Table 3-8 provides a summary of the most recent Airport-wide annual emissions inventory conducted for the 2016 EDR, which reveals that most of criteria pollutant emissions from the Airport are associated with aircraft activity. According to the inventory, motor vehicle emissions are generally less than 20 percent of total Airport-wide emissions, but motor vehicles contribute a much smaller 1 to 2 percent for pollutants like volatile organic compounds (VOCs) and nitrogen oxides (NO_x). The inventory only includes motor vehicle activity occurring at the Airport and does not consider vehicle activity occurring off-site when a vehicle travels to and from the Airport.

Table 3-8 2016 Emission Inventory Summary (kg/day)

Source	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO _x)	Carbon Monoxide (CO)	Particulate Matter _{10/2.5} (PM _{10/2.5})
Air Carriers	553	4,476	3,653	52
Commuter Aircraft	74	126	1,998	4
Cargo Aircraft	61	228	201	2
General Aviation	110	67	314	2
Total Aircraft Sources	798	4,897	6,166	60
Ground Service Equipment	24	167	493	15
Parking/Curbside	3	6	37	<1
On-Airport Vehicles	28	51	596	17
Total Motor Vehicle Sources	31	57	633	18
Fuel Storage/Handling	422	0	0	0
Misc. Sources	5	179	58	3
Total Airport Sources	1,280	5,300	7,350	96

Source: Massport, 2016 EDR.

3.3.2.4 Air Quality Management at Logan Airport

Massport has implemented a wide array of initiatives at Logan Airport aimed at reducing and minimizing emissions associated with Airport activities. Select examples include, but are not limited to, alternatively fueled fleets of transit buses and other motor vehicles; a robust HOV program; a new consolidated Rental Car Center; pre-conditioned air and 400 Hertz (Hz) power units at aircraft gates to allow aircraft to plug-in rather than operate their on-board auxiliary power units; sustainable design guidelines for facilities and Leadership in Energy and Environmental Design (LEED®) certification for new buildings; and solar photovoltaic arrays for

¹⁵ EDRs are available at <http://www.massport.com/massport/about-massport/project-environmental-filings/logan-airport/>.

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electrical generation. Massport is also working with the airlines and other tenants at Logan Airport to convert commercially available ground service equipment to electric power.

3.3.3 Natural Resources and Energy Supply

FAA Order 1050.1F requires the review of a proposed action relative to whether its construction, operation, or maintenance would cause demands on natural resources (e.g., water, asphalt, aggregate, wood, etc.) or energy that would exceed available or future supplies. As demonstrated by FAA Order 1053.1C, *Energy and Water Management Program for FAA Buildings and Facilities*, the FAA encourages the development of facilities that incorporate principles of sustainability.¹⁶

Logan Airport is a campus of interconnected buildings and transportation infrastructure. The Airport has a Central Heating Plant that provides heating and cooling to all of the terminals. The Central Heating Plant primarily burns natural gas and uses No. 2 heating oil as backup. The Airport is supplied natural gas by National Grid. Massport procures electricity through its contract with Shell Energy North America and the Airport's remaining electricity needs are purchased directly from wholesale markets.

Massport is making strides to reduce energy consumption at the Airport. In fiscal year 2017, when accounting for all energy types, buildings at Logan Airport consumed 1,180,498 million British thermal units (BTU). This represents an energy intensity of 84.1 thousand BTUs per square foot, which represents a reduction from 92.7 thousand BTUs per square foot in fiscal year 2012.¹⁷ In fiscal year 2017, on-site renewable energy projects (non-power purchase agreement projects) at Logan Airport generated 588,275 kilowatt-hours of electricity.

Additional natural resources consumed at the Airport include various fuels to power fleet vehicles and equipment, potable water that is provided by the Boston Water and Sewer Commission, and construction materials (e.g., wood, metal, asphalt, etc.). Natural resource and energy supplies currently consumed at the Project Areas include electricity to power outdoor flood lighting at the Terminal E surface parking lots and proximate roadways and safety and security lighting at the Economy Garage.

3.3.4 Climate, Greenhouse Gas Emissions, and Sustainability

MEPA requires projects to review and analyze reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise.^{18,19} FAA Order 1050.1F includes Climate on the list of environmental resource categories that must be considered in NEPA documents and requires the disclosure of project-related greenhouse gas emissions.

3.3.4.1 Greenhouse Gas Emissions Inventory

Massport prepares an annual Airport-wide greenhouse gas emissions inventory for Logan Airport and publishes the results in the EDRs and ESPRs.²⁰ For consistency and comparative purposes, the greenhouse gas

¹⁶ Federal Aviation Administration. 2017. Order 1053.1C, *Energy and Water Management Program for FAA Buildings and Facilities*. https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1053_1C.pdf. Accessed November 12, 2018.

¹⁷ Massport. 2018. *Annual Sustainability and Resiliency Report*. https://www.massport.com/media/2774/massport-annual-sustainability-and-resiliency-report-2018_lr.pdf. Accessed December 12, 2018.

¹⁸ Massachusetts Executive Office of Energy and Environmental Affairs. 2010. *Summary of the Final Revisions to the MEPA Greenhouse Gas Emissions Policy and Protocol*. <https://www.mass.gov/files/documents/2016/08/rp/ghg-policy-final-summary.pdf>. Accessed December 11, 2018.

¹⁹ The Policy applies to all projects for which an ENF was filed after February 3, 2009 and which required the preparation of an EIR.

²⁰ EDRs are available at www.massport.com/environment/environmental-reporting/.

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emissions are segregated by ownership and control into three categories. These categories are further characterized by the degree of control that Massport has over the emissions sources.

- **Category 1: Massport-owned** – By definition, these greenhouse gas emissions arise from sources that are owned and controlled by the reporting entity (in this case, Massport). More precisely, they typically represent sources that are owned by the entity or sources that are not owned by the entity, but over which the entity can exert control. At Logan Airport, these sources include Massport-owned and controlled stationary sources (boilers, generators, etc.), fleet vehicles, and purchased electricity. On-Airport ground transportation and off-Airport employee vehicle trips are also included as Massport-owned emissions, as they are partly controlled by the Airport.
- **Category 2: Tenant-owned** – This category includes sources owned and controlled by airlines and other tenants and includes aircraft (on-ground taxi/idle and landings and takeoffs up to an altitude of 3,000 feet), ground support equipment/auxiliary power units, electrical consumption, and tenant employee vehicles.
- **Category 3: Public/Private-owned** – This category comprises emissions associated with passenger ground access vehicles. These include private automobiles, taxis, limousines, buses, TNCs such as Uber and Lyft, and shuttle vans operating on the off-Airport roadway network.

Consistent with guidelines put forth by the Airport Cooperative Research Program,²¹ the operational boundaries of the greenhouse gas emissions are also delineated, reflecting the scope of the emission source:

- **Scope 1/Direct** – Greenhouse gas emissions from sources that are owned and controlled by Massport such as stationary sources and Airport-owned fleet motor vehicles.
- **Scope 2/Indirect** – Greenhouse gas emissions associated with the generation of electricity consumed but generated off-site by public utilities.
- **Scope 3/Indirect and Optional** – Greenhouse gas emissions that are associated with the activities of Massport but are associated with sources that are owned and controlled by others. These include aircraft-related emissions, emissions from tenant activities, and ground transportation to and from the Airport.

Table 3-9 Logan Airport Greenhouse Gas Emissions Inventory (MMT of CO₂eq)¹ (2016)

Source	Category	Scope	CO ₂	N ₂ O	CH ₄	Totals
Massport-Controlled Emissions						
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 (12.4%)			0.08	<0.01	<0.01	0.08

²¹ Transportation Research Board, Airport Cooperative Research Program (ACRP). 2009. *ACRP Report 11: Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories*. <http://www.trb.org/Publications/Blurbs/160829.aspx>. Accessed December 28, 2018.

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Table 3-9 Logan Airport Greenhouse Gas Emissions Inventory (MMT of CO₂eq)¹ (2016)
 (Continued)

Source	Category	Scope	CO ₂	N ₂ O	CH ₄	Totals
Tenant Emissions						
Aircraft – Ground ⁶	2	3	0.19	<0.01	<-. ¹¹	0.19
Aircraft – Ground to 3000 feet ⁷	2	3	0.21	<0.01	<0.01	0.22
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	0.03	<0.01	<0.01	0.03
Total Tenant Emissions (70.0%)			0.45	<0.01	<0.01	0.46
Purchased Electricity Emissions⁸						
Massport	1	2	<0.01	<0.01	<0.01	0.01
Tenant and Common Area	2 and 3	2	0.05	<0.01	<0.01	0.05
Total Purchased Electricity Emissions (8.3%)			0.05	<0.01	<0.01	0.05
Passenger Vehicle Emissions						
Off-Airport Roadways ⁴	3	3	0.06	<0.01	<0.01	0.06
Total Passenger Vehicle Emissions (9.3%)			0.06	<0.01	<0.01	0.06
Total Logan Airport Emissions⁹			0.65	<0.01	<0.01	0.65
Percent of Statewide Totals¹⁰			<1.0%	<1.0%	<1.0%	<1.0%

Source: Massport

Notes:

- 1 MMT - million metric tons of CO₂ equivalents (1 MMT = 1.1M Short Tons). CO₂ equivalents (CO₂eq) are bases for reporting the three primary greenhouse gases (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 based on Aviation Environmental Design Tool (AEDT) fuel usages.
- 7 Aircraft – Ground to 3,000 feet include takeoff, climb out, and approach emissions up to a height of 3,000 feet based on AEDT fuel usages.
- 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), 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).

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Table 3-9 above presents the 2016 greenhouse gas emissions inventory, reported in carbon dioxide equivalent (CO₂eq) values.²² Massport-controlled sources, which includes on-Airport roadways, represent 12.4 percent of total greenhouse gas emissions at the Airport; off-Airport passenger vehicle emissions represent 9.3 percent. Overall, total greenhouse emissions at the Airport are less than 1 percent of state-wide emissions.

3.3.4.2 Sustainability at Logan Airport

Massport is committed to incorporating sustainability principles into the construction of new facilities at the Airport. Consistent with the Airports Council International - North America's definition of airport sustainability,²³ 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 environmentally sustainable practices and continues to make progress on a range of initiatives.

Logan Airport Sustainability Management Plan and Annual Sustainability Reporting

In 2015, Massport completed the *Logan Airport Sustainability Management Plan*, which integrates with the Authority's existing Environmental Management System to promote continuous environmental, social, and economic improvement. It builds on Massport's history of advancing sustainability and serves as a roadmap for moving goals forward. It supports the broader sustainability development principles of the Commonwealth including the minimization of pollution, conservation of natural resources, protection of land and ecosystems, promotion of clean energy, and provision of transportation choices with minimal environmental impact.²⁴

The *Logan Airport Sustainability Management Plan* developed a sustainability framework and implementation plan, with metrics and targets, designed to track the Airport's sustainability performance over time. Massport reports on its progress toward achieving goals relative to:

- Energy and Greenhouse Gas Emissions;
- Water Conservation;
- Community, Employee, and Passenger Well-being;
- Materials, Waste Management, and Recycling; and
- Resiliency.

Massport's *2018 Annual Sustainability and Resiliency Report* includes an expanded resiliency focus that more fully addresses Massport's efforts to prepare its operations, workforce, and assets for the implications of climate change.²⁵ Massport has achieved three sustainability targets for energy use per square foot, energy use per passenger, and greenhouse gas emissions per passenger.

22 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* (IPCC. 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.).

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

24 Commonwealth of Massachusetts. 2016. *Sustainable Development Principles*. <https://www.mass.gov/files/documents/2016/07/rt/sdprinciples.pdf>. Accessed December 11, 2018.

25 Massport. 2018. *Annual Sustainability and Resiliency Report*. https://www.massport.com/media/2774/massport-annual-sustainability-and-resiliency-report-2018_lr.pdf. Accessed December 12, 2018.

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Sustainability in Planning, Design, and Construction

Massport strives to achieve LEED® Silver certification or higher for all applicable new construction and major modifications over 20,000 square feet. Some recent examples of LEED® certified buildings at Logan Airport include the Terminal E New Large Aircraft Wing (certified LEED® Gold in 2017), the Rental Car Center (certified LEED® Gold in 2015), and the Green Bus Depot (certified LEED® Silver in 2014).

For smaller building projects and non-building projects (e.g., pavement projects), Massport applies its *Sustainable and Resilient Design Standards and Guidelines*, which it most recently updated in 2018. These 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.

3.3.4.3 Resiliency

After Hurricane Sandy in 2012, Massport established a Resiliency Working Group to identify its threats and hazards, likely scenarios, and current vulnerabilities. A high-level evaluation of the resiliency of Massport's facilities to natural (e.g., hurricanes, storms, flooding, earthquakes), man-made (e.g., fires), and technological (e.g., data loss) threats was undertaken. Massport also commissioned the *Disaster and Infrastructure Resiliency Planning Study* that assessed critical infrastructure and vulnerabilities facing the Airport under future climate scenarios. Within this study, consideration was given to projected sea level rise and other environmental factors (e.g., high tide or low tide). To prepare its assets for the impacts of potential flooding, Massport released the *Floodproofing Design Guide*, first published in 2014 and revised in 2015.²⁶ This document specifies requirements and strategies to ensure that new construction, substantial repairs, or retrofits incorporate the appropriate design flood elevations and floodproofing techniques.

As of 2018, Massport had enhanced 60 percent of its critical assets (e.g., telecommunications systems, police and fire facilities, electrical power, diesel fuel pumping stations) with resiliency measures, working toward its 2025 goal of 100 percent critical assets enhanced.

3.3.5 Noise and Noise-Compatible Land Use

This section of the DEIR/EA evaluates existing noise levels associated with activities occurring at the Project Areas in accordance with MEPA regulations, the Secretary's Certificate on the Project's ENF, and FAA Order 1050.1F. In addition to providing a baseline for the analysis of construction phase impacts, the description of existing conditions in the area of the Economy Garage also provides context for considering the potential benefits of the additional parking levels on the adjacent noise environment. The closest off-site receivers to the new garage in front of Terminal E, such as the East Boston Memorial Park, are approximately 2,000 feet away or farther with intervening buildings. At this distance, Project-related noise would be substantially lower than ambient noise conditions and there would be no potential for impact. Existing noise conditions in the area of this proposed garage, therefore, are not discussed.

The noise environment surrounding Logan Airport has been well documented through the EDRs and ESPRs, which report on the cumulative noise levels generated by aircraft on the ground and in flight near the Airport. The ESPRs include future contours, such as the modeled 2030 Day-Night Average Sound Level (DNL) contour

²⁶ Massport. 2015. Floodproofing Design Guide. <https://www.massport.com/media/1149/massport-floodproofing-design-guide-revised-april-2015.pdf>. Accessed December 12, 2018.

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published in the 2011 *ESPR*; the upcoming 2017 *ESPR* will include a forecast of future conditions and will continue to assess future Airport-wide noise conditions. The most recent annual noise contours are provided in the 2016 *EDR*.

Massport strives to minimize the noise effects of Airport operations on its neighbors using 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 and flight tracks designed to optimize over-water operations (especially during nighttime hours). The foundation of Massport's comprehensive noise abatement program is the *Logan Airport Noise Abatement Rules and Regulations*²⁷ (the "Noise Rules") that have been in effect since 1986. Almost all the residences exposed to levels greater than a DNL of 65 decibels (dB) in 2016 have been eligible in the past to participate in Massport's residential sound insulation program.

3.3.5.1 Regulatory Context

The noise analysis for this DEIR/EA was conducted in accordance with FAA Order 1050.1F and its associated Environmental Desk Reference.²⁸ 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.

FAA Orders 1050.1F and 5050.4B define that a proposed action would result in a significant noise impact when there would be a DNL increase of 1.5 dB or more at a noise-sensitive location and the with-action noise level would be DNL 65 dB or higher. In general, FAA considers DNL 65 dB as the threshold below which all land uses are compatible.

The Proposed Project would have no impact on aircraft flights. Upon completion of construction, there is the potential for the increased garage height to provide additional community noise reduction from aircraft ground operations. Noise exposure including flights and ground operations will be evaluated for the No-Build and Build (Proposed Project) Alternatives to characterize the potential noise benefits of the Proposed Project.

Although Massport is not subject to City of Boston regulatory requirements, Massport typically refers to the noise criteria provided in the City of Boston regulation²⁹ to evaluate potential construction noise effects. These criteria range from 75 to 85 dBA (L₁₀), depending on the land use of the receiving property. If ambient noise levels already exceed the construction noise limits, the applicable construction noise limit is 5 dBA greater than the background. No individual piece of construction equipment, other than impact devices, can generate a maximum noise level exceeding 86 dBA at a distance of 50 feet.

²⁷ Logan Airport Noise Abatement Rules and Regulations are codified at 740 CMR 24.01 et seq.

²⁸ 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/faa_nepa_order/desk_ref/media/desk-ref.pdf.

²⁹ Regulations for the Control of Noise in the City of Boston, City of Boston, Air Pollution Control Commission.

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3.3.5.2 Noise Analysis Terminology

Noise is typically defined as unwanted or undesirable sound, where sound is characterized by small air pressure fluctuations above and below the atmospheric pressure. The basic parameters of environmental noise that affect human response are: (1) intensity or level, (2) frequency content, and (3) variation with time. The first parameter is determined by how greatly the sound pressure fluctuates above and below the atmospheric pressure and is expressed on a compressed scale in units of dB. By using this scale, the range of normally encountered sound can be expressed by values between 0 and 120 dB. On a relative basis, a 3-dB change in sound level generally represents a barely-noticeable change outside the laboratory, whereas a 10-dB change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound.

The frequency content of sound is related to the tone or pitch and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second (Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. Because the sensitivity of human hearing varies with frequency, however, the A-weighting system is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise.

Because sound levels fluctuate from moment to moment, it is important to characterize the range of levels that may exist over a period of time. This is commonly done by using the following sound level metrics:

- L_{max} is the maximum instantaneous A-weighted sound level. The L_{max} represents the highest sound level generated by a source. While easy to understand, the maximum sound level does not address the amount of time that noise exposure occurs.
- Leq is the energy-average sound level. The Leq is a single value that is equivalent in sound energy to the fluctuating levels over a period of time (e.g., an hour, eight hours, or a full 24-hour day). The duration is commonly noted by the number of hours such as Leq(8) or Leq(24). Leq is commonly used to describe environmental noise and relates well to human annoyance.
- 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 dB to account for the intrusive nature of noise at night.

3.3.5.3 Noise Analysis Methodology

The existing noise conditions have been determined by identifying noise-sensitive land uses near the Project Areas that may be affected by construction activities or may benefit from the additional noise reduction that would be provided by increasing the height of the Economy Garage. Existing noise levels in the Noise Study Area, which are described below, are based on previously prepared environmental documents filed by Massport under the MEPA environmental review process.

The 2016 EDR includes the most recent Airport noise contours and information on the extensive residential and school sound insulation program that Massport has implemented as part of one of the most extensive noise abatement programs on any airport in the nation. The Terminal E Modernization Project EA/EIR³⁰ includes

³⁰ Terminal E Modernization Project Environmental Assessment / Draft Environmental Impact Report, Prepared for Massachusetts Port Authority by VHB et al. (EEA #15434), July 15, 2016.

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information on existing noise conditions including ambient noise monitoring conducted to address noise from ground operations and noise modeling results to determine the noise reduction that would occur for ground operations due to the planned improvements to Terminal E. Those assumptions are also built into this analysis.

Noise Study Area

The Noise Study Area is primarily focused on the Economy Garage area as it is closest to the Airport boundary and adjoining land uses. Areas adjacent to the new garage in front of Terminal E are within the Airport property and surrounded by other Airport buildings, elevated roadways, and garage structures, and therefore, unlikely to have any off-Airport construction or operating impacts.

The Economy Garage is separated from the community in East Boston by the Service Road, the MBTA Blue Line tracks, and the elevated Route 1A. Bremen Street Park, which is operated and maintained by Massport, also provides separation for adjacent East Boston land uses that include residential, institutional, business, recreational, and industrial activities. Noise-sensitive land uses in this area include residences and businesses on Bremen Street, the Bremen Street Community Park, and institutional land uses such as the East Boston Branch of the Boston Public Library, Iglesia Bíblica Faro de Luz (church), Harbor City School, Patrick J. Kennedy Elementary School, and the Excel Academy Charter High School. Within this area, there is some potential for construction noise to temporarily increase noise levels and for the increased height of the Economy Garage to reduce noise from Airport ground activity.

3.3.5.4 Existing Noise Conditions

As shown in **Figure 3-9**, the Noise Study Area includes receptors with existing (2016) noise exposure ranging from 62 to 67 DNL dB. The nearest residential and recreational locations to the Economy Garage are generally near the DNL 65 dB contour. As summarized in **Table 3-10**, existing aircraft ground noise levels range from DNL 59 to 64 dB and maximum A-weighted sound levels range from 58 to 76 dB in the Noise Study Area based on the analysis completed for the Terminal E Modernization Project EA/DEIR.

Table 3-10 Existing Noise Conditions

Receptor	Existing Day Night Average Sound Level from Aircraft Ground Activity	A-weighted Maximum Sound Level from Aircraft Ground Activity
	DNL (dB)	Lmax (dB)
R01	59.0	58.0
R02	64.4	66.6
R03	66.1	75.9
R04	60.1	71.8
R05	62.4	73.1
R06	61.1	71.5
R07	62.9	72.2

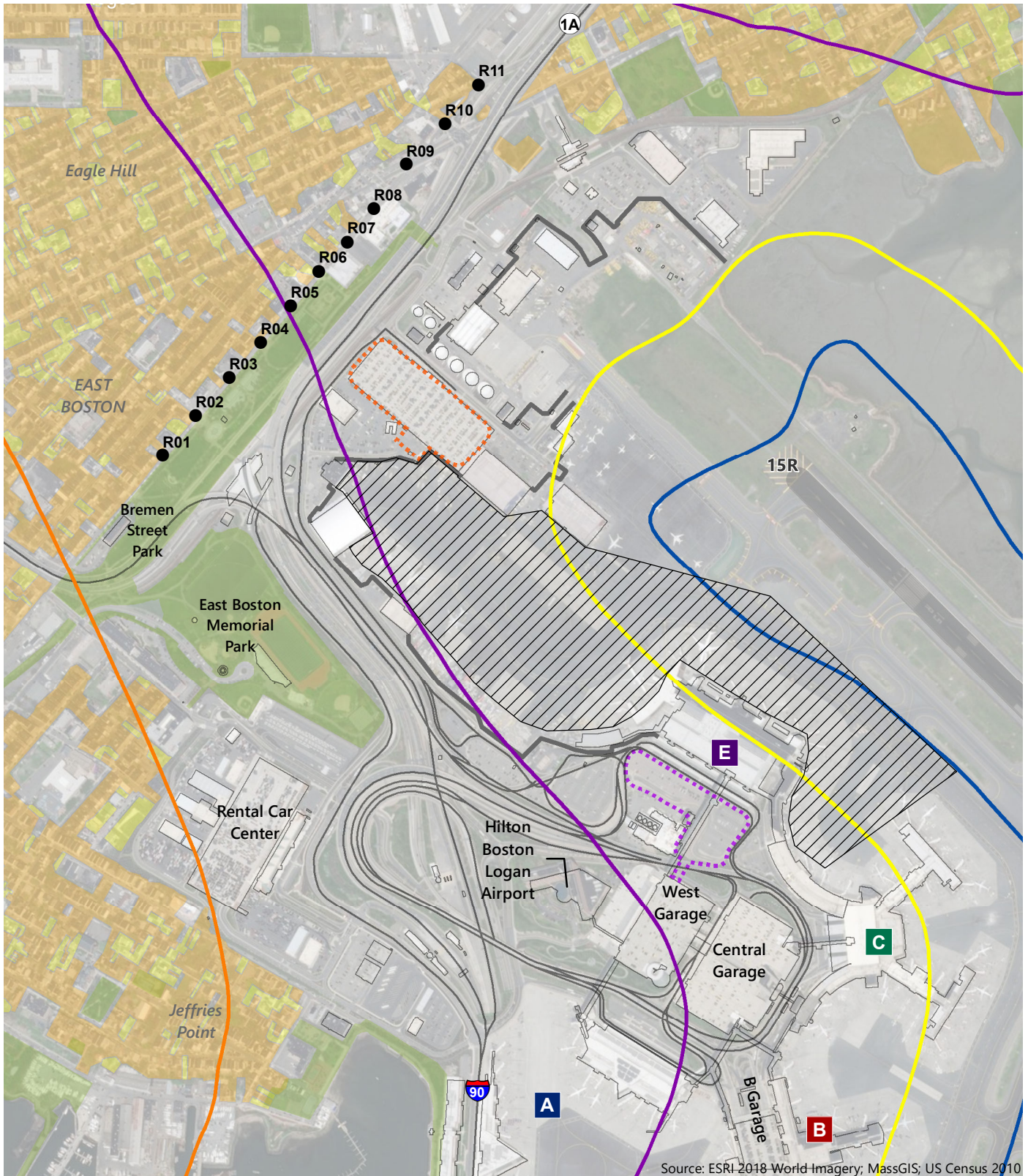
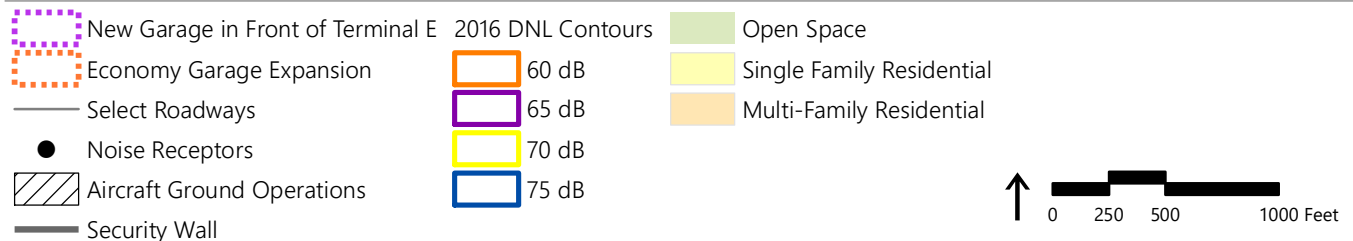


FIGURE 3-9 Noise Study Area

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Table 3-10 Existing Noise Conditions (Continued)

Receptor	Existing Day Night Average Sound Level from Aircraft Ground Activity	A-weighted Maximum Sound Level from Aircraft Ground Activity
	DNL (dB)	Lmax (dB)
R08	62.3	70.5
R09	60.0	68.3
R10	59.7	65.9
R11	58.6	63.9

Source: Massport, Terminal E Modernization Project, 2016.

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

In accordance with MEPA implementing regulations, this section focuses on the existing conditions for surface and groundwater hydrology and quality within the Project Areas for the new garage in front of Terminal E and the Economy Garage expansion. This review includes discussion of areas subject to protection under the Massachusetts Wetlands Protection Act and its associated regulations (310 CMR 10.00), including wetlands, floodplains, surface waters, and groundwater. The Project Areas are located on previously developed land in airport use, and do not include any resource areas regulated pursuant to the Wetlands Protection Act or federal wetland regulations, including the Clean Water Act of 1972 and the Water Quality Act of 1987, Sections 401 and 404.

In addition to the above, FAA Order 1050.1F requires review of the existing conditions for Wild and Scenic Rivers, however the Project Areas are not located near or adjacent to a Wild and Scenic River, and therefore, no related analysis is provided.

3.3.6.1 Floodplains

Figure 3-10 shows the 1-percent and 0.2-percent flood zones at and near Logan Airport. As indicated in the figure, the Project Area for the new garage in front of Terminal E is located entirely outside of FEMA flood zones and the Project Area for the Economy Garage expansion is located partially within the 0.2-percent flood zone. Work performed in the 0.2-percent flood zone is not subject to of 310 CMR 10.57, and therefore, does not require compensatory flood storage. Furthermore, all work in this area is confined to the upper levels of an existing structure.




3.3.6.2 Stormwater

Massport’s primary water quality goal at Logan Airport is to prevent or minimize pollutant discharges, thus limiting adverse water quality impacts associated with Airport activities. Programs include implementing best management practices for pollution prevention by Massport, its tenants, and its construction contractors; staff and tenant training; a comprehensive Stormwater Pollution Prevention Plan; and project-specific Stormwater Pollution Prevention Plans. Massport also employs several programs to promote awareness of Massport and tenant activities to support improved surface and groundwater quality.



FIGURE 3-10 2017 FEMA Flood Map

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-  New Garage in Front of Terminal E
-  Economy Garage Expansion
-  AE: 1% Annual Chance of Flooding, with BFE



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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 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.

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 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.

The three major storm drainage subsystems within the two Project Areas are:

- North Outfall Area - 001
- West Outfall Area - 002
- Porter Street Outfall Area - 003

The North Outfall Area subsystem drains nearly the entire Project Area for the new garage in front of Terminal E, with only portions of the associated surface lot access roadways draining to the West Outfall. The Porter Street Outfall Area subsystem drains the Project Area for the Economy Garage expansion. **Figure 3-11** illustrates the drainage areas and outfalls at Logan Airport.

While Logan Airport itself is surrounded on three sides by and drains to Boston Harbor, the Project Areas are each located over 1,000 feet from this water body. The portions of Boston Harbor receiving stormwater from the North, West, and Porter Street Outfalls are listed as Category 5 waterbodies, requiring a Total Maximum Daily Load.³¹ According to the *Massachusetts Year 2016 Integrated List of Waters*, the portions of Boston Harbor receiving runoff from the Project Areas are impaired due to *Enterococcus* bacteria, Fecal Coliform, Polychlorinated Biphenyls (PCB) in Fish Tissue, Other (Contaminants in Fish and Shellfish), and Dissolved Oxygen.

³¹ Massachusetts Department of Environmental Protection. 2017. Massachusetts Year 2016 Integrated List of Waters. <https://www.mass.gov/files/documents/2017/08/zu/16ilwplst.pdf>. Accessed October 30, 2018.

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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, 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 approximately 449 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 Economy Garage, BOSFUEL fuel farm facility, Facilities II and III, rental car agencies, Hangar Building 8, and vehicle access roadways. The drainage area from East Boston includes multi-family 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 North Outfall - 001 and West Outfall - 002. 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 combined sedimentation tank and oil/water separator. Oil from the separator is collected 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 both 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. Porter Street Outfall - 003 is equipped with absorbent booms for the capture of floating materials, which Massport inspects and maintains regularly. Spent absorbent materials are handled and disposed of by Massport's contractor.³²

In addition to the treatment practices located at the outfalls, two Stormceptor water quality units are located in the vicinity of Economy Garage, located to the right of the bus entrance and on the left side of the bus lane. These treatment units remove total suspended solids, oil, and floatable debris prior to discharge at the Porter Street Outfall.

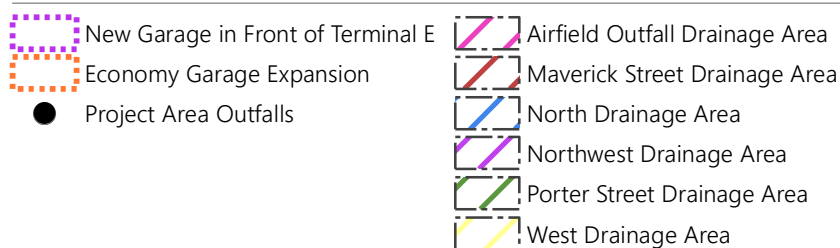
³² Massport. 2018. *Logan Airport Operations Stormwater Pollution Prevention Plan*.



Source: ESRI 2018 World Imagery

FIGURE 3-11 Logan Airport Drainage Areas and Project Area Outfalls

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National Pollutant Discharge Elimination System (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 NPDES Program for Logan Airport (NPDES Permit No. MA0000787).³³ It establishes effluent limitations and monitoring requirements for discharges from specified stormwater outfalls.

The NPDES permit requires samples 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. Samples are also taken quarterly from these 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 only. 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 EDRs and ESPRs report on the results of this sampling. In 2017, 100 percent of stormwater samples tested Airport-wide complied with standards.³⁴

Construction Period Stormwater Discharges

For construction disturbance exceeding one acre, projects require coverage under the NPDES Construction General Permit through EPA. Coverage under this permit requires the preparation of a Stormwater Pollution Prevention Plan, which identifies specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater, or construction debris to the existing drainage system during construction. The Boston Water and Sewer Commission requires a copy of this Stormwater Pollution Prevention Plan be submitted for its review and approval prior to commencement of construction.

3.3.6.3 Groundwater

The Project Areas are not, nor is the Airport in general, located within Zone I, II, or Interim Wellhead Protection Areas. Massport develops dewatering and discharge plans for all construction plans at Logan Airport. If required, groundwater treatment and discharge construction practices are defined and submitted to MassDEP for approval. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Boston Water and Sewer Commission; any discharge of dewatering drainage to the storm drainage system requires a Drainage Discharge Permit. If the dewatering drainage is contaminated with petroleum products, a Remediation General Permit from EPA is required.

3.3.6.4 Wastewater

The Project Areas are served by a wastewater system, separate from the closed-drainage stormwater system, that ultimately conveys flows to the Boston Water and Sewer Commission sanitary sewer system. Floor drains for enclosed floors within the Economy Garage drain through oil separators into the sewer system in accordance

33 U.S. Environmental Protection Agency. 2007. *Authorization to Discharge Under the National Pollutant Discharge Elimination System*. <https://www3.epa.gov/region1/npdes/logan/pdfs/finalma0000787permit.pdf>. Accessed October 30, 2018.

34 Massport. 2018. *2016 EDR*. http://www.massport.com/media/2817/2016_loganairport_edr_cd_.pdf. Accessed October 30, 2018.

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with the Boston Water and Sewer Commission's Sewer Use Regulations and Requirements for Site Plans. The Terminal E surface parking lots are not required to have such equipment installed.

3.3.7 Coastal Resources

Pursuant to 301 CMR 20.05(3), nonwater-dependent projects located in the coastal zone shall be consistent with all policies of the Massachusetts Coastal Zone Management Program. Additionally, the Coastal Zone Management Act (16 U.S.C. 1451 et seq.) requires all federal actions with reasonably foreseeable effects on any land or water uses or natural resources of a state's coastal zone to be consistent with the enforceable policies of the approved Coastal Zone Management Program for that state. Logan Airport is located primarily on filled land within Boston Harbor, within the heavily urbanized Boston Harbor Watershed. The Project Areas are currently fully developed for commercial parking and, like the Airport in general, are within the designated Coastal Zone of Massachusetts.

3.3.8 Hazardous Materials, Solid Waste, and Pollution Prevention

FAA Order 1050.1F identifies several factors to consider for a proposed action related to hazardous materials, solid waste, and pollution prevention including the 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; and potential to adversely affect human health and the environment. This section discusses the potential presence of oil and/or hazardous materials and solid waste within the Project Areas.

Several state and federal regulatory programs govern the requirement 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 within the Project Areas or the Airport in general.

In 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 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; the latest tracking data can be found in the 2016 EDR.

