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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
EASTERN SERVICE CENTER

FINDING OF NO SIGNIFICANT IMPACT
and
RECORD OF DECISION

BOSTON LOGAN RNAV (GPS) RWY 4L ENVIRONMENTAL ASSESSMENT

Boston Logan International Airport, Boston, Massachusetts

May 4, 2022

Introduction

The Federal Aviation Administration (FAA) has determined that it is in the best interests of public aviation safety and efficiency to implement an Area Navigation (RNAV) Global Positioning System (GPS) instrument approach procedure for aircraft landing on Runway 4L (left) at Boston Logan International Airport (the Airport). The proposed instrument approach procedure will enhance public aviation safety by providing pilots with lateral and vertical electronic guidance to ensure a stabilized approach to landing, particularly during marginal and poor weather conditions. The proposed instrument approach procedure will also reduce delays at the Airport by reducing the number of flights that must be canceled or delayed during times of poor weather, resulting in an increase in efficiency at the airport as well as the National Airspace System (NAS) as a whole.

This document serves as the FAA Finding of No Significant Impact and Record of Decision (FONSI/ROD) based on the information and analysis contained in the Final Environmental Assessment (EA) (2022) for the Boston Logan RNAV (GPS) RNAV 4L and all corresponding Appendices, which are hereby incorporated by reference. It provides final agency determinations and environmental approvals for the federal actions necessary to implement the airspace procedure known as the RNAV Instrument Approach Procedure (IAP) to Runway 4L at Boston Logan International Airport (herein referred to as the Proposed Action). The FONSI/ROD has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, as well as the Council on Environmental Quality (CEQ) regulations for implementing NEPA at Title 40 of the Code of Federal Regulations Part 1500-1508 (40 CFR 1500-1508).[1] This FONSI/ROD demonstrates and documents FAA's compliance with all applicable environmental laws and requirements, including interagency and intergovernmental coordination and consultation, public involvement and documentation requirements.

Background

Boston Logan International Airport (the Airport) is a large commercial service airport in Massachusetts, with more than 20 million enplanements and approximately 427,000 aircraft movements in 2019. It is the primary passenger airport for southern New England as well as the region's busiest passenger service airport. Of the six runways available at the Airport, Runway 4L is the only runway that typically handles commercial aircraft arrivals but does not have an Instrument Approach Procedure (IAP) available to assist landings. An IAP is a series of predetermined maneuvers that facilitate the orderly transfer of an aircraft from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

In March 2016, the FAA completed a comprehensive Initial Environmental Review (IER) for the permanent implementation of a RNAV GPS IAP to Runway 4L at the Airport.[2] The IER concluded that the proposed procedure qualified for the categorical exclusion (CATEX) found in

[1] As permitted by 40 CFR 1506.13, the NEPA review documented in the Final EA was conducted under the regulations at 40 CFR parts 1500-1508 in effect when the NEPA process was begun, which preceded the updated regulations promulgated on July 16, 2020 and effective to any NEPA process begun after September 14, 2020.
[2] The March 2016 IER can be found in Appendix A of the Final Environmental Assessment.

FAA Order 1050.1F, paragraph 5-6.5.g, entitled, "Establishment of Global Positioning System (GPS), Flight Management System (FMS), Area Navigation/Required Navigation Performance (RNAV/RNP) or essentially similar systems that use overlay of existing flight tracks." [3] Additionally, the IER found that extraordinary circumstances as defined in FAA Order 1050.1F did not exist.

Nevertheless, in response to public input received from local, state, and federal officials, as well as members of the community, the FAA, in July 2016, elected to conduct an EA to further study the environmental impacts of the procedure. Due to budgetary constraints and other exigent circumstances, however, this effort was delayed. In late 2018/early 2019, the FAA ultimately acquired funding for a contractor to assist in analyzing potential environmental impacts and documenting the analyses, culminating in the preparation of this document.

Proposed Action

The Proposed Action is the implementation of a publicly available (published) RNAV IAP to Runway 4L at the Airport. The proposed RNAV procedure will provide lateral and vertical guidance, enabling continuous descent to the runway and offering a more predictable, consistent, and stabilized approach path, thus improving safety. Use cases associated with the FAA Proposed Action are described in more detail below:

Case (1): Instrument Meteorological Conditions (IMC): During IMC, an aircraft would be cleared by ATC for use of the RNAV (GPS) RWY 4L procedure beginning at the Initial Approach Fix (IAF) AAALL or the Intermediate Fix (IF) LVRON. Due to the limitations of landing onto Runways 4L and 4R simultaneously, utilization of this case is expected to be limited to times when arrival traffic is heaviest.

Case (2): Visual Meteorological Conditions (VMC) when receiving a clearance for a visual approach to Runway 4L: During VMC, an aircraft that is cleared for a visual approach to Runway 4L can utilize any available guidance on an advisory basis (i.e., without controller involvement) to improve safety and reduce fuel consumption. As the RNAV (GPS) RWY 4L approach will be the only IAP available for Runway 4L, it will be available for pilot use during VMC. Pilots are expected to fly similar ground tracks as they presently do while flying in these conditions and will continue to receive vectors to the final approach path as they do today. Flight crews will follow ATC vectors until they are cleared for the visual approach to Runway 4L, and usually will receive this clearance by approximately 5 nautical miles (nm) from the runway, depending on visibility and ATC operational factors. This portion of the landing, including the final segment to the runway, represents the extent for which the RNAV (GPS) RWY 4L approach could be used for advisory guidance during VMC.

Case (3): VMC (when receiving a clearance for the RNAV (GPS) RWY 4L approach): During VMC, an aircraft may be cleared by ATC for use of the RNAV (GPS) RWY 4L procedure at the IAF AAALL or the IF LVRON. Generally, this will be used by aircraft

[3] The proposed RWY 4L RNAV procedure also qualified for the FAA Order 1050.1F, paragraph 5-6.5, q CATEX.

approaching from the south that presently utilize the Runway 4R ILS and execute a change of runway maneuver to land on Runway 4L when the Airport is in sight. Essentially, aircraft will use the approach the same way it is used in Case (1), the only differences being in ambient weather conditions.

The proposed procedure includes two charted transitions, as well as two uncharted transitions requiring ATC radar vectors, as described below:

- NUNZO transition – aircraft arriving from the south transition into the approach procedure at the charted fix NUNZO and follow the charted procedure to the runway from that fix.

- WOONS transition – aircraft arriving from the southwest transition into the approach procedure at the charted fix WOONS and follow the charted procedure to the runway from that fix.

- Cape-area transition – aircraft arriving from Cape-area airports such as Nantucket (ACK), Martha's Vineyard (MVY) and Barnstable (HYA), as well as other points east and southeast, will approach the Airport from the southeast and transition into the procedure north of the IAF AAALL and south of the IF LVRON. It will then follow the charted procedure to the runway. This transition is not charted and requires radar vectors.

- Left-downwind transition – aircraft arriving from the west and north will fly a conventional left downwind leg to Runway 4L before making a base-to-final turn north of LVRON and transitioning into the procedure just south of MTAPN. This transition is not charted and requires radar vectors.

