

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION CATEGORICAL EXCLUSION
DECLARATION**

Description of Federal Action: The Federal Aviation Administration will implement the following changes: Implement Boston Logan International Airport (BOS) Area Navigation (RNAV) Required Navigation Performance (RNP) X Runway 33 Left (33L) arrival procedure. The procedure will be available 7 days a week during both daytime and nighttime hours.

The FAA and the Massachusetts Port Authority (Massport) signed a Memorandum of Understanding (MOU) in September of 2016. The MOU describes how Massport and the FAA will work together to seek possible reductions to overflight noise impacts of aircraft operations at BOS that result from the FAA's implementation of NextGen precision-based navigation (PBN) procedures including RNAV.

As a result of the MOU, on November 12, 2020, Massport submitted a request to the FAA to implement procedures at BOS related to the MOU. The implementation of the "RNAV RWY 33L" is part of Massport's initial set of Block 1 recommendations submitted on December 20, 2017, for arrival tracks moved over water instead of over the Hull peninsula and points further south. Also, these changes enhance safety and efficiency at BOS and within the entire National Airspace System. The FAA will continue to conduct public outreach in collaboration with Massport.

Basis for this Determination: A Noise Screening Analysis (see Attachment) was conducted to ensure compliance with the National Environmental Policy Act (NEPA) and its implementing regulations. This review was conducted in accordance with policies and procedures in Department of Transportation Order 5610.1C, "Procedures for Considering Environmental Impacts" and FAA Order 1050.1F.

Declaration of Exclusion: The FAA has reviewed the above referenced Federal action and it has been determined, by the undersigned, to be categorically excluded from further environmental documentation according to FAA Order 1050.1F, "Environmental Impacts: Policies and

Procedures” dated July 16, 2015. The implementation of this action will not result in any extraordinary circumstances in accordance with FAA Order 1050.1F, Paragraph 5-2.

The applicable categorical exclusion is: FAA Order 1050.1F, Paragraph 5-6.5 g.: “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. For these types of actions, the Noise Integrated Routing System (NIRS) Noise Screening Tool (NST) or other FAA-approved environmental screening methodology should be applied.”

Concurrence by:

Veronda Johnson

Date: 08/10/2021

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Eastern Service Center (ESC)

Approved by:

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Federal Aviation Administration

ATTACHMENTS

Noise Screening Analysis Report

For

Boston Logan International

KBOS

Boston, Massachusetts

Prepared by:

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Environmental, Community Involvement, & NAS Analytics

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KBOS Noise Screening Analysis Report

This Noise Screening Report was prepared by the FAA to assess noise exposure from the proposed project under consideration. Even though the data and results contained in the report are accurate, the report is a preliminary document, potentially subject to revision, until the FAA makes a final environmental decision related to the proposed project.

Summary

Noise analysis was completed to assess potential impacts resulting from proposed air traffic actions at Boston Logan International (KBOS) in Boston, MA, using the Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) Environmental Plug-in tool and the Aviation Environmental Design Tool (AEDT).

Historical radar track data was used to create a baseline scenario. After the baseline scenario was built, aircraft operations were reassigned to the proposed procedures, which provides the alternative scenario. Once the baseline and alternative scenarios were built, the TARGETS Environmental Plug-in Tool was used to generate noise outputs for both scenarios using AEDT. The scenarios were then compared to determine the potential for significant noise impacts. In the case of KBOS, some noise decreases were noted but there were no reportable or significant impacts resulting from the proposed action.

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Boston Logan International Noise Screening Analysis Report

1. Purpose

The purpose of this report is to document the analysis of potential noise impacts resulting from proposed airspace actions at Boston Logan International (KBOS) in Boston, MA and to present the results of that analysis. Table 1 shows the proposed procedure, Figure 1-1 shows the procedure as modeled and Figure 1-2 shows the airport diagram for KBOS, which provides the runway layout and the airport's field elevation.

Noise Screening uses FAA-Approved tools to determine the potential for extraordinary circumstances and may be used to rule out the need for more detailed noise analysis where a Categorical Exclusion (CATEX) may apply. The results presented in this document do not provide an environmental decision, but are intended to inform the responsible FAA Service Center Environmental Specialist in determining the appropriate level of environmental review.