As noted in the ENF, Massport is currently the Responsible Party conducting response actions at the former Robie Air Park located at the Economy Garage. A total of three disposal sites managed by Massport were

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identified on either the Terminal E surface parking lots or the Economy Garage with an additional five disposal sites abutting these areas. These eight Massport-managed disposal sites, which **Figure 3-12** depicts, need to be considered as potential areas of concern in the Project Areas:

- Release tracking number 3-23493 was assigned to a release at the Economy Garage in 2004 consisting of the identification of polycyclic aromatic hydrocarbons and metals in soil samples collected at the property. A Class A-3 Response Action Outcome Statement was filed in January 2010 indicating 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.
- Release tracking number 3-31490 was assigned in 2013 to facilitate the installation of a new sewer connection at the property under a Utility Release Abatement Measure within the Activity and Use Limitation area associated with release tracking number 3-23493. The Utility Release Abatement Measure was completed that same year.
- Release tracking number 3-1584 was issued on the eastern portion of the Economy Garage following a potential release from a former underground storage tank. The disposal site was issued a Licensed Site Professional No Further Action Status, which indicates no further action was required. However, no response actions were conducted at the disposal site so residual contamination may still potentially be present.
- Release tracking number 3-10027 was issued to a release at 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 Remedy Operation Status with the most recent status report submitted in March 2015. Permanent regulatory closure has not been achieved for release tracking number 3-10027. The limits of the disposal site associated with release tracking number 3-10027 abut the Economy Garage to the west.
- In July 1997, release tracking number 3-15281 was issued to a release of No. 2 oil from an underground storage tank at the property abutting the Terminal E surface lots. A Class A-2 Response Action Outcome Statement was submitted, which indicates regulatory closure was achieved and residual contamination was left in place.
- In March 1997, Release tracking number 3-14883 was issued to a release of petroleum constituents to soil from an underground storage tank on the property abutting the Economy Garage to the north. In October 1997, a Class B-1 Response Action Outcome Statement was filed for the disposal site, which indicates regulatory closure was achieved and response actions were not conducted.
- In January 1997, release tracking number 3-14726 was issued to a release of volatile organic compounds to soil on the property abutting the Economy Garage to the northeast. A Class B-1 Response Action Outcome Statement was filed for the disposal site in November 1997, which indicates regulatory closure was achieved and response actions were not conducted.
- In June 1999, release tracking number 3-18366 was issued to a release of petroleum constituents on the property abutting the Terminal E surface lots to the west. A Class A-2 Response Action Outcome Statement was filed for the disposal site in October 2000, which indicates regulatory closure was achieved and residual contamination remains.

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Other releases have been documented within the greater Logan Airport area for which Massport is not considered the Responsible Party. **Figure 3-12** also depicts the following disposal sites, which have the potential to impact the Project Areas based on regulatory status and their location near the Project Areas:

- In May 2001, release tracking number 3-20726 was assigned to a release of mineral oil dielectric fluid from a transformer located west of the Terminal E surface lots and adjacent to the elevated roadway. A Class A-2 Response Action Outcome Statement was submitted for the disposal site in September 2001 indicating that regulatory closure was achieved and residual contamination remains.
- In June 1999, a release of No. 2 fuel oil was identified during the removal of an underground storage tank located directly north of the Terminal E surface lots and assigned release tracking number 3-16012. MassDEP issued a Memorandum of Understanding for the disposal site in May 2005; however, the regulatory status of the disposal site is active and residual contamination remains.

Regarding solid waste, Massport continually strives to improve its waste management program, which includes reduced material consumption and increased recycling across its facilities. Massport's *Sustainable and Resilient Design Standards and Guidelines* specify measures that projects must take to reduce and divert consumable waste during building construction and operation.³⁵

³⁵ Massport. 2011. *Sustainable Design Standards and Guidelines*. https://www.massport.com/media/1153/sustainabledesign_v2_march2011.pdf. Accessed December 10, 2018.



FIGURE 3-12 State-Listed Disposal Sites

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- New Garage in Front of Terminal E
- Economy Garage Expansion Project
- ⊗ Disposal Site



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

MEPA regulations require analysis of “social conditions” of a project site, and the *Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs* calls for the office to consider environmental justice in all its programs, where applicable and allowable. FAA Order 1050.1F requires the consideration of the potential effects of a proposed action on economic activity, employment, income, population, housing, public services, and social conditions. The following sections describe the existing socioeconomic conditions, environmental justice considerations, and children's health and safety conditions within and proximate to the Project Areas.

3.3.9.1 Socioeconomic Factors

Logan Airport is split between Boston and Winthrop; however, the entirety of the Project Areas are in the East Boston neighborhood of Boston. According to the *2012-2016 American Community Survey 5-Year Estimates*, East Boston is home to approximately 46,000 residents³⁶ and includes 17,254 housing units, of which approximately 94 percent are occupied and 6 percent are vacant.³⁷ The 16,145 households in East Boston have a median household income of \$52,152, compared to \$58,516 for Boston in general. Among East Boston's 37,472 residents 16 years of age and over, approximately 75 percent are in the labor force, compared to approximately 69 percent for Boston in general.³⁸ Based on these statistics, East Boston is generally aligned economically with Boston.

The Airport is a primary economic engine in the Boston metropolitan area and larger New England region. It supports approximately 132,000 direct and indirect jobs, while generating \$13.4 billion per year in total economic activity.^{39, 40} Logan Airport accounts for 81 percent of all economic impact deriving from Massport airports.⁴¹ This economic output estimate includes payments to vendors and suppliers that are located within areas generally impacted by Massport operations.

Massport is an affirmative action/equal opportunity employer that is committed to workplace diversity. According to Massport's website, the agency promotes “culture that values diversity of talent, ideas, and backgrounds.”⁴² 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 and hiring process to ensure diverse candidates. There is not currently a local hiring or residency requirement or goal; however, hiring from neighboring communities is encouraged.⁴³

3.3.9.2 Environmental Justice

The Executive Office of Energy and Environmental Affairs defines environmental justice as “the equal protection and meaningful involvement of all people and communities” regarding environmental issues, including the equitable allocation of benefits and burdens. This policy builds upon Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations that

36 U.S. Census Bureau. 2012-2016 American Community Survey 5-year estimate for zip code 02128 (East Boston). Table DP05.

37 U.S. Census Bureau. 2012-2016 American Community Survey 5-year estimate for zip code 02128 (East Boston). Table DP04.

38 U.S. Census Bureau. 2012-2016 American Community Survey 5-year estimate for zip code 02128 (East Boston). Table DP03.

39 Massport. 2018. *2016 EDR*. http://www.massport.com/media/2817/2016_loganairport_edr_cd_.pdf. Accessed October 30, 2018.

40 Massport. 2018. *Sustainable Massport Annual Sustainability and Resiliency Report*. https://www.massport.com/media/2774/massport-annual-sustainability-and-resiliency-report-2018_jr.pdf. Accessed November 29, 2018.

41 Massachusetts Department of Transportation. 2014. *Massachusetts Statewide Airport Economic Impact Study Report Technical Report*. http://westoverairport.com/wp-content/uploads/2015/03/MassDOTFinalVersion_MedRes.pdf. Accessed January 4, 2019.

42 Massport. 2018. “Culture/Diversity.” <http://www.massport.com/massport/about-massport/employment/culturediversity/>.

43 Interview with Massport staff. 2 July 2014 (C. Lurie, L. Ballou, VHB and L. Azuero, CDM Smith; interviewers).

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“directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.” U.S. Department of Transportation Order 5610.2(a) presents the agency’s policy for incorporating environmental justice into all of its programs, policies, and activities, and FAA’s Environmental Desk Reference for Airport Actions provides information and guidance with regard to environmental justice and FAA actions.

As a MEPA-focused document, this DEIR/EA was prepared in accordance with the Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs. Per this policy, environmental justice populations in Massachusetts are defined as neighborhoods that meet one or more of the following criteria:

- Twenty-five percent of households within a census block group have a median annual household income at or below 65 percent of the statewide median income for Massachusetts (at or below \$40,673); or
- Twenty-five percent or more of residents have minority status (people who identify as non-white); or
- Twenty-five percent or more of residents are in English language isolated households (defined as households that do not have an adult over the age of 14 that speaks only English or English very well).⁴⁴

The MassGIS Data: 2010 U.S. Census Environmental Justice Populations data layer serves as an initial screening tool for identifying potential environmental justice populations under the *Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs*. It derives from the 2010 U.S. Census (for the minority criterion) and *2006-2010 American Community Survey 5-Year Estimates* (for the state median income and English isolation criteria). According to the data layer, several census block groups within East Boston meet one or more of the state’s environmental justice criteria.⁴⁵ As shown is **Figure 3-13**, some of these neighborhoods directly abut Logan Airport and lie to the northwest of the Project Area for the Economy Garage expansion.

3.3.9.3 Children’s Environmental Health and Safety Risks

As specified in the 1050.1F Desk Reference, and in accordance with Executive Order 13405, *Protection of Children from Environmental Health Risks and Safety Risks*, FAA requires the identification and assessment of the potential health and safety risks that could disproportionately affect children.⁴⁶ Such risks relate to other environmental resource categories such as air quality and noise. There are no children living within the Project Areas, though 21.1 percent of the population of East Boston are persons under the age of 18.⁴⁷ Several schools are adjacent to the Airport, including the Excel Academy Charter High School (401 Bremen Street), Patrick J. Kennedy Elementary School (343 Saratoga Street), Harbor City School (196 Putnam Street), and James Otis School (218 Marion Street). Respiratory effects, such as asthma, have been identified as a children’s health issue in East Boston.⁴⁸

44 Commonwealth of Massachusetts. 2017. *Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs*. https://www.mass.gov/files/documents/2017/11/29/2017-environmental-justice-policy_0.pdf. Accessed November 19, 2018.

45 MassGIS. 2018. OLIVER: MassGIS’s Online Mapping Tool. http://maps.massgis.state.ma.us/map_ol/oliver.php. Accessed October 26, 2018.

46 Federal Aviation Administration. 2015. *1050.1F Desk Reference*.

https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/policy/faq_nepa_order/desk_ref/media/desk-ref.pdf. Accessed December 12, 2018.

47 U.S. Census Bureau. 2012-2016 American Community Survey 5-year estimate for zip code 02128 (East Boston) and Boston city, MA; Boston-Cambridge-Newton, MA-NH Metro Area. Table DP05.

48 Massachusetts Department of Public Health. 2014. *Logan Airport Health Study*. <https://www.mass.gov/files/documents/2016/07/ww/logan-airport-health-study-final.pdf>. Accessed December 12, 2018.

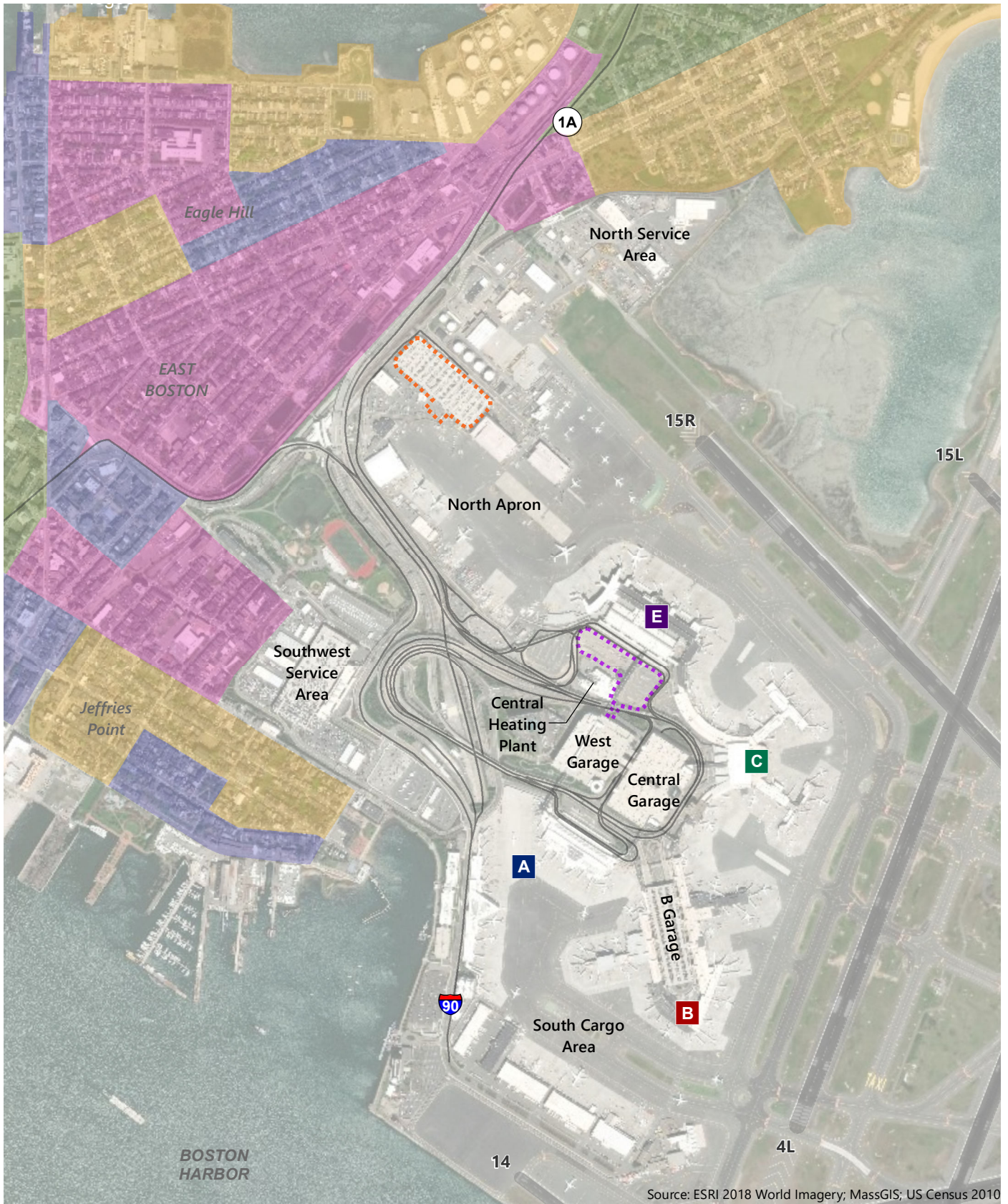


FIGURE 3-13 Environmental Justice Communities

Logan Airport Parking Project

- New Garage in Front of Terminal E
- Economy Garage Expansion
- Select Roadways
- Minority
- Minority and Income
- Minority and English Isolation
- Minority, Income and English Isolation



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3.3.10 Department of Transportation Act, Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966⁴⁹ protects against impacts to, or occupancy of, publicly-owned parks, recreation areas, wildlife or waterfowl refuges, and historic properties or archaeological sites on or eligible for the National Register of Historic Places. Under Section 4(f), impacts or an occupancy are considered “uses” of a property. In accordance with FAA Order 1050.1F and the procedural requirements for compliance with Section 4(f),⁵⁰ FAA is the ultimate decision maker for Section 4(f) determinations.

No Section 4(f) properties are in the Project Areas or within the boundaries of the Airport. Two Section 4(f) properties are proximate to the Project Areas: East Boston Memorial Park and Bremen Street Park (see **Figure 3-14**). East Boston Memorial Park (17.7 acres) is adjacent to and north of the Southwest Service Area and includes land Massport provided to the City of Boston in 2003. Recreational facilities at this park include a baseball field, softball field, little league field, a multi-use field, play equipment, cricket, a passive area, and a running track. Pedestrian and vehicular access to this park, which is operated and maintained by the Boston Parks and Recreation Department, is at its southwest corner. Bremen Street Park (18 acres), which Massport operates and maintains, sits between Bremen Street and Interstate 90/Route 1A. This park is open to the public and is equipped with a shared use path, fountain, playground, community garden, and a dog park.

3.3.11 Visual Effects (including Light Emissions)

FAA’s 1050.1F Desk Reference requires assessment of light emissions and visual resources and visual character effects.⁵¹ Visual resources and visual character pertain to “the aesthetic value and any unique aspects of the area, including any protected visual resources.”⁵²

Due to the horizontal nature of the Terminal E surface lots and because they are deep within the terminal campus, associated lighting is not visible from adjacent neighborhoods. Community views of the Economy Garage are largely shielded by elevated sections of Interstate 90 and Route 1A, as well as the MBTA Blue Line tracks, streetscapes and buildings along at-grade roadways, and the East Boston Memorial and Bremen Street Parks. The Terminal E surface lots have exterior flood downlighting, while the Economy Garage has internal safety and security lighting and exterior flood downlighting.^{53, 54} Vehicular lighting is present at these parking areas under certain conditions such as during the evening and early morning hours.

The Project Areas are already used for parking and the on-Airport lands nearby are fully used for aviation purposes. The surrounding Airport facilities do not hold special aesthetic value. As referenced, the Economy Garage is generally not visible from adjacent residential areas. Exceptions include select locations along the Bremen Street and MBTA Blue Line corridors; the Economy Garage is visible from the East Boston Public Library and from some areas within Bremen Street Park, particularly during the colder months when vegetation is thinner. The Terminal E surface lots are not visible from adjacent residential areas.

49 Policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites, 49 U.S.C. § 303 (2010).

50 U.S. Department of Transportation. 1979. Order 5610.1C, *Procedures for Considering Environmental Impacts*. https://www.transportation.gov/sites/dot.gov/files/docs/Procedures_Considering_Environmental_Impacts_5610_1C.pdf. Accessed December 14, 2018.

51 Federal Aviation Administration. 2015. *1050.1F Desk Reference*. https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_n_policy_guidance/policy/faq_nepa_order/desk_ref/media/desk-ref.pdf. Accessed December 12, 2018.

52 Federal Aviation Administration. 2015. *1050.1F Desk Reference*. https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_n_policy_guidance/policy/faq_nepa_order/desk_ref/media/desk-ref.pdf. Accessed December 12, 2018.

53 Massport. 2018. “Economy Parking.” <http://www.massport.com/logan-airport/to-from-logan/parking/economy-parking/>. Accessed November 29, 2018.

54 Massport. 2018. *2016 EDR*. http://www.massport.com/media/2817/2016_loganairport_edr_cd_.pdf. Accessed October 30, 2018.



FIGURE 3-14 Section 4(f) Resources

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- New Garage in Front of Terminal E
- Economy Garage Expansion
- Operated by Massport
- Operated by the City of Boston



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Assessment of Impacts/Environmental Consequences

4.1 Introduction

To accommodate existing and anticipated air passenger demand for parking at Boston-Logan International Airport (Logan Airport or the Airport), the Massachusetts Port Authority (Massport) proposes to construct new parking facilities to provide 5,000 new commercial parking spaces entirely on-Airport in accordance with the amended Logan Airport Parking Freeze (the Parking Freeze).¹ The addition of 5,000 commercial spaces is one element of Massport’s comprehensive strategy to decrease environmentally undesirable drop-off/pick-up modes,² which generate up to four vehicle trips per passenger compared to two for those driving and parking. The historically constrained parking supply at Logan Airport, which results from the Parking Freeze, has had the unintended consequence of causing an increase in drop-off/pick-up vehicle trips. Survey data from the 1970s to present at Logan Airport have consistently shown that when demand for parking starts to exceed supply, approximately 77 percent of “would-be parkers” shift to drop-off/pick-up travel modes³ that generate higher vehicle miles traveled (VMT) and associated emissions and exacerbate vehicle congestion on the Airport’s terminal area roadways and at the terminal curbs, as well as on neighborhood roads during peak travel periods.

The addition of 5,000 new on-Airport commercial parking spaces will ensure air passengers have sufficient, convenient parking and would decrease the number of passengers choosing drop-off/pick-up modes. This concept is supported by the amendment to the Parking Freeze. The Massachusetts Department of Environmental Protection (MassDEP) approved Massport’s requested parking increase and issued the amended regulation on June 30, 2017. On March 6, 2018, the U.S. Environmental Protection Agency (EPA) approved a rule to revise the Massachusetts State Implementation Plan (SIP) to incorporate the amended Parking Freeze; the rule went into effect on April 5, 2018.

¹ The number of commercial and employee parking spaces allowed at Logan Airport is regulated by the MassDEP through the Parking Freeze (310 Code of Massachusetts Regulations 7.30), which is an element of the Massachusetts SIP under the federal Clean Air Act [42 U.S.C. §7401 et seq. (1970)].

² Drop-off/pick-up modes can include private vehicles, taxis, TNCs (such as Uber and Lyft), and limousine or black car services. For example, if an air passenger is dropped off when they depart on an air trip and is picked-up when they return, that single air passenger generates a total of four ground access trips: two for the drop-off trip (one inbound to Logan Airport, one outbound from Logan Airport) and two for the pick-up trip (one inbound to Logan Airport, one outbound from Logan Airport). The air passenger may be dropped off and picked up in a private vehicle or in a taxi or black car service that may not carry a passenger during all segments of travel to and from Logan Airport.

³ Massport, *2016 Logan Airport Passenger Ground Access Survey*.

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The Logan Airport Parking Project (the Proposed Project) would result in fewer VMT compared to the No-Build Alternative. The Proposed Project would enhance the passenger experience by reducing the need to divert parkers to off-Airport satellite parking locations, which increases the time it takes for air passengers to drop off their cars and access the terminal area and also increases Airport ground access-related VMT. Providing sufficient parking would also reduce the need for Massport to employ operational counter-measures such as valeting overflow parking during peak parking demand periods.

Massport would first construct approximately 2,000 spaces in a structured parking facility in front of Terminal E on existing surface lots, followed by approximately 3,000 spaces at the Economy Garage through an expansion of the existing facility. The new garage in front of Terminal E would open in 2022, while the Economy Garage expansion would be operational by the end of 2025. Constructing the new garage in front of Terminal E first would help compensate for the removal of several terminal area commercial spaces in the short-term due to ongoing and anticipated terminal area construction and planning projects. Massport would continue to be in full compliance with the Parking Freeze even when the out-of-service terminal area commercial parking spaces return to service.

This document 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 Certificate issued May 5, 2017 on the Project's Environmental Notification Form (ENF). As stated by the Secretary, "this project requires the preparation of a Mandatory EIR."⁴ The ENF included a proposed scope for the DEIR. In addition to the scope items proposed in the ENF, this DEIR includes additions and modifications as required by the Secretary for the analysis of the environmental resource categories of air quality, greenhouse gas emissions and sustainability, and noise, as well as of construction period impacts related to noise, air quality, traffic, solid and hazardous waste, and water quality.

In accordance with the National Environmental Policy Act (NEPA) regulations, this document also serves as a Draft Environmental Assessment (EA) for review by the Federal Aviation Administration (FAA). Per the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, 40 Code of Federal Regulations (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."⁵

This chapter discusses the potential beneficial and adverse effects of the Proposed Project for each applicable environmental resource category, as specified in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*⁶ and Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*⁷ and listed in **Table 4-1**. This DEIR/EA provides an analysis of whether an impact is significant in accordance with FAA guidance on impact thresholds for significant adverse effects provided in Order 1050.1F. The impact thresholds identified in FAA Order 1050.1F are discussed in Section 4.4.6, *Significance Thresholds*.

4 Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form for the Logan Airport Parking Project. May 5, 2017.

5 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.

6 FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, released July 16, 2015.

7 FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, released April 28, 2006.

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Based on the impact analysis presented in this chapter and planned construction mitigation measures, there are no adverse environmental impacts – direct or indirect - associated with the Proposed Project, and therefore, no cumulative impacts are anticipated. Massport addresses Airport-wide cumulative impacts through its annual Environmental Data Reports (EDRs) and Environmental Status and Planning Reports (ESPRs), and those documents are included herein by reference.

Based on the specific MEPA ENF Certificate requirements, along with FAA Order 1050.1F and Order 5050.4B, the environmental resource categories evaluated in this chapter include:

- **Section 4.5.1**, Surface Transportation;
- **Section 4.5.2**, Air Quality;
- **Section 4.5.3**, Natural Resources and Energy Supply;
- **Section 4.5.4**, Climate, Greenhouse Gas Emissions, and Sustainability;
- **Section 4.5.5**, Noise and Noise-Compatible Land Use;
- **Section 4.5.6**, Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater);
- **Section 4.5.7**, Coastal Resources;
- **Section 4.5.8**, Hazardous Materials, Solid Waste, and Pollution Prevention;
- **Section 4.5.9**, Socioeconomics, Environmental Justice, and Children’s Health and Safety Risks;
- **Section 4.5.10**, Department of Transportation Act, Section 4(f); and
- **Section 4.5.11**, Visual Effects (including Light Emissions).

4.2 Key Findings

The Logan Airport Parking Project is being constructed with the purpose of accommodating air passenger parking demand, to improve environmental conditions compared to the No-Build Alternative. Under the No-Build Alternative, no additional on-Airport commercial parking spaces would be constructed. As the existing parking supply already fails to meet existing demand during significant parking events, parking supply would become more constrained as annual passengers increase, and in turn, the drop-off/pick-up mode share would increase as noted above. This would result in increased traffic congestion and increased local and regional air quality emissions.

By adding 5,000 new commercial parking spaces entirely on-Airport, the Proposed Project would meet existing and anticipated air passenger demand for parking and would result in a decrease in the drop-off/pick-up mode share to and from the Airport, as well as a reduction in VMT and associated air quality impacts. Furthermore, the expansion of the Economy Garage would have added noise barrier benefits, in conjunction with the Terminal E Modernization Project, enhancing screening of community and neighborhood recreation areas from aircraft ground noise in the North Apron Area.

Table 4-1 summarizes the potential effects of the Logan Airport Parking Project on the applicable MEPA/NEPA environmental resource categories, as Chapter 3, *Existing/Affected Environment* describes.

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Table 4-1 MEPA and NEPA Environmental Resources Evaluated in this DEIR/EA

DEIR/EA Section	Environmental Resource Category ¹	Potential Effects
4.5.1	Surface Transportation ² (MEPA)	<p>The same number of air passengers would be accommodated with or without the Logan Airport Parking Project. The Proposed Project, however, would reduce overall vehicle miles traveled (VMT) on- and off-Airport as compared to the future No-Build Alternative due to a reduction in drop-off/pick-up modes and recirculation of traffic at the terminal curb. All study area intersections would operate at an overall level of service (LOS) B or better. Traffic flow within the Terminal E roadways is anticipated to improve, but operations for curbside passenger pick-up would remain the same. The Massachusetts Bay Transportation Authority (MBTA) Blue Line is expected to have adequate capacity to handle anticipated peak hour passenger volumes at Airport Station through to 2030.</p> <p>Project construction would generate temporary construction trips; construction vehicles will be prohibited from using local roads. Vehicular traffic flow on the Airport roadway network during construction would be managed to maintain acceptable levels of service.</p>
4.5.2	Air Quality (MEPA/NEPA)	<p>The Logan Airport Parking Project would reduce criteria pollutant emissions when measured against the No-Build Alternative through reduced on- and off-Airport VMT. The Project would be in conformance with the General Conformity Rule, established under the federal Clean Air Act, as related emissions would be below <i>de minimis</i> thresholds.</p> <p>Project construction would generate temporary construction vehicle and equipment emissions; however, emissions would be well within the General Conformity thresholds.</p>
4.5.3	Natural Resources and Energy Supply (NEPA)	<p>The Proposed Project would not include unusual building materials or materials that are in scarce supply in the Boston metropolitan area or larger New England region, and would not result in a significant increase in potable water use in excess of regional supplies. It would not place undue burdens on the area's energy system compared to the No-Build Alternative, as there are sufficient energy resources in the region.</p> <p>Each of the proposed garages would be designed in accordance with Massport's <i>Sustainable and Resilient Design Standards and Guidelines</i> and incorporate measures from the U.S. Green Building Council's Parksmart rating system, an environmental and sustainability focused rating system specific to parking structure management, programming, design, and technology. Both structures would include behind-the-meter³ solar photovoltaic systems to offset a portion of each of their energy consumption.</p> <p>Construction of the Proposed Project would require various sources of energy to power construction vehicles and equipment, as well as water for the purposes of controlling fugitive dust and stabilizing soil. Massport anticipates that adequate capacities of energy and water would be available to support these activities. No unique materials that are in short-supply in the region are anticipated to be required by the Proposed Project.</p>

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

DEIR/EA Section	Environmental Resource Category ¹	Potential Effects
4.5.4	Climate, Greenhouse Gas Emissions, and Sustainability (MEPA/NEPA)	<p>The Logan Airport Parking Project would reduce greenhouse gas emissions when measured against the No-Build Alternative through reduced off-Airport VMT. Further, the Proposed Project would incorporate sustainability and resiliency features consistent with Massport's policies and standards including its <i>Sustainable and Resilient Design Standards and Guidelines</i>. It would incorporate Parksmart sustainability certification measures into its technology, structural design, and operation. Energy efficiency measures would significantly reduce the energy consumption and related greenhouse gas emissions of the proposed garages as measured against a base design case. Both structures would be served by solar photovoltaic systems to offset a portion of their energy consumption and avoid greenhouse gas emissions.</p> <p>Consistent with Massport's <i>Floodproofing Design Guideline</i>, the new garage in front of Terminal E would elevate critical equipment and systems (e.g., electrical, mechanical, emergency and fire, etc.) above the designated design flood elevation. The Economy Garage expansion would be above the designated design flood elevation, and existing systems would be elevated where necessary.</p> <p>Project construction would generate temporary construction vehicle and equipment greenhouse gas emissions. Massport does not anticipate any other temporary construction-related impacts from the Proposed Project in relation to sustainability and resiliency.</p>
4.5.5	Noise and Noise-Compatible Land Use (MEPA/NEPA)	<p>The Proposed Project would not add new noise sources or change the character or intensity of operational noise sources associated with Airport activities. Negligible changes in roadway noise may occur due to the potential shift in vehicle travel patterns associated with use of the proposed garages. The Economy Garage expansion, in conjunction with the Terminal E Modernization Project, would have added noise barrier benefits by enhancing screening of community and neighborhood recreation areas from aircraft ground noise in the North Apron Area.</p> <p>During construction of the Logan Airport Parking Project, short-term noise associated with construction activities would be generated. These noise levels would be below the City of Boston's noise limits.</p>
4.5.6	Water Resources (including Wetlands, Floodplains, Surface Waters, Wastewater, and Groundwater) (MEPA/NEPA)	<p>The Proposed Project would not increase impervious surfaces or pollutant-generating activities. It would be located on previously developed, already impervious land in Airport use. Additional flows from floor drains and a small, unisex staff bathroom would be minimal.</p> <p>The Proposed Project would require a specific Stormwater Pollution Prevention Plan in accordance with the Environmental Protection Agency's National Pollutant Discharge Elimination System General Permit for Construction Activities. Massport does not anticipate construction-period impacts on water resources.</p>
4.5.7	Coastal Resources (MEPA/NEPA)	<p>The Proposed Project site is within paved areas of the Airport that are already in use for parking and would not change the manner of use or quality of land in the coastal zone.</p>
4.5.8	Hazardous Materials, Solid Waste, and Pollution Prevention (MEPA/NEPA)	<p>The Proposed 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.</p> <p>Massport does not anticipate construction-period impacts on hazardous materials, solid waste, and pollution prevention. During construction, Massport would promote and ensure special handling, dust control, and management and disposal of contaminated environmental media and hazardous building materials.</p>

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

DEIR/EA Section	Environmental Resource Category ¹	Potential Effects
4.5.9	Socioeconomics, Environmental Justice, and Children's Health and Safety Risks (MEPA/NEPA)	<p>By encouraging passengers to reduce use of drop-off/pick-up modes, the proposed new parking spaces would reduce on- and off-Airport VMT, thereby reducing congestion and improving local and regional air quality.</p> <p>The Proposed Project would be constructed on existing Airport property and in areas that are already in use for aviation activities. It would not result in any adverse environmental impacts and, therefore, would not cause a disproportionately high and adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as environmental justice communities.</p> <p>The construction of the Proposed Project would result in economic benefits in the form of temporary jobs (an average of 70 employees per month for the new garage in front of Terminal E and 80 employees per month for the Economy Garage expansion), along with direct, indirect, and induced spending.</p>
4.5.10	Department of Transportation Act, Section 4(f) (NEPA)	<p>The Proposed Project would not result in a direct or temporary use of a Section 4(f) property. There are no Section 4(f) properties within the Project footprint or the Airport in general, and no construction activities would take place outside the Airport property. No constructive (indirect) uses of Section 4(f) properties are anticipated.</p>
4.5.11	Visual Resources/Visual Character Effects (including Light Emissions) (NEPA)	<p>The Proposed Project would not adversely impact the visual character of the Project Areas or surrounding areas. The new garage in front of Terminal E would not be 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 terminal area, including the adjacent Central Garage complex that includes the West Garage and Central Garage.</p> <p>The existing Economy Garage is separated from the community by the elevated Route 1A, the MBTA Blue Line corridor and is generally not visible from surrounding neighborhoods. Limited views of the garage are visible from select locations along the Bremen Street and MBTA Blue Line corridors, the East Boston Public Library, and some areas within Bremen Street Park. The Economy Garage expansion would not be significantly more visible to the community, as elevated roadways and vegetative screening would continue to provide buffering. The added parking levels would be aesthetically consistent with those already in place.</p> <p>Massport would shield lighting associated with the Proposed Project, where feasible, to limit light pollution.</p> <p>Some tall construction equipment such as mobile cranes would be visible from surrounding areas throughout the construction periods. Additionally, Massport may need to light such equipment to ensure the safety of workers during operation as well as for airspace obstruction safety purposes.</p>

Notes:

- 1 Environmental resource categories as referenced in ENF Certificate, MEPA regulations under 301 Code of Massachusetts Regulations (CMR) 11.00, and specified in FAA Orders 1050.1F and 5050.4B.
- 2 Surface Transportation is typically addressed under socioeconomic considerations under FAA Order 1050.1F. For this DEIR/EA, surface transportation issues are addressed as a separate section.
- 3 A "behind-the-meter" solar photovoltaic system first supplies energy to the building for direct consumption, before sending energy to the grid. A "stand-alone" solar photovoltaic system sends energy directly to the grid.

4.3 Description of the Alternatives

The following sections provide descriptions of the Logan Airport Parking Project as well as the No-Build Alternative. Chapter 2, *Alternatives Analysis* provides additional detail on these alternatives.

4.3.1 No-Build Alternative

The No-Build Alternative reflects conditions as they are expected to exist in the future if Massport does not implement the Proposed Project. The No-Build Alternative takes into account existing conditions in addition to other Massport projects including Terminal E Modernization and the Terminal C Canopy, Connector, and Roadway Project, along with anticipated passenger activity levels. These projects are discussed in greater detail under Section 4.4.5.2, as well as in the 2016 EDR.

Under the No-Build Alternative, passenger demand would increase as projected in the air passenger forecast, but there would be no additional commercial parking spaces on-Airport. The existing parking supply already fails to meet existing demand during significant peak parking events such as holiday weekends and school vacation weeks. Under overflow conditions, parkers would continue to be diverted or valeted to non-designated parking areas, including overflow lots some of which are located off-Airport. These countermeasures decrease operational efficiency and compromise customer service.

Under the No-Build Alternative, the drop-off/pick-up mode share would increase, as approximately 77 percent of “would-be parkers” would switch to drop-off/pick-up modes.⁸ The No-Build Alternative would have substantial (and avoidable) adverse environmental consequences, as it would cause increased roadway congestion and air quality emissions due to the higher VMT associated with the drop-off/pick-up mode.

