

# **AIR TRAFFIC INITIAL ENVIRONMENTAL REVIEW (IER)**

## **Boston Consolidated TRACON (A90) / Boston Logan Airport (BOS) RNAV (GPS) RWY 4L Procedure and BOS RNAV (GPS) RWY 4R Amendment**

FAA Order 7400.2 Appendix 5 (Modified)

Facility/Office: Boston Consolidated TRACON A90

Date: March 20, 2017

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(Also see Section X for the complete listing of preparers.)

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Massachusetts Port Authority (Massport) is proposing to reconstruct Boston Logan International Airport (BOS) Runway 4R-22L (RWY 4R-22L) during the summer of 2017. This Initial Environmental Review (IER) is intended to provide information about the proposed project to better assist in preparing for the environmental analysis phase. Although it identifies information in several categories, not all the data may be available initially; however, it does represent information, in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, which ultimately will be needed for preparation of the environmental document.

The Federal Aviation Administration (FAA) is preparing this Categorical Exclusion (CATEX) for the above referenced temporary procedures to ensure FAA controllers have adequate procedures to safely land arriving aircraft during the reconstruction period for Runway 4R (RWY 4R). The RWY 4R reconstruction closure reduces the availability of instrument approaches to BOS. This can substantially affect the airport's operational safety and efficiency. To address this issue, the FAA proposes to establish two temporary approach procedures: an Area Navigation (RNAV) approach to RWY 4 Left (4L) and a "side-step" maneuver to the RNAV approach for RWY 4R.

These two approaches will be used for approximately 105 days, from May 15, 2017, through September 1, 2017 while improvements occur on RWY 4R. These are temporary approaches and will be terminated when the construction work is complete. The temporary approach procedures are eligible for a CATEX under FAA Order 1050.1F, Environmental Impacts: Policies and Procedures.

The runway project necessitating these two proposed procedures involves pavement resurfacing of the existing runway sections. Such work is part of Massachusetts Port Authority's (Massport) ongoing program to rehabilitate pavement that is reaching the end of its useful life. The reconstruction of Runway 4R-22L (RWY 4R-22L) also provided an opportunity to address another maintenance issue at the Boston Logan International Airport (BOS). The existing wooden piers that support the RWY 4R approach lighting system are deteriorating and require repair or replacement. Given this opportunity, Massport decided to complete CATEXs and conduct both projects simultaneously. While these are independent projects, they are adjacent to each other. Completing them at the same time is cost-effective, operationally efficient and in the best interests of aviation safety.

These actions do not individually or cumulatively have a significant effect on the human environment and do not involve extraordinary circumstances. Therefore, these projects individually or cumulatively are categorically excluded.

The Proposed Action for this CATEX includes:

BOS RNAV (GPS) RWY 4L: The Proposed Action includes the temporary publishing of BOS RNAV (GPS) RWY 4L procedure, not to exceed six months during RWY 4R-22L closure. Construction is anticipated from May 15, 2017, through September 1, 2017.

BOS RNAV (GPS) RWY 4R Amendment: The proposed BOS RNAV (GPS) RWY 4R Amendment will add a side-step maneuver, which will allow aircraft to land on RWY 4L during the runway construction period. This is a typical procedure used at airports throughout the National Airspace System (NAS) that provides both air traffic controllers and pilots an additional option in landing aircraft. RWYs 4R and 4L are separated by a distance of 1,500 feet between centerlines. This maneuver would begin approximately two nautical miles from the approach end of RWY 4R, then follow existing flight tracks for aircraft inbound to RWY 4L.

After the issuance of the CATEX, FAA will begin to evaluate the permanent implementation of the BOS RNAV (GPS) RWY 4L procedure and the Jet Blue Special RNAV Visual Flight Procedure (RVFP) (hereafter referred to as Jet Blue RVFP RWY 4L). FAA will conduct an Environmental Assessment (EA) to evaluate the permanent implementation of the proposed procedures, which FAA will begin developing upon issuance of this CATEX. FAA will provide notification to the public of the EA, and the EA process will provide an additional opportunity for the public to provide comments on the procedures.

## Project Description

A. Attach a copy of the most recent Project Status Report.

Background:

Based on 2016 flight data, RWY 4R operations account for approximately 30% of arrivals (averaging 159 aircraft per day) during the anticipated temporary closure period. Since 2013, the Air Traffic Mandatory Occurrence Reports showed several safety incidences associated with use of Instrument Landing System (ILS) RWY 15R circle to RWY 4L. When the bases of the clouds are below 1,000 feet, safety concerns with this circling approach limits arrival options and causes a potential increase in delays. In order to safely meet current aircraft arrival rates when the weather requires landing on RWY 4L, the proposed approaches are required. Thus, FAA evaluated the two proposed temporary flight procedures mentioned above to ensure the safe and continuous operation of aircraft arriving into BOS as a result of the temporary closure of RWY 4R.