Table 1: Proposed Procedures Modeled for KBOS

| Procedure Name | Procedure Type |
|---------------------------|----------------|
| KBOS RNAV (GPS) X RWY 33L | RNAV |

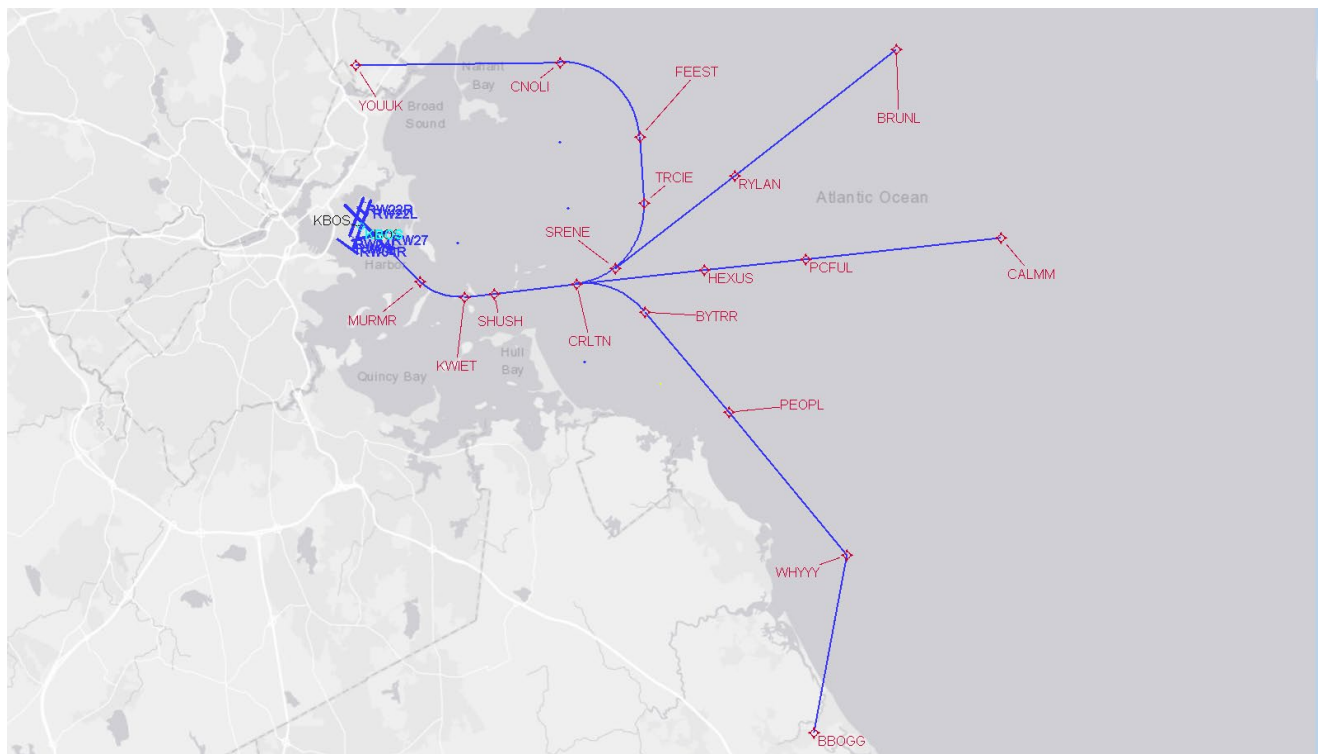


Figure 1-1

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2. Methods

Historical radar track data for KBOS was obtained from the Performance Data Analysis and Reporting System (PDARS). Dates where runways were closed for construction projects were removed from consideration and dates were randomly selected from the remaining available dates within a recent 12-month period. The random dates are assumed to represent average typical runway usage, flight paths, and day/night traffic ratios by capturing a range of temperature and wind conditions. A list of dates selected for the analysis is provided in Appendix A

After the removal of overflights and incomplete track segments, 4,918 total tracks were used for the analysis. The altitude of the historical tracks was considered and a range ring was set to contain the area where most of the tracks reached above 10,000 feet above ground level (AGL). This established the study area for the analysis. In the case of KBOS, the study area is a circle with a radius of 27 nautical miles centered over the airport.

