TABLE OF CONTENTS

Boston Logan RNAV (GPS) RWY 4L Draft Environmental Assessment

Cha	Chapter 1 – Project Background and Purpose and Need for the Proposed Action				
	1.1	Introduction	1-1		
	1.2	Purpose and Need for the Proposed Action			
Cha	pter 2	2 – Alternatives			
	2.1	Existing Conditions (No Action Alternative)	2-1		
		2.1.1 Existing Situations for Usage of Runway 4L	2-2		
		2.1.2 Current Approach Procedures for Runway 4R			
	2.2	Identification of Potential Alternatives			
		2.2.1 FAA Proposed Action			
		2.2.2 Alternatives Considered but Eliminated from further Study			
	2.3	Alternatives Carried Forward for Detailed Evaluation			
		2.3.1 No Action Alternative (Maintain Current Operations)			
		2.3.2 FAA Proposed Action	2-21		
Cha	pter 3	B – Affected Environment			
	3.1	Introduction	3-1		
	3.2	General Study Area	3-1		
		3.2.1 Setting and Location	3-1		
		3.2.2 Boston Logan International Airport			
		3.2.3 Existing Land Use	3-5		
	3.3	Environmental Resources Unlikely to be Affected by the Proposed Action	3-11		
	3.4	Potentially-Affected Environmental Resource Categories			
		3.4.1 Air Quality			
		3.4.2 Climate			
		3.4.3 Endangered Species			
		3.4.4 Department of Transportation Act, Section 4(f) Properties	3-17		
		3.4.5 Historical, Architectural, Archeological, and Cultural Resources –			
		Historic, Architectural, and Cultural Resources Only			
		3.4.6 Noise and Noise-Compatible Land Use	3-22		
		3.4.7 Socioeconomics, Environmental Justice, and Children's			
		Environmental Health – Environmental Justice Only			
		3.4.8 Cumulative Impacts	3-34		
Cha	pter 4	I – Environmental Consequences			
	4.1	Air Quality			
		4.1.1 Overview of Impacts			
		4.1.2 Methodology			
		4.1.3 Potential Impacts			
	4.2	Climate			
		4.2.1 Overview of Impacts			
		4.2.2 Methodology			
		4.2.3 Potential Impacts	4-5		

	4.3	Biological Resources – Wildlife Only	4-5
	4.4	Department of Transportation Act, Section 4(f) Properties	
	4.5	• • • • • • • • • • • • • • • • • • • •	
		and Cultural Resources Only	4-7
		4.5.1 Area of Potential Effects	
		4.5.2 Assessment of Adverse Effects	4-13
	4.6	Noise and Noise-Compatible Land Use	4-13
		4.6.1 Noise Modeling Methodology	4-13
		4.6.2 Operational Input	4-14
		4.6.3 Noise Impact Criteria	
		4.6.4 Aircraft Noise Impacts Analysis	
		4.6.5 No Action Alternative	4-15
		4.6.6 Proposed Action Alternative	4-16
	4.7	Socioeconomics, Environmental Justice, and Children's Environmental	
		Health – Environmental Justice Only	4-24
	4.8	Cumulative Impacts	4-25
Cha	oter 5	- Public Involvement	
	5.1	Summary of Public Outreach and Coordination	5-1
Chap	oter 6	– List of Preparers	
	6.1	List of Preparers	6-1

List of Tables		Page
Table 2.2-1	Alternatives to Mitigate Wake Encounters Due to Temperature Variations	2-19
Table 2.2-2	Alternatives Received During the Public Comment Period for the Initial Environmental Review	
Table 3.4-1	Fuel Burn and Criteria Pollutant Emissions Below Mixing Height	3-13
Table 3.4-2	Attainment Status of Counties Within the GSA	3-14
Table 3.4-3	Greenhouse Gas Emissions	3-16
Table 3.4-4	Federally-Listed Threatened, Endangered, Candidate, and Proposed Species	3-17
Table 3.4-5	GSA Population Exposed to Aircraft Noise Associated with Boston Logan International Airport – Existing (2019)	2.00
Table 3.4-6	Conditions Statistics on Low-Income and Minority Populations Within the	3-26
	GSA	3-33
Table 3.4-7	Anticipated Projects at Airports Within the GSA	3-35
Table 4.1-1	Criteria Pollutant De Minimis Limits – Nonattainment Areas	4-2
Table 4.1-2	Criteria Pollutant De Minimis Limits – Maintenace Areas	4-3
Table 4.1-3	Comparison of Fuel Burn and Criteria Pollutant Emissions Within GSA (Short Tons Per Year)	4-4
Table 4.5-1	Number of Overflights for the No Action and Proposed Action Alternatives by Block	4-8
Table 4.6-1	Criteria for Determining Impact of Changes in Aircraft Noise	4-15
Table 4.6-2	No Action Alternative Population Exposed to Aircraft Noise Associated with Boston Logan International Airport	4-16
Table 4.6-3	DNL Exposure Ranges Between No Action and Proposed Action Alternative by Town/ Neighborhoods	4-17
Table 4.6-4	Proposed Action Alternative Population Exposed to Aircraft Noise Associated with Boston Logan International Airport	
Table 4.6-5	Estimated Change in Population by DNL Values Comparing Proposed Action Alternative to No Action Alternative	
Table 4.6-6	Noise Impacts of Proposed Action Scenario Compared to No Action Scenario	
Table 6 1-1	List of Preparers	6-1