As part of FAA's alternative analysis, the FAA reviewed Air Traffic Mandatory Occurrence Reports, which showed several safety incidences associated with use of Instrument Landing System (ILS) RWY 15R circle to RWY 4L, since 2013. When the bases of the clouds are below 1,000 feet, safety concerns with this circling approach limits arrival options and causes a potential increase in delays. In order to safely meet current aircraft arrival rates when the weather requires landing on RWY 4L, the proposed approaches are required.

FAA New England Regional Administrator's office met with Representative Michael Capuano and Representative Stephen Lynch on March 6, 2017, and provided a project update of the CATEX for both proposed actions. FAA informed the elected officials that an EA would be prepared prior to adopting the permanent procedure for BOS RNAV (GPS) RWY 4L and the Jet Blue Special RVFP RWY 4L. In addition, FAA will coordinate with Massport regarding proposed procedure changes and will work with Massport to communicate proposed procedure changes to community outreach groups. Massport community outreach may include publishing FAA's CATEX on Massport's website.

- B. Has airspace modeling been conducted using SDAT, TAAM, TARGETS, or other airspace/air traffic design tool?  Yes Model: [AEDT](#)  No

FAA's Next generation (NextGen) Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) Aviation Environmental Design Tool (AEDT) 2c was used to model airspace performance in space and time; estimate noise, emissions, emissions dispersion and fuel consumption; to support analysis of interdependence between environmental consequences; and for regulatory compliance, research and development (see Attachment 1 – Prototype Plates, and Attachment 2 – AEDT Noise Modeling Report).

If yes, provide a summary of the output from the modeling.

- See **Attachment 2** – AEDT Noise Modeling Report

- C. Describe the present (no action alternative) procedure in full detail. Provide the necessary chart(s) depicting the current procedure. Describe the typical fleet mix, quantifying (if possible) the number of aircraft on the route and depict their altitude(s) along the route.

**No-Action Alternative** — For the No-Action Alternative, current procedures for the use of RWY 4L would continue, to include a circling approach from RWYs 4R to 4L. RWY 4R would remain unavailable during the construction period from May 15, 2017 through September 1, 2017. RWY 4L would continue to be generally assigned to smaller/lighter aircraft. Arrivals would continue to utilize the visual approach procedure. This would considerably limit approaches from the south-southwest. During marginal weather conditions and Instrument Meteorological Conditions (IMC) only circling approaches to RWY 4L would be available with higher weather requirements thereby decreasing safety and increasing flight delays.

**Fleet Mix** — The mix of aircraft landing on RWY 4L today is similar to that landing on RWY 4R, except that it does not include wide body aircraft. It includes aircraft from single piston-engine propeller aircraft up to and including turbojets weighing approximately 270,000 pounds (e.g., Boeing 757s (B757s)). Approximately 48% of RWY 4L arrivals during 2013 were jet aircraft. The mix of aircraft landing on RWY 4L today is similar to that landing on RWY 4R, with the exception of the Airbus 380 (A380) aircraft. A380 is a wide-body aircraft, and therefore it cannot land on RWY 4L. The A380 aircraft will land on BOS RWY 15L/33L.

**Boston Northeast Flow Configuration** — Because Boston RWY 4L lacks an instrument approach guidance system, when the airport is configured for a northeast flow, which occurs approximately 35% of the time, approaches to RWY 4L from the south are only conducted when the clouds are at least 3,000 feet (and preferably 4,000 feet) and the visibility is at least 5 statute miles; the operationally usable Visual Meteorological Conditions (VMC) for this configuration.

- D. Describe the proposed project, providing the necessary chart(s) depicting changes. Describe changes in the fleet mix, numbers of aircraft on the new route, and their altitude(s), if any.

[BOS RNAV \(GPS\) RWY 4L](#): The Proposed Action includes the temporary publishing of BOS RNAV (GPS) RWY 4L procedure, not to exceed six months during RWY 4R-22L closure. Construction is anticipated from May 15, 2017 through September 1, 2017.

[BOS RNAV \(GPS\) RWY 4R Amendment](#): The proposed BOS RNAV (GPS) RWY 4R Amendment will add a side-step maneuver, which will allow aircraft to land on RWY 4L during the runway construction period. This is a typical procedure used at airports throughout the

National Airspace System (NAS) that provides both air traffic controllers and pilots an additional option in landing aircraft. RWYs 4R and 4L are separated by a distance of 1,500 feet between centerlines. This maneuver would begin approximately two nautical miles from the approach end of RWY 4R, then follow existing flight tracks for aircraft inbound to RWY 4L.