Annual operation counts and runway usage were obtained through a runway usage report from the FAA's IFP, Operations, and Airspace Analytics (IOAA) Tool and were used to calculate the Average Annual Day (AAD) impacts. The analysis does not take into account terrain. All calculations were made in reference to the airport's field elevation.

Once the baseline and alternative scenarios were built, the TARGETS Environmental Plug-in Tool was used to generate noise outputs for both scenarios. The Environmental Plug-in Tool uses the Aviation Environmental Design Tool version 3c (AEDT 3c) to calculate noise. The noise output files from AEDT 3c for both the baseline and alternative noise exposures consist of a series of equally spaced grid points, each showing a DNL value. The noise grid (receptor set) consists of grid points (receptors) spaced 0.25 nm apart. The noise impact is a comparison between the baseline and the alternative noise exposure that depicts reportable and significant noise changes at all affected receptors per the criteria indicated in FAA Order 1050.1F and Chapter 32 of FAA Order 7400.2K.

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3. Baseline Noise Exposure

The baseline noise exposure is shown in Figure 3-1, which depicts the levels and locations of the noise produced by the historical radar track data for arrivals and departures with the legend below.

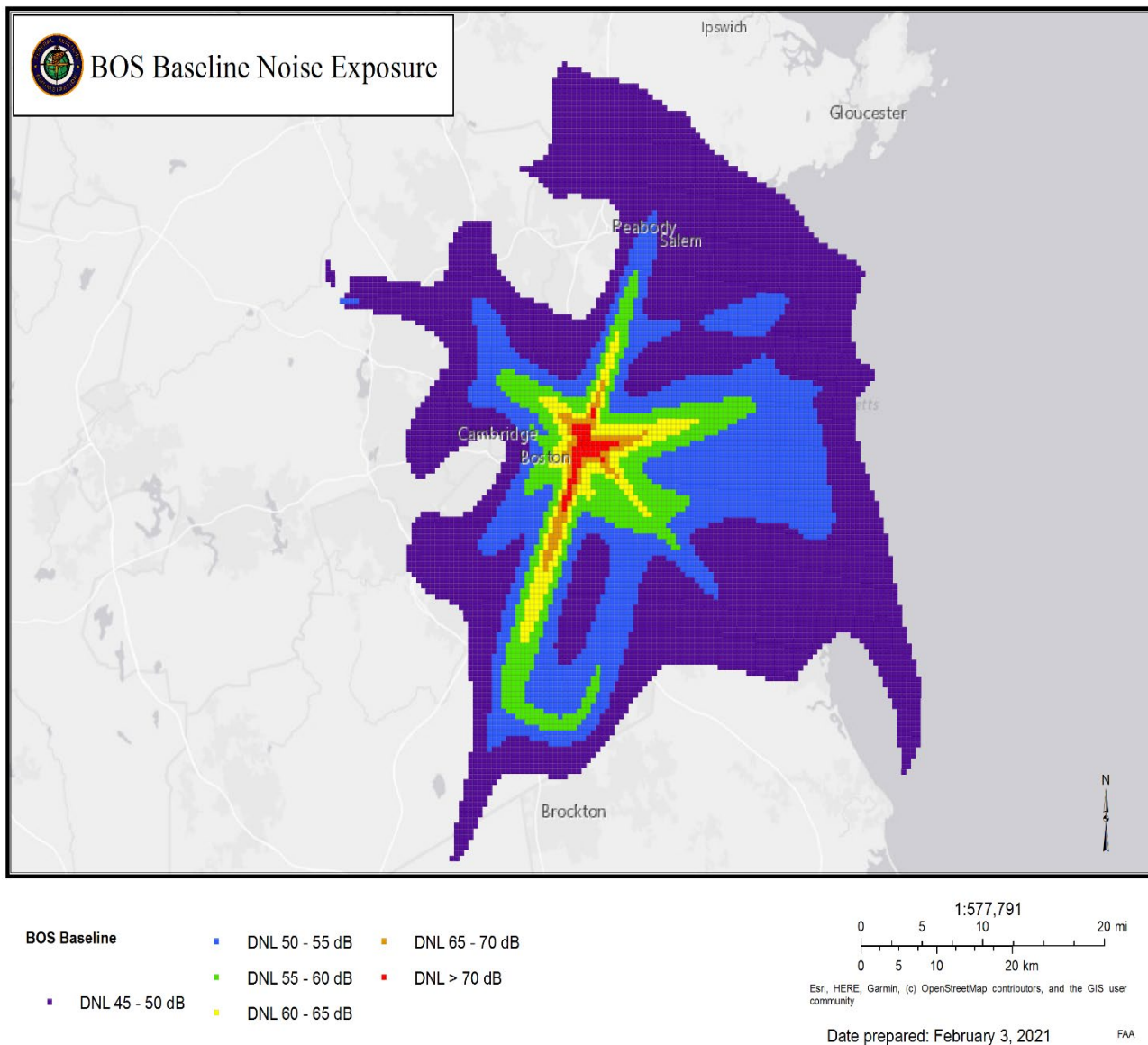


Figure 3-1: Baseline Noise Exposure in TARGETS

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4. Alternative Noise Exposure

The alternative noise exposure is shown in Figure 4-1, which depicts the levels and locations of the noise exposure output from the model of the proposed action with the legend below.