The Proposed Action is designated as an RNAV (GPS) Instrument Arrival Procedure (IAP)[4], which requires that an aircraft flying the procedure remain within one nautical mile of the procedure centerline 95% of the total flight time. The expected change to airport operations attributable to the Proposed Action would be comprised of the following:

- A net annual increase of 255 arrivals at the Airport. This increase is attributable to previously scheduled arrivals that will no longer need to be canceled due to increased Airport efficiency during IMC or "poor weather." With the availability of the RNAV (GPS) RWY 4L procedure, these arrivals will now be able to land on Runway 4L instead of being canceled or delayed.

- A shift of 104 annual arrivals from Runway 4R to Runway 4L. These 104 arrivals represent flights that would otherwise have landed on Runway 4R with a flight delay, but the availability of the RNAV (GPS) RWY 4L procedure would allow these flights to instead land on Runway 4L earlier in the day.

[4] The term RNAV means "area navigation" in this context. Within RNAV procedures, there are two categories of navigation specifications, area navigation (RNAV) and required navigation performance (RNP). RNP is a GPS-based system that allows for more precise navigation via performance monitoring capability. In the United States, RNP approach or arrivals procedure are called RNAV (GPS) procedures. For more information about RNAV and RNAV (GPS) procedures, refer to https://www.faa.gov/air_traffic/publications/atpubs/aip_html/part2_enr_section_1.17.html.

- Combined, there will be an expected increase of 359 arrivals to Runway 4L, representing 255 flights that no longer need to be cancelled and 104 flights no longer delayed due to poor weather conditions.[5] All other airport operations in the No Action Alternative and Proposed Action are expected to operate identically as they would today.

Purpose and Need for the Proposed Action

The FAA's continuing mission is to provide the safest, most efficient aerospace system in the world. The purpose of the Proposed Action is to improve the safety and enhance the efficiency of the National Airspace System (NAS) by establishing and implementing an RNAV (GPS) IAP to Runway 4L at the Airport.

The implementation of the Proposed Action would serve a safety need by largely supplanting the need for small, maneuverable aircraft to fly a circling visual approach to Runway 4L after conducting an initial approach to ILS RWY 15R. This procedure, primarily used in marginal VMC, is relatively challenging and requires significant maneuvering at low altitude, followed by a short final to Runway 4L. Aircraft flying this procedure must keep the runway in sight at all times, as well as maintain visual separation with any aircraft landing on Runway 4R. The high workload required of this procedure has resulted in multiple runway incursions and other incidents in recent years.

Additionally, the Proposed Action is needed to enhance safety because currently there is no IAP of any kind available for approaches to Runway 4L. As such, aircraft arriving to Runway 4L lack vertical and lateral guidance during the approach phase of flight. Among large airports in the United States, like Boston Logan International Airport, it is very rare to have an arrival runway for commercial traffic that does not have an IAP with vertical and lateral electronic guidance. As pilots do not have instrument references allowing electronic guidance of the flight, they must "hand-fly" their aircraft when approaching Runway 4L and can only do so in VMC. This creates additional cockpit workload during a critical phase of flight (approach to landing). Further, the lack of an IAP limits the operational flexibility of the Airport particularly during poor weather when Runway 4L is not available for arrivals.

Consequently, during IMC, the aircraft arrival rate (AAR) at the Airport is reduced which, in turn, causes delays further upstream in the NAS. Moreover, during extended periods of IMC, the arrival delays to the Airport multiply as the reduced AAR cannot support the scheduled arrivals. This delayed arrival situation can also cause flight arrival times to be pushed back later into the nighttime hours or possibly result in cancelling flights.

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[5] This estimate of additional flights only includes aircraft flying in IMC or "poor weather"; aircraft flying in VMC or "good weather" are not expected to use the RNAV (GPS) RWY 4L procedure. Aircraft flying in VMC would continue to receive vectors from ATC and would generally fly the same current paths until receiving clearance for the visual approach to the runway. At this point, they would have the option to utilize the RNAV (GPS) RWY 4L procedure for reference purposes because all aircraft converge on the runway approach path at this point; aircraft flight paths are not expected to meaningfully differ from those associated with a visual approach.

The purpose of the Proposed Action is to address these needs by implementing an RNAV (GPS) IAP to Runway 4L at the Airport. The Proposed Action will allow for a stabilized approach with vertical and lateral guidance. This will reduce pilot workload and provide an approach for aircraft to land on Runway 4L in IMC, which will in turn reduce delays at the Airport and upstream throughout the NAS. The additional IAP for aircraft approaching the Airport in IMC during the Northeast configuration is anticipated to increase operational efficiency to a degree that would correspond to an additional 255 net annual operations. While the Proposed Action will usually only be assigned to landing aircraft during IMC, it will also be available for flight crews to use on an advisory basis at their discretion when cleared for a visual approach which is like other published arrival procedures at the Airport

Overall, the Proposed Action will create an IAP that meets the criteria of enhancing both safety and efficiency within the NAS. The implementation of the RNAV (GPS) RWY 4L procedure where no instrument procedure currently exists will improve safety by providing pilots with a stabilized approach and enables air traffic control (ATC) to monitor each aircraft more precisely both vertically and laterally along the arrival track. The implementation of this procedure will also create efficiency benefits for the Airport in IMC by decreasing arrival delays.

Alternatives

The clear identification and thorough discussion of project alternatives is imperative so that the potential impacts of each alternative can be distinctly defined and easily distinguished. A potential alternative is one that would accomplish the Purpose and Need for the Proposed Action while being a reasonable and feasible action. Two alternatives were carried forward after a number of alternatives were considered but did not meet the criteria for a potential alternative listed above. For more information, please see Section 2.2.2, Alternatives Considered but Eliminated from Further Study, of the Final EA.

Maintain Current Operations (No Action Alternative)

The No Action Alternative would maintain the current suite of available procedures and would not result in the implementation of a new IAP for Runway 4L. As a result, the current general lack of availability of Runway 4L during IMC would remain, and all arrivals to Runway 4L would continue to operate without vertical or lateral guidance. Although it does not meet the Purpose and Need, the No Action Alternative is carried forward for further environmental analysis in accordance with Council on Environmental Quality (CEQ) regulations implementing NEPA.

Proposed Action

The FAA developed an RNAV (GPS) arrival procedure to provide an IAP to Runway 4L and increase safety and efficiency at the Airport. This alternative, which was refined and technically evaluated to meet RNAV performance criteria and evaluated for noise impacts, has been carried forward for further environmental analysis.

Affected Environment

The Airport is the primary air service facility serving the Boston Metropolitan Area and as shown on Figure 3-1 is located just one mile due east of downtown Boston. The Airport serves as a domestic carrier hub while also serving multiple international destinations in North America, South America, Europe, Asia, and Africa. The Massachusetts Port Authority (Massport) owns and operates the Airport, as well as two additional airports in eastern and central Massachusetts. In 2019, there were 343,778 domestic flights, 54,476 total international flights, and 28,922 general aviation flights totaling 427,176 operations.[6,7] The Airport operates six runways with two pairs of parallel runways. Runways 4L/22R and 4R/22L are oriented in a northeast/southwest direction and are 7,864 feet and 10,006 feet long respectively. The other parallel runway pair, Runways 15L/33R and 15R/33L, are oriented to the northwest/southeast and are 2,557 and 10,083 feet long respectively. Runway 14/32 is oriented to the northwest/southeast on the southern edge of the airfield and is 5,000 feet long. Runway 9/27, oriented in an east/west direction, is located on the east side of the airfield crossing Runway 15R/33L and is 7,001 feet long.