Currently, RWY 4L does not have any approach procedure that authorizes the use of an instrument guidance system during low ceiling/visibility conditions. RNAV (GPS) procedures are the most cost-effective option to address this deficiency. RNAV (GPS) approach procedures are widely used in the US. Over the past decade, the FAA has implemented RNAV (GPS) IAPs for over 6,000 runways at over 2,700 airports. This includes RNAV (GPS) IAPs for six runway ends at BOS, one of which does not have an ILS.

1. Will there be actions affecting changes in aircraft flights between the hours of 10 p.m. – 7 a.m. local?  Yes  No
2. Is a preferential runway use program presently in effect for the affected airport(s), formal or informal?  Yes  No
3. Will airport preferential runway configuration use change as a result of the proposed project?  Yes  No
4. Is the proposed project primarily designed for Visual Flight Rules (VFR), Instrument Flight Rules (IFR) operations, or both?  VFR  IFR  Both **N/A**  
**Proposed Action is an Instrument Approach Procedure (IAP).**

If this specifically involves a charted visual approach (CVA) procedure, provide a detailed local map indicating the route of the CVA, along with a discussion of the rationale for how the route was chosen. **N/A**

5. Will there be a change in takeoff power requirements?  Yes  No  
**Proposed Action is an IAP. Takeoffs are not involved.**

If so, what types of aircraft are involved, i.e., general aviation propeller-driven versus large air carrier jets? **N/A**

6. Will all changes occur above 3,000 feet above ground level (AGL)?  Yes  No  
What is the lowest altitude change on newly proposed routes or on existing routes that will receive an increase in operations?  
**Proposed Action is an IAP to RWY 4L, and will involve route changes for aircraft between 5,000 feet MSL and field level (however, almost all above 1,500 feet). When RWYs 4R and 4L are considered in combination, there will be no increase in the number of arrivals or types of aircraft that fly these approaches. The proposed RWY 4R Amendment will add a side-step maneuver similar to the current circling maneuver which will allow aircraft to land RWY 4L during the runway construction period. RWYs 4R and 4L are separated by a distance of 1,500 feet between centerlines. The threshold of RWY 4L is 1,155 feet beyond the primary RWY 4R. This action would occur two nautical miles from the approach end of RWY 4R, then follow existing flight tracks for aircraft inbound to RWY 4L.**

The proposed arrival procedure to RWY 4L will begin at an altitude of approximately 5,000 feet (at 15 nautical miles (NM) from the RWY 4L threshold) and end at the applicable decision altitude (from where visual guidance is employed). The majority of aircraft utilizing the proposed IAP will be aircraft (estimated to be 4,000 annually) that currently land on RWY 4R under IMC.

7. Will there be actions involving civil jet aircraft (heavier than 75,000 pounds gross weight) arrival procedures between 3,000–7,000 feet AGL or departures between 3,000–10,000 feet AGL? Attach a copy of the results of the noise screening analysis using the AEST, TARGETS Environmental Plug-in, or other FAA-approved noise-screening methodology.  Yes  No

The total count of arrivals to RWYs 4R and 4L combined is not projected to change based on the Proposed Action. A noise analysis was performed using AEDT (see Attachment 2).

8. If noise analysis was already performed using the FAA's AEST, Integrated Noise Model (INM), Noise Integrated Routing System (NIRS), or the TARGETS AEDT provide a summary of the results.

The FAA conducted noise modeling for the Proposed Action using the FAA's Aviation Environmental Design Tool (AEDT). The noise analysis was conducted for an average annual day using flight data from four independent one-week periods. The result of closing RWY 4R shifts flights to RWY 4L. The scenario modeled the equal use of the two proposed procedures and resulted in the following noise increases:

- The reportable noise increase exists approximately 1.5 miles to 4 miles from touchdown on RWY 4L and represents a >5 dB noise increase in the range of 45-60 dB.
- The significant noise increase exists approximately 0.25 miles to 1.5 miles from touchdown on RWY 4L and represents a >1.5 dB noise increase for areas where noise levels exceed 65 dB. Areas impacted are primarily over the water.

When weather dictates the use of RWY 4L during RWY 4R construction, to mitigate noise increases the following procedures will be used in the order listed below to the extent practicable:

- When the ceiling is at least 700 ft. and the visibility is at least 2 ½ miles;
  - RNAV (GPS) RWY 4R side-step to RWY 4L (which more similarly overflies current arrival flight paths), or
  - Alternate periodically between RNAV (GPS) RWY 4L and RNAV (GPS) RWY 4R side-step, but no more than 50% of the time flying RNAV (GPS) RWY 4L;
- However, when the ceiling is less than 700 ft. and/or the visibility is less than 2 ½ miles, the RNAV (GPS) RWY 4L will be used.