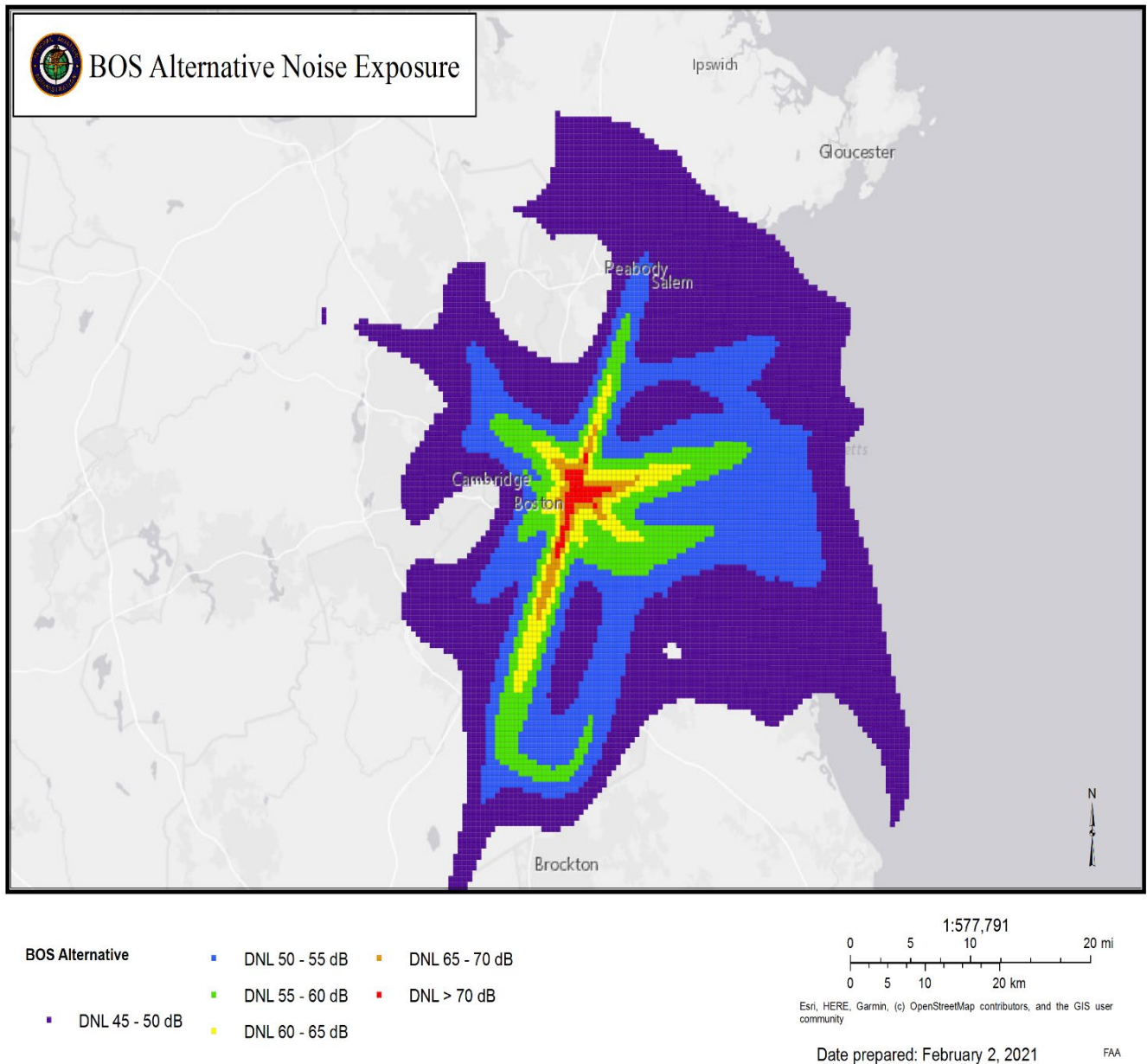


Figure 4-1: Alternative Noise Exposure for the Proposed Procedures in TARGETS

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5. Noise Impacts

A comparison of the baseline and alternative scenarios by the TARGETS Environmental plug-in determines the noise impacts of the proposed action. Significance of noise impacts is defined by FAA Order 1050.1F¹ which establishes the threshold for significant increases in noise exposure. Where the proposed action results in a noise impact, TARGETS graphically displays a noise impact layer that indicates the relative locations of reportable and significant changes.