General Study Area

The GSA was delineated following a combination of physical and municipal geographic boundaries adhering to the general area in which aviation activities related to the proposed project could reasonably be anticipated to affect the surrounding environs. This area was determined using procedure flyability lines, flight corridors, and other indicators of potential overflights.

The GSA encompasses an area of 1,173 square miles in Massachusetts. The GSA includes all or parts of Middlesex, Norfolk, Plymouth, and Suffolk counties and also includes the entirety of the City of Boston. The GSA has a population of 2,419,614 and includes 27,080 Census blocks (based on 2010 U.S. Census demographic data).

An analysis studying the Proposed Action and the historical flight paths of aircraft that were expected to be using the Proposed Action was performed. Using the results of the study, the GSA was constructed to encompass the geographic area where an aircraft flight path could be affected as a result of the Proposed Action up to 10,000 feet above ground level (AGL) in line with FAA Order 1050.1F.[8] The Airport is located in the northeastern corner of the GSA on the eastern edge of downtown Boston and bordered to the east by the Atlantic Ocean. The GSA

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[6] Please note that operations have generally been down across the National Airspace System because of the COVID-19 pandemic and as such these operational values represent a conservative estimate because they are likely higher than current operations as of spring 2022.
7 Boston-Logan International Airport Monthly Airport Traffic Summary – December 2019, http://www.massport.com/media/3927/1219-avstats-airport-traffic-summary.pdf
[8] FAA Order 1050.1F, B-1.3, Affected Environment, https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf,

extends to the south and west of the Airport since the Proposed Action will occur in the airspace above these areas.

Environmental Consequences

Neither the Proposed Action nor the No Action Alternative are anticipated to affect certain environmental resource categories identified in the Desk Reference for FAA Order 1050.1F. Accordingly, no further discussion of these environmental resource categories is warranted. These environmental resource categories include:

- Biological Resources – Fish, Plants, and Terrestrial Species Only
    - The Proposed Action does not result in ground-based disturbance and is therefore not expected to have impacts on any terrestrial organisms considered as part of the Biological Resources impact category.
- Coastal Resources
    - The Proposed Action is an airspace action with no physical ground-based improvements and is thus not expected to have an impact on any coastal area or coastal ecosystem.
- Farmlands
    - The Proposed Action is an airspace action with no physical ground-based improvements and thus would not cause any conversion of farmlands into non-agricultural uses.
- Hazardous Materials, Solid Waste, and Pollution Prevention
    - The Proposed Action does not include construction or physical improvements and thus is not expected to have any impact on solid waste, hazardous waste, contaminated sites as defined by FAA Order 1050.1F, and solid waste management.
- Historical, Architectural, Archeological, and Cultural Resources – Archeological Resources Only
    - The Proposed Action is an airspace action with no physical ground-based improvements and thus is not expected to have any impact on any archeological sites. Impacts to non-archeological resources are described below on page 14.
- Natural Resources and Energy Supply
    - The Proposed Action would not cause demand to exceed the availability of available or future supplies of natural resources.
- Socioeconomics, Environmental Justice, and Children's Environmental Health – Socioeconomics and Children's Environmental Health Only
    - The Proposed Action is not expected to cause any changes to a community tax base, or any disruption or relocation of any

community business or houses. The Proposed Action is not expected to disproportionately cause a health or safety risk to children. Thus, these parts of this impact category were not considered.

- Light Emissions and Visual Effects
    - The Proposed Action is an airspace action only. Airspace actions are associated with low levels of light intensity. The Proposed Action is thus not expected to cause any changes to light emissions or visual effects in the GSA.
- Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)
    - The Proposed Action is an airspace action with no physical ground-based improvements and thus is not expected to cause any changes to water resources in the GSA.

The potential environmental impacts from the Proposed Action were evaluated in the attached Final EA for each of the resource categories listed below. A summary of that analysis is included. No significant impacts to the quality of the human or natural environment were identified for any of the categories. Therefore, no Environmental Impact Statement is required to be, or has been, prepared.

Noise and Noise-Compatible Land Use

The Aviation Environmental Design Tool (AEDT) is the FAA's approved model for assessing noise and emissions at civilian airports. AEDT has been used for environmental review of air traffic noise and emissions impacts since 2012 and is also used for 14 CFR Part 150 studies as well as NEPA EAs and EISs. For these types of analysis, AEDT is used to estimate the long-term average changes in environmental impacts.

Detailed information on aircraft operations at the Airport was input into AEDT, including specific fleet mix information such as aircraft type, arrival and departure times, trip distance, runway use, flight track location/usage, and weather conditions (e.g., temperature and humidity). Noise exposure from aircraft operations was calculated at the 27,080 Census blocks throughout the GSA. The locations consist of population centroids, representing the centers of 2010 Census blocks. Census blocks are the smallest geographic unit for which the U.S. Census Bureau tabulates 100% sample data. Census blocks are generally bounded by streets, legal boundaries, and other features. For this analysis, the Census block counts represent the maximum potential population within the Census block that could be exposed to the modeled DNL values, including family and non-family households, but excluding those residing in group quarters (often representing transient or temporary residential arrangements). The actual number of people impacted can be smaller than the total population represented by a single Census block because noise levels will vary throughout the Census block. A detailed discussion of the noise modeling methodology can be found in Sections 3.4.6 and 4.6 of the Final EA and in Appendix B, the Noise Modeling Technical Report.

Changes in noise exposure for each population centroid in the GSA were evaluated based on FAA requirements to determine the degree of change in noise exposure. Aircraft noise is required, per FAA Order 1050.1F, to be evaluated in terms of the day-night average sound level (DNL) metric. FAA Order 1050.1F further defines that a significant impact would occur if a proposed action would result in an increase of 1.5 dB or more in any noise sensitive area at or above the DNL 65 dB exposure level when compared to the No Action Alternative for the same timeframe.

Per FAA Order 1050.1F, increases of 1.5 dB in the DNL 65 dB and above area are considered significant. Increases of 3 dB between DNL 60 dB and less than DNL 65 dB are to receive consideration when evaluating the environmental impacts of a proposed project, and will be identified regardless of whether a significant impact is identified. Increases of 5 dB or greater at levels between DNL 45 dB and less than DNL 60 dB are also to be disclosed. The FAA noise level criteria are used to compare DNL changes at the population locations in the GSA. Population locations are evaluated under the following categories: (1) those showing an increase in noise exposure relative to the No Action Alternative; (2) those showing a decrease relative to the No Action Alternative; and (3) those having no change relative to the No Action Alternative. Additionally, in accordance with FAA Order 1050.1F, special consideration was given to the evaluation of the significance of noise impacts on noise sensitive areas within national parks, national wildlife refuges and historic sites. For example, the DNL 65 dB noise exposure level does not adequately address the effects of noise on visitors to areas within a national park where other noise is low and a quiet setting is the recognized intention of the area.