4.3.2 Logan Airport Parking Project (Proposed Project)

Based on an operational, cost, and environmental screening, and discussions with community representatives, Massport is proposing to construct 5,000 additional commercial parking spaces (in accordance with the amended Parking Freeze) in structured parking facilities at two sites. Approximately 2,000 spaces would be sited on existing surface lots in front of Terminal E and approximately 3,000 spaces would be accommodated at the Economy Garage through an expansion of the existing facility. The proposed garages would include:

New Garage in front of Terminal E:

- A new structured multi-story parking garage in the current location of existing surface parking lots in front of Terminal E;
- Two sections located on either side of the pedestrian bridge that connects Terminal E to the Central Garage complex - five parking levels would be placed on the west side and six levels on the east side;
- A solar photovoltaic system to offset a portion of the facility’s electricity consumption;
- Separated primary access/egress points for public vehicles and limousines along the Arrivals Level roadway – public vehicles would enter the garage just beyond the split with the main terminal roadway and exit on the facility’s west side, north of the Central Heating Plant entrance/exit, while limousines would enter and exit at the facility’s northeast corner;

⁸ Massport, 2016 Logan Airport Air Passenger Ground Access Survey.

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- A secondary access point for public vehicles along the Arrivals Level roadway on the facility's west side and co-located with the public vehicle exit, to further reduce on-Airport circulation;
- Modifications to the Terminal E Arrivals Level roadway to accommodate garage access/egress;⁹
- A vehicular bridge connection to the Central Garage complex from the fourth level of the facility's east side to increase Massport operational efficiencies with respect to overflow transfers;
- Pedestrian circulation accommodations including three crosswalks connecting the facility to the outer curb at Terminal E and connections to the pedestrian bridge that connects Terminal E to the Central Garage complex;

Economy Garage Expansion:

- Three additional parking levels within the facility's existing footprint;
- An addition on the facility's south side with a footprint of approximately 18,000 square feet to include both parking spaces and additional vertical circulation;
- Associated improvements to garage entrance/exit plaza and along Prescott Street;¹⁰ and
- The relocation of the existing solar photovoltaic system to the top of the facility's new highest level.

As discussed in Chapter 1, *Project Description/Purpose and Need*, Massport proposes phased construction, with the new garage in front of Terminal E to be operational in 2022 and the Economy Garage expansion operational by the end of 2025. Massport expects to sequence the construction of the new garage in front of Terminal E beginning with the six parking levels on the east side of the pedestrian bridge, followed by the five levels on the west side. Construction of the east side, including the vehicular bridge, would begin in early 2020 and be complete by early 2022, while construction of the west side would begin in Spring 2020. As mentioned, the entire facility would be operational in 2022.

The new garage in front of Terminal E would be constructed first in order to:

- Provide operational flexibility to Massport with respect to managing the on-Airport parking supply. The additional terminal area parking, as well as the bridge connection from the new garage in front of Terminal E to the Central Garage complex, would better and more efficiently enable Massport's Ground Transportation Unit to relocate vehicles under overflow conditions, minimizing distances traveled in comparison to the Economy Garage.
- Realize construction efficiencies with respect to other planned projects at the Airport, including the Terminal E Modernization Project. Examples of construction efficiencies include the use of common staging areas and one-time site disturbances.

A secondary benefit of constructing the new garage in front of Terminal E first is that Massport would be able to deliver enhanced passenger experience sooner. The proximity of this proposed garage within the terminal area,

⁹ Modifications would incorporate a main entrance along the easterly face at the southern corner of the proposed garage. The entry drive incorporates a pull off that allows emergency vehicles easterly access to the Central Heating Plant via a drive corridor along the garage's southern face. The easterly curb line near the garage's northeast corner allows entrance/egress for limousine parking. The northerly face of the garage would be curbed with raised pedestrian sidewalk access points to/from Terminal E. The westerly curb line would be modified to provide vehicle exit from the garage as well as a recirculation entrance. At the southwest side of the garage, the Central Heating Plant main entrance/egress gate along the Arrivals Level curb line would be modified to shift the point of entry/egress further south.

¹⁰ Improvements to the existing Economy Garage structure would involve a reconfigured entrance/exit plaza that easterly shifts the entry/egress point along Prescott Street. Roadway improvements would incorporate a garage entry lane after entering Prescott Street from the Service Road.

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particularly its proximity to Terminal E, would reduce passenger time traveling to/from the terminals compared to the Economy Garage. Accessing the terminal area from the Economy Garage would necessitate use of the Airport's free shuttle bus system.

In addition, ongoing and anticipated on-Airport construction and planning activities will remove a number of terminal area commercial spaces, both in the short- and long-terms. This includes Massport's new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex, which would replace approximately 1,000 revenue-generating parking spaces. The planned TNC move is another measure, alongside the Logan Airport Parking Project, designed to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips).

The new garage to be constructed in front of Terminal E would help meet existing and future air passenger demand for on-Airport parking and more than offset some of the temporary losses in terminal area commercial spaces. Massport would continue to be in full compliance with the Parking Freeze even when short-term, out-of-service terminal area commercial parking spaces return to service.

4.4 Methodology

This section defines the methods used to evaluate direct, indirect/secondary, temporary, and cumulative impacts of the No-Build Alternative and the proposed Logan Airport Parking Project.

4.4.1 Analysis Years

In accordance with MEPA and NEPA, this document compares the Logan Airport Parking Project to the No-Build Alternative in the same analysis years. For the surface transportation and regional air quality analyses, this DEIR/EA considers an interim year that is the expected date of first operations at the new garage in front of Terminal E (2022). It also considers a full-build year for these analyses and for the remaining environmental resource categories. The full-build year is consistent with Massachusetts Department of Transportation's *Transportation Impact Assessment Guidelines*.¹¹ Accordingly, this DEIR/EA looks out five years from full occupancy. As the Economy Garage is anticipated to be operational by the end of 2025, the full-build year considered in this analysis is 2030.

Massport anticipates that within a 10- to 15-year planning horizon, passenger levels at Logan Airport will reach approximately 50 million annual air passengers (50 MAP). Forecasting passenger volumes is based on the best available data and modeling. Massport's future forecast is within 10 percent of the FAA's Terminal Area Forecast (TAF) medium growth scenario that predicts 54.1 million air passengers¹² for 2035 (see Appendix D, *Federal Aviation Administration Terminal Area Forecast*).

¹¹ MassDOT. 2015. *Transportation Impact Assessment (TIA) Guidelines*. March 13, 2014.

¹² FAA Terminal Area Forecast, Issued January 2018.

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4.4.2 Direct Impacts

NEPA defines direct impacts as impacts caused by a proposed action 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:

- Pollutant concentrations that exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the EPA under the Clean Air Act;
- 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).

4.4.3 Indirect Impacts

Indirect or secondary impacts are those impacts that a proposed action could cause later in time or at another location, but are still reasonably foreseeable. Indirect impacts may include induced impacts on land use patterns, population density or growth rate, air and water quality, as well as the quality of other natural systems.

4.4.4 Temporary Construction-Related Impacts

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

In accordance with the Secretary's Certificate on the Project's ENF and FAA Orders 1050.1F and 5050.4B, this DEIR/EA identifies and assesses the Proposed Project's construction period impacts. It also describes the Project's anticipated phasing and sequencing, as well as addresses how construction will occur to avoid impacting the existing constrained parking supply. Minimization and mitigation measures associated with the Proposed Project's expected construction period impacts are discussed in Chapter 5, *Beneficial Measures/Mitigation*.

4.4.5 Cumulative Impacts

FAA's NEPA regulations describe cumulative impacts as the incremental impact of a proposed action 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. 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 MEPA, 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 to the previous year.

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The *2011 ESPR*, filed in early 2013, reported on calendar year 2011 and updated passenger activity levels and aircraft operations forecasts through 2030. The forthcoming *2017 ESPR* will update forecasts and is expected to be filed under MEPA in Summer 2019. The *2016 EDR*, filed in May 2018, provides a comprehensive, cumulative analysis of the effects of all Logan Airport activities based on actual passenger activity and aircraft operation levels in 2016 and presents environmental management plans for addressing areas of environmental concern.

All major past, present, and reasonably foreseeable projects at Logan Airport, including the Logan Airport Parking Project, are described in Chapter 3, *Airport Planning* of the *2016 EDR*.¹³

4.4.5.1 Recently Completed Projects

Past and recently completed terminal area projects near the Logan Airport Parking Project include the Terminal E Renovation and Enhancements Project (completed early 2017) and the Terminal C to E Airside Connector Project (completed May 2016). Massport also completed the West Garage Parking Consolidation Project in late 2016. These and other recently completed projects at Logan Airport are detailed in the *2016 EDR*.

4.4.5.2 Projects Underway

Other than routine maintenance activity, the projects that Massport has underway near the Logan Airport Parking Project are Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction Project (currently under construction); the Terminal E Modernization Project (currently under construction); the Terminal C Canopy, Connector, and Roadway Project (currently under design); and the relocation of the existing on-Airport gas station (currently under construction). Other projects that Massport has either under construction or in design are detailed in the *2016 EDR*.

The Terminal B Garage Ramp Demolition and Access Roadway Bridge Reconstruction Project will demolish the existing ramp between the Terminal B Departures and Arrivals Levels and the Terminal B Garage and construct a new temporary entrance to the Terminal B Garage from the Arrivals Level roadway. This project is currently under construction as of the time of this filing and is expected to be complete by end of 2019.

The Terminal E Modernization Project will add three gates approved in 1996 as part of the International Gateway West Concourse Project but never constructed, and an additional four gates to Terminal E. The new building will be aligned to function as a noise barrier. The construction period for this project is anticipated to begin in late 2019. The project is expected to be complete in 2022.

The Terminal C Canopy, Connector, and Roadway Project will renovate the Terminal C building to connect Terminals C and B, post security; replace deteriorating roadway infrastructure; improve traffic flow between Terminals B and C (both Arrivals and Departures Levels); and improve safety and reduce roadway backups. Construction is estimated to begin later in 2019 and conclude in 2022.

To accommodate the construction of the Terminal E Modernization Project, Massport is relocating the existing on-Airport gas station to the intersection of Tomahawk Drive and Jeffries Street in the Southwest Service Area. This project was approved as part of the Terminal E Modernization Project's MEPA and NEPA review process. Construction is underway and expected to be complete in 2019, at which time the existing gas station will be demolished.

¹³ Massport. 2018. *Boston-Logan International Airport 2016 EDR*. Available at http://www.massport.com/media/2817/2016_loganairport_edr_cd_.pdf.

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4.4.5.3 Reasonably Foreseeable Logan Airport Projects

Massport has several planning concepts that are currently in the feasibility/planning stages. These projects are detailed in the 2016 EDR and are broken down by terminal area projects, service area projects, buffer projects/open space, airside area projects, Airport parking projects, and Airport-wide projects. These projects are in the early feasibility planning phases. Their combined effects – including in conjunction with the Logan Airport Parking Project - will be evaluated in the upcoming 2017 ESCR.

Massport is considering several potential on-Airport solutions to address roadway and curbside congestion. Currently at peak periods, the terminal area roadways and curbsides at Logan Airport experience congestion, causing delays and vehicle idling. As passenger levels grow to meet regional demand, the congestion experienced at peak periods today will worsen without operational and facility improvements. Massport is studying a range of alternatives to improve roadway operations; current concepts under consideration include an enhanced shuttle bus system, a dedicated high-occupancy vehicle (HOV) lane and an automated people mover (APM), among others. Once Massport selects a strategy, those projects will advance through planning and eventually, environmental review and permitting.

In addition, Massport has recently adopted a phased program of on and off-Airport transportation improvements focused on reducing single occupancy trips to and from the Airport. These include measures to expand Massport's Logan Express system, and measures to reduce transportation network company (TNCs) (e.g., Uber and Lyft) trips. This includes Massport's new plan to centralize TNC operations (i.e., drop-offs and pick-ups) on the ground floor of the Central Garage complex, which would replace approximately 1,000 revenue-generating parking spaces on an interim basis. The planned TNC move is another measure, alongside the Logan Airport Parking Project, intended to reduce congestion outside the terminals and decrease the number of TNC drivers that leave the Airport without a passenger (i.e., deadhead trips). Massport's ground access strategy is described in Section 1.2, *Project Context*.

4.4.6 Significance Thresholds

For each applicable environmental resource category, the Logan Airport Parking Project was compared to the No-Build Alternative for the same analysis year(s). For the surface transportation analysis and regional mobile source air quality analysis, this DEIR/EA considers an interim year that is the expected date of first operations at the new garage in front of Terminal E (2022). It also considers a full-build year for these analyses and for the remaining environmental resource categories. The full-build year looks out five years from full occupancy; as the Economy Garage is anticipated to be operational by the end of 2025, the full-build year considered is 2030.

Table 4-2 summarizes the significance thresholds under NEPA, as applicable and described in FAA Order 5050.4B, for the environmental resource categories relevant to the Proposed Action.

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**Table 4-2 Impact Thresholds for Significant Adverse Effects¹ - NEPA, FAA Order 1050.1F
 Environmental Resources**

DEIR/EA Section	Environmental Resource Category	Threshold for Significant Adverse Impacts
4.5.1	Surface Transportation	Not an environmental resource category listed in Federal Aviation Administration (FAA) Order 1050.1F; therefore, there is no established significance threshold under the National Environmental Policy Act (NEPA).
4.5.2	Air Quality	When an action exceeds one or more of the NAAQS, as established by the U.S. Environmental Protection Agency under the federal Clean Air Act, for any of the times analyzed, or to increase the frequency or severity of any such existing violations.
4.5.3	Natural Resources and Energy Supply	No established significance threshold.
4.5.4	Climate, Greenhouse Gas Emissions, and Sustainability	No established significance threshold.
4.5.5	Noise and Noise-Compatible Land Use	When an action would increase noise by Day-Night Average Sound Level (DNL) ² 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-Build Alternative for the same timeframe.
4.5.6	Water Resources	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.
4.5.7	Coastal Resources	No established significance threshold.
4.5.8	Hazardous Materials, Solid Waste, and Pollution Prevention	No established significance threshold.
4.5.9	Socioeconomics, Environmental Justice, and Children's Health and Safety Risks	No established significance threshold.
4.5.10	Department of Transportation Act, Section 4(f)	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.

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**Table 4-2 Impact Thresholds for Significant Adverse Effects¹ - NEPA, FAA Order 1050.1F
 Environmental Resources (Continued)**

DEIR/EA Section	Environmental Resource Category	Threshold for Significant Adverse Impacts
4.5.11	Visual Resources/Visual Character Effects (including Light Emissions)	No established significance threshold.

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

Notes:

- 1 Excludes environmental resource categories that the No-Build Alternative and Proposed Project would not affect and/or those resources are not present in the Project Areas.
- 2 DNL is 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.

4.5 Environmental Consequences

The analysis of impacts includes consideration of direct impacts comparing the No-Build Alternative to the Proposed Project. In addition, consideration is given to indirect/secondary, temporary construction, and cumulative impacts. Beneficial measures and measures to avoid and/or minimize impacts, where applicable, are described in Chapter 5, *Beneficial Measures/Mitigation*.

4.5.1 Surface Transportation

As requested in the Secretary’s Certificate on the Project’s ENF, in accordance with MEPA, the following surface transportation analysis addresses proposed conditions relating to regional VMT¹⁴ and on-Airport operations at the new garage in front of Terminal E, the Economy Garage expansion, and the associated infrastructure improvements. It also considers potential mode shift to transit, which would reflect Massport policy changes and are not specific to the Proposed Project, and determines whether sufficient capacity is provided within the existing Blue Line Service parameters. Massport documents cumulative impacts and Airport-wide surface transportation conditions through its annual EDR/ESPR filings.

In accordance with FAA Order 1050.1F and FAA Order 5050.4B paragraph 706(e), this section also describes the analysis conducted to determine if the Proposed Project generates any potential impacts related to surface transportation. The FAA requires surface transportation be considered when a proposed action has the potential to disrupt traffic patterns and substantially reduce the level of service of roads serving an airport and its surrounding communities.

The Proposed Project would result in a minor reconfiguration of the roadway network near Terminal E (in the vicinity of the new garage in front of Terminal E) and along Prescott Street at the Economy Garage, but would not include changes to the roadway network along Service Road (between the new garage in front of Terminal E and the Economy Garage expansion). The Proposed Project would not result in any off-Airport changes to the

¹⁴ Regional VMT refers to the number of miles traveled by air passengers using ground access options to reach the Airport. The number of ground access miles varies based on the trip’s point of origin, the mode used, and the vehicle occupancy. Regional VMT can vary year-to-year based on several factors, primarily the number of air passengers serviced by the Airport. Secondly, changes to the transportation system has an impact to the ground transportation options available to air passengers and thus their ground transportation decisions and activities. Regional VMT is anticipated to grow, particularly if there is not enough available on-Airport parking to meet demand.

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roadway system. **Table 4-3** summarizes the potential impacts of the Proposed Project on surface transportation. The analysis assesses the impact of the Proposed Project on the levels of service for intersections, roadways, and curbs in the vicinity of the proposed new garage in front of Terminal E and, as applicable, the Economy Garage expansion. For the purposes of this analysis, level of service (LOS) D and above are generally considered acceptable, while LOS E is nearing capacity and LOS F is considered failing.¹⁵

Table 4-3 Summary of Potential Effects of the Proposed Project on Surface Transportation

Area of Impact	Existing Conditions	No-Build Alternative	Proposed Project
Regional VMT	—	Higher Regional VMT	Lower Regional VMT
Intersection Operations	LOS C or better	LOS D or better ¹	LOS D or better ¹
Curbside Operations ²	Curb 2 – LOS C, except for the Courtesy Bus curb area and roadway (LOS D and E, respectively)	Curb 2 - LOS E	Curb 2 – LOS D and LOS E
Transit Capacity ³	Sufficient Capacity	Sufficient Capacity	Sufficient Capacity

Source: VHB

Notes:

- 1 With Massport intervention in keeping with its long-standing policy that traffic operations along roadways be maintained or enhanced to accommodate passenger levels.
- 2 Assumes the linear pick-up space along Curb 2 is unchanged but that a fourth lane is constructed under the No-Build Alternative as part of the Terminal E Modernization Project.
- 3 "Sufficient Capacity" is determined by the MBTA's Service Delivery Policy available at <https://cdn.mbta.com/sites/default/files/fmcb-meeting-docs/reports-policies/2017-mbta-service-delivery-policy.pdf>.

4.5.1.1 Methodology

This analysis considers regional VMT, as well as on-Airport traffic conditions including at Terminal E roadways, select intersections along Service Road between Terminal E and the Economy Garage, and Terminal E curbsides. Detailed methodologies are provided in Appendix E, *Surface Transportation Technical Appendix*.

- Airport-related regional VMT was assessed using a similar methodology as was presented in the Project's ENF. The overall approach to determining the resulting net different in regional VMT between the No-Build Alternative and the Proposed Project was to:
 - Determine the annual number of vehicles unable to park on-Airport given the existing number of lined revenue spaces (i.e., "would-be" parkers required to use other modes) and assumed growth rate commensurate with the FAA's Fiscal Year 2018 TAF (see Appendix D, *Federal Aviation Administration Terminal Area Forecast*) for the years 2022 and 2030;
 - Using the most recent available *Logan Airport Air Passenger Ground Access Survey* data from 2016, distribute air passengers to alternative ground-access modes per their stated preference based on their origin;
 - Calculate the VMT for the alternative mode used based on number of trips for alternative mode and distance between origin and the Airport; and
 - Compare the VMT of the alternative mode with the VMT if they were able to park on-Airport.

¹⁵ Highway Capacity Manual 2016, Transportation Research Board of the National Academies, Washington, DC.

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- Direct on-Airport impacts related to vehicular traffic at Terminal E roadways, select intersections along Service Road between Terminal E and the Economy Garage, and Terminal E curbsides were assessed using standard transportation planning industry practices for the evaluation of transportation systems and infrastructure. The analysis condition established for the determination of impacts is associated with peak summer/average day peak hour traffic operations expected at Logan Airport when activity levels reach 50 MAP. On-Airport vehicle growth was based on projected passenger forecasts for 50 MAP conditions and assumed mode share and vehicle occupancy rates appropriate for the 50 MAP forecast. Volumes were redistributed with respect to changes in the roadway system and the addition of the new parking spaces on-Airport.

Two standard industry tools were used to analyze roadway, intersection, and curbside conditions. These tools include:

- *Synchro* – Intersection network modeling software used to analyze key on-Airport signalized and unsignalized intersections.
- *QATAR* – Spreadsheet model used to analyze curbside operations.

Analysis Conditions

The analysis of direct impacts on surface transportation includes a full-build analysis year (2030) that is five years after the point when both proposed garages are operational and an interim analysis year that is the expected date of first operations at the new garage in front of Terminal E (2022). The full-build analysis year is consistent with the Massachusetts Department of Transportation's Transportation Impact Assessment Guidelines.¹⁶

The Surface Transportation Study Area for the on-Airport analysis, which is described in Chapter 3, *Existing/Affected Environment*, was analyzed for the No-Build Alternative and for the Proposed Project. The No-Build Alternative assumes changes to the Airport transportation infrastructure that are currently planned to be constructed by 2030. As discussed in Chapter 3, *Existing/Affected Environment*, due to the nature of international travel, peak on-Airport travel conditions at Terminal E occur during the weekday evening peak hours. The analysis of potential on-Airport traffic impacts related to the Proposed Project is therefore limited to these peak hours in the vicinity of Terminal E. An evaluation of Service Road was completed for more traditional morning and evening peak hours.

Future traffic volumes in the Surface Transportation Study Area were estimated based on the methodology discussed previously in this section, with traffic related to the Proposed Project distributed throughout the existing roadway network based on existing travel patterns. Estimated vehicular volumes in 2030 under the No-Build Alternative and the Proposed Project are depicted in **Figures 4-1** through **4-8**. As described below, modifications are anticipated for the roadway network directly in front of Terminal E, with some to be implemented under the No-Build Alternative while others are implemented only as part of the Proposed Project (including elimination of the existing recirculation road in the vicinity of Terminal E).

¹⁶ MassDOT. 2015. *Transportation Impact Assessment (TIA) Guidelines*. March 13, 2014.

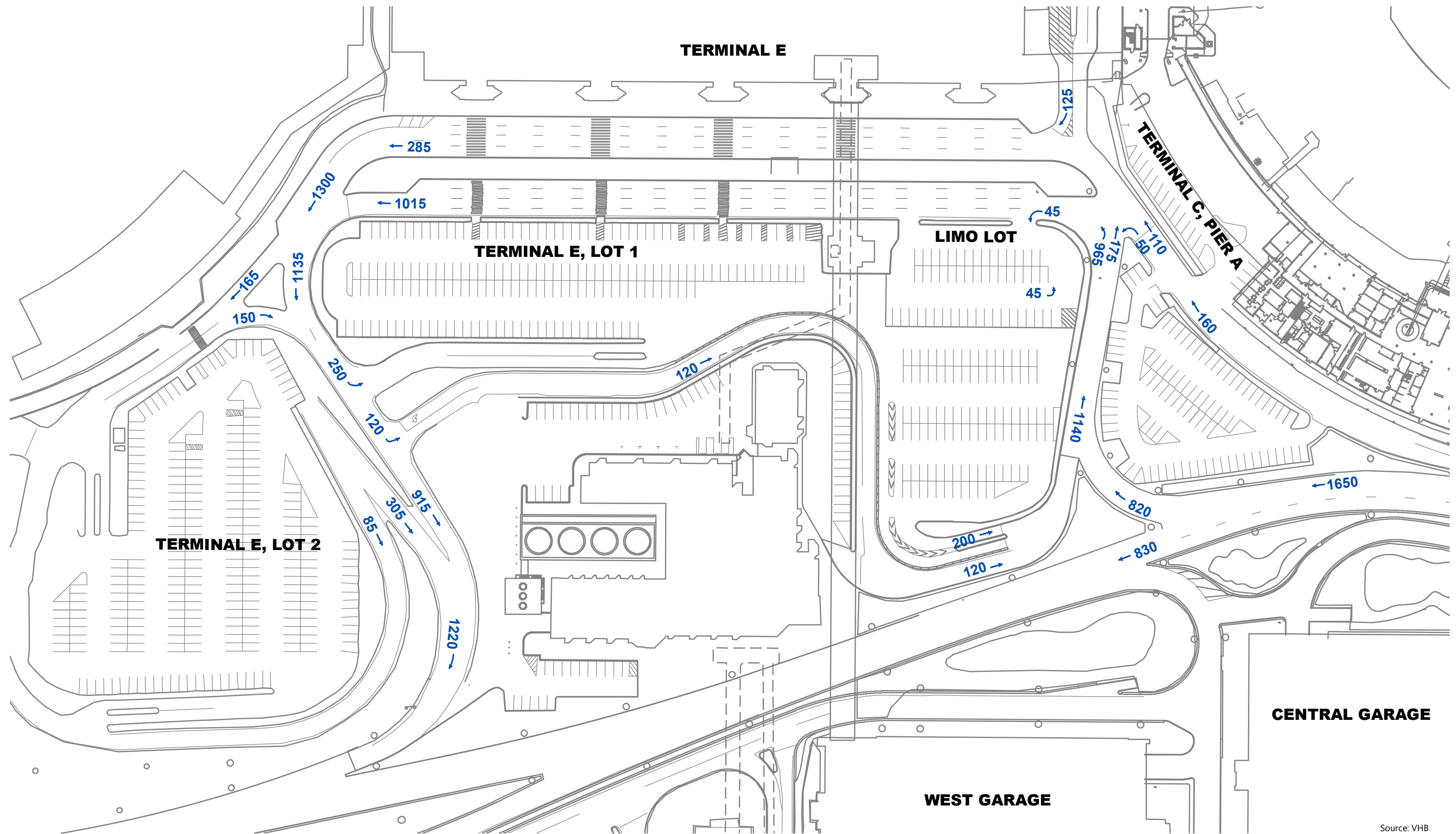
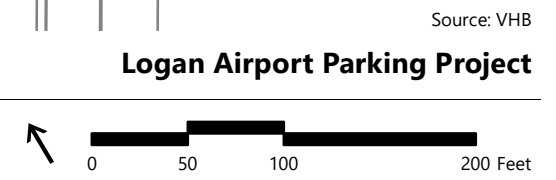


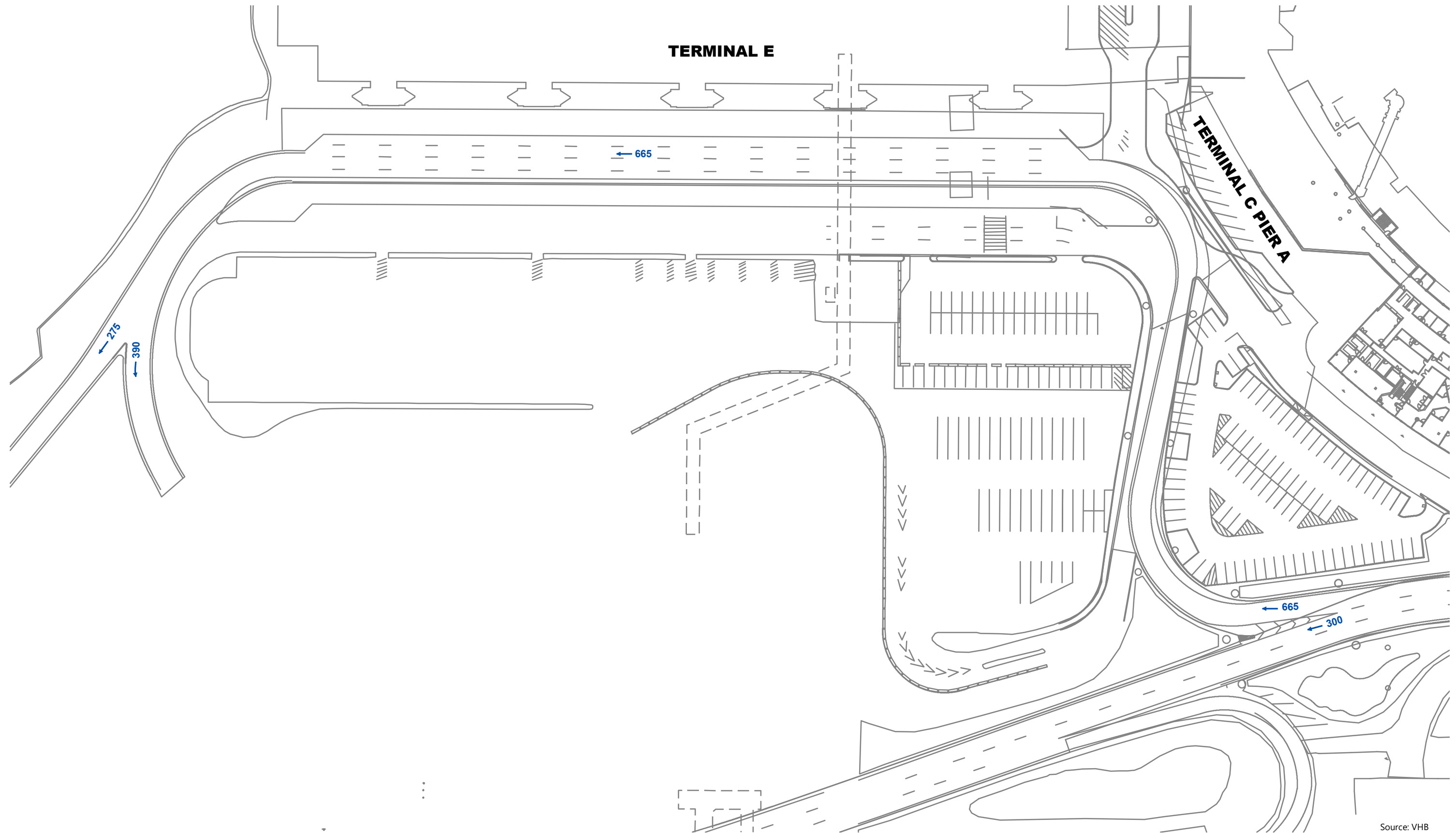
FIGURE 4-1 No-Build Alternative (Future Condition) - Arrivals PM Peak Hour Traffic Volumes*

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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Source: VHB

FIGURE 4-2 No-Build Alternative (Future Condition) - Departures PM Peak Hour Traffic Volumes*

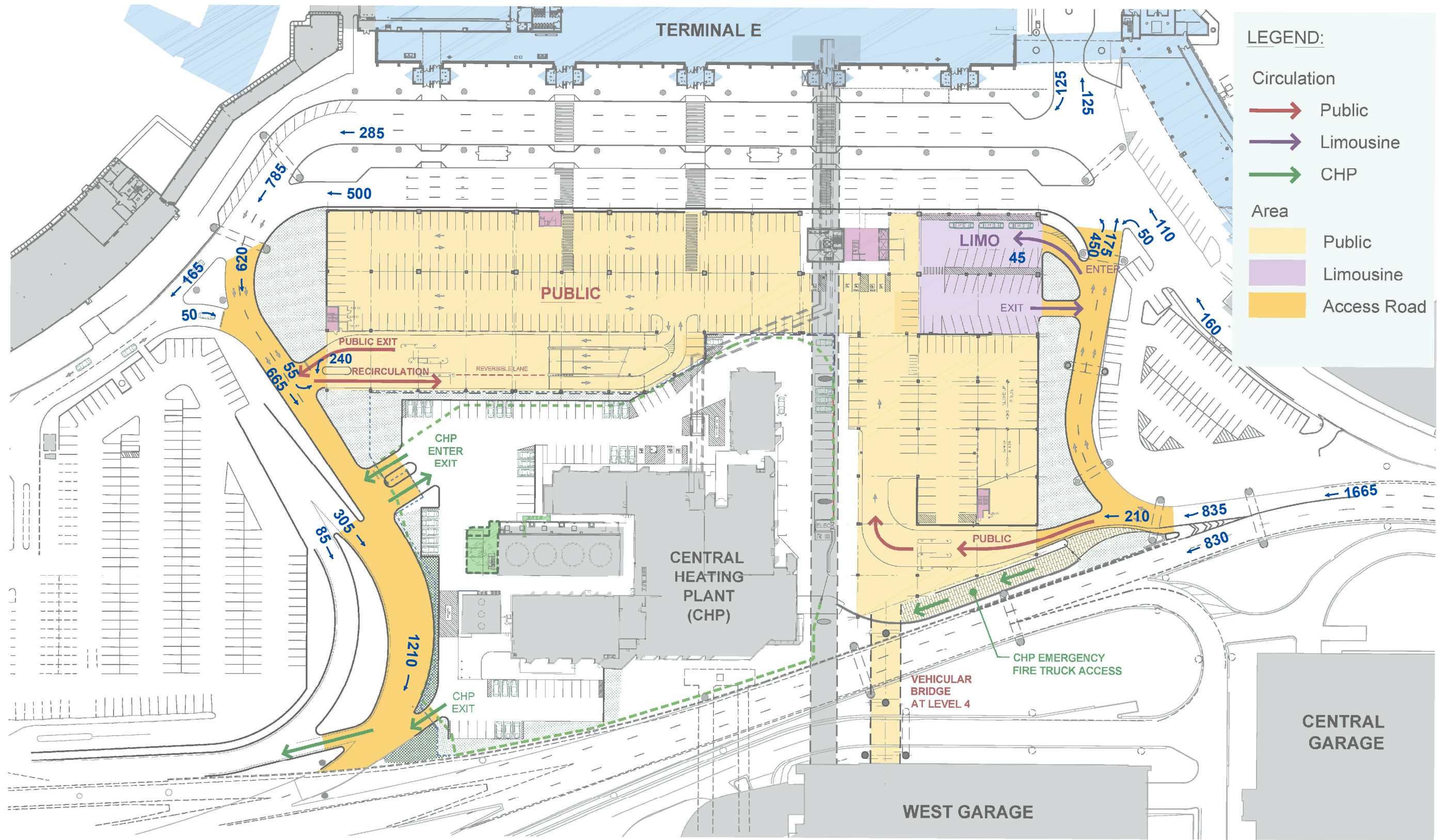
Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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Source: VHB

FIGURE 4-3 Build Alternative (Future Condition) - Arrivals PM Peak Hour Traffic Volumes*

