

CHAPTER 1

Project Background and Purpose and Need for the Proposed Action

1.1 Introduction

The Federal Aviation Administration (FAA) has prepared this Final Environmental Assessment (EA) to identify the potential environmental effects associated with an FAA Proposed Action to implement a new Instrument Approach Procedure (IAP) to Runway 4L at Boston Logan International Airport (the Airport). This new IAP, the GPS-enabled area navigation for Runway 4L (RNAV [GPS] RWY 4L) procedure, will provide enhanced safety for aircraft approaching Runway 4L as well as the ability for the Airport to be operated more efficiently under poor weather conditions.

Federal actions, such as implementation of new arrival procedures with the potential to cause environmental impacts, must comply with the National Environmental Policy Act (NEPA) of 1969 and other relevant special purpose environmental laws. Requirements for considering environmental impacts of FAA actions are found in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, which are based on the Council on Environmental Quality (CEQ) regulations for implementing NEPA at Title 40 of the Code of Federal Regulations Parts 1500-1508 (40 CFR 1500-1508).¹

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 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 do not exist.

Nevertheless, in response to public input received from the community, local, state, and federal elected officials, the FAA, in July 2016, elected to conduct an EA to further study the procedure. Due to budgetary constraints and other exigent circumstances, however,

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 began, 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 this document.

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

this effort was delayed. In late 2018/early 2019, the FAA ultimately acquired funding for a contractor to assist in analyzing the potential environmental impacts and in documenting the analyses through this EA. This effort eventually began in October 2019 and the present EA is being prepared using the format and processes defined in FAA Order 1050.1F, Section 6-2.

The format of this EA is as follows: Chapter 1 provides information on the project background and describes the purpose and need for the Proposed Action. Chapter 2 presents the alternatives for the Proposed Action. Chapter 3 and Chapter 4 provide full disclosure of the affected environment and environmental consequences, respectively, that are associated with implementation of the Proposed Action. **Appendix A** contains the IER on the RWY 4L RNAV GPS IAP, **Appendix B** provides a technical summary of the noise modeling and **Appendix C** shows the non-aviation anticipated projects within the General Study Area (GSA) for consideration of cumulative impacts. **Appendix D** provides a table of state-listed threatened, endangered, and special concern species and **Appendix E** provides copies of relevant communication with the public on the development of the procedure. **Appendix F** contains a list of local stakeholders and their associated agencies (where applicable) who were informed about the Draft EA. Finally, the listings of historic properties and parks in the GSA are provided in **Appendices G and H**, respectively.

1.2 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 Proposed Action is needed 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 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 good weather, known as Visual Meteorological Conditions (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 poor weather, known as Instrument Meteorological Conditions (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 delayed 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.

Additionally, the implementation of the Proposed Action would serve a secondary safety benefit by largely supplanting the need for small, maneuverable aircraft to fly a visual approach to Runway 4L after conducting an initial ILS approach to Runway 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. Additional information about this procedure and associated runway incursions and safety incidents is contained in **Chapter 2** of this EA.

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 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 arrivals based on an expected reduction in the number of canceled operations. While the Proposed Action will usually only be assigned to landing aircraft during IMC, it, like other published arrival procedures at the Airport, will also be available for flight crews to use on an advisory basis at their discretion when cleared for a visual approach no later than 5 miles from the runway.

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 enabling Air Traffic Control (ATC) to more precisely monitor each aircraft 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.

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