A comparison of noise exposure between the No Action Alternative and the Proposed Action indicates no significant impacts (increases of DNL 1.5 dB in areas that would be exposed to DNL values of 65 dB or higher) to population centroids within the GSA. Though no significant impacts were identified, the Proposed Action was also evaluated for any reportable increases of 3.0 dB or greater in population centroids with a baseline exposure between DNL 60 dB and DNL 65 dB, or an increase of 5.0 dB or greater for population centroids with a baseline exposure between DNL 45 dB and DNL 60 dB. There were no reportable impacts as a result of the Proposed Action.

The current EA represents the fourth time that this specific Proposed Action has been evaluated for noise impacts by the FAA. These evaluations include:

1) The March 2016 IER, which used data from the FAA's older Integrated Noise Model (INM) tool, represented the initial evaluation of the RNAV (GPS) RWY 4L procedure.

2) As part of a NEPA evaluation supporting the reconstruction of Runway 4R at the Airport, a December 2017 noise screening was run using the FAA's Terminal Area Route Generation, Evaluation, and Traffic Simulator (TARGETS) Noise Plugin, which allows an analyst to feed TARGETS procedure designs directly into AEDT for rapid noise evaluations that do not require the detailed population and supporting data found in an EA. In this evaluation, the RNAV (GPS) RWY 4L procedure was used temporarily while Runway 4R was reconstructed.

3) A NEPA evaluation supporting the reconstruction of Runway 9-27 at the Airport was completed in summer 2020, with the RNAV (GPS) RWY 4L again being evaluated as a temporary procedure to be used during the reconstruction. None of these three evaluations have found any significant or reportable noise increases brought about by the implementation of the RNAV (GPS) RWY 4L procedure.

In response to public comments, the FAA prepared a sensitivity analysis using a very aggressive usage scenario, which is included in Appendix B to the Final EA. Even in that aggressive scenario, which assumed all arriving aircraft to Runway 4L would use the RNAV (GPS) RWY 4L procedure, there were no reportable or significant noise increases. The largest increase observed at any population centroid was an increase of DNL 2.2 dB. The FAA believes its original assumptions were reasonable and the scenario modeled in the sensitivity analysis is not plausible; however, this modeling effort in response to public comments demonstrates that even if more aircraft use the procedure it would not cause a reportable or significant noise change.

Air Quality

The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for ambient (i.e., outdoor) concentrations of the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ground-level ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter with a diameter of 10 microns or less (PM_{10}), and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$). States must identify geographic areas that do not meet the NAAQS for each criteria pollutant. These areas are then identified as non-attainment areas for the applicable criteria pollutant(s). States must develop, and obtain EPA approval of, a State Implementation Plan (SIP) for non-attainment areas that includes a variety of emission control measures that the state deems necessary to produce attainment of the applicable standard(s) in the future.[9] As described in FAA Order 1050.1F, Exhibit 4-1, an emissions impact is significant if "the action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violation."

Section 176(c) (commonly referred to as the General Conformity Rule) of the Clean Air Act (CAA) requires that federal actions conform to any applicable SIPs in order to attain the air quality goals identified in the CAA.[10] The EPA regulation 40 CFR 93.153 (b)(1)(2), specifies *de minimis* emission levels for each NAAQS pollutant in a non-attainment area. If a project's net emissions are less than the *de minimis* levels, then the federal action is considered to be too small to adversely affect the air quality status of the area and is automatically considered to conform with the applicable SIP, thus completing the conformity process. If the project's

[9] The Clean Air Act requirements governing State Implementation Plans (SIPs) are found in multiple sections of the Clean Air Act starting in Section 107(a). The EPA's implementing regulations can be found at https://www.epa.gov/air-quality-implementation-plans/sip-requirements-clean-air-act

[10] The initial and modified regulations governing General Conformity can be found at https://www.epa.gov/general-conformity/transportation-conformity-regulations-and-general-conformity-regulations

emissions exceed the *de minimis* level for a NAAQS pollutant in a non-attainment area, then a formal conformity determination must be prepared.[11]

The EPA's regulations also allow FAA to identify certain actions that are presumed to conform with an applicable SIP because, for example, the actions were found by FAA not to exceed *de minimis* thresholds. The FAA has published a list of presumed to conform actions, which includes air traffic control activities and adoption of approach, departure, and enroute procedures for air operations above the inversion base for pollutant containment (commonly referred to as the "mixing height") specified in the applicable SIP (or 3,000 feet Above Ground Level in places without an established mixing height).[12] The full list of FAA actions "presumed to conform" under General Conformity can be found in 72 Fed. Reg. 41565, July 30, 2007.[13] Another one of the actions published by the FAA is "air traffic control activities for air operations that occur at altitudes below the atmospheric mixing height, provided that modifications to routes and procedures are designed to enhance operational efficiency (i.e. to reduce delay), increase fuel efficiency, or reduce community noise impacts by means of engine thrust reductions."[14]

Implementation of the Proposed Action would result in a small increase in the amount of fuel burned and emissions emitted below the mixing height when compared to the No Action Alternative, due to the small number of additional operations. AEDT analysis indicated that implementation of the Proposed Action would result in a less than 0.1% increase in fuel burn when compared with the No Action Alternative, which can be found in Table 4.1-3 of the Final EA. This small increase in emissions of criteria pollutants, however, would not reach the *de minimis* thresholds that EPA defines as delaying timely attainment of the NAAQS, in any of the counties that comprise the GSA. As a result, further analysis is not required to demonstrate conformity, and implementation of the Proposed Action would not have a significant impact on air quality.

Climate

Greenhouse gases (GHGs) are naturally occurring and man-made gases that trap heat in the earth's atmosphere. These gases include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). For airspace actions, the primary source of greenhouse gases is CO_2 emissions from aircraft fuel combustion. CO_2 emissions for current flight operations (i.e. No Action Alternative) were calculated using AEDT for the lengths of the modeled tracks.

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[11] *De minimis* levels are defined in 40 CFR 93.153(b) (1)-(2), and can be found at https://www.epa.gov/general-conformity/de-minimis-tables

[12] 72 Fed. Reg 41565, p. 41569, July 30, 2007. https://www.faa.gov/airports/resources/publications/federal_register_notices/media/environmental_72fr41576.pdf

[13] 72 Fed. Reg 41565, p. 41565, July 30, 2007. https://www.faa.gov/airports/resources/publications/federal_register_notices/media/environmental_72fr41576.pdf

[14] 72 Fed. Reg 41565, p. 41568, July 30, 2007. https://www.faa.gov/airports/resources/publications/federal_register_notices/media/environmental_72fr41576.pdf

While fuel burn would slightly increase under the Proposed Action when compared with the No Action Alternative due to the additional operations, there is no significance threshold for aviation GHG emissions set by FAA Order 1050.1F. Regardless, this Proposed Action is not anticipated to cause significant effects on the climate.