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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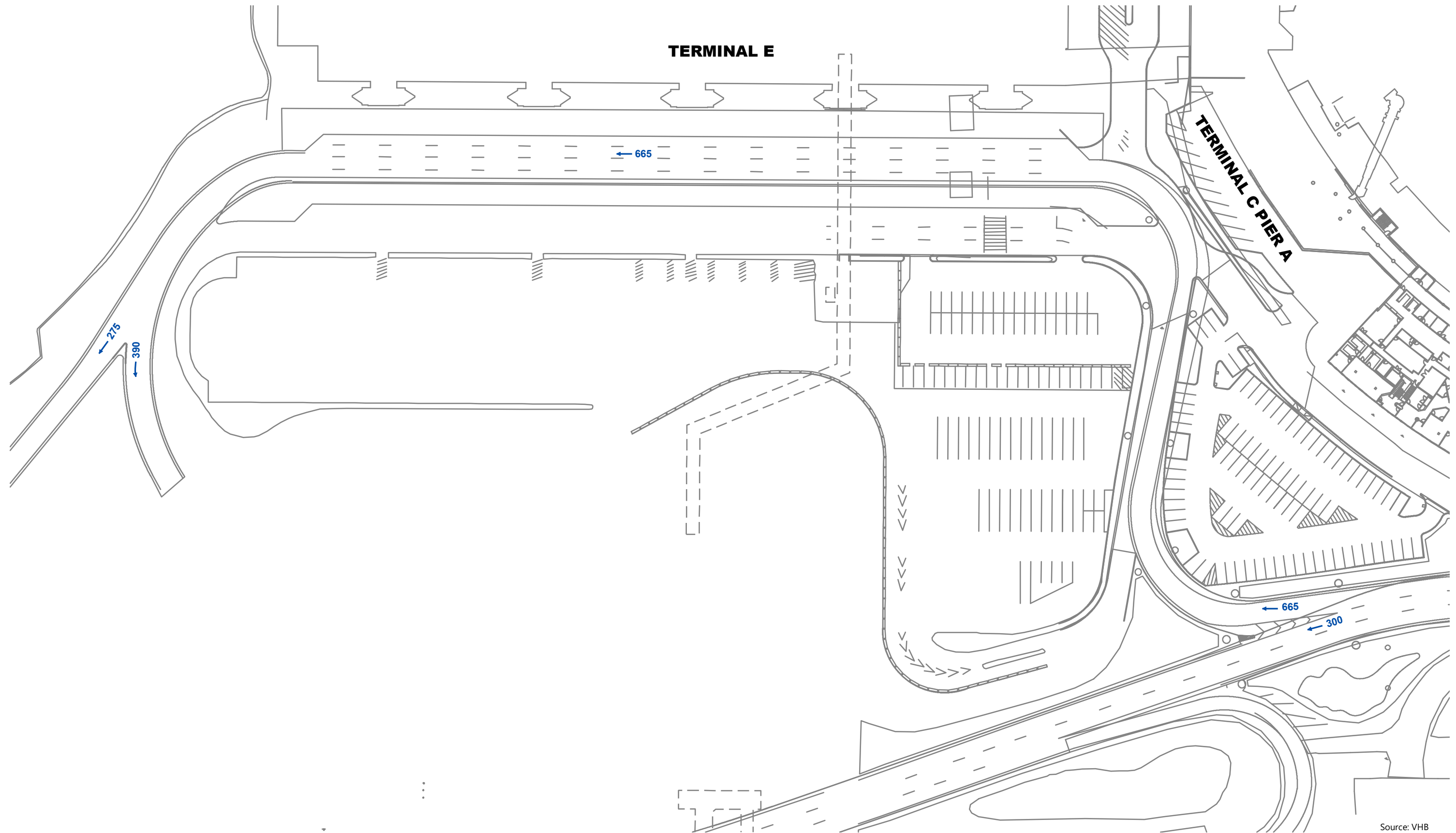


FIGURE 4-4 Build Alternative (Future Condition) - Departures PM Peak Hour Traffic Volumes*

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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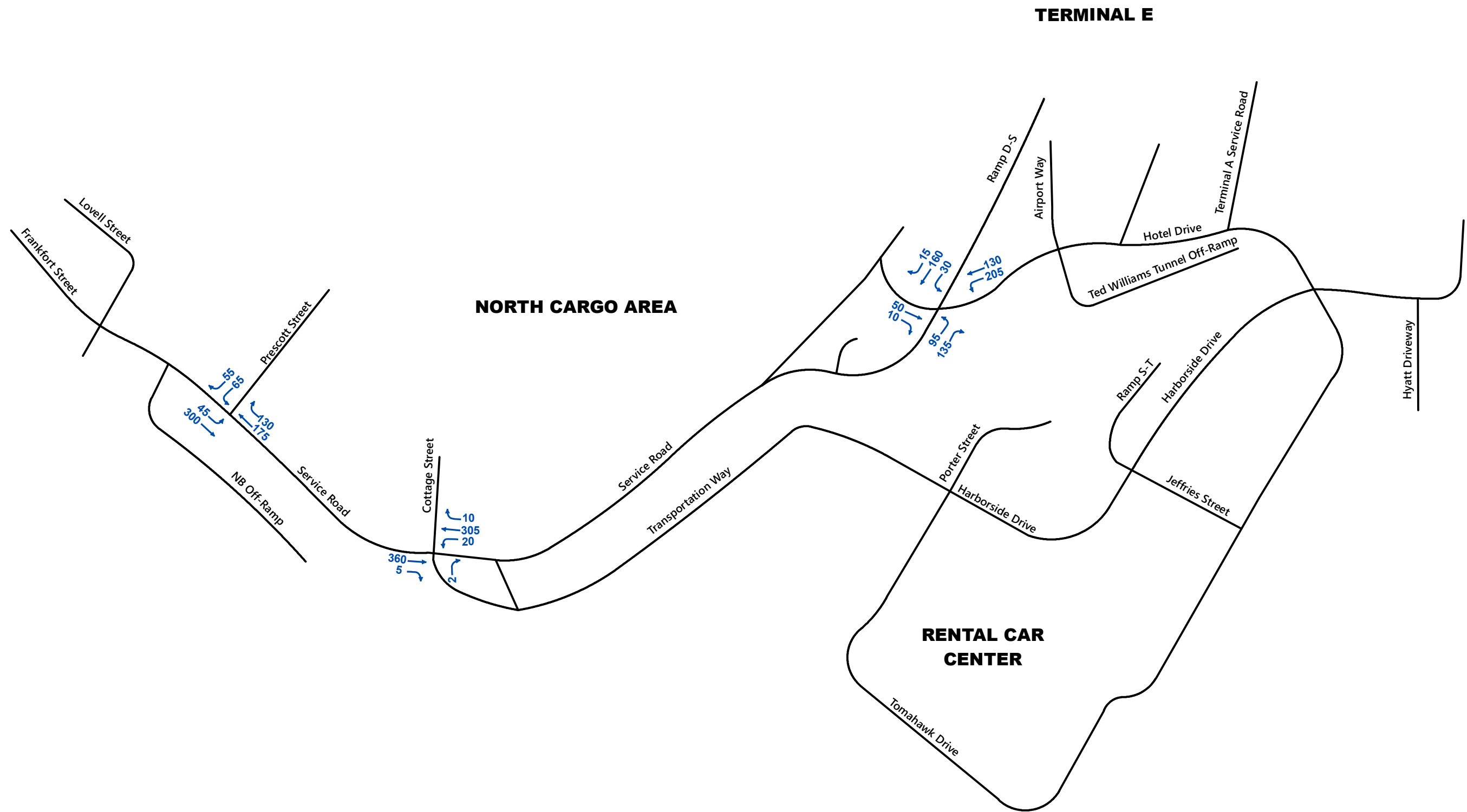


FIGURE 4-5 No-Build Alternative - Service Road August Traffic Volumes Morning Peak (6-7 A.M.)

Source: VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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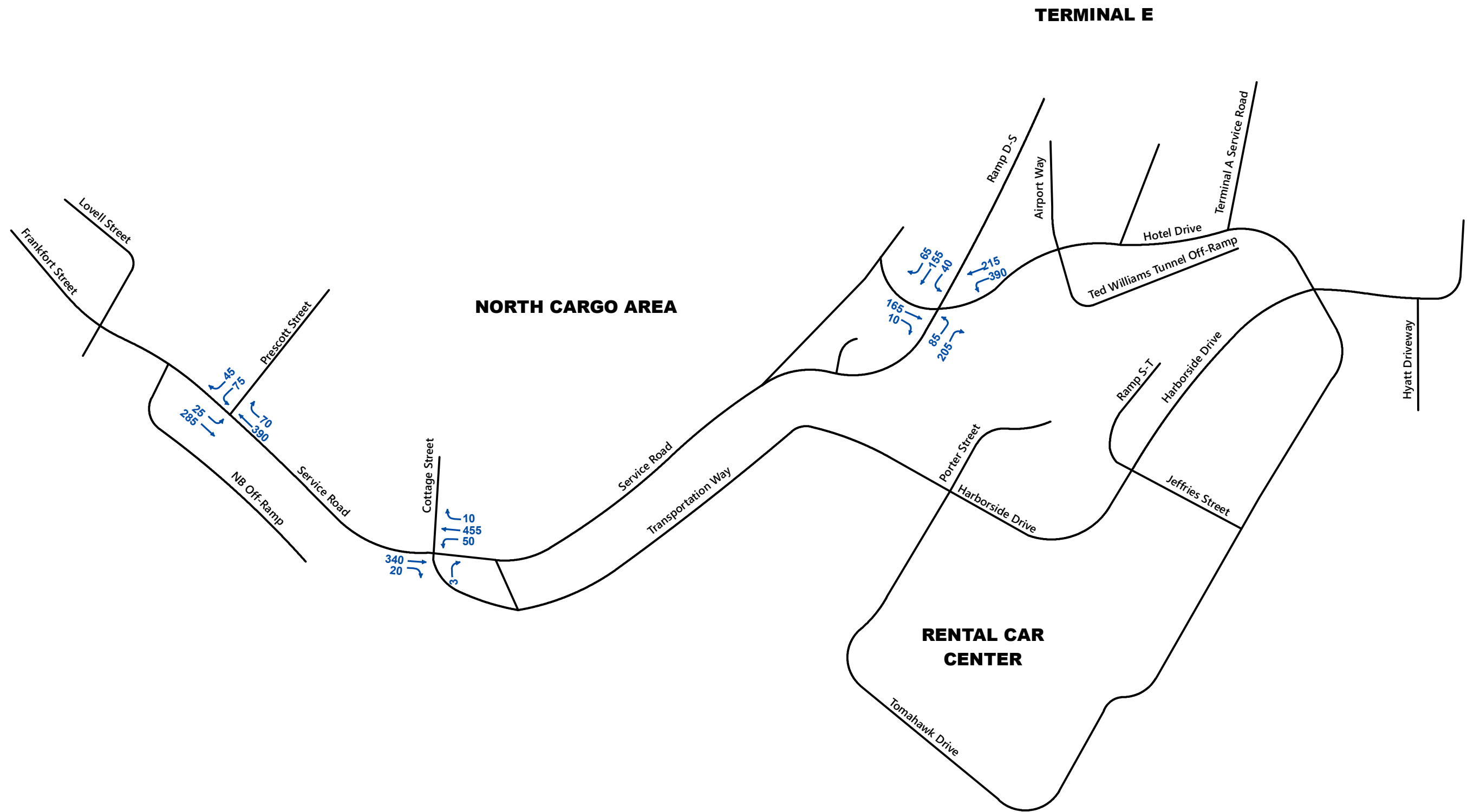


FIGURE 4-6 No-Build Alternative - Service Road August Traffic Volumes Evening Peak (4:15-5:15 P.M.)

Source: VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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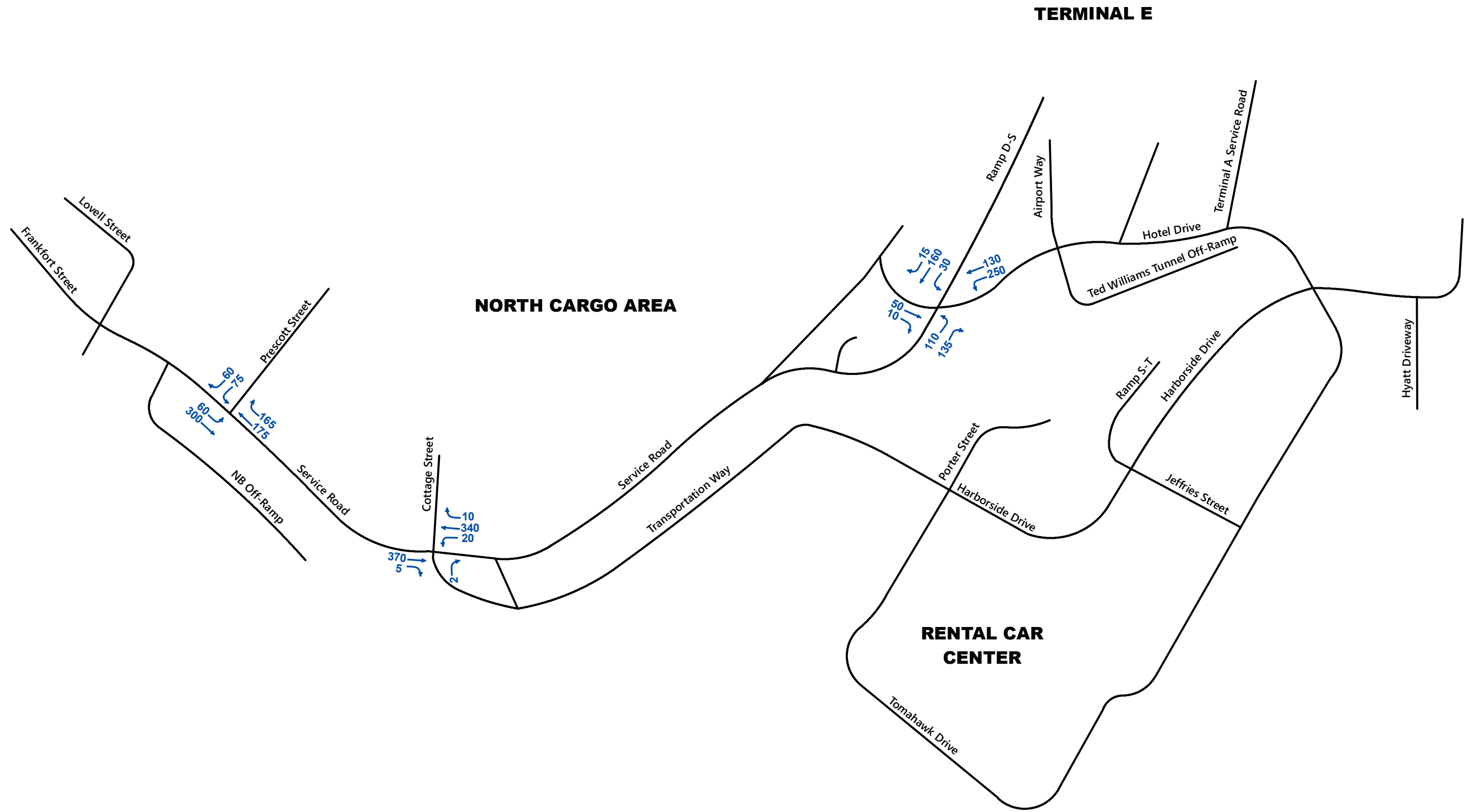


FIGURE 4-7 Build Alternative - Service Road August Traffic Volumes Morning Peak (6-7 A.M.)

Source: VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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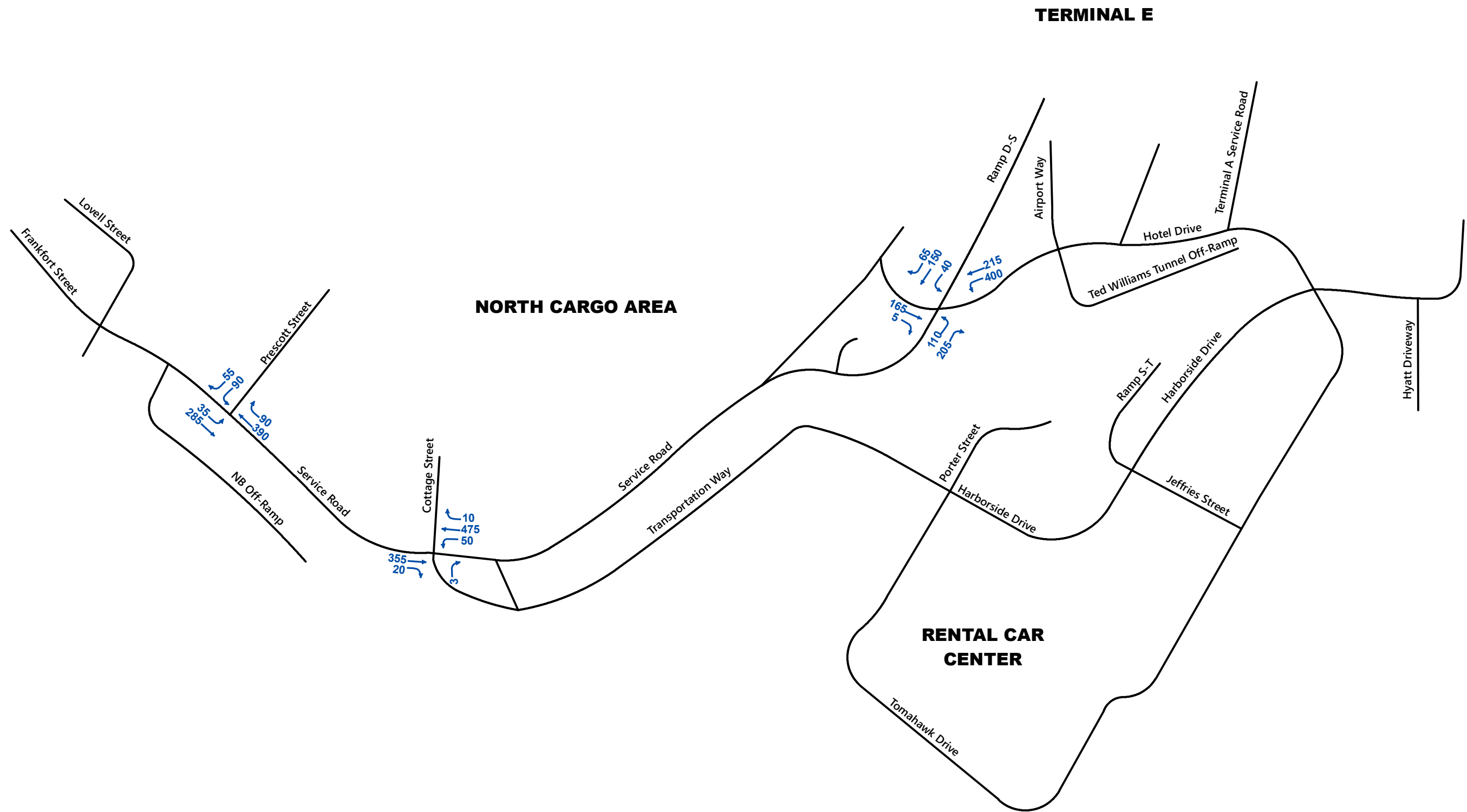


FIGURE 4-8 Build Alternative - Service Road August Traffic Volumes Evening Peak (4:15-5:15 P.M.)

Source: VHB

Logan Airport Parking Project

Traffic Volume
 → Traffic Direction *Peak Summer/Average Day



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Assumed Roadway/Operations Changes

Table 4-4 presents the assumed roadway and operational changes used in the analysis of the No-Build Alternative and Proposed Project.

Table 4-4 Assumed Roadway and Operations Changes in Place by 2030

Condition	Change
No-Build Alternative	<ul style="list-style-type: none"> • Change implemented to Arrivals Level Curb 2 to provide four travel lanes • Terminal E Modernization Project complete • Convenience and Filling Station Relocated to the Southwest Service Area • Terminal C Canopy, Connector, and Roadways Project complete • Silver Line service provided to Arrivals and Departures Levels¹ • Increased headways provided on the Silver Line and Logan Express • All transportation network company (TNC) activity relocated to the Central Garage complex • A centralized Receiving and Distribution Facility opened on Route 1A²
Proposed Project	<ul style="list-style-type: none"> • New garage in front of Terminal E – access to/from the Terminal E Arrivals Level only (2022) • Elimination of the existing Recirculation Road in the vicinity of Terminal E and removes the circuitous existing route for parking vehicles (2022) • Expansion of the Economy Garage – no associated roadway changes (2025)

Source: VHB.

Notes:

- 1 Due to existing vertical clearance limits on the Terminal B Departures Level, Silver Line service is only provided on the Arrivals Level. The future bus fleet will have lower clearance height and Massport anticipates allowing drop-off activity on the Departures Level.
- 2 Concession deliveries to individual terminals are no longer be permitted. All deliveries are processed at an off-Airport centralized Receiving and Distribution facility on Route 1A. This facility opened in 2018.

4.5.1.2 Direct Impacts - Surface Transportation

This section provides an analysis of the Proposed Project’s potential effects on regional VMT. It also presents the on-Airport surface transportation traffic analysis with respect to Terminal E roadways, select intersections along Service Road between Terminal E and the Economy Garage, and Terminal E curbsides.

Regional VMT Analysis

The Proposed Project would reduce Airport-related regional VMT by adding 5,000 new commercial parking spaces entirely on Airport. Similar to the results presented in the Project’s ENF, the additional parking spaces are estimated to decrease drop-off/pick-up travel, reducing overall trips and associated VMT. The estimated regional VMT reduction, updated to reflect conditions associated with 50 MAP, amounts to 5,207,627 miles or a reduction of 10 percent compared to the No-Build Alternative. A portion of this reduction would be realized when the new garage in front of Terminal E is operational in 2022. Compared to the No-Build Alternative, the Proposed Project is estimated to reduce regional VMT by 1,305,190 miles or by 10 percent in 2022. The regional VMT reductions associated with the Proposed Project are tabulated and presented **Table 4-5**.

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Table 4-5 Logan Airport Parking Project Regional VMT Benefits (2022 and 2030)

Year	Condition	Annual Regional VMT of "Would-Be Parkers"
2022	No-Build Alternative	13,584,217
	Build Alternative/Proposed Project	12,279,027
	Difference	1,305,190 (10%)
~2030	No-Build Alternative	52,130,253
	Build Alternative/Proposed Project	46,922,626
	Difference	5,207,627 (10%)

Source: VHB.

The Proposed Project would provide the following benefits that would directly translate to regional VMT reductions:

- Shifting “would-be parkers” from drop-off/pick-up modes to parking;
- Reducing the number of trips associated with “would-be parkers” traveling to and from the Airport; and
- Reducing recirculation at the Terminal E curbsides resulting in decreases in on-Airport VMT.

On-Airport Surface Transportation Analysis - Full-Build (2030)

The following sections present the on-Airport surface transportation traffic analysis with respect to Terminal E roadways, select intersections along Service Road between Terminal E and the Economy Garage, and Terminal E curbsides. This analysis presents the potential effects of the Proposed Project under full-build (2030) conditions during peak summer/average day peak hour traffic operations when activity levels are projected to reach 50 MAP.

Roadway and Intersection Operations

Under the No-Build Alternative, conditions on the Terminal E roadways are expected to deteriorate and congestion is expected to increase. The unique peaking characteristics of Terminal E and general East Coast red-eye flight activity, combined with increased passenger loads, are expected to add increased congestion to the terminal ramps and curbsides, as well as the weaving area between Terminals C and E. These issues are being addressed by a robust set of Massport policy initiatives and construction projects, and are not directly analyzed as part of the Proposed Project; the Project has no influence on and is not negatively impacted by their outcome. Many of these policies are still in the development stage and will be documented in Massport’s annual EDR/ESPR filings, as appropriate, as they are further refined.

The Proposed Project may influence traffic operations along Service Road (connection to the Economy Garage expansion) by increasing traffic during peak parking conditions and along Curb 2 of the Terminal E Arrivals Level, which provides direct access to the existing surface parking lots in front of Terminal E. An evaluation of these roadways is discussed below. **Table 4-6** presents traffic operations at Airport intersections under existing conditions, as well as under the future No-Build Alternative and for the Proposed Project under 50 MAP conditions.

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Table 4-6 Overall Traffic Operations - No-Build Alternative and the Proposed Project (2030)

Location	Period	2017 Existing			2030 No-Build Alternative			2030 Proposed Project		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Service Road at Prescott Street ¹		0.16	2	A	0.19	3	A	0.24	3	A
Service Road at Cottage Street ²	<i>Weekday Morning</i>	0.16	2	A	0.24	3	A	0.20	3	A
Hotel Drive at Ramp D-S		0.44	13	B	0.39	12	B	0.44	13	B
Service Road at Prescott Street ¹		0.19	2	A	0.29	3	A	0.33	3	A
Service Road at Cottage Street ²	<i>Weekday Evening</i>	0.20	3	A	0.28	3	A	0.30	3	A
Hotel Drive at Ramp D-S		0.73	21	C	0.63	16	B	0.61	16	B

Source: VHB.

Notes:

v/c Volume to capacity ratio

Delay Average intersection delay, measured in seconds

LOS Level-of-service

1 Unsignalized intersection

2 Flashing traffic signal that currently operates as an unsignalized intersection

The future No-Build Alternative assumes any necessary traffic signal timing, phasing, or intersection 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. The No-Build Alternative results also show improvements gained at the Hotel Drive/ Ramp D-S intersection once TNCs are removed from traffic volume circulating the terminal area roadways, which is a Massport action occurring independently of the Logan Airport Parking Project.

Under the Proposed Project, as shown in **Table 4-6**, the results of the analysis indicate that all study intersections would operate at LOS B or better (with all lane movements at each intersection operating at LOS D or better) during the weekday morning and evening peak hours.

Curbside Operations

Curbside operations analyses were completed for Arrivals Level Curb 2 for this assessment, as this curb is the only curb affected by the Proposed Project. 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*. Under existing conditions, Curb 2 passenger zones on the Terminal E Arrivals Level (serving charter bus, courtesy bus, and private automobiles) operate at LOS C under existing conditions and bus zones operate at LOS D. The adjacent travel lanes operate at LOS E due to the passenger vehicle demands for recirculating vehicles and parking vehicles intermixing with pick-up activity.

Under the No-Build Alternative, as part of the Terminal E Modernization Project, Curb 2 would be modified to provide four travel lanes (one more than under existing conditions). As discussed in the Terminal E Modernization Project EA/DEIR,¹⁷ this curb was to be lengthened; however, this is no longer anticipated. The additional travel lane along Curb 2 will allow for an improvement in roadway levels of service, from LOS D to

¹⁷ Terminal E Modernization Project Environmental Assessment / Draft Environmental Impact Report, prepared for Massachusetts Port Authority by VHB et al. (EEA #15434), July 15, 2016.

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LOS C, reflecting additional space for vehicles traveling to parking or recirculating to separate from curbside activity. At the same time, pick-up activity for passengers is expected to degrade from LOS D to LOS E conditions because of improved air passenger throughput associated with the Terminal E Modernization Project. Passenger levels under the No-Build Alternative include an estimate of improved passenger flow from the terminal building to the curb. This is estimated based on the improved gate availability and improved operations in Customs and Border Patrol processing. Massport recognizes that other curbside improvements may be necessary if passenger throughput is improved. These are being considered separately from the Proposed Project.

The Proposed Project is specifically designed to improve curbside operations along the Arrivals Level Curb 2. It removes the ability for vehicles to recirculate or “loop” within Terminal E and removes the circuitous existing route for parking vehicles (under current conditions, all entering traffic must drive through Curb 2 to access the parking lot and drive through Curb 2 again upon exiting the parking lot). With the Proposed Project, the primary garage entrance would be located at the entry to the terminal and the garage exit would be located at the terminal exit. These changes reduce the total volume of vehicles traveling through the curbside from 1,015 vehicles during the peak hour to 500 vehicles during the peak hour, and accordingly, roadway levels of service would improve from LOS C to LOS B.

Since there is no difference in the geometric layout of Curb 2 between the No-Build Alternative and the Proposed Project, there are no quantifiable improvements to curbside activity between the conditions. Reducing overall vehicular volume through Curb 2 by half, however, is expected to have a positive effect on curbside operations - passengers would be more easily able to pull away from the curb. This improvement cannot be specifically measured within the methodology of the QATAR analysis.

As Massport continues to refine the design of the roadway system in front of Terminal E, additional modifications to curbside length and allocation are being considered as part of the Terminal E Modernization Project to improve levels of service in the long-term. Keeping with Massport’s policy in maintaining operations to accommodate passenger levels, the curbside will be continually monitored as part of that project as passenger levels increase towards 50 MAP.

Parking

Under the No-Build Alternative, parking activity would be maintained in the existing surface lots located at Terminal E. Parking demand is expected to increase proportionally with respect to mode share under 50 MAP conditions. It is expected that parking overflow will become more common during peak travel weeks of the year, requiring Massport to use the Terminal E lots more frequently for overflow storage from the Central Garage complex and the Economy Garage. The increase in parking has a direct impact on curbside operations along Curb 2. As discussed in Chapter 3, *Existing/Affected Environment*, although there are no time restrictions in the parking lots surrounding Terminal E (meaning customers can park long-term if they wish), many customers choose these lots for short-term parking when meeting international travel parties. The use of overflow parking not only has an effect on Airport roadway operations, but has the potential to reduce the amount of short-term parking available at Terminal E. Customers using this parking for the short-term are often least familiar with the Airport roadway network and have a reduced ability to navigate to other on-Airport parking locations.

Experience at Logan Airport has demonstrated that an insufficient parking supply results in short-term and long-term consequences. In the short-term, an insufficient supply creates operational challenges for Massport such as on-site and off-site parking diversions and forced valet service that result in an overall decrease in

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customer satisfaction; it also increases on-Airport VMT from drivers circulating looking for parking. In the long-term, if parking is not consistently available to customers, they will opt to use alternative modes to access the Airport such as environmentally undesirable drop-off/pick-up modes. Past passenger survey efforts have indicated that while many passengers will opt to use alternative modes of access, very few would choose public transit or similar HOV mode to the Airport and will use drop-off/pick-up modes instead.

As discussed previously, the Proposed Project would provide approximately 2,000 spaces in a new garage in front of Terminal E and approximately 3,000 spaces through the expansion of the existing Economy Garage. The new garage in front of Terminal E would be sited on the existing surface lots that comprise Terminal E, Lot 1, as well as the existing limousine lot. It is estimated that 35 spaces of the approximately 2,000 total spaces in this garage would be dedicated to limousines. The limousine spaces would be sited on the ground floor in the northeast corner of the garage.

On-Airport Surface Transportation Analysis - Interim Condition (2022)

A qualitative assessment of the interim condition shows that all potential benefits and impacts associated with the roadways and curbside in the vicinity of Terminal E would be realized when the new garage in front of Terminal E is first operational in 2022. Under the interim condition, less vehicles would be diverted to the Economy Garage and the Green Lot, which is on Lovell Street by the North Gate, because of the reduced need to divert overflow parking from the terminal area to these facilities.

4.5.1.3 Indirect Impacts - Surface Transportation

No indirect impacts from the Logan Airport Parking Project on surface transportation are anticipated. The Secretary's Certificate on the Project's ENF requires that this DEIR/EA demonstrate that HOV programs will provide capacity to meet the demands associated with future growth. Many of these programs and policy initiatives are currently under development and will be the subject of future documentation, particularly in the upcoming *2017 ESPR*.

The policies and programs undertaken by Massport assume that Logan Airport will reach a 40 percent HOV mode share by 2027, with a portion of the 40 percent being achieved with the use of taxis and TNCs, of which there is sufficient capacity to meet projected demand. Massport shuttles, which carry passengers from Economy Parking, Water Transportation, the MBTA Blue Line, and Rental Car Center, are continually evaluated to ensure they meet Massport customer service requirements; the fleet would be expanded, as necessary, to maintain the high-level service that Massport requires (e.g., short headways, available seating, etc.). Massport shuttles serving employees are equally evaluated and would handle any increase in employment that is necessary to support passenger growth. Services such as Logan Express, charter buses, scheduled buses, and courtesy buses are similarly sized to demand and would continue to be sized appropriately moving forward.

Two MBTA public transit lines, the Blue Line and the Silver Line, regularly serve the Airport and carry about 6.1 percent of passengers to/from the Airport. Considering the proposed policy changes discussed above, Massport estimates an increase of 1,900 passengers per day when the Airport reaches the 50 MAP threshold. **Table 4-7** presents a comparison of the number of passengers anticipated.

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Table 4-7 MBTA Blue and Silver Line Airport Passenger Ridership Estimates¹

Location	Existing (38.5 MAP)		Future (50 MAP)	
	Total Air Passengers	MBTA Passengers	Total Air Passengers	MBTA Passengers
Daily	110,950	6,800	147,340	8,700
Morning Peak Hour	8,170	500	9,000	530
Evening Peak Hour	8,460	515	11,100	650

Source: VHB, Massport.

Note:

1 Estimated mode share changes due to HOV initiatives as estimated by Massport.

Existing MBTA Blue Line and Silver Line Capacity

The MBTA currently runs Blue Line trains at a five-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 capacity¹⁸ of 95 passengers per car and a crush capacity¹⁹ 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.

With respect to the Silver Line buses, Massport continually evaluates the service to ensure it meets Massport's customer service requirements. In coordination with the MBTA, Massport sizes the fleet appropriately according to demand. This is evidenced by Massport's commitment to pay for eight additional Silver Line buses (bringing the total to 16) to operate on the SL1 route by December 2024. Bringing these buses into service is dependent on MBTA procurement.

Future MBTA Blue Line Demand

Existing boarding and alighting (i.e., disembarking) counts²⁰ were used to estimate passenger loads between stations in the inbound (leaving from) and outbound (arriving at) directions. These passenger loads were assumed to grow by 1.5 percent per year to approximate future background growth to arrive at an estimate of 2030 Blue Line demand.

As shown in **Table 4-8**, the highest passenger loads at Airport Station are during the 5:00 to 6:00 PM peak hour in the outbound direction. This peak hour was used in the analysis. During the 5:00 to 6:00 PM peak hour, the Blue Line is estimated to have additional capacity for approximately 2,500 passengers at Airport Station over service policy capacity, or an additional capacity of 6,000 passengers per hour over crush capacity. This additional capacity can accommodate the anticipated additional 135 weekday evening peak hour passengers shown in **Table 4-7**.

Since Silver Line buses are free from Logan Airport, existing boarding and alighting counts were not available to estimate passenger loads between stations in the inbound direction. Therefore, passenger loads were not included in this assessment and peak period demand was not estimated. As mentioned, however, Massport continually evaluates the service to ensure it meets Massport's customer service requirements.

18 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.

19 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).

20 2012 counts, CharlieCard Trip Paths Phase 2 Study

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Table 4-8 Estimated Future Blue Line Passenger Loads (2030)

Westbound/Inbound Total PM Peak Load Leaving From...				Eastbound/Outbound Total PM Peak Load Arriving At...			
Stations	3PM to 4PM	4PM to 5PM	5PM to 6PM	Stations	3PM to 4PM	4PM to 5PM	5PM to 6PM
Wonderland	271	282	261	Bowdoin	0	0	0
Revere Beach	485	503	465	Govt Ctr Blue	329	461	420
Beachmont	626	616	612	State Blue	2,335	2,834	2,761
Suffolk Downs	663	668	669	Aquarium	3,980	4,760	4,751
Orient Heights	863	880	852	Maverick	4,165	5,248	5,476
Wood Island	978	1,030	937	Airport	2,976	4,016	4,289
Airport	1,519	1,551	1,490	Wood Island	2,370	3,297	3,651
Maverick	2,144	2,182	2,016	Orient Heights	2,107	3,006	3,399
Aquarium	2,192	2,339	2,233	Suffolk Downs	1,577	2,356	2,668
State Blue	1,294	1,212	1,118	Beachmont	1,484	2,242	2,534
Govt Ctr Blue	41	27	50	Revere Beach	1,097	1,715	1,898
Bowdoin	0	0	0	Wonderland	693	1,220	1,473

Source: MBTA.

Based on the MBTA’s Service Delivery Policy,²¹ in concert with Massport’s policy to ensure Silver Line service meets Massport’s customer service requirements, public transit services to/from the Airport have sufficient capacity now and in 2030 under 50 MAP conditions.

4.5.1.4 Temporary Construction Related Impacts - Surface Transportation

In accordance with the Secretary’s Certificate on the Project’s ENF and FAA Orders 1050.1F and 5050.4B, Massport analyzed potential construction-related impacts. Temporary, construction-related impacts occur on a short-term basis during the construction period based on construction methods, duration, materials, and equipment. Massport has identified best practices that would minimize the likelihood of negative construction impacts on the natural and built environments.

New Garage in Front of Terminal E

Massport expects to begin construction of the new garage in front of Terminal E in early 2020 and complete construction in 2022. Construction would start with the six parking levels on the east side of the pedestrian bridge that connects Terminal E to the Central Garage complex, followed by five parking levels on the west side of the pedestrian bridge. The construction sequence of the new garage in front of Terminal E are outlined below.