The noise impacts resulting from the analysis are shown in the map on page 9, Figure 5-1. The baseline and alternative noise exposure results are shown again below for reference and to provide a side-by-side comparison on page 10, Figure 5-1 and Figure 5-2. In the case of KBOS, some noise decreases were noted but there were no reportable or significant impacts resulting from the proposed action.

¹ According to Exhibit 4-1 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, a noise impact is significant if “The action would increase noise by DNL 1.5 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 due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.”

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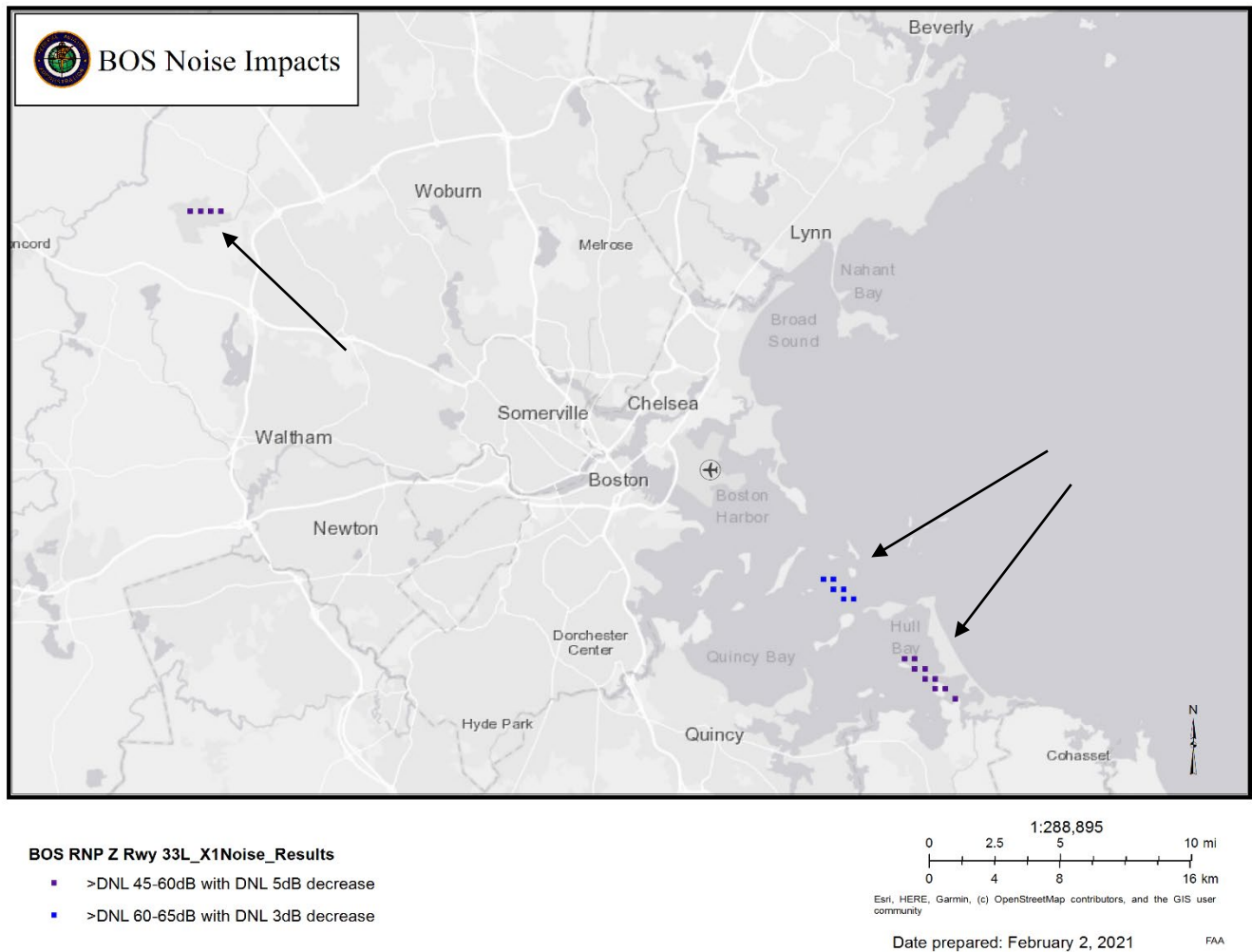