The runway utilization changes in the Proposed Action cause only a marginal increase in the total miles flown by aircraft and therefore the total amount of additional fuel required for arrival operations under the Proposed Action is minimal. Based on AEDT results, total annual fuel burn in the Proposed Action is less than 0.1% higher than in the No Action Alternative. This represents an increase of approximately 17 short tons of fuel burn on an annualized basis, with total fuel burn within the GSA rising from 82,819 tons in the No Action Alternative to 82,836 tons in the Proposed Action. In terms of CO_2 emissions, this increase in fuel burn corresponds with an annual increase of approximately 54 tons of CO_2. This represents a marginal increase in estimated CO_2 emissions at the Airport relative to area sources with the Commonwealth of Massachusetts generating an estimated 73.5 million metric tons of carbon dioxide emissions in 2018.[15]

Biological Resources – Wildlife Only

The significance threshold pertaining to Biological Resources is if "the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat." Since this is an airspace action, there is not expected to be any destruction of critical habitat but an impact on a federally listed species is possible through wildlife strikes. Wildlife strikes are a common occurrence at airports around the country with over 194,000 wildlife strikes on civil aircraft occurring between 1990 and 2017. Almost all bird strikes (92%) occur at or below 3,500 feet above ground level, making the area near an airport the most critical area.[16]

The FAA National Wildlife Strike Database keeps a record of all reported wildlife strikes in the United States since 1990. The database contains records of over 227,000 different wildlife strikes across civilian and military airports. Since 1990, there have been 2,062 wildlife strikes at the Airport with 141 of these wildlife strikes occurring in 2018.

Of the 2,062 historical strikes at the Airport since 1990, a single strike was reported to include any of the federally listed species (red knot) but it occurred on Runway 27, which will be unaffected by the Proposed Action. From this dataset of 2,062 historical strikes, there were only two strikes of all state-listed species on approaches into Runway 4L with one strike of a *threatened* species and one strike of an *endangered* species. The Proposed Action is intended to enhance safety at BOS by making an IAP available at RWY 4L. This change is not expected to result in a change in the number of operations at BOS, except that fewer previously-scheduled flights will need to be canceled in inclement conditions (estimated to be 255 annual

[15] Massachusetts Annual Greenhouse Gas Emissions Inventory: 1990-2018

[16] FAA 2021. *Wildlife Strikes to Civil Aircraft in the United States. 1990-2020.* https://www.faa.gov/airports/airport_safety/wildlife/media/Wildlife-Strike-Report-1990-2020.pdf

operations). Given the lack of ground disturbance, the limited impact of the Proposed Action to arrival operations at BOS, and the absence of historical strikes of federally listed species on an affected runway, the FAA has concluded there will be no effect to a listed species or a designated critical habitat, and therefore no significant impact.

Section 4(f) 49 U.S.C. Section 303(c)

Section 4(f) of the Department of Transportation (DOT) Act of 1966 (codified at 49 U.S.C. Section 303(c)), commonly referred to as Section 4(f) states, in pertinent part, that:

> *"… [the] Secretary of Transportation may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance . . . only if (1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm . . . resulting from the use."* [17]

The word "use" includes both direct and indirect or "constructive" impacts to Section 4(f) properties. An indirect impact or "constructive" use does not require a physical taking of a Section 4(f) property. A constructive use would occur when non-physical impacts of a project are so severe that the activities, features, or attributes of the property would be substantially impaired.

Section 4(f) properties within the GSA were inventoried using geospatial data from federal, state, and local sources. The sources inventoried include multiple datasets from the MassGIS (Bureau of Geographic Information for the state of Massachusetts), Open Space data from the City of Boston, and parks data from the City of Quincy. A total of 11,854 Section 4(f) properties were identified within the GSA. The Section 4(f) properties identified as being part of the GSA were evaluated to identify potential noise increases that may represent an adverse impact or constructive use of the property. These properties were also evaluated with the same noise increase data for any noise sensitive areas within the Section 4(f) properties that have a quiet setting as an attribute. For each of the 11,854 Section 4(f) properties, a centroid at the center of each property was generated and the noise impact was calculated at each point for the No Action Alternative and for the Proposed Action. This noise impact was compared to the noise exposure levels specified in FAA Order 1050.1F, where a change of 1.5 dB in the DNL 65 dB or higher noise exposure level is considered significant, and a change of 3.0 dB in the DNL 60 to less than 65 dB noise exposure level or a change of 5.0 dB in the DNL 45 to less than 60 dB noise exposure level is considered as reportable.

For these Section 4(f) centroids, there were no significant noise impacts (increases of 1.5 dB in the DNL 65 or higher noise exposure level) or reportable noise impacts (increases of 3.0 dB in the DNL 60 to less than 65 dB noise level or increases of 5.0 dB in the DNL 45 to less than 60 dB noise exposure level) found within the GSA. This includes national, state, and local parks as

[17] FAA Order 1050.1F, B-2 Section 4(f), 49 U.S.C. 303, p. B-9, https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf

well as state forests, state historic sites, and state and local refuges that were assessed as part of the analysis. There were also no increases above the 45 DNL noise exposure level in Section 4(f) properties within the GSA located in a quiet setting, where the setting is an attribute of the site's significance, such as a national park or national wildlife refuge within the GSA. When considering all Section 4(f) properties with a No Action noise exposure level of DNL 45 dB or greater, the maximum change in noise exposure level was 0.2 dB. Furthermore, sound level changes of 1 dB or less are not readily perceptible to the human ear, except in a laboratory setting.[18] The detailed visual analysis described in Section 4.5 of the Final EA also indicates that there would be a limited visual impact throughout the GSA.

Based on the results of the FAA's noise and visual analysis, as well as consideration of all comments received during the public comment period, it can be concluded that the Proposed Action would not cause a constructive use for any Section 4(f) property and would not cause a significant impact.

Historic, Architectural, Archaeological, and Cultural Resources

The National Historic Preservation Act (NHPA) is the principal statute concerning historical, architectural, archeological and cultural resources. For this reason, the evaluation of impacts on these resources was completed in line with the guidance specified in Section 106 of the NHPA, which requires federal agencies to consider the effects of their projects on properties listed, or eligible for listing, in the National Register of Historic Places (NRHP). As this is an FAA Action, the FAA document *Section 106 Handbook: How to Assess the Effects of FAA Actions on Historic Properties under Section 106 of the National Historic Preservation Act* was consulted and referenced to assist in making this determination.