²¹ The MBTA’s Service Delivery Policy is available at: <https://cdn.mbta.com/sites/default/files/fmcb-meeting-docs/reports-policies/2017-mbta-service-delivery-policy.pdf>.

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■ East Section - Six Level Garage:

- ❑ Construction fencing and environmental protection;
- ❑ Utility relocations and proposed underground utility work;
- ❑ Deep foundations, foundation caps and grade beams;
- ❑ Erection of the vehicular bridge from the south to the north;
- ❑ Precast erection for the six-level portion of the new garage in front of Terminal E;
- ❑ Precast erection of the remaining portion of the garage west of the pedestrian walkway;
- ❑ Six level garage structure outfitting by follow-on trades such as electrical, plumbing, signage, vehicular monitoring, and landscaping along with road access and egress;

■ West Section - Five Level Garage:

- ❑ Construction fencing and environmental protection;
- ❑ Utility relocations and proposed underground utility work;
- ❑ Deep foundations, foundation caps and grade beams;
- ❑ Precast erection for the five-level portion of the new garage in front of Terminal; and
- ❑ Five level garage structure outfitting by follow-on trades such as electrical, plumbing, signage, vehicular monitoring, and landscaping along with road access and egress.

During the final stages of the west section construction, the east and west “tie-in” access ramps and the “in structure” utilities would be linked together to enable the east and west sections of the new garage in front of Terminal E to function as a complete vehicular parking garage.

The following section provides an overview of the construction methods, equipment, and durations for the new garage in front of Terminal E.

Construction Elements

To facilitate the construction of the east section of the new garage in front of Terminal E, construction is considered to be outside of any secured areas. This would allow construction to proceed without having to have an approved temporary Security Identification Display Area (SIDA) fencing and gated areas.

Large equipment, major material deliveries, demolition/waste materials, and trash hauling would use the construction gated areas at the new garage work site. Contractor staff would access the work site through these gated areas as well as any fire rescue responses. New foundations would be comprised of deep pilings, pier caps, grade beams, and structural precast concrete element erection. Large construction cranes would be used during the structural precast erection. **Table 4-9** presents the construction equipment requirements for the east section of the new garage in front of Terminal E.

The construction elements for west section of the new garage in front of Terminal E would mimic the above east section work elements. **Table 4-10** presents the construction equipment requirements for the west section of the new garage in front of Terminal E.

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Table 4-9 New Garage in Front of Terminal E - East Section (Six Levels) Construction Equipment

Equipment Estimate	2020				2021				2022			
	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	2	2	2	3	3	2	1	-	-	-	-	-
Asphalt Paver	-	-	-	-	-	-	-	-	-	-	-	-
Pile Driver Service Crane	1	1	-	-	-	-	-	-	-	-	-	-
Bulldozer	1	1	1	-	-	-	-	-	-	-	-	-
Concrete Paver	-	-	-	-	-	-	-	-	-	-	-	-
Concrete Pump Truck	-	-	-	1	1	-	1	-	-	-	-	-
Concrete Transit Mixer	4	5	6	6	4	-	1	1	-	-	-	-
Crane- Mobile	2	2	2	2	1	1	1	-	-	-	-	-
Dump Trailer	1	1	-	-	-	-	-	-	-	-	-	-
Dump Truck	2	3	6	6	3	2	1	1	1	-	-	-
Dumpster	3	2	2	2	1	1	1	1	-	-	-	-
Excavator	2	2	2	2	1	-	-	-	-	-	-	-
Front End Loader	2	2	2	1	1	1	1	1	1	-	-	-
Material Handler	-	-	1	1	1	1	1	1	1	-	-	-
Pile Driver	1	1	-	-	-	-	-	-	-	-	-	-
Pile Vibrator	1	1	1	-	-	-	-	-	-	-	-	-
Roller- Dirt		1	1	-	-	-	-	-	-	-	-	-
Roller- Pavement	1	1	-	-	-	-	1	1	-	-	-	-
Sweeper	1	1	-	-	-	-	-	-	-	-	-	-
Truck and High-Bed Trailer	7	7	6	6	6	3	3	2	1	-	-	-
Utility Truck	4	4	4	3	2	1	-	-	-	-	-	-
Vibratory Plate Compactor	1	1	1	1	-	-	-	-	-	-	-	-
Water Pump	2	3	3	2	1	1	-	-	-	-	-	-
Water Truck	1		1	1	1	-	-	-	-	-	-	-
Welding Machine	2	2	4	5	5	4	4	-	-	-	-	-
Total	41	43	45	42	31	17	16	8	4	-	-	-

Source: WSP.

Note: Numbers denote average equipment per daily shift.

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Table 4-10 New Garage in Front of Terminal E - West Section (Five Levels) Construction Equipment

Equipment Estimate	2020				2021				2022			
	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	-	-	2	2	2	3	4	4	2	-	-	-
Asphalt Paver	-	-	-	-	-	-	1	1	-	-	-	-
Pile Driver Service Crane	-	-	1	1	-	-	-	-	-	-	-	-
Bulldozer	-	-	1	1	-	-	-	-	-	-	-	-
Concrete Paver	-	-	-	-	-	-	-	-	-	-	-	-
Concrete Pump Truck	-	-	-	-	-	-	1	1	-	-	-	-
Concrete Transit Mixer	-	-	5	4	4	3	4	4	-	-	-	-
Crane- Mobile	-	-	3	3	4	3	2	2	1	-	-	-
Dump Trailer	-	-	1	1	-	-	-	-	-	-	-	-
Dump Truck	-	2	3	3	2	1	1	1	-	-	-	-
Dumpster	-	2	3	3	3	2	2	2	2	-	-	-
Excavator	-	2	2	2	1	1	1	-	-	-	-	-
Front End Loader	-	1	1	1	1	1	1	1	-	-	-	-
Material Handler	-	-	1	1	1	1	1	1	1	-	-	-
Pile Driver	-	-	1	1	-	-	-	-	-	-	-	-
Pile Vibrator	-	-	1	1	-	-	-	-	-	-	-	-
Roller- Dirt	-	-	-	1	1	-	1	1	-	-	-	-
Roller- Pavement	-	-	-	-	-	-	1	1	1	-	-	-
Sweeper	-	-	1	1	1	1	1	1	1	-	-	-
Truck and High-Bed Trailer	-	-	7	6	6	4	3	3	3	-	-	-
Utility Truck	-	-	3	3	3	3	3	2	1	-	-	-
Vibratory Plate Compactor	-	-	1	1	1	1	1	1	-	-	-	-
Water Pump	-	-	2	2	2	2	2	1	-	-	-	-
Water Truck	-	-	-	-	-	-	-	-	-	-	-	-
Welding Machine	-	2	2	4	4	4	2	1	-	-	-	-
Total	-	9	41	42	36	30	32	28	12	-	-	-

Source: WSP.

Note: Numbers denote average equipment per daily shift.

Coordination with Other Construction Activities

Two major construction projects are anticipated to be ongoing simultaneous with the construction of the new garage in front of Terminal E. These projects include Terminal E Modernization and the Terminal C Canopy, Connector, and Roadways Project. The collective construction impacts related to these projects are discussed in Section 4.5.1.5 below.

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Construction Surface Transportation Impacts

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, Frankfort 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.

All materials and workers would be delivered to the work site from Service Road. Materials to be delivered by truck to the Airport would primarily include asphalt pavement, concrete, granular base and sub base materials 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 work 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 4-9** and **4-10** for each quarter from 2020 through 2022. Estimates of the types and numbers of pieces of heavy equipment required for the construction of the new garage in front of Terminal E per work shift were developed based on these equipment schedules.

Construction Truck Traffic

Peak construction activity related to the elements of the new garage in front of Terminal E occurs at different times. The combined peak is anticipated to occur from July through December 2020. 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 45 pieces of construction equipment would be required each day during the peak period of the construction of the east section and 42 pieces of equipment would be required each day during the peak period of the construction of the west section. For the purposes of this traffic analysis, the peak construction period is the third and fourth quarters of 2020, with a combined anticipated total of 84 to 86 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 new garage worksite during non-work hours. This equipment would be used during most workdays; however, they 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.

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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 **Tables 4-11 and 4-12**. Collectively, the construction of the new garage in front of Terminal E would generate approximately five to 38 total truck trips per weekday, depending on the section under construction. It is expected that construction would take place primarily during the day shift, approximately 7:00 AM to 7:00 PM. It was assumed that most light duty trucks, such as escort trucks and pick-up trucks associated with supervisory workers, would all arrive to the new garage work site during the morning peak hour and exit during the evening peak hour. The need for nighttime or weekend work would be further determined during construction phasing development.

Table 4-11 Total Daily Construction Trips - New Garage in Front of Terminal E (East Section)

Year	2020				2021				2022			
	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)	20	22	17	18	12	12	8	6	3	-	-	-
Daily Trips (Misc.)	10	16	12	12	8	8	6	3	2	-	-	-
Total Daily Trips	30	38	29	30	20	20	14	9	5	-	-	-

Source: WSP.

Table 4-12 Total Daily Construction Trips - New Garage in Front of Terminal E (West Section)

Year	2019				2020				2021			
	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)	-	20	21	15	15	14	12	8	5	-	-	-
Daily Trips (Misc.)	-	10	10	10	11	8	6	5	3	-	-	-
Total Daily Trips	-	30	31	25	26	22	18	13	8	-	-	-

Source: WSP.

Construction Truck Routes

Massport would require that the construction contractor use direct construction truck traffic access to the work site from Service Road for the duration of construction. Airport access by the construction 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 work site 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.

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- 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 Route 1A, 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 Route 1A.

Economy Garage Expansion

To accommodate approximately 3,000 new spaces at the Economy Garage, the Economy Garage expansion involves three additional parking levels on top of the facility's existing building footprint (approximately 295,000 square feet) and a six-level addition on the facility's south side with a footprint of approximately 18,000 square feet. The six-level addition is needed for parking spaces and vertical circulation.

Design of the Economy Garage expansion is due to begin in 2022 and construction of the proposed additions is due to be complete by the end of 2025. Anticipated construction phasing starts at the west end of the existing garage and sequentially proceeds toward the east end. As the lower and upper addition levels of the garage are completed, Massport would shift the public parking usage as required to keep the garage in service. The construction sequence of the Economy Garage expansion is outlined below.

- Utility relocations and proposed underground utility work both outside and within the existing building footprint;
- Construction fencing and environmental protection;
- Shore existing interior/exterior garage columns with needle beam support;
- Install proposed deep foundations and cast-in-place foundation caps for existing garage columns plus any grade beam work;
- Erect precast elements for the proposed three level addition; and
- Outfit the newly erected garage levels with the follow-on trades: electrical, plumbing, signage, vehicular monitoring, and roadway access/egress upgrades.

The following outlines the construction methods, equipment, and durations for the Economy Garage expansion.

Construction Elements

To facilitate the construction of the Economy Garage expansion, construction is considered to be outside of any secured areas. This would allow construction to proceed without having to have an approved temporary SIDA fencing and gated areas.

Large equipment, major material deliveries, demolition/waste materials and trash hauling would use the construction gated areas or existing access/egress points at the Economy Garage work site. Contractor staff or fire rescue responses would access the Economy Garage expansion work site through these gated or existing access areas. New garage foundations would be comprised of deep pilings, pier caps, grade beams, and structural precast concrete element erection. Large construction cranes would be used during the structural precast erection. **Table 4-13** presents the construction equipment requirements for the Economy Garage expansion.

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Table 4-13 Economy Garage Expansion - Construction Equipment

Equipment Estimate	2023				2024				2025			
	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	-	-	2	2	2	2	3	3	2	-	-	-
Asphalt Paver	-	-	-	-	-	-	-	-	-	-	-	-
Pile Driver	-	-	-	-	-	-	-	-	-	-	-	-
Bobcat	-	-	-	-	-	-	-	-	-	-	-	-
Concrete Paver	-	-	-	-	-	-	-	-	-	-	-	-
Concrete Pump Truck	-	-	-	1	-	1	1	-	-	-	-	-
Concrete Transit Mixer	-	-	-	4	4	4	4	4	-	-	-	-
Crane- Mobile	-	-	-	1	2	2	2	1	1	-	-	-
Dump Trailer	-	-	-	-	-	-	-	-	-	-	-	-
Dump Truck	-	-	2	2	3	3	3	3	2	-	-	-
Dumpster	-	-	-	3	2	2	2	1	1	-	-	-
Excavator	-	-	1	2	2	2	1	1	-	-	-	-
Front End Loader	-	-	1	2	2	2	1	1	1	-	-	-
Material Handler	-	-	1	1	1	1	1	1	1	-	-	-
Micro Pile Drill	-	-	1	3	3	-	-	-	-	-	-	-
Pile Vibrator	-	-	-	-	-	-	-	-	-	-	-	-
Roller- Dirt	-	-	-	1	1	1	1	-	-	-	-	-
Roller- Pavement	-	-	-	-	-	-	-	1	-	-	-	-
Sweeper	-	-	1	1	1	1	1	1	1	-	-	-
Truck and High-Bed Trailer	-	-	1	7	7	6	6	3	3	-	-	-
Utility Truck	-	-	2	4	4	4	3	2	1	-	-	-
Vibratory Plate Compactor	-	-	1	1	1	1	1	-	-	-	-	-
Water Pump	-	-	1	2	2	2	2	1	1	-	-	-
Water Truck	-	-	1	1	-	1	1	1	-	-	-	-
Welding Machine	-	-	1	3	4	4	5	3	1	-	-	-
Total	-	-	16	41	41	39	38	27	15	-	-	-

Source: WSP.

Note: Numbers denote average equipment per daily shift.

Coordination with Other Construction Activities

There are currently no known projects anticipated to be ongoing simultaneous with the construction of the Economy Garage expansion. Construction elements expected to occur simultaneously with construction of the new garage in front of Terminal E may still be nearing completion as the construction of the Economy Garage expansion gets underway.

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Construction Surface Transportation Impacts

Similar to the construction of the new garage in front of Terminal E, 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, Frankfort Street, and Prescott Street) and on-Airport roadways (Transportation Way, Harborside Drive, and Terminal Area roadways). Massport's construction management specifications prohibits construction vehicles from using local roads.

Construction of the Economy Garage expansion would be primarily undertaken from a defined work area within the existing Economy Garage footprint or directly adjacent to the existing facility. All materials and workers would be delivered to the work site from Service Road. Materials to be delivered by truck to the Airport would primarily include asphalt pavement, concrete, granular base and sub base materials, precast elements, and steel pipe and structural sections for the foundation work. 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 **Table 4-13** for each quarter from 2023 through 2025. Estimates of the types and numbers of pieces of heavy equipment required for the construction of the Economy Garage expansion per work shift were developed based on these equipment schedules.

Construction Truck Traffic

Peak construction activity related to the elements of the Economy Garage expansion occurs at different times. The combined peak is anticipated to occur from November 2023 through September 2024. This peak is generally associated with completing utility connections, foundation work, precast erection, slab construction, and building services. The construction equipment schedules indicate that a maximum of 41 pieces of construction equipment would be required each day during the peak period of construction. For the purposes of this traffic analysis, the peak construction period is the first through third quarter of 2024, with a combined anticipated total of 38 to 41 pieces of construction equipment required each day.

As discussed in more detail above, most of the heavy construction equipment would be stored on the Economy Garage work site or a localized storage area during non-work hours. These equipment would be used during most workdays; however, these 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;
- Truck / High-bed Trailers;
- Miscellaneous box trucks; and
- Utility Trucks.

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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 4-14**. Collectively, the construction of the Economy Garage expansion would generate approximately eight to 39 total truck trips per weekday, depending on the stage of construction. It is expected that construction would take place primarily during the day shift, approximately 7:00 AM to 7:00 PM. It was assumed that most light duty trucks, such as escort trucks and pick-up trucks associated with supervisory workers, would all arrive to the Economy Garage work site during the morning peak hour and exit during the evening peak hour. The need for nighttime or weekend work would be further determined during construction phasing development.

Table 4-14 Economy Garage Expansion - Total Daily Construction Trips

Year Period	2023				2024				2025			
	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)	-	-	12	15	23	20	18	14	12	-	-	-
Daily Trips (Misc.)	-	-	10	10	16	16	14	8	8	-	-	-
Total Daily Trips	-	-	22	25	39	36	32	22	20	-	-	-

Source: WSP.

Construction Truck Routes

Construction truck routes associated with the Economy Garage expansion are the same as those described for the new garage in front of Terminal E.

Construction Traffic Management

Due to the unique nature of construction phasing associated with the new garage in front of Terminal E, construction traffic management for this phase of the project is discussed as part of cumulative impacts in Section 4.5.1.5. Based on the maximum of 39 total daily construction truck trips and the access restrictions described in the previous section, the construction of the Economy Garage expansion would have minimal impact on Airport or regional roadways. Any concurrent construction of other potentially ongoing projects not yet foreseeable can be adequately accommodated by the Airport and regional roadway systems. As such, construction associated with the Economy Garage expansion is not discussed as part of cumulative impacts.

Vehicular traffic flow on the Airport roadway network during construction of the Proposed Project 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.

4.5.1.5 Cumulative Impacts - Surface Transportation

This transportation analysis is inherently 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 in Massport’s annual EDR/ESPR filings.

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Coordination with Other Construction Activities

During the planning of the Proposed Project, it was noted that construction activities associated with the new garage in front of Terminal E would occur simultaneous with other on-Airport projects, including Terminal E Modernization and the Terminal C Canopy, Connector, and Roadways Project. During the peak period of construction across these projects, it is estimated that there is the potential for up to 175 vehicle trips per day. Although it is anticipated that this number will be reduced as projects are further refined and schedules solidify. The majority of these trips are expected from Route 1A and the Coughlin Bypass. Trips will arrive and depart throughout the day, likely during off-peak times. To address any unanticipated congestion associated with construction activities, Massport is planning several mitigation measures:

- Develop and facilitate traffic management strategies Airport-wide that are responsive to the aggregate of construction projects and their potential impacts.
- Manage traffic related to construction workers by diverting them to off-Airport locations and requiring contractors to shuttle employees to the job site.
- Coordinate the arrival of large construction equipment among projects and limit their arrival or removal during peak travel hours (both Airport and commuter peaks).
- Develop specific truck routing and/or project staging plans for implementation by the various contractors. It is anticipated that these plans may be developed with input from the contractors directly.

In keeping with Massport's long-standing policy that traffic operations along roadways be maintained to accommodate passenger levels, construction will be staged (and staging modified as necessary) to the maximum extent practicable to avoid disruption to the transportation system or impact to the surrounding environment.

4.5.2 Air Quality

A secondary purpose of the Proposed Project is to provide regional air quality benefits by reducing Airport-related VMT by adding 5,000 new commercial parking spaces entirely on-Airport. The analysis shows that, compared with not adding 5,000 more spaces (the No-Build Alternative), the added long-term parking spaces would allow for the decrease drop-off/pick-up travel and associated VMT. The Proposed Project is expected to improve traffic flow and reduce regional VMT, which would benefit air quality conditions.

This section provides an overview of the methodologies and results of the air quality analysis associated with the Proposed Project. This includes the calculation of operational emissions of the EPA "criteria pollutants"²² (and their precursors). Construction-related emissions of the criteria pollutants associated with the Proposed Project are also assessed. Assessment of criteria pollutant results are used to demonstrate consistency with the General Conformity Rule of the federal Clean Air Act.

From the standpoint of air quality, the Logan Airport Parking Project provides benefit because it reduces the number of vehicles traveling by drop-off/pick-up modes and associated regional VMT. Based on the results of

²² 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>.

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this analysis, the annual emissions of the ozone pre-cursors nitrogen oxides (NO_x) and volatile organic compounds (VOCs) decrease by 11 percent and 12 percent, respectively.

As the Proposed Project would change traffic patterns at local intersections and create a new intersection at the new garage in front of Terminal E public vehicle exit on the west side along the Terminal E Arrivals Level roadway, a hotspot analysis for carbon monoxide (CO) was conducted. This analysis demonstrates that all existing and future CO concentrations are below the NAAQS. Based upon these outcomes of the air quality assessment, the Proposed 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;
- Meets the requirements of the Clean Air Act Amendments by demonstrating that criteria pollutant emissions associated with the operations of the proposed garages are below the NAAQS; and
- Does not create a CO hotspot at local intersections as NAAQS exceedances are not expected for 1-Hour or 8-Hour CO concentrations.

4.5.2.1 Regulatory Background Information

As discussed in Sections 3.3.2, *Air Quality*, the NEPA and the federal Clean Air Act are the two primary regulations that apply to the assessment of air quality impacts attributable to the Proposed 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/Nonattainment designations for the Boston metropolitan area, Section 3.3.2, *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 metropolitan 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”²³ provision of the Clean Air Act. VOCs and NO_x are used in mobile source analyses as surrogates for ozone which is formed in the atmosphere 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. MEPA and MassDEP requires indirect mobile source analyses for NO_x and VOCs because of the Ozone SIP requirements. The Boston metropolitan area is in Attainment for the other five criteria pollutants including lead, SO₂, NO₂ and PM_{10/2.5}.

4.5.2.2 Approach and Methodology

The overall approach to the assessment of air quality impacts attributable to the Proposed 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

²³ EPA, Implementation of the 2008 NAAQS for Ozone: State Implementation Plan (SIP) Requirements, <https://www.epa.gov/ozone-pollution/implementation-2008-national-ambient-air-quality-standards-naaqs-ozone-state>.

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NEPA purposes. Emissions associated with the No-Build Alternative are compared to the Proposed Project as required under the General Conformity Rule of the Clean Air Act and NEPA.

For the regional and local air quality analyses below, emissions of the criteria pollutants and precursors with Nonattainment or Maintenance status (CO, VOC, and NO_x) are calculated using FAA- and EPA-required models. These include the EPA's Motor Vehicle Emission Simulator (MOVES);²⁴ Nonroad Engines, Equipment, and Vehicles (NONROAD);²⁵ and CAL3QHC²⁶ models and the Airport Construction Emissions Inventory Tool (ACEIT) model for construction. As discussed earlier, the regional air quality results of the proposed garages would result in reduced regional emissions, which are presented herein. In addition, the sources of emissions associated with the long-term operation of the garages, and therefore included in the analysis, involve motor vehicles operations on the local airport roadways. 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 Proposed Project, the interim year (2022) was analyzed for regional mobile source impacts, while the full-build year (2030) was analyzed for both regional and local mobile source impacts. The peak emissions years were analyzed for construction-related impacts of the new garage in front of Terminal E and the Economy Garage expansion. Further information and modeling data of the air quality assessment are presented in Appendix F, *Air Quality/Emissions Reduction Technical Appendix*.

4.5.2.3 No-Build Alternative - Air Quality

Under the No-Build Alternative, no improvements to the terminal area roadway network or curbside areas would be implemented, resulting in increased traffic congestion as the Airport continues to experience growth. Even though lower emission inventories are expected with the passage of time (due to improving automobile emission factors), the continuing increase in traffic congestion within the Project Areas for the new garage in front of Terminal E and the Economy Garage expansion would result in additional vehicle idling time and increased air quality emissions as compared to existing conditions.

4.5.2.4 Direct Impacts - Air Quality

Regional Mobile Source Emissions

The Proposed Project would provide regional air quality benefits by reducing Airport-related VMT by over five million miles or 10 percent. The air quality analysis has been updated since the filing of the Project's ENF to reflect new estimates of off-Airport VMT reductions due to the availability of parking spaces (as presented in Section 4.5.1, *Surface Transportation*). The added long-term parking spaces is still estimated to decrease drop-off/pick-up travel, reducing overall trips and associated VMT. The Proposed Project would provide the following benefits that would directly translate to reductions in emissions:

- Shifting "would-be parkers" from drop-off/pick-up modes to parking;

²⁴ EPA, MOVES, version MOVES2014b, <https://www3.epa.gov/otaq/models/moves/>.

²⁵ EPA, NONROAD, version NONROAD2008, <https://www3.epa.gov/otaq/nonrdmdl.htm#docs>.

²⁶ User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, EPA, Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-005; November 1992.

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- Reducing the number of trips associated with “would-be parkers” traveling to and from the Airport;
- Reducing recirculation at the Terminal E curbsides resulting in decreases in on-Airport VMT; and
- Reducing on-Airport emissions related to improved curbside operations at Terminal E, as air passengers shift from drop-off/pick-up modes to parking in the garages.

The operational benefits to air quality associated with the Proposed Project are tabulated and presented **Table 4-15**. As the Build Condition is anticipated to reduce regional pollutant emissions, a Build-with-Mitigation scenario is not required by the SIP.

Table 4-15 Logan Airport Parking Project Regional Air Quality Emissions

Year	Condition	Regional VMT of “Would-Be Parkers”	VOC (kg/year)	NO _x (kg/year)
2017	Existing	327,280	15.9	71.4
2022	No-Build Alternative	13,584,217	194.2	741.1
	Build Alternative/Proposed Project	12,279,027	173.7	660.5
	Difference	1,305,190 (10%)	20.5 (11%)	80.7 (11%)
~2030 (50MAP)	No-Build Alternative	52,130,253	536.0	1,699.9
	Build Alternative/Proposed Project	46,922,626	475.8	1,498.2
	Difference	5,207,627 (10%)	60.2 (12%)	201.8 (11%)

Source: VHB.

Notes:

VOC Volatile Organic Compounds

NO_x Nitrogen Oxides

kg kilograms

With the Proposed Project, total emissions of VOC and NO_x would decrease when compared to the No-Build Alternative. These reductions range from 11 to 12 percent depending on the pollutant. The expected full-build (2030) emissions reductions for VOC and NO_x are 60.2 kilograms (kg)/year and 201.8 kg/year, respectively. These benefits would be achieved in stages, correlating to the availability of additional parking. A portion of the full-build emissions reductions would be realized when the new garage in front of Terminal E is operational in 2022. At this time, the expected emissions reduction for VOC is 20.5 kg/year and for NO_x is 80.7 kg/year. Similar reductions would be expected until the Economy Garage expansion is operational by the end of 2025, at which point all additional spaces would be built and the full reduction in regional VMT and emissions associated with the “would-be parkers” would occur.

Local Mobile Source Air Quality

The construction of the new garage in front of Terminal E and the Economy Garage expansion would change traffic patterns and volumes at local intersections in the vicinity of the proposed garages. Hot spot studies were conducted for locations where there could be high levels of queuing, typically intersections, and longer vehicular delays. For the Proposed Project, queuing is expected to occur at the local intersections and curbside areas. Local intersections were analyzed following EPA’s modeling guidance for a microscale analysis. The Terminal E curbside operations are expected to improve with the Logan Airport Parking Project as air passengers shift from drop-off/pick-up modes to parking in the garages, causing a reduction in recirculating

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vehicles. At the same time, the Proposed Project is expected to slightly impact some Airport intersections by shifting on-Airport traffic destined to the new garages or by the creation of a new intersection. To determine the Proposed Project's impact on local air quality, the CO analysis evaluated expected worst-case intersections. Emission factors were developed using the MOVES2014b program and were combined with the traffic data in EPA's CAL3QHC model to calculate the worst-case CO concentrations for the Build Condition. Three key intersections were chosen to best represent the new driveways and impacted local intersections. These intersections include:

- New Garage in Front of Terminal E Exit at Terminal E Roadway;
- Service Road at Hotel Drive; and
- Service Road at Prescott Street.

The results of the microscale analysis are presented in **Table 4-16** and demonstrate that the CO concentrations (both 1-hour and 8-hour values) for the Proposed Project are well below the NAAQS.

Table 4-16 Predicted Maximum 1-Hour and 8-Hour Carbon Monoxide (CO) Concentrations

Intersection	1-Hour CO Concentrations (ppm) ^{1,2}		8-Hour CO Concentrations (ppm) ^{3,4}	
	No-Build Alternative	Build Alternative	No-Build Alternative	Build Alternative
New Garage in Front of Terminal E Exit at Terminal E Roadway	-	1.7	-	0.9
Service Road at Hotel Drive	1.8	1.8	1.0	1.0
Service Road at Prescott Street	1.8	1.8	1.0	1.0

Source: VHB.

Notes:

- Intersection does not exist in this condition.

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

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

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

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

The microscale evaluation demonstrates that the development of the Proposed Project would not result in adverse localized air quality impacts. The queueing projected at proximate intersections and the Terminal E curbside are not expected to increase CO concentrations beyond the NAAQS. The microscale analysis evaluated the proposed garage-related vehicles traveling through local intersections and new driveways. This analysis demonstrates that all existing and future CO concentrations are below the NAAQS. Specifically:

- All the one-hour CO concentrations ranged from 1.7 to 1.8 ppm and are well below the CO NAAQS of 35 ppm; and
- All the eight-hour CO concentrations ranged from 0.9 to 1.0 ppm and are below the CO NAAQS of 9 ppm.

The microscale study demonstrates that the Proposed Project conforms to the Clean Air Act Amendments and the SIP because:

- No violation of the NAAQS is expected to be created;

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- No increase in the frequency or severity of any existing violations (none of which are related to this development) is anticipated to occur; and
- No delay in attainment of any NAAQS is expected to result due to the implementation of the Proposed Project.

Based upon the analysis presented here and the conclusions summarized above, no significant adverse air quality impacts from the Proposed Project are anticipated on the microscale level. The microscale analysis shows that the CO concentrations under future Build Alternative are well below the NAAQS.

4.5.2.5 Indirect Impact - Air Quality

The Proposed 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 the garages are less with the Proposed Project when compared to the No-Build Alternative.

There is 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 EDR/ESPR filings, 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 VMT and related emissions associated with the Rental Car Center; and
- Adherence to the Air Quality Initiative designed to keep NO_x emissions below 1999 levels.

4.5.2.6 Temporary Construction-Related Impacts - Air Quality

For the purposes of assessing and computing construction-related emissions associated with the Logan Airport Parking Project, ACEIT was used.²⁷ 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 MOVES and NONROAD. MOVES provides emission factors for on-road vehicles (e.g., construction worker vehicles, delivery trucks) and NONROAD provides emission factors for off-road equipment/vehicles (e.g., dozers, tractors, loaders). For this application, MOVES was programmed using Massachusetts-based motor vehicle fleets and operating parameters (e.g., age, fuel types, and temperatures). The analysis was conducted for the peak year of construction for each garage, which represents 2020 for the new garage in front of Terminal E and 2024 for the Economy Garage expansion when the highest construction-related emissions would be expected.

²⁷ Transportation Research Board, Airport Cooperative Research Program (ACRP) Report 102, *Guidance for Estimating Airport Construction Emissions*, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_102.pdf.

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Construction-related emissions for the Proposed Project are summarized and tabulated in **Table 4-17**, in tpy by pollutant. For ease of comparison, the applicable General Conformity thresholds are also provided.

Table 4-17 New Garage in front of Terminal E and Economy Garage Expansion Construction Emissions

Year / Phase	Emissions (tons/year)					
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Nitrogen Oxide (NO _x)	Sulfur Dioxide (SO ₂)	Particulate Matter ₁₀ (PM ₁₀)	Particulate Matter _{2.5} (PM _{2.5})
New Garage in Front of Terminal E						
2020 Peak Year	36	4	8	<1	1	<1
Economy Garage						
2024 Peak Year	30	3	6	<1	1	<1
<i>De Minimis</i> Levels ¹	100	50	100	N/A	N/A	N/A
<i>Within De Minimis</i> Levels?	Yes	Yes	Yes	--	--	--

Source: VHB.

Notes:

N/A Not Applicable

¹ *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 SIP.

As shown, total emissions are estimated to range from less than 1 ton to 36 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 signifies that the Proposed 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 4.5.2.7.

Construction emissions will be reduced and controlled by contractor implementation of the following best management practices:

- Reducing construction vehicle/equipment idling times;
- Using low- or zero-emissions equipment, where practicable;
- Retrofitting suitable diesel construction equipment with diesel oxidation catalysts and/or particulate filters;
- Reducing onsite vehicle speeds;
- Reducing exposed erodible surface areas through appropriate materials and equipment staging procedures;
- Covering of exposed surface areas with pavement or vegetation in an expeditious manner;
- Stabilizing soil with cover or periodic watering;
- Using covered haul trucks during materials transportation;
- Suspending construction activities during high-wind conditions; and
- Ensuring contractor knowledge of appropriate equipment exhaust and fugitive dust controls.

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4.5.2.7 Applicability of the General Conformity Rule

Compliance with the Clean Air Act General Conformity Rule must be demonstrated for actions involving FAA 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 Proposed 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 **Tables 4-15** and **4-16** demonstrate that total emissions associated with the Proposed Project are within the *de minimis* thresholds because the Proposed Project is anticipated to reduce regional emissions. Similarly, construction-related emissions associated with the Proposed Project, listed in **Table 4-17**, are within these *de minimis* limits.

Based on these results, both operational- and construction-related emissions associated with the Proposed 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.

4.5.2.8 Cumulative Impacts - Air Quality

The Proposed Project would result in a decrease in pollutant emissions across the region and benefit air quality. This result would benefit other projects and sources when viewed cumulatively. Since the Proposed Project would accommodate the same number of aircraft operations and passengers as the No-Build Alternative, there are no additional cumulative impacts associated with the operations of the Proposed Project. The Logan Airport EDRs and ESPRs document the Airport-wide air quality conditions for existing and forecast conditions through 2035.

The construction of the new garage in front of Terminal E would coincide with the construction periods of Terminal E Modernization and the Terminal C Canopy, Connector, and Roadway Project. The construction period of the Economy Garage expansion would occur after these projects. As shown in **Table 4-17**, construction-related emissions associated with the Proposed Project are small and below the *de minimis* thresholds. General Conformity and the *de minimis* thresholds only apply to the project or action under review and not the entire facility. Thus, the construction of the new garage in front of Terminal E would result in a cumulative increase in emissions but would not result in a significant cumulative impact.

4.5.3 Natural Resources and Energy Supply

FAA Order 1050.1F requires the review of the potential natural resource (e.g., water, asphalt, aggregate, wood, etc.) demands and energy requirements of a proposed action's construction, operation, and maintenance. Accordingly, this section looks at the potential of the Proposed Project to use such resources in exceedance of available and future supplies. The FAA has not established a significance threshold for this environmental impact category; however, the Proposed Project would not have a significant adverse impact on natural resources or energy supplies because there is sufficient capacity available to support the construction, operation, and maintenance of the proposed garages.

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4.5.3.1 No-Build Alternative - Natural Resources and Energy Supply

The No-Build Alternative assumes that Massport would not make any alterations to the Project Areas. As noted in Chapter 3, *Existing/Affected Environment*, the primary natural resource and energy supplies currently consumed at the Project Areas include electricity to power outdoor flood lighting at the Terminal E surface parking lots and roadways and safety and security lighting at the Economy Garage. The Economy Garage has an existing rooftop solar photovoltaic system on its top level that supplies a portion of the facility's total electricity consumption.

Under the No-Build Alternative, Massport would continue to procure energy from local and regional suppliers. Massport is committed to upgrading its electric utility infrastructure to meet the needs of its operations at the Airport.

4.5.3.2 Direct Impacts - Natural Resources and Energy Supply

Massport is incorporating numerous sustainability features to minimize the demand for natural resources and energy supplies required for the construction and operation of the Proposed Project. Each of the proposed garages would be designed in accordance with Massport's *Sustainable and Resilient Design Standards and Guidelines* and incorporate measures from the U.S. Green Building Council's Parksmart rating system, an environmental and sustainability focused rating system specific to parking structure management, programming, design, and technology. Further, both structures would be served by solar photovoltaic systems to offset a portion of their energy consumption (see Section 4.5.4.2).