Figure 5-1: Noise impacts from the KBOS analysis

¹ According to Exhibit 4-1 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, a noise impact is significant if “The action would increase noise by DNL 1.5 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 due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.”

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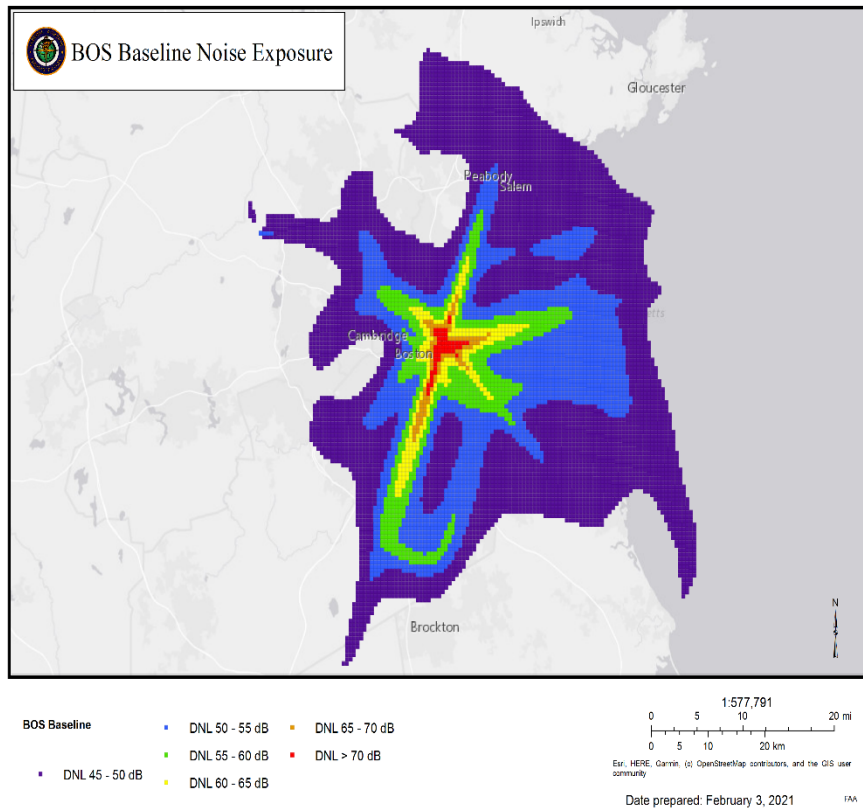