The Section 106 regulations define the Area of Potential Effects (APE) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."[19] The APE was formulated based on the areas of potential noise impact criteria according to FAA Orders. FAA Order 1050.1F provides the following criteria for determining impact of changes in aircraft noise:

- For DNL 65 dB and higher: +1.5 dB (significant)
- For DNL 60 dB to <65 dB: +3 dB (reportable)
- For DNL 45 dB to <60 dB: +5 dB (reportable)

The Proposed Action would not cause any physical effects. However, pursuant to 36 CFR 800.5(a)(2)(v), the FAA considered the potential for the undertaking to introduce visual, atmospheric, or audible elements that could diminish the integrity of a historic property's significant historic features. The FAA also considered the potential for the Proposed Action to

[18] https://www.faa.gov/air_traffic/environmental_issues/ared_documentation/media/DC_OAPM_EA/Appendices/Appendix_E_Basics_of_Noise.pdf, E-3

[19] 36 CFR § 800.16(d), https://www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf

have noise effects that could alter the character or use of historic properties. The FAA made this assessment by comparing the expected flight paths of aircraft flying the Proposed Action to flight paths of current arrivals at BOS. Based on this comparison, the FAA determined whether there would be new areas overflown by the Proposed Action, and specifically whether the undertaking has the potential to introduce new visual, atmospheric, or audible elements to historic properties in these areas. Any areas meeting this criteria were considered to be a part of the APE.

Databases from the NRHP, Massachusetts Historic Commission (MHC), and the Boston Landmarks Commission were used to compile a comprehensive list of historic properties within the APE. Additionally, the FAA requested input from local historical commissions, planning boards, tribes, and interested parties to identify additional properties not previously identified as eligible for the NRHP. This effort identified 4,242 properties listed in or potentially eligible for listing in national, state, or local historic registers. Of these, 58 properties within the APE are currently listed in or have been formally determined eligible for listing in the NRHP. For the purposes of the analysis, FAA assumed all 4,242 properties within the APE were eligible for listing in the NRHP.

The undertaking does not require land acquisition, construction, or ground disturbance, and as such the FAA anticipates no physical effects to historic properties. However, the FAA recognizes that for certain types of historic properties, particularly those where the property's setting contributes to its historical significance, the introduction of visual, atmospheric, or audible elements could diminish the integrity of a property's significant historical features (including setting and feeling which are characteristics contributing to the property's NRHP eligibility), and therefore aircraft operations could result in non-physical effects.

The Proposed Action would result in noise impacts an order of magnitude below the significance threshold identified in FAA Order 1050.1F. Using the DNL metric, the largest noise change at a historic resource is 0.2 decibel (dB) across the APE, which is a change in noise that is imperceptible to the human ear. When considering the potential for introduction of visual elements to historic properties, the Proposed Action would increase overflights within the APE from 268.1 daily overflights to 268.8 daily overflights, an average of less than one per day. A visual analysis of the current flight tracks shows that the entire APE is already densely overflown and would be very small compared to the existing level of overflights (a 0.26% increase).

All consulting parties were provided an opportunity to review the FAA's finding of no adverse effect and, in a January 5, 2022 response to the Massachusetts (MA) State Historic Preservation Office (SHPO), the FAA reaffirmed its finding of no adverse effect as part of continued consultation pursuant to 36 CFR 800.5(c)(2)(i). The MA SHPO did not respond to the FAA's January 5, 2022 consultation letter. On March 4, 2022, a representative from the FAA spoke with a representative from the Advisory Council on Historic Preservation and exchanged a number of follow-up emails. During those communications, ACHP confirmed the SHPO was entitled to a 30-day review period of the FAA's reaffirmed finding pursuant to 36 CFR 800.5. The FAA has provided that review period to the SHPO without receiving notice of a disagreement

with the FAA's reaffirmed finding. In addition, no other consulting party provided notice of a disagreement with FAA's finding of no adverse effect. Therefore, the FAA has fulfilled its consultation requirements and can proceed with the undertaking pursuant to 36 CFR 800.5. The FAA also provided notice to the Secretary of the Interior pursuant to 36 CFR 800.10(c). This correspondence can be found in Appendix E.

Based on the analysis, the FAA has determined that there would be no adverse impacts to historical, architectural, archeological and cultural resources. The incremental increase in overflights (an average of less than one per day) in an area already densely overflown would not diminish the integrity of any historic properties' significant historical features.

Socioeconomics, Environmental Justice, and Children's Environmental Health – Environmental Justice Only

An Environmental Justice analysis considers the potential of the Proposed Action to cause disproportionately high and adverse effects on low-income or minority populations. As set forth in DOT Order 5610.2B, activities that will have a disproportionately high and adverse effect on minority or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the effect are not practicable, reasonable, or consistent with statutory requirements.

The Affected Environment Chapter of the EA identified numerous Census block groups with environmental justice populations based on a comparison of demographic data. However, the Proposed Action would not involve construction of physical facilities nor would it result in a change in noise exposure levels in excess of (nor close to) the applicable thresholds of significance. There will also be no acquisition of real estate, no relocation of residents or community businesses, no disruption to local traffic patterns, no loss in community tax base, and no changes to the fabric of the community. Based on the limited impacts of the Proposed Action which are discussed in greater detail throughout the EA, there would be no disproportionately high and adverse effects to environmental justice populations.

Under the Proposed Action Alternative, there are no Census block groups of low-income concern that would exceed any applicable thresholds of significance for noise impact or air quality. While the FAA does not define a threshold of significance associated with visual impacts, visual impacts associated with the 255 net new flights, as well as the flights that previously flew the ILS RWY 15R and transitioned visually to a landing on Runway 4L that now use the RNAV (GPS) RWY 4L approach in the Proposed Action, occur over an area with a high concentration of EJ Census block groups. Additionally, it should be noted that the small increase in CO associated with the 255 new net flights, while marginal in the context of total Airport CO emissions, does similarly occur over an area with a high concentration of EJ Census block groups. However, these new arrival operations comprise less than 0.5% of all arrivals at the Airport and given the high volume of flights currently using the Airport, any potential impacts are likely to be small and undetectable to most of the overflown population. As such, no persons of low income or minority populations are expected to experience disproportionately high and

adverse effects. Accordingly, under the Proposed Action Alternative there would be no significant EJ impacts.

Cumulative Impacts

While the Proposed Action may result in environmental impacts when considered by itself, the cumulative impacts analysis for the Proposed Action, located in Section 4.8 of the Final EA, looked at the potential environmental consequences resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. This analysis focused on projects in the GSA that could cumulatively affect noise and/or the impact on noise sensitive resources (i.e. compatible land use, Section 4(f), and Section 106).

A comprehensive review of the projects at the Airport was done in order to identify any projects that may have cumulative impacts with the Proposed Action. Some of the identified projects were limited to the landside area such as the Logan Airport Parking Project and the Terminal C Canopy, Connector, and Roadway Project, so there would be no direct overlap between those projects and aircraft operations. The FAA also reviewed the environmental documents for the Framingham Logan Express Expansion, Logan Airport Parking, Terminal C Canopy, Connector and Roadway, Terminal E Modernization, and Logan Airport Renovations and Improvements at Terminals B & C/E projects for discussion of any noise impacts. The only noise impacts discussed in these documents were temporary construction related noise impacts. All but one of the documents stated that aircraft noise levels would not change due to the project with the one exception being the Terminal E Modernization Project, which was expected to "improve noise conditions from ground operations as compared to the future No-Action Alternative, as the terminal extension would act as a noise barrier to the community."[20] Lastly, the FAA reviewed the recently completed rehabilitation of Runway 9-27 and an enhancement of the Runway Safety Areas off of Runway 9-27 at the Airport. These projects will have no impact on the Proposed Action as traffic on Runway 9-27 is unaffected by the Proposed Action. With the recent slowdown in flight activity, the project was moved up and the runway was reopened on August 7, 2020.