The new garage in front of Terminal E and the Economy Garage expansion would be designed for natural ventilation and not include a significant amount of conditioned spaces other than mechanical/electrical rooms, elevator lobbies, and cashier booths. Heat pumps and electrical heaters would be used to condition these spaces. Additionally, a new staff restroom at the new garage in front of Terminal E would require mechanical ventilation, but would not otherwise be conditioned. The energy loads of these heating, ventilation, and air conditioning applications would be minimal compared to the facilities' overall energy requirements. Electricity is the only energy source that would be consumed at the proposed garages.

Overall, the Proposed Project would not result in an adverse impact to the supply of consumable natural resources. It would not include unusual building materials or materials that are in scarce supply in the Boston metropolitan area or larger New England region, and would not result in a significant increase in potable water use in excess of regional supplies. The Proposed Project would not place undue burdens on the area's energy system compared to the No-Build Alternative, as there are sufficient energy resources in the region.

New Garage in Front of Terminal E

As designed, the annual electricity consumption of the new garage in front of Terminal E would be approximately 1.3 million kilowatt-hours (kWh). As shown in **Table 4-18**, this is 34 percent more efficient than the base case, defined as the minimum high standards required by the International Energy Conservation Code (IECC) 2015. To achieve these savings, Massport is committed to reducing power densities for interior parking level lighting by installing light emitting diode (LED) fixtures with integral occupancy sensors; the associated lighting power density would be reduced from 0.19 watts per square foot, which is the largest space-by-space value allowed by IECC 2015 (Table C405.4.2[2]), to a maximum of roughly 0.09 watts per square foot. This would result in an annual savings of about 485,000 kWh. Additional annual savings of about 206,000 kWh

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would be achieved by reducing lighting power densities for the facility’s other lighting loads such as at the exterior roof, and elevator lobbies. Massport is committed to using photocells on the facility’s exterior lighting to limit unnecessary electricity consumption during daytime hours. Other energy efficiency commitments for this proposed garage where savings are not yet measurable are listed under Section 4.5.4.2.

Table 4-18 compares the estimated annual energy consumption of the proposed design with the base case for the new garage in front of Terminal E and the Economy Garage expansion.

Table 4-18 Project Electricity Consumption: Proposed Design versus Base Case

Facility	Scenario	Estimated Electricity Consumption (kWh/year)	Estimated Electricity Savings (kWh/year)	Percent Reduction from Base Case (%)
New Garage in Front of Terminal E	Base Case	2,029,240	-	-
	Proposed Design	1,338,397	690,843	34.0
Economy Garage Expansion	Base Case	1,726,736	-	-
	Proposed Design	1,341,866	384,870	22.3
Total	Base Case	3,755,976	-	-
	Proposed Design ¹	2,680,263	1,075,713	28.6

Source: WSP.

Note:

¹ Energy efficiency measures at the proposed garages include reduced lighting power densities for facility lighting.

On-site renewable energy in the form of a rooftop solar photovoltaic canopy structure would offset approximately 60 percent of electricity consumption associated with the garage interior lighting or about 15 percent of total facility electrical consumption. This would equate to an annual electricity savings of approximately 250,000 kWh per year. Massport is committed to further reducing the installed lighting power density at the new garage in front of Terminal E, currently 0.09 watts per square foot, by investigating current luminaires with greater efficacy toward the goal of offsetting 100 percent of the garage’s interior lighting with on-site solar photovoltaic. More information on this system is provided in Section 4.5.4.2.

The new garage in front of Terminal E is anticipated to have a façade that consists of vegetated planter boxes that would require routine irrigation. The solar photovoltaic canopy structure is expected to collect stormwater, which would be treated at the tank and pumped to the cooling tower at the Central Heating Plant. Massport is examining other potential reuse options, such as supplying irrigation water for the facility’s vertical landscaping system. More information on the anticipated stormwater collection, treatment, and reuse system is provided in Section 4.5.6.2.

Water supplies would also be required to support maintenance activities (e.g., pressure washing the parking deck) and for a staff restroom. To reduce the water requirements associated with maintenance activities, Massport would perform frequent sweeping (at least monthly). When pressure washing is necessary, Massport would utilize power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable. To reduce the water requirements of the staff restroom, Massport would install water-efficient fixtures and faucets.

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Economy Garage Expansion

As designed, the Economy Garage expansion would consume approximately 1.3 million kWh per year. As shown in **Table 4-18** above, this is 22.3 percent more efficient than the base case. To achieve these savings, Massport is committed to reducing lighting power densities for interior parking level lighting by installing LED fixtures with integral occupancy sensors; the associated lighting power densities would be reduced from 0.19 watts per square foot to a maximum of roughly 0.09 watts per square foot. This would result in an annual savings of approximately 385,000 kWh.

The exterior lighting plan for the Economy Garage expansion has not yet been defined to the point where savings from efficiency measures can be quantified; however, Massport is committed to using photocells to limit unnecessary electricity consumption during daytime hours. Massport's other energy efficiency commitments for the Economy Garage expansion where savings are not yet measurable are listed under Section 4.5.4.2.

The existing solar photovoltaic array consisting of 18 solar-panel structures would be removed to accommodate project construction, and then re-installed on top of the facility's new highest level upon completion of project construction. Based on measured performance of this renewable energy system, the estimated savings of this energy conservation measure is approximately 77,800 kWh per year or roughly 6 percent of the facility's annual electricity consumption. As needed or where feasible, Massport would install a newer and more efficient solar photovoltaic system at the Economy Garage that can produce a greater portion of the facility's total electricity consumption.

The Economy Garage expansion would not significantly increase the facility's water use other than the need for cleaning the additional parking deck area. Like at the new garage in front of Terminal E, Massport would perform frequent sweeping (at least monthly) to reduce the need for constant pressure washing. When pressure washing is necessitated, Massport will utilize power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable. As the design of the expansion proceeds, Massport will evaluate stormwater reuse opportunities at the Economy Garage. The existing Economy Garage has a staff restroom; the Proposed Project would not alter this area, nor would it change the frequency of its use.

4.5.3.3 Indirect Impacts - Natural Resources and Energy Supply

The Proposed Project would not have any significant indirect impacts on consumable natural resources and energy supply. As part of its purpose, the Logan Airport Parking Project would accommodate existing and anticipated air passenger demand for parking at the Airport and shift passengers from environmentally undesirable drop-off/pick-ups to drive-and-park, reducing VMT and associated fuel consumption in the process. The Logan Airport Parking Project would not induce additional development within or outside of Logan Airport.

4.5.3.4 Temporary Construction-Related Impacts - Natural Resources and Energy Supply

Construction of the Logan Airport Parking Project would require various sources of energy to power construction vehicles and equipment. 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.

To reduce the Proposed Project's demand for energy during the construction period, Massport intends to source construction materials from within 500 miles of the Airport, where feasible, as well as require all contractors to

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comply with certain construction guidelines related to reducing vehicle/equipment idling times. Further, fuel savings are anticipated with respect to construction worker access:

- Massport will encourage construction workers to use MBTA transit services, Logan Express, the water shuttle, and other high-occupancy modes of travel.
- Construction companies will be encouraged to provide off-Airport parking for their employees and to provide shuttle services from these locations.

As the design proceeds, Massport would also consider incorporating materials that are reused, repurposed, or recycled to the greatest extent practicable to reduce the demand for virgin materials.

4.5.3.5 Cumulative Impacts - Natural Resources and Energy Supply

When added to past, present, and reasonably foreseeable future actions, the Logan Airport Parking Project would not result in an incremental impact to natural resources and energy supply. As previous sections establish, adequate supplies of consumable natural resources and energy will exist in the region to support all known projects.

4.5.4 Climate, Greenhouse Gas Emissions, and Sustainability

MEPA requires projects to review and analyze reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise.²⁸ FAA Order 1050.1F includes Climate on the list of impact categories that must be considered in FAA NEPA documents; however, the FAA has not established a related significance threshold.

Greenhouse gas emissions associated with the Logan Airport Parking Project were calculated in support of the *MEPA Greenhouse Gas Emissions Policy and Protocol* and NEPA review. Considering both stationary and mobile source greenhouse gas emissions, the Proposed Project would have a net benefit of 861 tons per year (tpy) in carbon dioxide (CO₂) emissions. This does not include the estimated offsets associated with the new solar photovoltaic array at the new garage in front of Terminal E (89 tpy) or the relocation of the existing solar-panel structures as part of the Economy Garage expansion (28 tpy).

4.5.4.1 No-Build Alternative - Climate, Greenhouse Gas Emissions, and Sustainability

Under the No-Build Alternative, Massport would not build the proposed garages. Passenger demand at Logan Airport would increase as projected in the air passenger forecasts, but there would be no additional on-Airport commercial parking spaces. As the existing parking supply already fails to meet existing demand during significant parking events, it would become more inadequate and the drop-off/pick-up mode share would increase. It is estimated that 77 percent of “would-be parkers” would switch to drop-off-/pick-up modes. This would cause higher greenhouse gas emissions due to the higher VMT associated with this mode share.

As the parking garages would not be built under the No-Build Alternative, no additional energy consumption would occur. Energy consumption and associated greenhouse gas emissions at the Project Areas is expected to be similar to existing conditions.

²⁸ Massachusetts Executive Office of Energy and Environmental Affairs. 2010. *Summary of the Final Revisions to the MEPA Greenhouse Gas Emissions Policy and Protocol*. <https://www.mass.gov/files/documents/2016/08/rp/ghg-policy-final-summary.pdf>. Accessed December 11, 2018.

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4.5.4.2 Direct Impacts - Climate, Greenhouse Gas Emissions, and Sustainability

Massport is committed to operating its facilities in an environmentally sound and responsible manner. As such, the Proposed Project will incorporate sustainability measures consistent with Massport's policy and standards including the *Sustainable and Resilient Design Standards and Guidelines*. Furthermore, the Proposed Project will incorporate Parksmart certification measures into its technology, structural design, and operation. Collectively, these measures would minimize the direct generation of greenhouse gas emissions for the Proposed Project.

Anticipated greenhouse gas reduction measures include:

- An external wayfinding system to reduce on-Airport VMT that includes dynamic informational signage and a reservation system for passengers to reserve and pre-pay for a parking space;
- An internal wayfinding system to reduce in-facility circulation that includes parking guidance via level occupancy detection;
- Preferred parking spaces for low-emitting and fuel-efficient vehicles amounting to at least 1 percent of total spaces;
- Reserved parking spaces for alternative fuel vehicles (e.g., electric vehicles) amounting to at least 1 percent of total spaces;
- Electric vehicle charging stations to accommodate 150 percent of demand;²⁹
- Application of Massport's pay-by-foot system, which encourages parkers to pay fees prior to returning to their vehicles via automated kiosks to enable the efficient flow of vehicles exiting the garages and reduce vehicle idling and associated air emissions;
- Reduced lighting power densities for garage lighting;
- Occupancy sensors and photocells on all applicable interior and exterior lighting;
- A solar photovoltaic system at the new garage in front of Terminal E to offset approximately 60 percent of electricity consumption associated with the garage interior lighting or about 15 percent of the total facility electrical consumption;
- The relocation of the existing solar photovoltaic system at the Economy Garage to the top of the facility's new highest level upon completion of project construction (the installation of a newer, more efficient system would be evaluated for feasibility as that construction period gets closer);
- An active recycling program to reduce the amount of waste sent to regional landfills/incinerators and to reduce greenhouse gas emissions associated with material disposal;
- Building commissioning in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007; and

²⁹ As proposed, the Proposed Project would initially include 20 electric vehicle charging stations: 15 in the New Garage in front of Terminal E and five in the Economy Garage. The locations of these stations have not yet been determined. Massport will continue to ensure that electric vehicle charging stations will accommodate 150 percent of the demand in each garage.

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- Durable design (e.g., by minimizing steel corrosion by keeping steel away from the immediate concrete surface and selecting the appropriate concrete mix to reduce permeability, protect against chloride ion erosion, and reduce micro cracking) and proactive maintenance to extend the lifespan of the proposed garages and avoid greenhouse gas emissions caused by future large-scale construction and renovation activities.

Though the new garage in front of Terminal E would be designed for natural ventilation and not include a significant amount of conditioned spaces other than mechanical/electrical rooms and elevator lobbies, Massport would incorporate programmable thermostats where applicable. It would also install water efficient fixtures and faucets in the staff restroom.

Massport is committed to incorporating additional sustainability features that are not specific to reducing the greenhouse gas emissions of the Proposed Project. These commitments include:

- Performing frequent sweeping (at least monthly) to reduce the need for constant pressure washing and associated water use;
- Utilizing power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable; and
- Harvesting stormwater at the new garage in front of Terminal E to offset a portion of cooling tower water consumption at the Central Heating Plant and for other potential reuse applications, as feasible, and assessing the feasibility of stormwater collection at the Economy Garage as its design proceeds.

As the design proceeds, Massport will also consider the application of no/low volatile organic compound coatings, paints, and sealants. It will also prioritize material purchases based on their environmental sustainability (e.g., products that are refurbished, repurposed, or recycled) to the extent feasible.

Consistent with Massport's *Floodproofing Design Guide*, Massport will ensure that critical equipment and systems (e.g., electrical, mechanical, emergency and fire) at the new garage in front of Terminal E and the Economy Garage expansion will be elevated above the designated design flood elevation for new facilities. This is 17.0 feet (North American Vertical Datum of 1988 [NAVD88]). Existing critical infrastructure at the Economy Garage may have to be raised above the design flood elevation for existing facilities, which is 13.7 feet (NAVD88). Redundant or back-up power sources will also be incorporated at both the new garage in front of Terminal E and the Economy Garage expansion to protect against extreme weather conditions that may cause power outage.

Stationary Source Emissions

The Proposed Project would include new construction as well as renovations to existing garage layouts. As discussed above in Section 4.5.3.2, the new and expanded garages would have additional minor energy requirements, primarily from anticipated lighting loads. Such added requirements, however, would result in a minimal increase of greenhouse gas emissions due to the measures listed above. Other than a planned staff restroom at the new garage in front of Terminal E, as well as mechanical/electrical spaces in both facilities, both facilities would be naturally ventilated.

To estimate greenhouse gas emissions from stationary sources at the proposed garages, this analysis converted the facilities' estimated annual electricity consumption to CO₂ emissions using the average emissions rates (pounds [lbs.] per

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megawatt hour [MWh]) for the ISO New England system: 710 lbs./MWh.³⁰ **Table 4-19** presents the total estimated annual electricity consumption and associated emissions for the proposed garages. Under the base case, stationary source CO₂ emissions are estimated to be 1,333 tpy. With the currently proposed garage designs, however, the total estimated greenhouse gas emissions reduction for the facilities is 28.6 percent, which equates to a reduction of 382 tpy CO₂. Estimated savings at the new garage in front of Terminal E is 34.0 percent (or 245 tpy CO₂), while savings at the Economy Garage expansion would be 22.3 percent (or 137 tpy CO₂). These estimates incorporate expected energy savings from the installation of energy efficient LED lighting at both garages, as detailed in Section 4.5.3.2. Estimated savings do not reflect the avoided greenhouse gas emissions associated with the facilities' solar photovoltaic systems, which are described in the following section.

Table 4-19 Parking Garages Stationary Source CO₂ Emissions

Building	Scenario	Electricity Consumption (kwh/yr)	Greenhouse Gas Emissions (tons/year)	Greenhouse Gas Emissions Savings (tons/year)	Percent Reduction (%)
New Garage in Front of Terminal E	Base Case	2,029,240	720	-	-
	Proposed Design	1,338,397	475	245	34.0
Economy Garage	Base Case	1,726,736	613	-	-
	Proposed Design	1,341,866	476	137	22.3
Total	Base Case	3,755,976	1,333	-	-
	Proposed Design ¹	2,680,263	951	382	28.6

Source: WSP.

Notes:

kWh kilowatt hour

1 Included energy efficiency measures at the proposed garages include reduced power densities for facility lighting.

Renewable Energy - Greenhouse Gas Reduction

Massport is committed to installing on-site renewable energy as part of the Logan Airport Parking Project. The proposed garages would incorporate on-site renewable energy through the installation (in the case of the new garage in front of Terminal E) or relocation (in the case of the Economy Garage expansion) of solar photovoltaic. Solar photovoltaic at the new garage in front of Terminal E would be of a canopy structure design that would produce approximately 250,000 kWh per year assuming a panel efficiency of approximately 15 percent. As proposed, this installation would cover approximately 10,000 square feet of the garage's roof area and cost \$1.52 million to procure and install. Associated CO₂ emission offsets would be 89 tpy.

The 250,000 kWh estimate is enough production to offset approximately 60 percent of electricity consumption associated with the garage's interior lighting or about 15 percent of the total facility electrical consumption. Massport is committed to further reducing the installed lighting power density at the new garage in front of Terminal E, currently 0.09 watts per square foot, by investigating current luminaires with greater efficacy toward the goal of offsetting 100 percent of the garage's interior lighting with on-site solar photovoltaic.

30 ISO New England. 2016 ISO New England Emission Report. January 2018.

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The existing solar photovoltaic array at the Economy Garage consists of 18 solar-panel structures. The Proposed Project would remove this system to accommodate project construction and re-install it on top of the facility's new highest level upon completion of project construction. This system has an average annual output of 77,800 kWh per year, representing approximately 6 percent of the proposed facility's estimated annual electricity consumption. This output is equivalent to an offset of CO₂ emissions of 28 tpy. As the construction period gets closer, as needed or where feasible, Massport would install a newer and more efficient solar photovoltaic system at the Economy Garage that can produce a greater portion of the facility's total electricity consumption.

The solar photovoltaic systems planned for the Logan Airport Parking Project would provide an estimated 327,800 kWh per year, representing approximately 12.2 percent of the combined facilities' estimated annual consumption of 2,680,263 kWh. This output is equivalent to approximately 116 tons of CO₂ emissions avoided per year.

Mobile Source Emissions

The Proposed Project would provide regional greenhouse gas emissions benefits by reducing Airport-related VMT by adding 5,000 on-Airport commercial parking spaces. The mobile source greenhouse gas emissions analysis has been updated since the filing of the Project's ENF to reflect updated estimates of off-Airport VMT reductions due to the availability of parking spaces (as presented in Section 4.5.1, *Surface Transportation*). The methodology for conducting the mobile source greenhouse gas emissions analysis is similar to that presented in Section 4.5.2, *Air Quality*. The added long-term parking spaces is estimated to decrease drop-off/pick-up travel, reducing overall trips and associated VMT. These operational benefits attributable to the Proposed Project are tabulated and presented **Table 4-20**. As the Build Alternative is anticipated to reduce regional pollutant emissions, a Build-with-Mitigation scenario is not required under the *MEPA Greenhouse Gas Emissions Policy and Protocol*.

Table 4-20 Logan Airport Parking Project Regional Air Quality Emissions

Year	Condition	Regional VMT of "Would-Be Parkers"	CO ₂ (tons/year)
2017	Existing	327,280	153
2022	No-Build Alternative	13,584,217	5,079
	Build Alternative/Proposed Project	12,279,027	4,497
	Difference	1,305,190 (10%)	582 (11%)
~2030 (50MAP)	No-Build Alternative	52,130,253	15,126
	Build Alternative/Proposed Project	46,922,626	13,314
	Difference	5,207,627 (10%)	1,812 (12%)

Note:

CO₂ Carbon Dioxide

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With the Proposed Project, total greenhouse gas emissions would decrease when compared to the No-Build Alternative. The estimated savings with both garages operational in 2030 is 1,812 tpy or 12 percent. With just the new garage in front of Terminal E operational in 2022, the expected decrease in greenhouse gas emissions is 582 tpy. As the Proposed Project would reduce mobile source emissions, it complies with the *MEPA Greenhouse Gas Emissions Policy and Protocol* and does not require mitigation measures.

The Proposed Project's greenhouse gas emissions reduction benefit is directly attributable to the reduction in regional VMT associated with "would-be parkers" by approximately five million miles or 10 percent, in concert with a number of operational characteristics:

- Shifting "would-be parkers" from drop-off/pick-up modes to parking;
- Reducing the number of trips associated with "would-be parkers" traveling to and from Logan Airport;
- Reducing recirculation at the Terminal E curbsides resulting in decreases in on-Airport VMT; and
- Reducing on-Airport emissions related to improved curbside operations at Terminal E, as air passengers shift from drop-off/pick-up modes to parking in the garages.

4.5.4.3 Indirect Impacts - Climate, Greenhouse Gas Emissions, and Sustainability

Massport does not anticipate any significant indirect impacts from the Proposed Project related to climate, greenhouse gas emissions, and sustainability. As part of its purpose, the Logan Airport Parking Project would accommodate existing and anticipated air passenger demand for parking at the Airport and shift passengers from environmentally undesirable drop-off/pick-ups to drive-and-park. Unanticipated shifts from modes other than drop-off/pick-up are possible with the expansion of available parking and may increase greenhouse gas emissions. Massport, however, is continuing to invest in HOV/shared-ride and transit improvements to meet its current goal of 40 percent HOV by 2027. Section 3.3.1.2 describes the measures by which Massport anticipates achieving this goal. The Logan Airport Parking Project would not induce additional development within or outside of Logan Airport.

As noted, Massport will consider prioritizing ongoing material purchases based on their environmental sustainability (e.g., products that are refurbished, repurposed, or recycled) for the proposed garages. The use of environmentally preferable products and materials would support the demand for such products beyond the limits of the Proposed Project.

4.5.4.4 Temporary Construction-Related Impacts - Climate, Greenhouse Gas Emissions, and Sustainability

Massport does not anticipate any temporary construction-related impacts from the Proposed Project in relation to sustainability and resiliency. To reduce greenhouse gas emissions associated with the operation of construction vehicles and equipment, Massport intends to source construction materials from within 500 miles of the Airport, as well as require all contractors to comply with certain construction guidelines related to reducing vehicle/equipment idling times and using low- or zero-emissions equipment. Further emissions savings are anticipated with respect to construction worker access:

- Massport will encourage construction workers to use MBTA transit services, Logan Express, the water shuttle, and other high-occupancy modes of travel.

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- Construction companies will be encouraged to provide off-Airport parking for their employees and to provide shuttle services from these locations.

4.5.4.5 Cumulative Impacts - Climate, Greenhouse Gas Emissions, and Sustainability

The Proposed Project would result in an overall reduction in greenhouse gas emissions considering its stationary and mobile sources. This would benefit other projects and sources when viewed cumulatively. Massport prepares annual greenhouse gas emission inventories for stationary sources regulated by the EPA and MassDEP, as well as for passengers traveling to, from, and moving about the Airport. The EDRs/ESPRs include greenhouse gas emissions inclusive of aircraft engines, ground support equipment, auxiliary power units, ground access vehicles, and stationary sources. As documented in the *2016 EDR*, and discussed in Chapter 3, *Existing/Affected Environment*, total greenhouse gas emissions at Logan Airport are less than 1 percent of the state-wide emissions.

4.5.5 Noise and Noise-Compatible Land Use

This section of the DEIR/EA presents the findings of the noise impact assessment. In accordance with MEPA and per the Secretary's Certificate on the Project's ENF, this section presents an evaluation of the sound barrier benefits of the proposed additional parking levels at the Economy Garage. It also identifies noise impacts associated with Project construction. Although Massport is not subject to the City of Boston regulatory requirements, construction noise has been evaluated to assess potential noise effects and whether construction noise mitigation is warranted.

Under NEPA, as described in Section 3.3.5.1, FAA Orders 1050.1F and 5050.4B define that a proposed action would result in a significant noise impact when there would be a Day-Night Average Sound Level (DNL) increase of 1.5 dB or more at a noise-sensitive location and the proposed action noise level would be DNL 65 dB or higher. Potential noise impact has been assessed for the Proposed Project, which does not change aircraft operations and includes potential decreases in noise in surrounding areas from aircraft ground operations due to additional noise reduction from the increased height of the Economy Garage. Aircraft-related ground noise in the vicinity of the Economy Garage is typically generated by aircraft activities in the North Apron Area such as taxiing, engine runups, and the use of auxiliary power units.

The annual EDRs/ESPRs report on the overall noise levels associated with aircraft on the runways and during landing and takeoff. The Logan Airport Parking 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 Proposed Project. The Proposed Project would also not affect the number of type of aircraft ground operations. It would include an expansion of the Economy Garage that would have the effect of shielding the nearest residential areas (which lie to the northwest across from Route 1A along Bremen Street and southeast of the Project Area behind East Boston Memorial Park) from the aircraft ground noise in the vicinity of Terminal E and the North Apron Area. Annual changes to Airport-wide noise levels will continue to be reported in the EDR/ESPR reporting.

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4.5.5.1 Methodology

The methodology used to predict aircraft ground noise includes determining existing noise levels from aircraft ground operations and predicting the reductions in noise levels due to the taller Economy Garage. As discussed above, the Proposed Project would not change any airfield or aircraft ground operations, rather it has the opportunity to provide greater shielding for existing aircraft ground operations. This analysis is aimed at determining the potential noise benefits of a taller garage structure at this location.

As described in Section 3.3.5.4, DNL and maximum A-weighted sound levels from single aircraft ground operations have been determined at 11 receptor locations based on the Terminal E Modernization Project EA/DEIR. The change in aircraft ground operations noise due to the taller Economy Garage has been predicted using Cadna-A modeling software that accounts for the following characteristics of sound propagation:

- 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.

For studies that focus on aircraft ground operations, the FAA has recognized that it is necessary to use a model which can account for the shielding effects of buildings, barriers, and terrain. The FAA's Aviation Environmental Design Tool is primarily used for evaluating aircraft flight operations. Although the Aviation Environmental Design Tool can be used for modeling ground-based aircraft operations, it does not include the acoustic algorithms to evaluate the change in sound reduction from the taller Economy Garage or the effects of noise reflecting off the garage back to receivers in the noise study area (see **Figure 3-9**). Massport has previously used a similar model at Logan Airport for the Terminal E Modernization Project to evaluate the effectiveness of noise reduction from proposed buildings and barriers.

4.5.5.2 No-Build Alternative - Noise and Noise-Compatible Land Use

Under the No-Build Alternative, no new commercial parking spaces would be constructed on-Airport. As the existing parking supply already fails to meet existing demand during significant parking events, it would become more inadequate and the drop-off/pick-up mode share would increase, resulting in increased traffic congestion as the Airport continues to experience growth. Increasing traffic volumes associated with greater drop-off/pick-ups could minimally increase traffic noise, but would not affect aircraft ground operations or aircraft flights that are the predominant sources of noise in the study area. Overall noise levels at Logan Airport are documented in the annual EDRs and ESPRs.

4.5.5.3 Direct Impacts - Noise and Noise-Compatible Land Use

The Logan Airport Parking Project is not expected to substantially change the character or intensity of operational noise sources associated with activities at the Airport. Negligible changes in roadway noise may occur due to the potential shift in vehicle travel patterns associated with use of the proposed garages. The changes in roadway volumes at intersections along Service Road would be less than 10 percent in the peak

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hours, meaning the changes in roadway noise would be less than 0.5 dB (changes in noise of 3 dB or less are generally not perceptible). The change in DNL noise levels would be lower than the change in traffic noise during the peak hours and would be below the FAA criterion of a DNL 1.5 dB increase exceeding DNL 65 dB.

Aircraft flight noise is the dominant source of noise in this area. As there would be no changes to aircraft flights or aircraft ground operations associated with the Proposed Project, there would be no changes to aircraft flight noise at Logan Airport under the No-Build or Build Alternatives. Annual changes to Airport-wide noise levels due to overall changes in the number of aircraft operations and fleet mix will continue to be reported in the annual EDRs and ESPRs.

Noise Shielding from the Economy Garage Expansion

The Cadna-`A noise model was used to estimate the potential changes in noise due to a taller Economy Garage. Aircraft ground operation noise was modeled at 11 receiver locations near the Economy Garage (see **Figure 3-9**). Existing noise levels from aircraft ground operations activity were previously determined in the Terminal E Modernization Project EA/DEIR. Aircraft ground operations noise was predicted with and without the proposed increase to the height of the Economy Garage.

As reported in the Terminal E Modernization Project EA/DEIR, the maximum noise reduction from the Terminal E Modernization Project would be 0.5 dB at Receiver 01 and, therefore, there would be limited shielding to the receptors in the study area near the Economy Garage (see **Figure 3-9**). With the additional levels on Economy Garage, changes in community noise from aircraft ground operations would be approximately 3 dB or less; changes in noise of 3 dB or less are generally not perceptible. Eight of the 11 modeled receivers would experience a decrease in ground noise due to the shielding from the proposed expansion to the Economy Garage, while the other three receivers may experience imperceptible increases (in the range of 0.1 to 0.4 dB) due to sound that could be reflected off the taller portion of the Economy Garage. Although sound would not reflect off the open portions of the Economy Garage, sound could reflect off the solid portions of the structure.

As shown in **Table 4-21**, noise from aircraft ground operations with the Proposed Project in place (specifically the Economy Garage expansion) would generally be 1 to 3 dB lower northwest and north of the Economy Garage such as Receiver 06 (East Boston Branch of the Boston Public Library) and Receiver 07 (Excel Academy Charter High School); no specific design elements were needed to improve noise reduction in these areas. While the Economy Garage would reduce sound at receivers to the north and northwest, the increased height of the garage could increase the potential for noise from aircraft ground operations to reflect off the building back to receivers to the west of the garage. The façades of the Economy Garage expansion, however, would have a combination of solid walls and open areas, so the overall capacity to reflect noise back to the community would be limited. Aircraft ground operations noise would typically increase up to 0.1 dB at receivers west of the Economy Garage. The highest increase in aircraft ground operations noise due to reflection would be 0.4 dB at Receiver 01, which is well below the FAA criterion for significant noise impact of a 1.5 dB increase in overall noise (flights and ground operations) of DNL 1.5 dB exceeding DNL 65 dB. Overall, changes in noise from aircraft ground operations, with the Economy Garage expansion in place, would be 3.4 dB or less.

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Table 4-21 Estimated Day-Night Sound Levels for Aircraft Ground Operations, DNL (dBA)

Noise Sensitive Location ¹	Existing ²	No-Build Alternative ³	Proposed Project ⁴	Change in Noise (Decrease in Bold) ⁵
Receiver 01	59.5	59.0	59.4	0.4
Receiver 02	64.4	64.5	64.6	0.1
Receiver 03	66.2	66.2	66.3	0.1
Receiver 04	60.0	60.1	59.6	-0.5
Receiver 05	62.1	62.4	61.2	-1.2
Receiver 06	61.0	61.1	57.7	-3.4
Receiver 07	63.0	62.9	59.5	-3.4
Receiver 08	62.3	62.3	60.1	-2.2
Receiver 09	60.1	60.0	58.3	-1.7
Receiver 10	59.8	59.7	58.4	-1.3
Receiver 11	58.7	58.6	57.6	-1.0

Source: VHB, HMMH.

Notes:

- 1 See Figure 3-9, which depicts the Noise Study Area and receiver locations.
- 2 "Existing" presented as estimated in the Terminal E Modernization EA/DEIR.
- 3 "No-Build Alternative" includes the construction of the expanded Terminal E Building.
- 4 "Proposed Project" includes the construction of three additional parking levels at the Economy Garage.
- 5 Change in noise is the difference between the Build and No-Build Alternative.

4.5.5.4 Indirect Impacts - Noise and Noise-Compatible Land Use

No indirect noise impacts are anticipated from the Proposed Project. The same number of aircraft operations would be accommodated with the No-Build Alternative as with the Logan Airport Parking Project.

4.5.5.5 Temporary Construction-Related Impacts - Noise and Noise-Compatible Land Use

During construction of the Logan Airport Parking Project, short-term noise associated with construction activities would be generated. Construction equipment is expected to be used intermittently throughout the Proposed Project's construction periods during the typical daytime hours. Significant nighttime or weekend work is not anticipated during exterior construction. Normal flight operations would continue during Project construction.

City of Boston Construction Noise Criteria

The City of Boston has established regulations³¹ for evaluating sound levels associated with construction activities. Although Massport (as a state agency) is not subject to these requirements, sound levels from activities associated with the construction of the Proposed Project would be voluntarily consistent with the City of Boston's noise criteria.

³¹ Regulation for the Control of Noise in the City of Boston, Air Pollution Control Commission, Ordinance, Title 7, Section 50.

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The City of Boston noise control regulation prohibits construction noise in residential, institutional, business, recreational, and industrial land uses that exceeds the L_{10} ³² sound levels shown in **Table 4-22**. If the existing background L_{10} sound level already exceeds these limits, construction noise must not exceed the background L_{10} sound level by 5 dBA or greater. Unless exempt, such as impact devices, no individual piece of construction equipment can generate a noise level exceeding 86 dBA at 50 feet from the device. This maximum noise limit is intended to require that construction equipment is in good operating condition and does not make unnecessary noise.

Table 4-22 City of Boston Construction Noise Limits, dBA

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

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

Construction Noise Methodology

Construction noise levels were predicted using the Federal Highway Administration’s (FHWA’s) Roadway Construction Noise Model (RCNM) 1.1.³³ The model accounts for the maximum noise levels generated by the equipment and the amount of time (usage factor) that the equipment is used during typical construction activities. The closest off-site receivers to the new garage in front of Terminal E, such as the East Boston Memorial Park, are approximately 2,000 feet away or farther with intervening buildings. At this distance, construction noise would be substantially lower than ambient noise conditions and there would be no potential for construction noise impact. Construction noise levels are therefore only modeled at the 11 receivers located closest to the Economy Garage (see **Figure 3-9**).

Overall construction noise depends on the equipment used during different phases of construction. Construction noise levels were predicted based on the maximum equipment sound levels and the default equipment usage factor. Multiple pieces of equipment typically operate simultaneously during construction. **Table 4-23** presents the construction equipment and the reference maximum noise emissions at 50 feet associated with construction of the Economy Garage during the peak construction quarter (Q4, 2023).

Construction Noise Levels

Construction of the Economy Garage expansion would include various phases such as using heavy equipment operations for excavation (e.g., for underground utility work) and material transport. Heavy machinery would be used intermittently throughout the construction period and these activities would occur during normal weekday working hours. **Table 4-24** presents construction noise levels at all receiver locations during the peak construction quarter. The highest construction noise level (L_{10}) in a recreational land use area would be 71 dBA, which is below the City’s criterion of 80 dBA. Construction noise levels (L_{10}) at residential and institutional receivers would range from 61 to 70 dBA which is below the impact criterion of 75 dBA for residential and institutional land uses. The highest maximum construction noise levels at residential or institutional land uses

³² L_{10} level is the A-weighted sound level exceeded 10 percent of the time.
³³ FHWA. *RCNM: User’s Guide* Federal Highway Administration, FHWA-HEP-05-054, January 2006.

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would be 70 dBA at receivers 04 and 06, which would be below impact criterion of 86 dBA (Highest level - L_{max}). Since construction noise levels would be below the City of Boston limits, mitigation beyond Massport's usual construction measures is not warranted.