September 2020

List	of Figures	F	Page
	Figure 2-1	Boston Logan International Airport – Northeast Configuration	2-3
	Figure 2-2	RNAV (GPS) RWY 4L Approach Plate	2-11
	Figure 2-3	RNAV (GPS) RWY 4L Procedure	2-13
	Figure 2-4	Example of Staggered Dependent Parallel Runway Operations	2-17
	Figure 3-1	Airports in the General Study Area	3-3
	Figure 3-2	Generalized Existing Land Use in the General Study Area	3-7
	Figure 3-3	Generalized Existing Land Use in the Aiport Environment	3-9
	Figure 3-4	Section 4(f) Properties in the General Study Area	3-19
	Figure 3-5	Historic Resources in the General Study Area	3-23
	Figure 3-6	Existing Noise Exposure at Population Centroids in the General Study Area	3-27
	Figure 3-7	Environmental Justice Census Block Groups Intersecting the General Study Area	3-31
	Figure 4-1	BOS Procedure Corridor Blocks	4-9
	Figure 4-2	BOS Procedure Corridor Blocks and Radar Flight Tracks	4-11
	Figure 4-3	Proposed Alternative Noise Exposure at Population Centroids in the General Study Area	4-19
	Figure 4-4	Proposed Alternative Noise Exposure at Population Centroids in the Airport Environment	4-21
Арр	endices		
	Appendix A	Air Traffic Initial Environmental Review (IER)	
	Appendix B	List of Section 106 Properties Identified in the General Study Area	
	Appendix C	List of Section 4(f) Properties Identified in the General Study Area	
	Appendix D	Noise Modeling Technical Report	
	Appendix E	Non-Aviation Anticipated Projects within the General Study Area Under Consideration for Cumulative Impact	
	Appendix F	State-Listed Threatened, Endangered, and Special Concern Species	
	Appendix G	Correspondence In Support of the Draft Environmental Assessment	
	Appendix H	List of Local Stakeholders and Agencies Informed about the Proposed Action	

Acronyms

°F Fahrenheit

1MA5 Unnamed Southborough Airfield1B9 Mansfield Municipal Airport

28M Cranland Airport
AAR Aircraft Arrival Rate
ACK Nantucket Airport

AEDT Aviation Environmental Design Tool

AFE Above Field Elevation
AGL Above Ground Level
APE Area of Potential Effects
ATC Air Traffic Control

ATCT Air Traffic Control

ATCT Air Traffic Control Tower

BOS Boston Logan International Airport

CAA Clean Air Act

CATEX Categorical Exclusion

CEQ Council on Environmental Quality

CH₄ Methane

CO Carbon Monoxide CO₂ Carbon Dioxide

CO₂e Carbon Dioxide Equivalents

DA Decision Altitude

Db Decibel

DNL Day-Night Average Sound Level

DOD Department of Defense
DOT Department of Transportation
EA Environmental Assessment
EJ Environmental Justice

EPA Environmental Protection Agency **FAA** Federal Aviation Administration

IAF Initial Approach Fix

IAP Instrument Approach Procedure
IER Initial Environmental Review
ILS Instrument Landing System

IMC Instrument Meteorological Conditions

INM Integrated Noise Model

IPaC Information for Planning and Consultation

FAF Final Approach Fix

FICON Federal Interagency Committee on Noise

FICUN Federal Interagency Committee on Urban Noise

FMS Flight Management System

GHG Greenhouse Gas

GHG Marshfield Municipal Airport – George Harlow Field

GPA Glide Path Angle

GPS Global Positioning System
GSA General Study Area
HFC Hydrofluorocarbons

HHS Department of Health and Human Services

HUD Housing and Urban Development

HYA Barnstable Airport

LOC Localizer

LNAV Lateral Navigation

LPV Localizer Performance with Vertical Guidance

MA6 Monponsett Pond Seaplane Base

MA63 Sherman-Private Airport
MA64 Pheasant Field Airport

MA70 Sudbury Airport

MassGIS Bureau of Geographic Information for the state of Massachusetts

Massport Massachusetts Port Authority

MBTA Massachusetts Bay Transportation Authority

MBTA Migratory Bird Treaty Act

MCAC Massachusetts Community Advisory Community

MDA Minimum Descent Altitude

MESA Massachusetts Endangered Species Act
MHC Massachusetts Historical Commission
MIT Massachusetts Institute of Technology
MOU Memorandum of Understanding

MSL Mean Sea Level

MVY Martha's Vineyard Airport
NAA Nonattainment Areas

NAAQS National Ambient Air Quality Standards

NAS National Airspace System

NEPA National Environmental Policy Act
NHPA National Historic Preservation Act

NM Nautical Mile

NRHP National Register of Historic Places

NO_x Oxides of Nitrogen N₂O Nitrous Oxide

OpsNet Operations and Performance Data

OTR Ozone Transport Region
OWD Norwood Memorial Airport

O₃ Ozone

PBN Performance Based Navigation

Pb Lead

PFC Perfluorocarbons

PM_{2.5} Particulate Matter Less Than or Equal to 2.5 Microns in Diameter **PM**₁₀ Particulate Matter Less Than or Equal to 10 Microns in Diameter

RNAV Area Navigation

RNP Required Navigation Performance

RWY Runway

SIP State Implementation Plan

SF₆ Sulfur Hexafluoride
 SO_x Oxides of Sulfur
 SO₂ Sulfur Dioxide

SOIA Simultaneous Offset Instrument Approach

TARGETS Terminal Area Route Generation Evaluation and Traffic Simulator

TRACON Terminal Radar Approach Control Facility
USFWS United States Fish and Wildlife Service

VA Veterans Administration

VMC Visual Meteorological Conditions

VNAV Vertical Navigation

VOCs Volatile Organic Compounds
WAAS Wide Area Augmentation System