The proposed reconstruction work at Mansfield Municipal Airport is in the vicinity of the Proposed Action as this airport is just due south of the NUNZO waypoint. The Mansfield Municipal Airport is a general utility, general aviation airport and the reconstruction of Runway 14-32 (the airport's primary runway) could result in changes to the local soundscape. However, the noise impact of the Proposed Action around Mansfield Municipal Airport is orders of magnitude below the 1050.1F thresholds with a No Action DNL value below 32 DNL, well below the 45 DNL threshold.

Non-aviation projects can also have a cumulative impact when considered alongside the Proposed Action. A full list of non-aviation projects in the GSA was compiled and can be found in Appendix C. This list of projects includes projects originated from the Boston Region Metropolitan Planning Organization, the City of Boston, the Massachusetts Bay Transportation

[20] http://www.massport.com/media/2245/tem_final-ea_eir_compiled.pdf

Authority (MBTA), the Massachusetts Department of Transportation, and multiple local municipalities. Several projects were eliminated after a cursory review as the extent of the project was unaffected by the Proposed Action such as MBTA's Wellington Yard and Maintenance Facility Rebuild, which is located four miles northwest of the Airport and well away from any impacts from the Proposed Action. The remaining projects were assessed for potential permanent noise impacts that would be supplemented by the impact of the Proposed Action. No non-aviation projects were identified that could conceivably contribute to noise levels in the GSA.

Additionally, the cumulative impacts of all existing arrival and departure procedures at the Airport have been considered in relation to the Proposed Action Alternative. Radar traffic data covering the baseline timeframe (November 1, 2018 through October 31, 2019) that was used to build the No Action Alternative includes aircraft flying existing procedures at the Airport. Therefore, the comparison between the No Action and Proposed Action alternatives considers the potential impact from all other existing Airport procedures. As there were no significant or reportable noise increases, the addition of the Proposed Action to currently available procedures will not contribute to the exceedance of the FAA noise significance threshold.

As a result, it can be concluded that the Proposed Action will not create a cumulative environmental impact when environmental consequences are considered cumulatively with the consequences of past, present, and reasonably foreseeable projects.

Public Involvement

As outlined in FAA Order 1050.1F, information about the EA must be coordinated with stakeholders including various government agencies, tribal communities, and the public. The Proposed Action was introduced to the public in two well attended meetings in 2015, environmental impacts were initially evaluated in March 2016, and this Environmental Assessment was prepared in response to input received from the public, local, state, and federal officials as part of outreach summarizing that initial 2016 environmental review. The FAA has been providing updates to both Massport and the Massport Community Advisory Committee on the status of the Proposed Action and the FAA's environmental review.

The FAA initiated consultation regarding the Proposed Action under Section 106 and the ACHP's implementing regulations in June 2020 to satisfy Section 106's public involvement requirements in conjunction with the NEPA process. The correspondence included the FAA's proposed finding, which was sent to all consulting parties (e.g., local historical commissions, tribal parties, interested parties, and planning commissions) to allow for the 30-day review period prescribed in 36 CFR § 800.5. The correspondence developed by FAA during the consultation process for the assessment of adverse effects to historic resources from the Proposed Action as prescribed in 36 CFR § 800.5 is included below.

- June 2020 – FAA Letter to MHC
- July 2020 – MHC Responding to FAA's Consultation Initiation Letter
- October 2020 – FAA Letter to MHC Proposing APE
- December 2020 – MHC Responding to FAA and Concurring with Proposed APE

- June 2021 – FAA Letters to Historical Commissions, Tribal Parties, Planning Commissions, and Other Interested Parties
- July 2021 – MHC Letter to FAA Requesting Additional Information
- August 2021 – FAA Letter to MHC with Additional Requested Information
- September 2021 – MHC Letter to FAA Asking Additional Project Questions
- October 2021 – FAA Letter to MHC with Additional Answered Questions
- November 2021 – MHC Letter to FAA Identifying Potentially Impacted Historical Properties
- January 2022 – FAA Letter to MHC with Additional Information in Support of FAA's Proposed Finding of No Adverse Effect
- January 2022 - FAA Letter to Interior Secretary with Notification about National Historic Landmark

On September 21, 2020, the Draft EA was published, and its Notice of Availability was published in the Boston Globe, the Boston Herald, and the Patriot Ledger. The notice of the Draft EA availability was provided to key local stakeholders and these notices and publications can be found in Appendix E of this document. The full list of these notified stakeholders can be found in Appendix F. The Draft EA was made available on the project website starting on September 21, 2020 and was also available at the following libraries:

- Boston Public Library, Central Library, 700 Boylston St, Boston, MA
- Boston Public Library, Codman Square, 690 Washington St, Boston, MA
- Boston Public Library, Fields Corner, 1520 Dorchester Avenue, Dorchester, MA
- Boston Public Library, Grove Hall, 41 Geneva Avenue, Boston, MA
- Boston Public Library, Lower Mills, 27 Richmond St, Boston, MA
- Boston Public Library, Mattapan, 1350 Blue Hill Avenue, Boston, MA
- Boston Public Library, Roxbury, 149 Dudley St, Roxbury, MA
- Boston Public Library, South Boston, 646 E Broadway, South Boston, MA
- Boston Public Library, South End, 685 Tremont St, Boston, MA
- Milton Public Library, 476 Canton Avenue, Milton, MA
- Thomas Crane Public Library, 40 Washington St, Quincy, MA
- Hyde Park Branch of the Boston Public Library, 35 Harvard Ave, Hyde Park, MA

A briefing of these findings were also given to members of Congress and local elected officials on September 21 and 22, 2020. The Notice of Availability included the project website address (FAABostonWorkshops.com), instructions as to how to comment on the Proposed Action via the project website, information about the Virtual Public Workshops and the complete details about the comment period. The project website allowed interested members of the public the opportunity to review the Draft EA, information about the public comment period, and information about the upcoming public workshops.

Two public workshops were held in a "virtual" format on October 23, 2020 from 11:00 am to 12:30 pm and October 28, 2020 from 6:00 pm to 7:30 pm. The FAA chose to hold the workshops in a virtual format to adhere to public health and safety guidelines issued by the U.S. Center for Disease Control and Prevention during the COVID-19 pandemic. During each public workshop an informational presentation was followed by a question-and-answer period during which members of the public shared concerns with members of the FAA and its consultant staff.

These questions asked during this question-and-answer period were not considered official comments on the Draft EA and this fact was announced multiple times throughout the Public Workshop; participants in the Public Workshops were repeatedly encouraged to submit their questions as comments to the Draft EA through email, mail, or the project website. The FAA received 41 comments on the Draft EA. All comments were considered by the FAA in the development of the Final EA and responses are provided in section Appendix I.

On May 4, 2022, the Final EA was published, and its Notice of Availability was published in the Boston Globe, the Boston Herald, Patriot Ledger, and the Federal Register. The notice of the Final EA availability was provided to the same stakeholders as the Draft EA and these notices and publications can be found in Appendix E of this document. The full list of these notified stakeholders can be found in Appendix F. The Final EA was made available on the project website starting on May 4, 2022 and was also available at the libraries listed above for public review.