Table 4-23 Construction Equipment Reference Sound Levels

Equipment	Usage Factor (%)	L _{max} at 50 feet (dBA)	Units per Day
Aerial Lift	20	85	2
Concrete Pump Truck	20	82	1
Concrete Transit Mixer	40	85	4
Crane- Mobile	16	85	1
Dump Truck	40	84	2
Dumpster ¹	40	84	3
Excavator	40	85	2
Front End Loader	40	80	2
Material Handler ²	40	80	1
Micro Pile Drill	20	85	3
Roller- Dirt	20	85	1
Sweeper	10	80	1
Truck and High-Bed Trailer	40	84	7
Utility Truck ³	40	55	4
Vibratory Plate Compactor	20	80	1
Water Pump	50	77	2
Water Truck	40	84	1
Welding Machine	40	73	3

Source: Reference sound level data based on equipment specifications, FHWA, Roadway Construction Noise Model, Version 1.1, December 2008.

Notes:

- L_{max} Maximum sound level
- 1 Assumed reference sound level is equivalent to a flatbed truck.
- 2 Assumed reference sound level is equivalent to a front-end loader.
- 3 Assumed reference sound level is equivalent to a pick-up truck.

Table 4-24 Construction Noise During Peak Quarter, dBA

Noise Sensitive Location ¹	Land Use	Construction Noise (L ₁₀)	City of Boston L ₁₀ Criteria	Construction Noise (L _{max})	City of Boston L _{max} Criteria
Receiver 01	Residential	63	75	65	86
Receiver 02	Residential	65	75	66	86
Receiver 03	Residential	68	75	70	86
Receiver 04	Residential	70	75	72	86
Receiver 05	Business/Recreational	71	80	72	-

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Table 4-24 Construction Noise During Peak Quarter, dBA (Continued)

Noise Sensitive Location ¹	Land Use	Construction Noise (L ₁₀)	City of Boston L ₁₀ Criteria	Construction Noise (L _{max})	City of Boston L _{max} Criteria
Receiver 06	Residential/Institutional	70	75	72	86
Receiver 07	Residential	67	75	69	86
Receiver 08	Residential/Institutional	66	75	68	86
Receiver 09	Residential	64	75	66	86
Receiver 10	Residential	62	75	64	86
Receiver 11	Residential	61	75	63	86

Source: VHB.

Note:

¹ See Figure 3-9, which depicts the Noise Study Area and receiver locations.

4.5.5.6 Cumulative Impacts - Noise and Noise-Compatible Land Use

Cumulative noise in the Noise Study Area includes aircraft flights and aircraft ground operations. Aircraft flight noise is the dominant source in this area. The Proposed Project would not change aircraft flights or aircraft ground operations. The taller Economy Garage would have small changes in how noise from aircraft ground operations propagates into the community. Noise from aircraft ground operations would decrease by up to DNL 3.4 dB at most locations north and northwest of the Economy Garage (due to the shielding from the increased floors added to the Economy Garage) and slightly increase up to DNL 0.4 dB at locations west of the Economy Garage (due to the reflectivity of the building). Since noise from aircraft ground operations would not increase by DNL 1.5 dB or more and aircraft flights are the dominant source of noise, cumulative noise levels would change even less. Cumulative noise levels would not increase by DNL 1.5 dB or more, and therefore would not exceed the FAA noise impact criteria due to the Logan Airport Parking Project. Thus, there would be no adverse noise impacts.

The construction of the new garage in front of Terminal E is not expected to have a noise impact on the nearby communities of East Boston and Jeffries Point due to the distance and presence of intervening structures between the Project Area for the new garage in front of Terminal E and the surrounding neighborhoods. For this reason, the construction of this proposed garage is not expected to contribute to the cumulative noise environment. The construction period of the Economy Garage expansion would occur after the completion of the projects underway at the Airport including Terminal E Modernization and the Terminal C Canopy, Connector, and Roadway Project. The Proposed Project, therefore, would not result in adverse cumulative noise impacts.

4.5.6 Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

In accordance with MEPA implementing regulations, this section focuses on the potential beneficial and adverse environmental impacts for surface and groundwater hydrology and quality within the Project Areas for the new garage in front of Terminal E and the Economy Garage expansion. This review includes discussion of areas subject to protection under the Massachusetts Wetlands Protection Act and its associated regulations, 310 Code of Massachusetts Regulations (CMR) 10.00, including wetlands, floodplains, surface waters, and groundwater.

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FAA Order 1050.1F lists several factors to consider for surface waters, which include a proposed 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 an 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 Areas are served by separate storm and wastewater (sanitary) systems. The Airport's storm drains discharge to existing outfalls that drain directly to Boston Harbor and not into a combined sewer system. Floor drains for enclosed floors within the proposed new garage in front of Terminal E and the Economy Garage expansion would drain through oil separators into the sewer system in accordance with the Boston Water and Sewer Commission's Sewer Use Regulations and Requirements for Site Plans. Drainage areas of the outfalls would not change as a result of this Project.

The Project Areas are located on previously developed land in Airport use (i.e., parking). As indicated in Chapter 3, *Existing/Affected Environment*, the Project Area for the new garage in front of Terminal E is located entirely outside of Federal Emergency Management Agency (FEMA) flood zones and the Project Area for the Economy Garage expansion is located partially within the 0.2-percent flood zone. Work performed in the 0.2-percent flood zone is not subject to of 310 CMR 10.57, and therefore, does not require compensatory flood storage. Chapter 3, *Existing/Affected Environment* indicates that the Project Areas are not located near or adjacent to a Wild and Scenic River and are located over 1,000 feet from resource areas (wetlands, Zone I, II, or Interim Wellhead Protection Areas, etc.) regulated pursuant to the Wetlands Protection Act or federal wetland regulations, including the Clean Water Act of 1972 and the Water Quality Act of 1987, Sections 401 and 404.

The Proposed Project would not create any new impervious areas and would not impact wetlands, floodplains, or groundwater. This section, therefore, focuses on stormwater and surface water quality. No direct or indirect water quality impacts are anticipated from the Proposed Project. Under the No-Build Alternative, there would be no change to the Project Areas from existing conditions.

4.5.6.1 No-Build Alternative - Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

There would be no effect on stormwater, surface water quality, or groundwater under the No-Build Alternative. The sites 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 also remain. Massport would continue to conduct outfall sampling according to its National Pollutant Discharge Elimination System (NPDES) permit, which is described in Chapter 3, *Existing/Affected Environment*. Massport would also continue to implement best management practices for pollution prevention by Massport, its tenants, and its construction contractors.

4.5.6.2 Direct Impacts - Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

As described in Chapter 3, *Existing/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

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addresses stormwater pollutants in general, and addresses potential bacteria, fuel and oil, deicing and anti-icing chemicals, and other sources of stormwater pollutants.

As the Project Area for the new garage in front of Terminal E is currently paved, the proposed garage would not result in increased impervious surfaces and therefore no changes in peak rates of runoff to the stormwater system. As floor drains on covered floors would connect to the Massachusetts Water Resources Authority (MWRA) wastewater system, no increase in pollutant-generating activities to the system are anticipated.

The distribution of stormwater between the building and surface parking would shift to more roof (top floor of parking garage) collection, but the aggregate amount of stormwater generated and overall stormwater runoff quality would remain unchanged from the existing condition. Per Massachusetts Plumbing Code (248 CMR 10.00), stormwater from the outside top level of open parking garages must be conveyed to a gas, oil and sand interceptor/separator prior to discharge to the closed-drainage system. The existing closed-drainage systems would be modified as necessary to accommodate the new parking garage footprint and roof area drainage. As requested by the Boston Water and Sewer Commission, Massport will install permanent castings stating "Don't Dump: Drains to Boston Harbor" next to any catch basin created or modified as part of the Proposed Project.

The drainage patterns at the Project Area for the new garage in front of Terminal E would mimic existing conditions, with the majority of the area continuing to drain to the North Outfall and small portions of the entrance driveways continuing to drain to the Porter Street Outfall. The North Outfall is equipped with end-of-pipe treatment to remove debris and floating oil and grease from stormwater prior to discharge to Boston Harbor.

The new garage in front of Terminal E would implement a stormwater reuse program as part of its development. Stormwater would be collected via the canopy structure of the solar photovoltaic system on the facility's east side and would discharge to a stormwater collection tank. It is anticipated that the stormwater collection would be sized to accommodate the 80th percentile storm event for the Boston metropolitan area. The solar photovoltaic system is being reviewed for coverage area need, it is anticipated the coverage area would provide a minimum of 10,000 square feet of solar photovoltaic panels, which would offset approximately 15 percent or 250,000 kWh of the proposed facility's total electrical consumption. The stormwater tank would be within the garage footprint and would be sized based on the coverage area but would be approximately 5,000 gallons to 20,000 gallons with an overflow to the local drainage system. Stormwater would be treated at the tank and pumped to the Central Heating Plant cooling tower. The storage volume would reduce peak rates and volumes; however, since this volume would vary depending on the demand at the Central Heating Plant and the elapsed time since the last significant rainfall event, the reduction in peak rates and volumes cannot be quantified. Massport is examining other potential reuse options for when cooling tower water demand is low.

The Economy Garage expansion would not increase impervious areas. Floor drains on covered floors would connect to the MWRA wastewater system. As a result, no increase in pollutant-generating activities and no change in peak rates of runoff to the stormwater system are anticipated. As stormwater from the outside top level of the existing Economy Garage is conveyed to a gas, oil and sand interceptor/separator prior to discharge to the closed-drainage system, as required by 248 CMR 10.00, no change in stormwater quality or treatment mechanisms is anticipated. Stormwater from the Project Area for the Economy Garage expansion would continue to be conveyed to the West Outfall. The West Outfall is equipped with end-of-pipe treatment to remove debris and floating oil and grease from stormwater prior to discharge to Boston Harbor.

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In both proposed garages, floor drains on covered floors would connect to the MWRA wastewater system, which is ultimately treated at the Deer Island Sewage Treatment Plant in Boston Harbor. As flow from the floor drains are anticipated to be minimal, the proposed parking garages would not result in a significant increase in sewage flow. Sewage flows from these covered floors would be routed through separators to remove gas, oil, and other petroleum distillates prior to being discharged to the MWRA wastewater system.

As currently planned, the new garage in front of Terminal E would include one unisex restroom; a unisex restroom is present in the existing Economy Garage. These facilities are for staff-use only. Associated sewage flows would be minimal and would ultimately connect to the MWRA wastewater system.

4.5.6.3 Indirect Impacts - Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

No indirect impacts to stormwater, surface water quality, or groundwater are anticipated from the Logan Airport Parking Project. Stormwater from the Proposed Project would continue to be accommodated in the existing stormwater collection and treatment system, which discharges to Boston Harbor.

4.5.6.4 Temporary Construction-Related Impacts - Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

Since the proposed new garage in front of Terminal E involves construction disturbance of greater than one acre of land, a project-specific Stormwater Pollution Prevention Plan would be prepared in accordance with the EPA's NPDES General Permit for Construction Activities and an electronic Notice of Intent (eNOI) will be filed with the EPA. The plan would ensure that construction activities do not result in impacts to water quality within Boston Harbor. Coverage under this permit requires the preparation of a Stormwater Pollution Prevention Plan, which identifies specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater, or construction debris to the existing drainage system during construction. The Boston Water and Sewer Commission requires a copy of this Stormwater Pollution Prevention Plan be submitted for its review and approval prior to commencement of construction.

Construction of the Economy Garage expansion primarily comprises an expansion to the existing structure, along with a six-level addition with a footprint of 18,000 square feet and minor roadway modifications to Prescott Street to accommodate the additional vehicles entering and exiting the garage. As a result, significant exposure of erodible soils and dewatering are not anticipated at the Project Area for the Economy Garage expansion. The construction of the Economy Garage expansion would require construction staging, laydown areas, and access locations, however, which can result in increased likelihood of spills of fuels, lubricants, or other pollutants. These activities have the potential to contribute sediment or other pollutants to Massport's closed-drainage system, potentially resulting in temporary minor adverse impact to stormwater quality. It is anticipated that any temporary adverse impact would be mitigated through implementation of erosion and sedimentation controls in accordance with EPA's 2017 NPDES Construction General Permit.

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 the MassDEP for approval and implemented during construction. Massport would not discharge storm or groundwater to the sanitary sewer system. If discharge of any dewatering drainage to the storm drainage system is required, Massport will obtain a Drainage Discharge Permit from the Boston Water and Sewer

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Commission. If the dewatering drainage is contaminated with petroleum products, Massport will obtain a Remediation General Permit from the EPA for the discharge.

4.5.6.5 Cumulative Impacts - Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

No impacts to stormwater or surface water quality are anticipated from the Proposed Project. Reasonably foreseeable projects under construction during the construction periods of the Logan Airport Parking Project include Terminal E Modernization and the Terminal C Canopy, Connector, and Roadway Project. These projects will also not result in an adverse impact to stormwater or surface water quality. Recently completed projects have included upgrades to the stormwater collection system Airport-wide. The Proposed Project, therefore, would not result in adverse cumulative noise impacts.

4.5.7 Coastal Resources

As noted in Chapter 3, *Existing/Affected Environment*, non-water dependent projects located in the coastal zone shall be consistent with all policies of the Massachusetts Coastal Zone Management Program. 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.

The entire Airport is located within the defined coastal zone for Massachusetts. Proposed improvements are limited to those areas of the Airport 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 Logan Airport Parking Project is consistent with the *Massachusetts Coastal Zone Management Plan*.

The Proposed Project would not alter the use of areas within the Coastal Zone. The entirety of the Project Areas are currently developed and in aviation use. Land currently in use for Airport operations would continue to be used for aviation and airport purposes under the No-Build Alternative and under the Proposed Project. The Proposed Project would not result in changes to or use of coastal resources; no direct, indirect, temporary construction, or cumulative impacts would result.

4.5.8 Hazardous Materials, Solid Waste, and Pollution Prevention

The Logan Airport Parking 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 40.000) 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. 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.

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4.5.8.1 No-Build Alternative - Hazardous Materials, Solid Waste, and Pollution Prevention

Existing MassDEP disposal sites are required to achieve regulatory closure in accordance with the MCP. The No-Build 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 MCP compliant.

4.5.8.2 Direct Impacts - Hazardous Materials, Solid Waste, and Pollution Prevention

The Logan Airport Parking Project involves the construction of vertical and horizontal infrastructure that would include piles to support the new construction and underground utility work. The Proposed Project would likely have a positive effect on confirmed areas of soil and groundwater contamination within the Project Areas. On-site contamination encountered would be assessed, and if necessary, remediated prior to and during construction activities 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 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.

4.5.8.3 Indirect Impacts - Hazardous Materials, Solid Waste, and Pollution Prevention

Massport does not anticipate any indirect impacts from the new garage in front of Terminal E or the Economy Garage expansion 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 to ensure there are no offsite effects.

4.5.8.4 Temporary Construction-Related Impacts - Hazardous Materials, Solid Waste, and Pollution Prevention

Due to the presence of documented releases of oil and/or hazardous materials within close proximity of and within the Project Areas, on-site industrial use, and the generally developed nature of the Project Areas, there is the potential to encounter oil and/or hazardous materials and urban fill that requires special handling and management during construction. Approximately 25,000 cubic yards of soil is anticipated to be disturbed and displaced as part of construction of the Proposed Project. Soil would be disturbed during the installation of deep foundations and underground utility work. 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.

During construction of the proposed garages, it is currently anticipated that approximately 400 tons of concrete and 20 tons of steel would be generated and require disposal. These building materials have the potential to contain oil and/or hazardous materials such as lead-based paint, asbestos, or polychlorinated biphenyls that will require appropriate disposal in accordance with federal and state regulations.

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Preliminary assessment activities would be conducted prior to construction in order to identify the type and quantity of oil and/or hazardous material-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 per the MCP, such as when oil and/or hazardous material is detected in soil and/or groundwater at or above the applicable standards, referred to as the Reportable Concentrations. Any soil encountered during construction containing oil and/or hazardous materials at or above the MCP Reportable Concentrations would be managed appropriately in accordance with the applicable state and federal regulations.

Should impacted soil require export or on-site reuse, this material would be properly characterized and managed in accordance with applicable regulations. Proper management would ensure appropriate reuse within the Project Areas to prevent future exposure to contaminants or export to appropriate receiving facilities. Although not anticipated, if oil and/or hazardous material-impacted groundwater is encountered during construction, it would also be managed in accordance with applicable regulations.

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. Due to the location of an Activity and Use Limitation on the Economy Garage property, a Release Abatement Measure Plan must be submitted with MassDEP prior to any subsurface work in accordance with regulations set forth in the MCP.

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 Areas to ensure that work is conducted in a coordinated fashion.

Solid Waste

The Proposed Project would involve demolition activities related to existing parking areas. Asbestos-containing materials, such as some caulking, may be present in building materials undergoing demolition. In addition, though less likely due to the age of the Economy Garage (less than 10 years), lead-based paint and mercury may also be present in building materials and/or fixtures. Prior to demolition, a licensed asbestos and hazardous materials contractor would sample the building materials as well as for the potential lead-based paint and mercury. If these or other hazardous materials were found to be present in the structures or materials, then a licensed contractor would remove them in accordance with state regulations. Asbestos removal and building demolition notifications would be submitted to MassDEP at least 10 working days prior to initiating work using the appropriate permit forms.

Reuse of building materials, such as asphalt, brick, and concrete, will be considered; their reuse 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

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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 oil and/or hazardous materials in the process of constructing the Proposed 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.

4.5.8.5 Cumulative Impacts - Hazardous Materials, Solid Waste, and Pollution Prevention

It is not anticipated that the Proposed Project would contribute to significant adverse impacts related to the generation, transportation, storage, or release of hazardous materials or solid waste in conjunction with the ongoing projects.

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

In accordance with the *Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs*, this DEIR/EA reviewed the Proposed Project against its potential to result in the equitable allocation of benefits and burdens, as applicable. FAA Order 1050.1F requires Massport to consider the impacts of the Proposed Project on social elements, including socioeconomics, environmental justice, and children's health and safety risks. Through the provision of additional on-Airport parking spaces in accordance with the amendment to the Parking Freeze to meet existing and future demand, the Proposed Project would reduce on- and off-Airport VMT and associated air emissions, resulting in health benefits to the community. Furthermore, the Proposed Project would support the Airport's role as an economic driver in the region by promoting efficient access/egress to the Airport.

Massport does not anticipate the Logan Airport Parking Project would result in adverse environmental impacts, 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

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environmental justice communities. All benefits of reduced roadway congestion and associated emissions reduction are anticipated to be borne equally by persons in surrounding areas.

4.5.9.1 No-Build Alternative - Environmental Justice, and Children's Health and Safety Risks

Under the No-Build Alternative, no additional on-Airport commercial parking spaces would be constructed. As the existing parking supply already fails to meet existing demand during significant parking events, it would become more inadequate and the drop-off/pick-up mode share would increase, resulting in increased traffic congestion and associated air emissions as the Airport continues to experience growth. Increased traffic congestion would impede passengers' and employees' abilities to access the Airport, which could potentially threaten the Airport's role as an economic driver for the region.

4.5.9.2 Direct Impacts - Environmental Justice, and Children's Health and Safety Risks

The Proposed Project would be constructed on existing Airport property and in areas that are already in use for aviation activities. It would have positive impacts on socioeconomic, environmental justice, and children's health that would be borne equally by persons in surrounding areas. By encouraging passengers to park at the Airport, rather than use pick-up/drop-off modes, the proposed new parking spaces would reduce on- and off-Airport VMT, thereby reducing congestion and improving local and regional air quality. Meeting existing and anticipated demand for parking at the Airport supports the Airport's role as an economic driver for the region. Furthermore, the Proposed Project may result in employment opportunities, though such opportunities would likely be minimal. New staff may be needed to support facility operations and maintenance, and any such hiring would be done in accordance with Massport's efforts to hire from neighboring communities and attract diverse applicants.

Providing sufficient parking would reduce the need for Massport to valet overflow parking during peak periods and the associated passenger inconvenience. Passenger convenience would also be enhanced by locating approximately 2,000 spaces within the terminal area and in close proximity to Terminal E. Convenient access to Terminal E would be further provided by a direct connection from the new garage in front of Terminal E to the pedestrian bridge that connects Terminal E to the Central Garage complex.

As demonstrated in this DEIR/EA, the Proposed Project would not result in any adverse environmental impacts and, therefore, would not cause a disproportionately high and adverse impact to economic vitality, disadvantaged populations, or the health and safety of children within neighboring communities, including those identified as environmental justice communities.

4.5.9.3 Indirect Impacts - Environmental Justice, and Children's Health and Safety Risks

The Logan Airport Parking Project would have positive indirect effects on local and regional economy. The provision of new on-Airport parking spaces, in accordance with the amendment to the Parking Freeze, would reduce traffic congestion to/from the Airport, enabling passengers and employees to access the Airport efficiently and reduce air quality impacts. This would, in turn, support the operations of the airlines and tenants/concessionaires at the Airport, which could increase activity in the local economy through additional business-to-business activity between Massport's tenants at the Airport and local suppliers, as well as between local suppliers and other businesses.

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4.5.9.4 Temporary Construction-Related Impacts - Environmental Justice, and Children's Health and Safety Risks

The construction footprint of the Logan Airport Parking Project is within the existing Airport boundary and within areas that are already in use for aviation activities. Construction is not anticipated to have an adverse impact on the socioeconomics or children's health and safety of surrounding communities. As documented in Chapter 5, *Beneficial Measures/Mitigation*, Massport will deploy many construction-period mitigation efforts to ensure protection of the environment and community.

Construction of the Proposed Project would positively impact local employment opportunities by generating temporary construction jobs. For the new garage in front of Terminal E, an average of 70 construction employees per month would be required. For the Economy Garage expansion, an average of 80 construction employees per month would be required. Construction activities would also generate direct local economic impacts (i.e., expenditures by Massport), indirect impacts (i.e., re-spending of expenditures by construction employees and local businesses), and induced impacts (i.e., additional spending by local businesses and their employees).

Because the Logan Airport Parking Project would not have an adverse impact to socioeconomics or children's health and safety, it would not have a disproportionately high and adverse impact to local environmental justice communities.

4.5.9.5 Cumulative Impacts - Environmental Justice, and Children's Health and Safety Risks

The Proposed Project would not result in a change to the number of passengers or aircraft projected to be accommodated at Logan Airport compared to the No-Build Alternative. Nor would the Proposed Project result in a disproportionate impact to environmental justice communities. A substantial number of recently completed and underway 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.

4.5.10 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 Logan Airport Parking 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." 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 a property are substantially impaired."³⁴

There are no Section 4(f) properties within the boundaries of the Airport, and therefore, none exist within the Project Areas. There are two Section 4(f) properties outside of, but within proximity of the Project Area for the

³⁴ FHWA. (2019). *Section 4(f) Tutorial*. https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx?a=e#a. Accessed February 1, 2019.

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Economy Garage expansion: East Boston Memorial Park and Bremen Street Park (see **Figure 3-14**). Massport operates and maintains Bremen Street Park.

4.5.10.1 No-Build Alternative - Department of Transportation Act, Section 4(f) Resources

The No-Build Alternative would not require the use of a Section 4(f) property. The drop-off/pick-up mode share would increase, resulting in increased traffic congestion and associated air emissions as the Airport continues to experience growth. These impacts, however, are not expected to substantially impair the protected activities, features, or attributes of a Section 4(f) property and result in a constructive use.

4.5.10.2 Direct Impacts - Department of Transportation Act, Section 4(f) Resources

The Proposed Project would occur entirely on-Airport in areas that are already in use for aviation activities. It would not require the permanent incorporation of, or a permanent easement on, any adjacent Section 4(f) properties.

4.5.10.3 Indirect Impacts - Department of Transportation Act, Section 4(f) Resources

FAA must comply with 23 CFR 774.15 to determine whether there is a constructive (indirect) use of Section 4(f) property. The Proposed Project would not increase noise or other impacts that would indirectly impact Section 4(f) properties. No constructive use of Section 4(f) properties, therefore, are expected to occur. The increased height of the Economy Garage has the potential to decrease or increase noise from aircraft ground operations at the Bremen Street Park, depending on the location within the park; however, these changes would be less than 3 dB. Changes in noise of 3 dB or less are generally not perceptible.

The Proposed Project would not induce additional development within or outside of Logan Airport that would have the opportunity to result in a permanent, temporary, or constructive use of Section 4(f) properties.

4.5.10.4 Temporary Construction-Related Impacts - Department of Transportation Act, Section 4(f)

Construction of the Proposed Project would occur entirely on-Airport and would not require the temporary occupancy of adjacent Section 4(f) properties.

4.5.10.5 Cumulative Impacts - Department of Transportation Act, Section 4(f)

The Proposed Project would not result in the use of adjacent Section 4(f) properties. None of the other ongoing, planned, and reasonably foreseeable projects including Terminal E Modernization and the Terminal C Canopy, Connector, and Roadway Project would result in the use of Section 4(f) properties. Massport does not anticipate that Terminal E Modernization would contribute to adverse cumulative impacts to adjacent Section 4(f) properties; rather it would serve as an effective noise barrier to improve noise conditions in the vicinity of the Economy Garage through screening of ground noise activity in the North Apron Area. 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. Massport does not anticipate that the Logan Airport Parking Project would contribute to adverse cumulative impacts to Section 4(f) properties.

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4.5.11 Visual Effects (including Light Emissions)

This section considers the potential effects of the Proposed Project on the visual character of the Project Areas and surrounding neighborhoods. In accordance with FAA Order 1050.1F, it also assesses the Proposed 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 Logan Airport Parking Project would not adversely impact the visual character of the Project Areas or surrounding areas. The new garage in front of Terminal E would not be visible from surrounding neighborhoods, as elevated roadways, open parcels, and vegetative screening provide buffering. Furthermore, it would be consistent with the existing architectural character of the terminal area, including the adjacent Central Garage complex. The existing Economy Garage is generally not visible from surrounding neighborhoods, except for select locations along the Bremen Street and MBTA Blue Line corridors, the East Boston Public Library, and some areas within Bremen Street Park. The Economy Garage expansion would not be significantly more visible to the community, as elevated roadways and vegetative screening would continue to provide buffering. Additional lighting associated with the Proposed Project would not create annoyance or interference with normal activities in the surrounding areas, as Massport would shield such lighting, where feasible, to limit uncontrolled light pollution, as well as install photocells, where applicable, to eliminate unnecessary light output during the daytime.

4.5.11.1 No-Build Alternative - Visual Effects (including Light Emissions)

The No-Build Alternative would not adversely impact the visual character of the Project Areas or surrounding neighborhoods, as aesthetic and lighting conditions would largely remain consistent with existing conditions.

4.5.11.2 Direct Impacts - Visual Effects (including Light Emissions)

New Garage in Front of Terminal E

The new garage in front of Terminal E would not adversely impact the visual character of its Project Area or surrounding areas. A surface parking facility is being replaced with a structured parking facility, maintaining the same land use. It would not be visible from surrounding neighborhoods. The Project Area for the new garage in front of Terminal E is far from community and recreation areas, as it is within the terminal area at the general center of the Airport. Furthermore, other Airport buildings, elevated roadways, open parcels such as Bremen Street Park and East Boston Memorial Park, and vegetative screening would provide visual buffering. Massport would design this proposed garage to be consistent with the scale of existing adjacent parking structures, including the Central Garage complex, and consistent with the architectural character of existing and planned Airport structures, including Terminal E and Terminal E Modernization.

The lighting system at the new garage in front of Terminal E would include interior parking level lighting; façade lighting, roadway lighting; lighting to illuminate mechanical/electrical rooms, lobbies, and stairwells; and miscellaneous safety and security lighting. This system would not create annoyance or interfere with normal activities in surrounding areas or affect the visual character of the area, as the area already includes lighting for the existing Terminal E surface parking lots and lighting deriving from other aviation activities. Massport would shield exterior lighting, where feasible, to limit uncontrolled light pollution. Furthermore, interior lighting would be installed with occupancy sensors to reduce lighting during periods when sections of

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the facility are not utilized and exterior lighting would be outfitted with photocells to eliminate unnecessary light output during the daytime.

Economy Garage

Massport does not anticipate the Economy Garage expansion to adversely impact the visual character of the Project Area or surrounding areas. Although the height of the facility would increase by three parking levels for a total of 36 additional feet, it would still not be highly visible from surrounding neighborhoods; elevated roadways, open parcels such as Bremen Street Park, and vegetative screening would continue to provide visual buffering. The Economy Garage expansion would be visible from locations where the garage is already visible, such as select locations along the Bremen Street and MBTA Blue Line corridors, the East Boston Public Library, and some areas within Bremen Street Park. The Economy Garage expansion could be visible from a limited number of additional locations; however, at approximately 73 feet in height, it would be consistent with the size of adjacent Airport buildings, including Terminal E Modernization and the Delta Air Lines hangar to the south and the jetBlue Airways hangar to the immediate southeast. Massport would design the Economy Garage expansion to be consistent with the architectural character of the existing garage and adjacent structures.

Additional lighting associated with the Economy Garage expansion would include interior parking level lighting; lighting to illuminate mechanical/electrical rooms, lobbies, and stairwells, and miscellaneous safety and security lighting. Such lighting would not create annoyance or interfere with normal activities in surrounding areas or affect the visual character of the area, as it would not be substantially different from the existing lighting program at the Economy Garage in terms of intensity, duration, and emission. Massport would shield exterior lighting, where feasible, to limit uncontrolled light pollution. Furthermore, interior lighting would be installed with occupancy sensors to reduce lighting during periods when sections of the facility are not in use, and exterior lighting would be outfitted with photocells to eliminate unnecessary light output during the daytime.

4.5.11.3 Indirect Impacts - Visual Effects (including Light Emissions)

Massport does not anticipate that the Logan Airport Parking Project would have any indirect adverse impacts due to changes to the visual character of the Project Areas. The new garage in front of Terminal E and the Economy Garage expansion would not cause or otherwise induce changes to nearby visual resources and would be consistent with the existing and future visual character, continuing to serve airport- and transportation-related functions.

4.5.11.4 Temporary Construction-Related Impacts - Visual Effects (including Light Emissions)

Construction of the Logan Airport Parking Project would take place entirely within the Airport's boundary. Existing elevated roadways, open parcels, and vegetative screening, as well as other Airport structures would largely block views of construction activities. Some towering construction equipment such as mobile cranes would be visible from surrounding areas throughout the construction periods. Massport may need to light such equipment to ensure the safety of workers during operation as well as for airspace obstruction purposes.

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4.5.11.5 Cumulative Impacts - Visual Effects (including Light Emissions)

The Logan Airport Parking Project would not contribute cumulative adverse impacts to the visual character of the Project Areas or surrounding areas. Considered in association with reasonably foreseeable other on-Airport projects, the Proposed Project would continue the architectural and aesthetic consistency of the Airport.

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Beneficial Measures/Mitigation

5.1 Introduction

The Massachusetts Port Authority (Massport) actively and continuously seeks to limit, reduce, or avoid the environmental effects associated with projects and operations at Boston-Logan International Airport (Logan Airport or the Airport). Planning and development at Logan Airport is conducted within an established framework of environmental goals and objectives. It is within this framework that the Logan Airport Parking Project (the Proposed Project) was assessed.

The intent of the Logan Airport Parking Project is to reduce the number of drop-off and pick-up trips (through the provision of sufficient parking spaces) thus reducing vehicle miles traveled (VMT) and improving air quality. The Proposed Project has a range of positive environmental benefits when compared to the No-Build Alternative. These benefits were presented in the Project's Environmental Notification Form (ENF), which was noticed in the Environmental Monitor on April 5, 2017 per the Massachusetts Environmental Policy Act (MEPA), and confirmed in the analysis presented in Chapter 4, *Assessment of Impacts/Environmental Consequences* of this Draft Environmental Impact Report/Environmental Assessment (DEIR/EA). Implementation of the Proposed Project would allow Massport to avoid adverse environmental impacts that would occur if no action were taken. These avoidable impacts include higher regional VMT and associated air emissions from an increasing drop-off/pick-up mode share resulting from an inadequate parking supply. Furthermore, because the Project proposes to add structured parking at two on-Airport locations that are fully developed and currently in use for parking, greenfield site impacts are fully avoided.

The Proposed Project would enhance environmental conditions and would create no long-term adverse environmental impacts; only minor, temporary construction-period impacts are expected to occur. As discussed in Chapter 1, *Project Description/Purpose and Need*:

The purpose of the Logan Airport Parking Project is to accommodate air passenger parking demand, to reduce drop-off/pick-up activity, improve traffic congestion and regional air quality, and improve the passenger experience while minimizing community and environmental impacts by adding 5,000 commercial parking spaces (in accordance with the amendment to the Logan Airport Parking Freeze) entirely within the Airport footprint.

This chapter summarizes the environmental benefits of the Proposed Project, the incorporation of sustainable and resilient features, and construction period mitigation. Appendix C, *Draft Section 61 Findings* confirms the beneficial and mitigation measures that will be incorporated into the Proposed Project, as well as Massport's commitment to provide a self-certification that greenhouse gas emissions reduction measures have been

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incorporated. Following approval of the Proposed Project, tracking of and reporting on the beneficial and mitigation measures, as applicable, will continue through Massport's Logan Airport Environmental Data Report (EDR)/Environmental Status and Planning Report (ESPR) filings.

5.2 Beneficial Measures/Mitigation Commitments

Table 5-1 provides a high-level summary of the beneficial measures and mitigation commitments that Massport pledges to implement as part of the Logan Airport Parking Project. All measures will be implemented according to the Proposed Project's phased schedule. The new garage in front of Terminal E, which would be located on existing surface parking lots, would be operational in 2022 and the Economy Garage expansion would be operational by the end of 2025. Each measure listed in **Table 5-1** has been included in the total program cost (see Chapter 2, *Alternatives Analysis* for more information on Project costs).