Figure 5-2: Baseline Noise Exposure in TARGETS

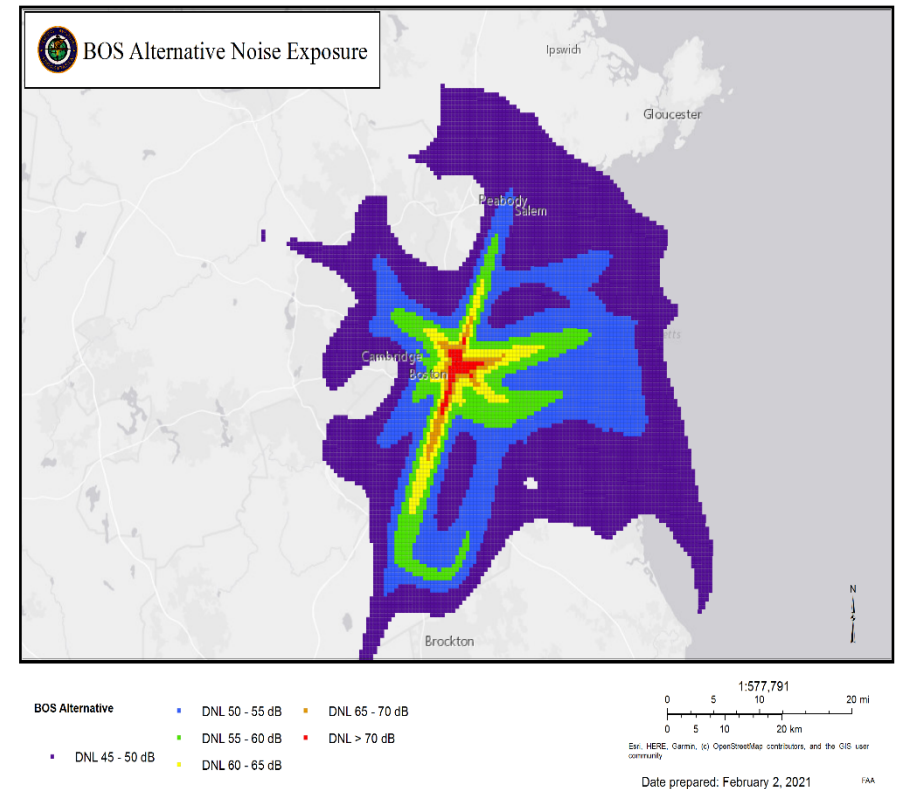


Figure 5-3: Alternative Noise Exposure in TARGETS

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Appendix A

BOS Selected Dates

| | |
|-----------|------------|
| 1/1/2019 | 7/15/2019 |
| 1/5/2019 | 7/21/2019 |
| 1/13/2019 | 7/25/2019 |
| 1/18/2019 | 8/10/2019 |
| 1/23/2019 | 8/31/2019 |
| 1/27/2019 | 9/2/2019 |
| 2/22/2019 | 9/8/2019 |
| 2/26/2019 | 9/9/2019 |
| 2/28/2019 | 9/10/2019 |
| 3/1/2019 | 9/13/2019 |
| 3/16/2019 | 9/23/2019 |
| 3/23/2019 | 9/29/2019 |
| 3/28/2019 | 10/1/2019 |
| 4/9/2019 | 10/5/2019 |
| 4/12/2019 | 10/21/2019 |
| 4/13/2019 | 10/25/2019 |
| 4/14/2019 | 11/1/2019 |
| 5/1/2019 | 11/4/2019 |
| 5/7/2019 | 11/13/2019 |
| 5/9/2019 | 11/21/2019 |
| 5/10/2019 | 11/29/2019 |
| 5/25/2019 | 11/30/2019 |
| 5/27/2019 | 12/4/2019 |
| 5/28/2019 | 12/6/2019 |
| 6/3/2019 | 12/8/2019 |
| 6/21/2019 | 12/10/2019 |
| 7/1/2019 | 12/13/2019 |
| 7/2/2019 | 12/14/2019 |
| 7/12/2019 | 12/22/2019 |
| 7/14/2019 | 12/31/2019 |

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