Agency Findings

The FAA makes the following determinations for this project based upon a careful review of the Final Environmental Assessment, comments on the Draft EA, the supporting administrative record, and appropriate supporting information.

A. **The Proposed Action will ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. § 40103(b)).** The Federal Aviation Act of 1958 gives the Administrator the authority and responsibility to assign by order or regulation the use of the navigable airspace in order to ensure the safety of aircraft and the efficient use of the airspace. In its continuous effort to ensure safety of aircraft and improve the efficiency of transit through the navigable airspace, the FAA will implement the above-described RNAV GPS IAP to Runway 4L at BOS. The Project will enhance the safety of the airspace around BOS by reducing workload for both flight crew and for Air Traffic personnel, as well as increasing operational flexibility.

   In deciding to implement the Proposed Action, the FAA carefully evaluated both the Proposed Action and the No Action Alternative. The No Action Alternative would not improve the safety and efficiency of the airspace and would not further the Agency's mission of providing the safest aerospace system in the world.

B. **The FAA has given the Proposed Action the independent and objective evaluation required by the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (40 CFR Section 1506.5).** FAA provided guidance to its consultant and participated in the preparation of all chapters of both the draft and final Environmental Assessment. FAA independently evaluated the final Environmental Assessment and takes responsibility for its scope and content.

C. **The Proposed Action does not result in a significant noise impact over noise sensitive areas or population census blocks**. There are no noise sensitive areas or census blocks within the General Study Area that are exposed to DNL 65 or higher

that experience a 1.5 DNL increase nor where their population census blocks that are exposed to DNL 45 or higher that experience a 5.0 DNL increase, which is a reportable noise impact. There are no Section 4(f) and historical properties that experienced significant or reportable noise increases.

D. **The Proposed Action will not have a significant impact on Air Quality. Section 176(c) of the Clean Air Act requires that federal actions conform to the appropriate SIP to attain the air quality goals identified in the Clean Air Act.** A conformity determination is not required if the emissions caused by a federal action would be less than the *de minimis* levels established by regulations issued by EPA. The EPA regulation, 40 CFR 93.153 (b), specifies an emission level or *de minimis* level for each NAAQS pollutant and non-attainment area at which the emissions associated with the action are unlikely to contribute to a violation of the NAAQS or delay timely attainment of the NAAQS. The adoption of approach procedures above the mixing height is on a list of actions "presumed to conform" as are the adoption of approach procedures below the mixing height but only provided that the modifications are designed to enhance operational efficiency, increase fuel efficiency, or reduce community noise by means of engine thrust reductions. The full list of actions "presumed to conform" under General Conformity can be found in 72 Fed. Reg. 41565 (July 30, 2007). These conditions below the mixing height were not met so the emissions below the mixing height were calculated to identify any *de minimis* exceedances. The Proposed Action will not cause exceedances of the *de minimis* thresholds applicable to the GSA for any pollutant and as such a conformity determination is not required.

E. **The Proposed Action is not anticipated to cause significant effects to climate.** The Proposed Action would result in a slight increase in fuel burn when compared with the No Action Alternative due to the additional operations, but there is not a significance threshold for aviation GHG emissions set by FAA Order 1050.1F. The corresponding increase in carbon dioxide emissions is minor in the context of current emissions, as well as regional and nationwide GHG emissions. As a result, increases in GHG tied to increased fuel burn resulting from the Proposed Action are not significant contributors to climate effects associated with the propagation of GHG in the atmosphere.

F. **The Proposed Action would have no effect on biological resources including threatened or endangered species (Endangered Species Act 16 U.S.C. §§ 1531-1544).** The Proposed Action does not result in ground-based disturbance and is therefore not expected to have impacts on any terrestrial organisms considered as part of the Biological Resources impact category. Of the 2,062 historical wildlife strikes at the Airport since 1990, only one strike of any federal species has occurred on a non-parallel Runway to the Proposed Action with just five strikes of all state species on both Runway 4L and 4R. Given this information and the Proposed Action increasing operations by just 0.084% overall, the FAA concluded this action would have no effect on threatened or endangered species.

G. **The Proposed Action does not include a direct or constructive use of any resources protected under Department of Transportation Act Section 303(c), also known as Section 4(f).** The Project does not involve any physical development or modification of facilities, and therefore no actual, physical use of resources protected under Section 4(f) of the Department of Transportation Act. This includes national, state, and local parks as well as state forests, state historic sites, and state & local refuges. The Section 4(f) properties within the General Study Area were shown not to experience any significant or reportable noise increases with the implementation of the Proposed Action, nor will they experience noise increases sufficient to substantially impair the value of those resources.

H. **The Proposed Action will have No Adverse Effect on historical, architectural, archeological, and cultural resources protected under Section 106 of the National Historic Preservation Act.** The Proposed Action would not result in any physical impact on any property. The net change in aircraft operations as a result of the Proposed Action is minimal (less than one daily overflight on average) and would not cause an adverse effect, including no physical impacts and no introduction of significant audible or visual impacts within the APE.

I. **The Proposed Action would not result in significant environmental justice impacts (Executive Order 12898).** The Proposed Action would not involve construction of physical facilities, nor would it result in a change in noise exposure levels in excess of the applicable thresholds of significance. There will also be no acquisition of real estate, no relocation of residents or community businesses, no disruption to local traffic patterns, no loss in community tax base, and no changes to the fabric of the community. Based on the limited impacts of the Proposed Action which are discussed in greater detail throughout the EA, there would be no disproportionately high and adverse effects to environmental justice populations.

J. **Proposed Action will not create a cumulative environmental impact.** The anticipated projects at the airports in the GSA were identified in the Affected Environment Cumulative Impacts section, which can be found in Section 3.4.8 of the Final EA. No projects were identified that could create a cumulative impact that would reach the significant or reportable threshold with respect to noise when environmental consequences are considered cumulatively with the consequences of past, present, and reasonably foreseeable projects.

After careful and thorough consideration of the Final EA and the facts contained herein, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of NEPA and other applicable environmental requirements and will not significantly affect the quality of human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA. Therefore, an environmental impact statement will not be prepared.

I, the undersigned, have reviewed the Final EA and appendices, including the evaluation of the purpose and need that this Project would serve, the alternative means of achieving the purpose and need, and the environmental impacts associated with these alternatives. I find that the Proposed Action described in the Final EA is reasonably supported, and issuance of this FONSI/ROD is appropriate.

I have carefully considered the FAA's statutory mandate under 49 U.S.C. § 40103 to ensure the safe and efficient use of the national airspace system.

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve and the operational changes as described in the Proposed Action and direct that actions be taken that will enable implementation of that alternative.

RYAN W ALMASY Digitally signed by RYAN W ALMASY
Date: 2022.05.03 15:10:51 -04'00'

Ryan Almasy
Director, Eastern Service Center
Mission Support Services
Federal Aviation Administration

Date

RIGHT OF APPEAL

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.