Table 5-1 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures

Element	Beneficial/Mitigation Measure
Project Planning and Design	<ul style="list-style-type: none">■ Accommodating existing and anticipated air passenger demand for parking to reduce the environmentally undesirable drop-off/pick-up mode share and its associated vehicle miles traveled (VMT) and on- and off-Airport air emissions■ Selecting project sites with community input that are in areas already used for parking (i.e., not introducing a new use), are on existing bus/shuttle routes, and are separated from nearby residential communities■ Reusing existing developed areas (i.e., the Project Areas do not contain undeveloped, greenfield lands)■ Providing convenient passenger access between the new garage in front of Terminal E and the terminal buildings and to the pedestrian bridge that connects Terminal E to the Central Garage complex (which includes the West and Central Garages)■ Incorporating the following ground access features into the design of the new garage in front of Terminal E:<ul style="list-style-type: none">□ A secondary entrance for public parkers to reduce on-Airport recirculation and associated VMT□ A vehicular bridge connected to the Central Garage complex to enable more efficient operational movements by Massport's Ground Transportation Unit■ Providing added noise barrier benefits to nearby residences and recreation areas, in conjunction with the Terminal E Modernization Project, through the expansion of the existing Economy Garage■ Relying on existing roadway infrastructure and signage for the Economy Garage expansion■ Providing drivers with important roadway and parking information through internal and external wayfinding systems to reduce on-Airport and in-garage circulation, as well as associated VMT and air emissions. Such systems will include:<ul style="list-style-type: none">□ Dynamic signage/messaging□ A parking reservation system□ Parking guidance via electronic level occupancy detection■ Encouraging parkers to pay their fees prior to returning to their vehicles via Massport's pay-by-foot system, which uses automated kiosks to enable the efficient flow of vehicles exiting the garages and reduce vehicle idling and associated air emissions
Sustainability and Resiliency	<ul style="list-style-type: none">■ Incorporating measures from the U.S. Green Building Council's Parksmart rating system into the Proposed Project's technology, structural design, and operation■ Reducing lighting power densities for garage lighting■ Installing occupancy sensors and photocells on all applicable interior and exterior lighting■ Incorporating a solar photovoltaic system at the new garage in front of Terminal E to offset approximately 60 percent of electricity consumption associated with the garage interior lighting or about 15 percent of the total facility electrical consumption■ Relocating the existing solar photovoltaic system at the Economy Garage to the top of the facility's new highest level upon completion of Project construction (the installation of a newer, more efficient system will be evaluated for feasibility as that construction period gets closer)■ Performing building commissioning in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007

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Table 5-1 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures (Continued)

Element	Beneficial/Mitigation Measure
Sustainability and Resiliency (Continued)	<ul style="list-style-type: none"> ■ Reserving priority parking spaces for alternative fuel vehicles (e.g., electric vehicles) amounting to at least 1 percent of total spaces and assigning preferred parking spaces for other low-emitting and fuel-efficient vehicles amounting to at least another 1 percent of total spaces ■ Installing electric vehicle charging stations to accommodate 150 percent of demand; 15 charging stations are currently planned for the new garage in front of Terminal E and five are planned for the Economy Garage expansion ■ Integrating landscaping into the façade of the new garage in front of Terminal E ■ Planting water-conserving ground landscapes that apply the principles of xeriscaping (e.g., use of native plants) ■ Harvesting stormwater at the new garage in front of Terminal E to offset a portion of cooling tower water consumption at the Central Heating Plant and for other potential reuse applications, as feasible, and assessing the feasibility of stormwater collection at the Economy Garage as its design proceeds ■ Performing frequent sweeping (at least monthly) to reduce the need for constant pressure washing and associated water use ■ Utilizing power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable ■ Installing programmable thermostats, where applicable (i.e., mechanical/electrical rooms) ■ Specifying water efficient fixtures and faucets in a staff restroom at the new garage in front of Terminal E ■ Implementing an active recycling program to reduce the amount of waste sent to regional landfills/incinerators and to reduce greenhouse gas emissions associated with material disposal ■ Applying durable design and conducting proactive maintenance to extend facility lifespan and avoid greenhouse gas emissions caused by future large-scale construction and renovation activities ■ Complying with Massport's <i>Floodproofing Design Guide</i> and elevating critical equipment and systems above the designated design flood elevations ■ Ensuring redundant or back-up power sources to reduce disruption from extreme weather conditions that may cause power outage ■ Considering the following additional sustainability measures as design proceeds: <ul style="list-style-type: none"> □ Applying no/low volatile organic compound (VOC) coatings, paints, and sealants □ Prioritizing product and material purchases based on their environmental sustainability (e.g., products that are refurbished, repurposed, or recycled)
Construction Period Mitigation	<ul style="list-style-type: none"> ■ Providing on-Airport storage areas for construction materials ■ Requiring Massport's 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 □ Draft Construction Waste Management Plan ■ Controlling rodents through routine inspection, monitoring, and treatment ■ Prioritizing the use of construction equipment and materials that are repurposed, reused, or recycled (or contain recycled content), where feasible, to reduce the Proposed Project's consumption of virgin natural resources ■ Implementing the following surface transportation construction-period mitigation measures: <ul style="list-style-type: none"> □ All trucks will access the sites by Route 1A, Interstate 90, Coughlin Bypass road, and the main Airport roadway only □ Trucks will be prohibited from using local streets □ 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 □ Massport will encourage construction workers to use Massachusetts Bay Transportation Authority (MBTA) transit services, Logan Express, the water shuttle, and other high-occupancy modes of travel □ Construction companies will be encouraged to provide off-Airport parking for their employees and to provide shuttle services from these locations (shuttles will be required to use the Coughlin Bypass road to access the Airport) ■ Implementing the following air quality construction-period mitigation measures: <ul style="list-style-type: none"> □ Construction vehicle/equipment anti-idling □ Using low- or zero-emissions equipment, where practicable □ Retrofitting appropriate diesel construction equipment with diesel oxidation catalyst and/or particulate filters □ Reducing on-site vehicle speeds □ Deploying air quality and fugitive dust management best practices such as reducing exposed erodible surface areas through appropriate materials and equipment staging, covering exposed surface areas with pavement or vegetation in an expeditious manner, and stabilizing soil with cover or periodic watering

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Table 5-1 Summary of Logan Airport Parking Project Beneficial and Mitigation Measures (Continued)

Element	Beneficial/Mitigation Measure
Construction Period Mitigation (Continued)	<ul style="list-style-type: none"> ■ Using and maintaining construction equipment appropriately to avoid unnecessary noise and applying noise-reduction measures to reduce noise from pile driving by at least 5 A-weighted decibels (dBA) below their unmitigated levels¹ ■ Putting into place an Erosion and Sedimentation Control Program, in compliance with the Stormwater Pollution Prevention Plan, to protect water quality and to minimize construction phase impacts to Boston Harbor ■ Deploying spill prevention measures and sedimentation controls throughout the construction phases to prevent pollution from construction equipment and erosion ■ Using the following erosion and sedimentation controls throughout the construction phases: <ul style="list-style-type: none"> □ Perimeter barriers such as straw wattles or compost-filled "silt sock" barriers will 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 sites will be protected with barriers (where appropriate) or silt sacks □ Open soil surfaces will be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased ■ Implementing the following surface transportation construction-period mitigation measures to address the simultaneous construction of projects at the Airport: <ul style="list-style-type: none"> □ Hiring a Strategic Projects consultant (a process Massport is currently conducting separate from the Proposed Project) who will help develop and facilitate traffic management strategies Airport-wide and whose responsibility it will be to understand and react to the aggregate of construction projects and their potential impacts □ Coordinating the arrival of large construction equipment among projects and limit their arrival or removal during peak travel hours (both Airport and commuter peaks) □ Developing specific truck routing and/or staging plans for implementation by the various contractors

Note:

¹ Sound levels from activities associated with the construction of the Proposed Project would be voluntarily consistent with the City of Boston's noise criteria; therefore, no construction noise mitigation is anticipated.

5.2.1 Project Planning and Design

A primary purpose of the Proposed Project is to accommodate existing and anticipated air passenger demand for parking to reduce the environmentally undesirable drop-off/pick-up mode share. By reducing unnecessary trips generated by drop-offs and pick-ups, Massport would reduce VMT and associated on- and off-Airport air emissions. Furthermore, the Proposed Project would be sited entirely on-Airport in areas that have already selected with input from the community and are already developed and are currently used for commercial parking. The Project Areas are separated from nearby residential communities: the new garage in front of Terminal E is largely surrounded by other Airport facilities and structures, and the Economy Garage expansion by local roads, the Massachusetts Bay Transportation Authority (MBTA) Blue Line right-of-way, and Interstate 90/Route 1A. Both Project sites are served by existing Massport shuttle bus routes.

Massport will incorporate design features that specifically intend to improve operational efficiencies at the garages and enhance the passenger experience. The new garage in front of Terminal E will provide passengers with convenient access to the terminal buildings and to the pedestrian bridge that connects Terminal E to the Central Garage complex (which includes the West and Central Garages), and will include a secondary entrance for public parkers to reduce on-Airport recirculation. It will also include a vehicular bridge connected to the Central Garage complex to enable more efficient operational movements by Massport's Ground Transportation Unit (i.e., moving vehicles between the parking facilities in cases of overflow). The Economy Garage expansion will rely on existing roadway infrastructure and signage and have added noise barrier benefits, in conjunction with the Terminal E Modernization Project, screening the community and neighborhood recreation areas from aircraft ground noise in the North Apron Area. Common to both facilities, Massport will develop internal and external wayfinding systems to include dynamic signage, a parking reservation system, and parking guidance via electronic level occupancy detection. Massport will also implement its pay-by-foot system to encourage

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parkers to pay their parking fees at automated kiosks prior to returning to their vehicles, which reduces queuing at the garage exits. These wayfinding and pay-by-foot systems would support a reduction in on-Airport and in-facility circling and idling, resulting in fewer VMT and associated air emissions.

5.2.2 Sustainability and Resiliency

Massport is committed to operating its facilities in an environmentally sound and responsible manner. Accordingly, it incorporates Massport-specified sustainability requirements as well as industry standards into all new development and redevelopment projects at the Airport such as Massport's *Sustainable Design Standards and Guidelines* and the building goals of the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) rating system. Massport will integrate USGBC's Parksmart framework into the planning, design, and operation of the proposed garages. Parksmart is an environmental and sustainability focused rating system specific to parking structure management, programming, design, and technology.

The Proposed Project will be consistent with Massport's overall sustainability program, which includes diverse sustainability initiatives ranging from facilities maintenance to innovative partnerships and public incentives. The sustainable features that Massport will incorporate into the design of the garages are listed below. Further sustainable design opportunities such as the application of no/low VOC coatings, paints, and sealants and the prioritization of product and material purchases based on their environmental sustainability will be addressed as the Proposed Project progresses into design development. These additional opportunities will be incorporated into the construction of the Proposed Project, especially as they relate to the proper specification of sustainable materials and construction practices, as well as into the operation of the facilities.

- Reducing lighting power densities for garage lighting;
- Installing occupancy sensors and photocells on all applicable interior and exterior lighting;
- Incorporating a solar photovoltaic system at the new garage in front of Terminal E to offset approximately 60 percent of electricity consumption associated with the garage interior lighting or about 15 percent of the total facility electrical consumption;
 - Massport is committed to further reducing the installed lighting power density at the new garage in front of Terminal E, currently 0.09 watts per square foot, by investigating current luminaires with greater efficacy toward the goal of offsetting 100 percent of the garage's interior lighting with on-site solar photovoltaics;
- Relocating the existing solar photovoltaic system at the Economy Garage to the top of the facility's new highest level upon completion of Project construction (the installation of a newer, more efficient system will be evaluated for feasibility as that construction period gets closer);
- Performing building commissioning in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007;
- Reserving priority parking spaces for alternative fuel vehicles (e.g., electric vehicles) amounting to at least 1 percent of total spaces and assigning preferred parking spaces for other low-emitting and fuel-efficient vehicles amounting to at least another 1 percent of total spaces;

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- Installing electric vehicle charging stations to accommodate 150 percent of demand; 15 charging stations are currently planned for the new garage in front of Terminal E and five are planned for the Economy Garage expansion;
- Integrating landscaping into the façade of the new garage in front of Terminal E;
- Planting water-conserving ground landscapes that apply the principles of xeriscaping (e.g., use of native plants);
- Harvesting stormwater at the new garage in front of Terminal E to offset a portion of cooling tower water consumption at the Central Heating Plant and for other potential reuse applications, as feasible, and assessing the feasibility of stormwater collection at the Economy Garage as its design proceeds;
- Performing frequent sweeping (at least monthly) to reduce the need for constant pressure washing and associated water use;
- Utilizing power/pressure washing systems with water recovery and recycling capability to the greatest extent practicable;
- Installing programmable thermostats, where applicable (i.e., mechanical/electrical rooms);
- Specifying water efficient fixtures and faucets in a staff restroom at the new garage in front of Terminal E;
- Implementing an active recycling program to reduce the amount of waste sent to regional landfills/incinerators and to reduce greenhouse gas emissions associated with material disposal; and
- Applying durable design (e.g., by minimizing steel corrosion by keeping steel away from the immediate concrete surface and selecting the appropriate concrete mix to reduce permeability, protect against chloride ion erosion, and reduce micro cracking) and conducting proactive maintenance to extend facility lifespan and avoid greenhouse gas emissions caused by future large-scale construction and renovation activities.

In 2013, Massport launched a comprehensive resiliency initiative to maximize business continuity under human and natural threats. Recent extreme storms, such as Winter Storm Nemo (2013), Hurricane Sandy (2012), and Tropical Storm Irene (2011) 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*¹ 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 oriented 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*,² which is based on the analysis and recommendations of the *Disaster and Infrastructure Resiliency Planning Study*.

Consistent with Massport's *Floodproofing Design Guide*, Massport will ensure that critical equipment and systems (e.g., electrical, mechanical, emergency and fire) at the new garage in front of Terminal E and the Economy Garage expansion will be elevated above the designated design flood elevation for new facilities. This is

¹ Massport. 2014. *Disaster and Infrastructure Resiliency Planning Study*.

² Massport. 2015. *Floodproofing Design Guide*.

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17.0 feet (North American Vertical Datum of 1988 [NAVD88]). Existing critical infrastructure at the Economy Garage may have to be raised above the design flood elevation for existing facilities, which is 13.7 feet (NAVD88). Redundant or back-up power sources will also be incorporated at both the new garage in front of Terminal E and the Economy Garage expansion to protect against extreme weather conditions that may cause power outage.

5.2.3 Construction Period Measures

As required by the Secretary's Certificate on the Project's ENF, this DEIR/EA identifies construction period impacts (see Chapter 4, *Assessment of Impacts/Environmental Consequences*), as well as avoidance, minimization, and mitigation measures (see subsequent sections of this chapter). In accordance with Federal Aviation Administration (FAA) Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* and Order 1050.1F, *Environmental Impacts: Policies and Procedures*, 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 will minimize the likelihood of negative impacts on the natural and built environment.

The Proposed Project would result in limited short-term impacts from added vehicle trips to and from the sites 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. Temporary, short-term impacts from construction activities will be mitigated to the extent practicable. Appropriate construction mitigation measures will be incorporated into the contract documents and specifications governing the activities of contractors and subcontractors constructing elements of the Proposed Project. All construction activities will comply with FAA Advisory Circular 150/5370-10 (latest edition), *Standard Specifications for Construction of Airports*. These construction-period mitigation measures will be the responsibility of Massport. Specific mitigation measures will be developed during the final design.

5.2.3.1 Construction Period Management

It is expected that construction would take place primarily during the day shift, approximately 7:00 AM to 7:00 PM. The need for nighttime or weekend work would be further determined during construction phasing development. Massport will require all contractors to comply with certain construction guidelines and best management practices that include:

- Storage areas for construction materials will be located on-Airport.
- A Draft Soil Management Plan will be developed based upon sub-surface investigations. The plan will outline standards and procedures for the identification and disposal of contaminated materials that may be encountered 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 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.

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- A Draft Management Plan for Dewatering, if needed, will be developed to address the requirements for testing, handling, and treatment prior to discharge of contaminated groundwater from dewatering.
- A Draft Health and Safety Plan will be developed to provide 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.
- A Draft Construction Waste Management Plan will be developed for the collection, storage, and handling recyclables.
- Rodent control inspection, monitoring, and treatment will be carried out before, during, and after the completion of all foundation and utility demolition and construction work.
- Construction equipment and materials that are repurposed, reused, or recycled (or contain recycled content) will be prioritized, where feasible, to reduce the Proposed Project's consumption of virgin natural resources.

In addition, Massport will employ a team of on-site resident engineers and inspectors to monitor all construction activities related to the Project. This includes coordination with all relevant agencies including the FAA, Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Water Resources Authority, City of Boston, Boston Water and Sewer Commission, and utility companies, as appropriate. It also includes the preparation of detailed pre-construction plans for traffic maintenance, construction specifications for contractors, and coordinated scheduling of all construction activities.

5.2.3.2 Construction Period Surface Transportation Mitigation

Construction traffic mitigation will focus on two issues: 1) minimizing construction-related vehicles on local roads, and 2) ensuring 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 sites by Route 1A, Interstate 90, and the main Airport roadways only. Trucks will be prohibited from using local streets unless 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 would reduce on-Airport construction activities and consolidate truck trips to the greatest extent possible.
- Construction workers will be encouraged to use public transportation or via shuttle buses from off-Airport parking areas. Specific actions regarding construction worker access are noted below.
 - Massport will encourage construction workers to use MBTA transit services, Logan Express, the water shuttle, and other high-occupancy modes of travel.
 - 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 off-Airport construction worker parking in areas adjacent to regional arterial roadways to help further minimize traffic on local streets. The employee shuttles will be required to use the Coughlin Bypass road to access the Airport to keep them off neighborhood streets.

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5.2.3.3 Construction Period Air Quality Mitigation

Massport will require all contractors to comply with certain construction guidelines and best management practices that include:

- Construction vehicle/equipment anti-idling;
- Using low- or zero-emissions equipment, where practicable;
- Retrofitting appropriate diesel construction equipment with diesel oxidation catalysts and/or particulate filters;
- Reducing onsite vehicle speeds;
- Reducing exposed erodible surface areas through appropriate materials and equipment staging procedures;
- Covering exposed surface areas with pavement or vegetation in an expeditious manner;
- Stabilizing soil with cover or periodic watering;
- Using covered haul trucks during materials transportation;
- Suspending construction activities during high-wind conditions; and
- Ensuring contractor knowledge of appropriate equipment exhaust and fugitive dust controls.

5.2.3.4 Construction Period Noise Mitigation

Sound levels from construction activities would be consistent with the City of Boston's noise criteria (even though Massport is not subject to these criteria); therefore, no additional construction noise mitigation is required. Construction equipment, however, will use noise-reduction measures such as:

- Noise control techniques will be used to reduce noise from pile driving at the new garage in front of Terminal E 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. No pile driving is anticipated for the Economy Garage expansion.
- 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.

5.2.3.5 Construction Period Water Quality Mitigation

Soil disturbance from construction activities creates the potential for water quality impacts from stormwater runoff and erosion. The Proposed Project will be required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities. The NPDES permit 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

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Program will be put in place to minimize construction phase impacts to adjacent properties and the Boston Harbor. Further, Massport will comply with the provisions of the Massachusetts Contingency Plan.

The following spill prevention measures and sedimentation controls will be deployed throughout the construction phases to prevent pollution from construction equipment and erosion. These 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 such as straw wattles or compost-filled "silt sock" barriers will 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 sites will be protected with barriers (where appropriate) or silt sacks; and
- Open soil surfaces will be stabilized within 14 days after grading or construction activities have temporarily or permanently ceased.

5.2.4 Coordination with Other On-Airport Construction Activities

During the planning of the Proposed Project, it was noted that construction activities associated with the new garage in front of Terminal E would occur simultaneous with other on-Airport projects, including Terminal E Modernization and the Terminal C Canopy, Connector, and Roadways Project. To address any unanticipated congestion associated with construction activities, Massport will implement several mitigation measures:

- Develop and facilitate traffic management strategies Airport-wide that are responsive to the aggregate of construction projects and their potential impacts.
- Manage traffic related to construction workers by diverting them to off-Airport locations and requiring contractors to shuttle employees to the job site.
- Coordinate the arrival of large construction equipment among projects and limit their arrival or removal during peak travel hours (both Airport and commuter peaks).
- Develop specific truck routing and/or project staging plans for implementation by the various contractors. It is anticipated that these plans may be developed with input from the contractors directly.

In keeping with Massport's long-standing policy that traffic operations along roadways be maintained to accommodate passenger levels, construction will be staged (and staging modified as necessary) to the maximum extent practicable to avoid disruption to the transportation system or impact to the surrounding environment.

5.3 MEPA Self-Certification

The Certificate on the Project's ENF requested that the DEIR include the following:

“To ensure that all greenhouse gas 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 DEIR.”

Massport will provide self-certification to the MEPA Office indicating that all required greenhouse gas mitigation measures, or their equivalents, have been completed. Documentation will be reported on and included in Massport's EDR/ESPR filings.

5.4 Other Ongoing Beneficial Measures

The Logan Airport Parking Project is part of a comprehensive program strategy to reduce the effects associated with Airport activities. This strategy is described more fully in Massport's EDR/ESPR filings. Key Airport-wide initiatives are summarized below.

5.4.1 Surface Transportation/High-Occupancy Vehicle (HOV) Enhancement Initiatives

The increase in parking supply at Logan Airport is one component of a multi-pronged comprehensive program undertaken by Massport to reduce the overall environmental impacts and emissions associated with travel to and from the Airport. Massport currently spends approximately \$33 million annually on HOV operations. Since 2002, Massport's capital expenditures for HOV operations have exceeded \$160 million. Massport's HOV commitments have included:

- Since 2005, purchasing eight Silver Line buses that access the Airport;
- Since 2012, providing free MBTA Silver Line bus trips from the Airport terminals;
- Expanding the number of Logan Express sites from two to four locations, as well as the Back Bay Pilot location, resulting in an increase of the total capacity of HOV/shared-ride mode service by 154 percent since 1989; and
- Acquiring Park-and-Fly lots in East Boston, as contemplated by the 1989 Amendment to the Logan Parking Freeze, permanently removing these spaces from East Boston and transferring them to the Airport.

Additional HOV commitments that Massport plans to implement in the next few years include:

- Increasing HOV mode share for Logan Airport, currently 30.5 percent, to 40 percent by 2027, with a portion of the 40 percent being achieved with the use of taxis and transportation network companies (TNCs) such as Uber and Lyft;
- Providing preferred taxi and TNC line privileges to electric vehicles;

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- Training ground transportation personnel to encourage passengers to share rides;
- Increasing Logan Express capacity, measured in available seats, by 10 percent;
- Purchasing eight more (16 total) MBTA Silver Line buses (dependent on MBTA procurement); and
- Conducting studies as outlined in the amendment to the Parking Freeze and sharing their findings with MassDEP when available:
 - **Ways to improve HOV access to the Airport** - This study evaluates the feasibility and effectiveness of potential measures to improve HOV access to Logan Airport. It considers, among other things, possible improvements to Logan Express bus service, additional Logan Express sites, and the benefit of improvements to the Silver Line bus service to the Airport.
 - **Strategies for reducing drop-off/pick-up modes** - This study evaluates the feasibility and effectiveness of potential operational measures to reduce the drop-off/pick-up modes of access to Logan Airport.
 - **Parking pricing strategies** - This study assesses parking pricing strategies and their effect on customer behavior and VMT.

5.4.2 Air Quality Improvement/Greenhouse Gas Reduction Initiatives

As part of implementing and advancing its ongoing air quality management strategy for Logan Airport, Massport has established a number of goals and objectives to address air emissions from Airport operations. These include:

- The Alternative Fuel Program, which is designed to replace Massport's conventionally-fueled fleet with alternatively fueled or hybrid-powered vehicles, where feasible, to help reduce emissions associated with Logan Airport operations. Program highlights to-date include:
 - As of 2017, Massport operated approximately 100 vehicles that are either fueled by compressed natural gas (CNG), propane, or E85 flex fuel, or that have hybrid powertrains that use gasoline or diesel.
 - For almost two decades, Massport has operated one of the largest privately operated, publicly accessible, CNG stations in New England.
 - Massport installed an E85 (first-generation biofuel) fuel dispensing tank at the gas station in the North Cargo Area.
- Massport continues the "Clean-Air-Cab" incentive program for alternative fuel vehicles, which allows alternatively fueled or hybrid-powered taxis to go to the head of the taxi line to serve passengers.
- Since 2007, Massport has offered preferred parking for customers driving alternatively fueled or hybrid-powered vehicles.

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Upcoming additional measures that are planned to be implemented in the next few years include:

- Providing electric vehicle charging stations to meet 150 percent of demand in all garages;
- Providing electric vehicle charging stations in the Taxi, Limousine, and TNC lots;
- Working with the airlines and other tenants at Logan Airport to convert commercially available ground service equipment to electric power; and
- Working with the airlines so that 60 percent of aircraft being tugged for re-positioning purposes will use electric tugs.

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6

Regulatory Compliance and Public/ Agency Coordination

6.1 Introduction

This chapter discusses the state and federal permits that the Massachusetts Port Authority (Massport) anticipates for the Logan Airport Parking Project (the Proposed Project or Proposed Action), in addition to complying with the Massachusetts Environmental Policy Act (MEPA) and National Environmental Policy Act (NEPA). It also identifies Massport’s ongoing efforts to coordinate with local, state, and federal agencies, as well as the public.

6.2 Regulatory Compliance

Table 6-1 lists anticipated state and federal permits and other approvals required for the Proposed Project along with their status. Subsequent sections describe how the Proposed Project will comply with these regulatory requirements.

Table 6-1 Anticipated Permits and Approvals for the Proposed Project

Issuing Agency	Approval or Permit	Status
Massachusetts Executive Office of Energy and Environmental Affairs	Secretary’s Certificate under the Massachusetts Environmental Policy Act	Draft Environmental Impact Report (DEIR) submitted herein. A Final Environmental Impact Report (FEIR) will be prepared and circulated following the close of the comment period and issuance of the Secretary’s Certificate on the DEIR.
Federal Aviation Administration	Finding of No Significant Impact under the National Environmental Policy Act (NEPA)	Environmental Assessment submitted herein; finding expected at the conclusion of the NEPA process.
	Airport Layout Plan Approval	Approval to be issued.
	Air Quality General Conformity Determination	Determination made in this document. See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .

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Table 6-1 Anticipated Permits and Approvals for the Proposed Project (Continued)

Issuing Agency	Approval or Permit	Status
Federal Aviation Administration (cont.)	14 Code of Federal Regulations (CFR) Part 77, Form 7460-1 Construction or Alteration Requiring Notice	As required prior to construction.
U.S. Environmental Protection Agency Region 1	National Pollutant Discharge Elimination System (NPDES) Individual Permit	The Proposed Project will meet the standards included in Logan Airport's individual NPDES permit (No. MA0000787). See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
	NPDES Construction General Permit	A construction-related Stormwater Pollution Prevention Plan will be developed by the contractor. See Chapter 4, <i>Assessment of Impacts/Environmental Consequences</i> .
Massachusetts Department of Environmental Protection (MassDEP)	Massachusetts Contingency Plan (MCP)	As required. Hazardous materials encountered during the development would be addressed in accordance with applicable MCP regulations. See Chapter 4, <i>Assessment of Impacts/ Environmental Consequences</i> .
Massachusetts Water Resources Authority (MWRA)	Modification to existing MWRA Sewer Use Discharge Permit	If required, prior to construction.

6.2.1 MEPA

The Proposed Project exceeds a MEPA review threshold under 301 Code of Massachusetts Regulations (CMR) 11.03(6)(a)(7); it will construct 1,000 or more new parking spaces at a single location (Boston-Logan International Airport [Logan Airport or the Airport]). Massport filed an Environmental Notification Form (ENF) for the Proposed Project, noticed in the MEPA Environmental Monitor on April 5, 2017, and received the Secretary's Certificate for the ENF on May 5, 2017. The Certificate required Massport to prepare a Draft Environmental Impact Report (DEIR). Massport prepared this DEIR/Environmental Assessment (EA) 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 this document, and based on its review, issue a certificate verifying that Massport adequately described and analyzed the Proposed Project and its alternatives, and assessed its potential environmental impacts and mitigation measures. Following submission of the DEIR and issuance of the Secretary's Certificate on the DEIR, Massport will prepare a Final EIR per the Secretary's direction.

6.2.2 NEPA

The Federal Aviation Administration (FAA) determined that the Proposed Project requires an EA under NEPA due to requisite changes to the Logan Airport Layout Plan. This DEIR/EA identifies alternatives to the Proposed Action and documents the potential environmental effects associated with the construction and operation of the proposed parking improvements at Logan Airport. Massport anticipates the Proposed Action will result in improved environmental conditions such as decreased vehicle miles traveled and improved air quality, as well as benefits to passenger experience by reducing the need to divert parkers to off-Airport satellite parking locations. Based on its review of the comments on the DEIR/EA or, if additional information is needed to make a determination, FAA may pursue further review under NEPA.

6.2.3 Airport Layout Plan Approval

Massport prepared this DEIR/EA because it is seeking FAA approval to modify the Logan Airport Layout Plan, which includes the components of the Proposed Action. The Airport Layout Plan approval is a federal action that requires review pursuant to NEPA, as described in FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.¹ FAA's approval of the Airport Layout Plan will incorporate modifications to landside facilities and roadways associated with the Proposed Action.

6.2.4 Air Quality/General Conformity Determination

As documented in Section 4.5.2, *Air Quality*, the Logan Airport Parking Project would be in compliance with the General Conformity Rule, established under the federal Clean Air Act (42 U.S.C. §7401 et seq. [1970]), 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 total emissions under the Proposed Project in comparison to the No-Build 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.

Construction activities are expected to generate short-term 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, however, would be substantially below federal General Conformity *de minimis* thresholds.

Massport will require all contractors to comply with certain construction guidelines and best management practices that include:

- Construction vehicle/equipment anti-idling;
- Using low- or zero-emissions equipment, where practicable;
- Retrofitting appropriate diesel construction equipment with diesel oxidation catalysts and/or particulate filters;
- Reducing onsite vehicle speeds;
- Reducing exposed erodible surface areas through appropriate materials and equipment staging procedures;
- Covering exposed surface areas with pavement or vegetation in an expeditious manner;
- Stabilizing soil with cover or periodic watering;
- Using covered haul trucks during materials transportation;
- Suspending construction activities during high-wind conditions; and
- Ensuring contractor knowledge of appropriate equipment exhaust and fugitive dust controls.

¹ FAA. 2006. Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

6.2.5 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.² 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 construction or alterations on any public use airport, regardless of height, and listed in the Airport Directory must notify the Administrator of the FAA by submitting this form. Massport has conducted a preliminary review of the FAA surfaces and an individual FAA Form 7460-1 will be filed in advance of each construction phase.

6.2.6 National Pollutant Discharge Elimination System (NPDES) Permits

As authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. 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 Proposed 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 elements of the Proposed Project will be designed to meet the standards of Logan Airport's NPDES individual permit.

The Proposed 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 Proposed Project will require disturbance of over one acre. This 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 4, *Assessment of Impacts/Environmental Consequences* and in Chapter 5, *Beneficial Measures/Mitigation*. The Boston Water and Sewer Commission requires a copy of this Stormwater Pollution Prevention Plan be submitted for its review and approval prior to commencement of construction.

6.2.7 Massachusetts Contingency Plan (MCP)

During construction, the soil and groundwater contamination issues surrounding the existing parking facilities and associated roadways will be addressed, as needed, in compliance with the MCP. In compliance with the MCP, a Soil Management Plan may be required to determine whether any excavated soils 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 Soil Management Plan will be developed by a Massachusetts Licensed Site Professional and will detail the areas where a Release Abatement Measure may be required such as active disposal sites and existing Activity and Use Limitation areas. The Soil Management Plan will also include regulatory procedures in the event that new areas of contamination are identified. The Soil Management Plan would be developed in concert with a Groundwater Management Plan, which will address requirements

² FAA. 2014. 14 CFR Part 77. "Safe, Efficient Use, and Preservation of the Navigable Airspace."

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for dewatering and collection, testing and/or treatment, and disposal or discharge of water pumped from excavations, if required.

6.2.8 Massachusetts Water Resources Authority (MWRA)

In accordance with MWRA Sewer Use Regulations,³ Massport maintains a Sewer Use Discharge Permit. Prior to construction of the Proposed Project, Massport will coordinate with MWRA to modify the existing Sewer Use Discharge Permit, if required.

6.3 Public and Agency Coordination

During the preparation of this DEIR/EA and on an on-going basis, Massport coordinates with the public, as well as the FAA and other federal, state, and local agencies.

6.3.1 Public Involvement

Public outreach and community input are important elements of Massport's environmental review processes, and of the overall Logan Airport Parking Project. Massport has a history of proactive and collaborative interaction with the Airport's adjacent communities. Massport engaged stakeholders and the public before filing the Project's ENF and continued such engagement during the ongoing permitting process. Massport staff have attended various community and public meetings to provide an overview of, and answer questions about, the Proposed Project.

An important element of this process was a series of meetings with the Logan Impact Advisory Group (LIAG), that included leaders of 17 East Boston community groups and local elected officials. For the better part of a year, Massport held numerous meetings with the LIAG to discuss a range of Logan Airport-related topics, including the Logan Airport Parking Project. As part of these discussions, the LIAG provided input on its preferred locations for the proposed additional parking; it is those recommended locations that Massport is advancing through the permitting process.

Other meetings ranged from briefing local community groups in East Boston to meeting with public officials at the federal, state, and local levels. Other key stakeholders that Massport has engaged include major business groups and non-profit organizations such as the Massport Community Advisory Committee. Massport and local community leaders have worked together with a common goal of minimizing the impact of specific Massport developments on local East Boston neighborhoods. Massport has worked hard to meet this goal and fulfill its commitments to the community. A parallel community engagement process was initiated by the Massachusetts Department of Environmental Protection (MassDEP) in response to Massport's 2016 request to consider an amendment to the Logan Airport Parking Freeze (the Parking Freeze) to increase the Parking Freeze limit by 5,000 spaces. MassDEP conducted a stakeholder process, followed by a public process that included three public meetings, to amend the Parking Freeze regulation.

Massport continues to update the community on the status of the Logan Airport Parking Project. This is performed through regularly scheduled community, neighborhood, and other civic meetings.

³ MWRA. 360 CMR §§10.007, 10.052, 10.072, and 10.092

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Massport described the Logan Airport Parking Project in the Project's ENF, which was made available at: <http://www.massport.com/massport/about-massport/project-environmental-filings/logan-airport/>. The most recent environmental filings, including this DEIR/EA and all supporting documentation, will also be available on this website. Following publication of the availability of the DEIR/EA in the *Environmental Monitor*, there will be a 47-day extended public comment period, during which an informational meeting will be scheduled. Community and agency outreach and coordination will continue through Project permitting, design, and construction.

6.3.2 Agency Consultation and Coordination

The Proposed Project is entirely on-Airport in areas that have been selected with community input and are already developed and currently used for commercial parking. Accordingly, there are no new impacts to natural resources within its footprint and there are no anticipated adverse long-term impacts that would require Massport to consult with resource agencies regarding potential impacts, avoidance, and minimization of impacts. Massport has distributed this DEIR/EA to federal, state, and local agencies, including the Massachusetts Office of Coastal Zone Management for their review and comment (see Chapter 7, *Distribution*).

7

Distribution

The Massachusetts Environmental Policy Act (MEPA) requires this Draft Environmental Impact Report (DEIR) be circulated to each person or agency that commented on the Environmental Notification Form (ENF) and any agency or person that requests a copy during the comment period. Federal Aviation Administration (FAA) Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*¹ states that airport development will trigger public interest. Distributing this to the public is the best way to provide the public with the information needed to formulate an opinion. The Massachusetts Port Authority (Massport) will distribute this combined DEIR/Environmental Assessment (EA) in accordance with Massachusetts regulation 301 CMR 11.16 (3) and FAA Order 5050.4B.

The following is a list of recipients of this DEIR/EA, which include representatives of governmental agencies, community groups, and local residents interested in activities at Logan Airport. The ‘N’ indicates that Massport sent a notice of availability and the ‘P’ indicates that Massport sent a printed copy.

This DEIR/EA is available on Massport’s website (www.massport.com). Persons may request limited CD or printed copies from Stewart Dalzell, telephone (617) 568-3524, email: sdalzell@massport.com. Electronic and printed copies of this DEIR/EA are available for review at the following public libraries.

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^P Boston Public Library Charlestown Branch	179 Main Street Charlestown, MA 02129	^P Revere Public Library	179 Beach Street Revere, MA 02151
^P Boston Public Library East Boston Branch	365 Bremen Street East Boston, MA 02128	^P Winthrop Public Library	2 Metcalf Square Winthrop, MA 02151

¹ Federal Aviation Administration. 2006. Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

LOGAN AIRPORT PARKING PROJECT
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LOGAN AIRPORT PARKING PROJECT
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LOGAN AIRPORT PARKING PROJECT
Boston-Logan International Airport
East Boston, Massachusetts

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The Logan Airport Parking Project (the Proposed Project) Draft Environmental Impact Report/Environmental Assessment (DEIR/EA) was prepared by the Massachusetts Port Authority (Massport). 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 qualifications for each individual are listed, as are their years of experience in parentheses.

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LOGAN AIRPORT PARKING PROJECT
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 East Boston, Massachusetts

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