## Purpose and Need

- A. Describe the purpose and need for the proposed project. If detailed background information is available, summarize here and provide a copy as an attachment to this review. The purpose of the Proposed Action is to temporarily change air traffic control procedures in order to accommodate air traffic during BOS RWY 4R construction. RNAV (GPS) Instrument Approach Procedures (IAPs) are one of several types of Performance Based Navigation (PBN) procedures, which are a key element of the FAA's Next Generation Air Transportation System (NextGen). The RNAV (GPS) IAP will provide lateral and vertical guidance, enabling continuous descent to the runway. The Proposed Action is needed to ensure safety, improve operational efficiency, and reduce flight delays during construction.

1. What operational/economic/environmental benefits will result if this project is implemented?  
This project will have the following benefits: enhance safety, delay reduction during IMC, and shortened periods of peak traffic under IMC.
2. If a delay reduction is anticipated, can the reduction be quantified?  
 Yes  No  N/A
3. Can reduced fuel costs/natural energy consumption be quantified?  Yes  No  
If not quantifiable, describe the approximate anticipated benefits in lay terms.  
Implementing an RNAV (GPS) RWY 4L should reduce fuel consumption for two reasons by reducing delays during IMC and by providing more efficient continuous descent path approaches, although this is a temporary procedure.

- B. Is the proposed project the result of a user or community request or regulatory mandate?  
 Community Request  Regulatory Mandate  N/A  
If not, what necessitates this action? The proposed project is resulting from the need to resurface RWY 4R and replace the pier that contains the Approach Lighting System (ALS) for RWY 4R.

## Describe the Affected Environment

- A. Provide a description of the existing land use near the proposed project.  
Land use near the proposed project is a mixture of residential, commercial, and open water. It is the same use as exists for arrivals regularly conducted to RWYs 4L and RWY 4R today. Flight tracks for the Proposed Action will not overfly new areas (see Attachment 3).

- B. Will the proposed project introduce air traffic over noise sensitive areas not now affected?  
 Yes  No  
The flight trajectories for the Proposed Action will be similar to those that are currently used on a regular basis. The number and types of aircraft will be similar to the No-Action Alternative. Flight paths for the Proposed Action will not overfly new areas. To the extent there are changes in noise exposure, they will be generally beneficial (see Attachment 3).

Will they be affected to a  greater or  lesser extent?

**Note:** An area is noise sensitive if aircraft noise may interfere with the normal activities associated with the use of the land.

- C. Are wildlife refuge/management areas within the affected area of the proposed project?  
 Yes  No  
Based on Section 4(f) Sites listed in the Boston Logan Airport Noise Study (BLANS), there are no wildlife refuge/management areas in the affected area.

If so, has there been any communication with the appropriate wildlife management regulatory (federal or state) agencies to determine if endangered or protected species inhabit the area?  
 Yes  No  N/A

1. At what altitude would aircraft overfly these habitats?  N/A
2. During what times of the day would operations be more/less frequent?  N/A

- D. Are there cultural or scenic resources, of national, state, or local significance, such as national parks, outdoor amphitheatres, or stadiums in the affected area?  Yes  No  
If so, during what time(s) of the day would operations occur that may impact these areas?

The Proposed Action BOS RNAV (GPS) RWY 4L overflies the Blue Hills Reservation, a 6,000-acre Massachusetts state park. The number of flights will remain the same. Annually, under instrument conditions, the proposed RNAV instrument procedure will shift the paths of approximately 4,000 arrivals to the west by less than a mile.

E. Has there been communication with air quality regulatory agencies to determine if the affected area is a non-attainment area (an area which exceeds the National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, lead, particulate matter, sulfur dioxide, or nitrogen dioxide) or maintenance area (an area which was in non-attainment but subsequently upgraded to an attainment area) concerning air quality?  Yes  No

This project is not expected to affect air quality and is presumed to conform as Category 14 “Air Traffic Activities and Adopting Approach, Departure and En Route Procedures for Air Operations” as identified in 72 Federal Register 41565, July 30, 2007. According to the Environmental Protection Agency (EPA), Suffolk County, MA is in attainment with NAAQS (see <https://www3.epa.gov/airquality/greenbook/ancl.html>).

If yes, please explain:

F. Are there reservoirs or other public water supply systems in the affected area?  Yes  No

There are five “Community Groundwater Sources” within the study area. A study area is the geographic area potentially environmentally impacted by a proposed action. All five groundwater sources have the subcategory “Community Groundwater Well,” and all are in the Town of Stoughton. Aircraft following the BOS RNAV (GPS) RWY 4L will be at altitudes between 3,600 feet and 4,000 feet while overflying these wells. Aircraft regularly overfly this area now, as the Proposed Action does not involve significant changes to flight routes. There will be no impact to reservoirs or other public water supplies.

## Community Involvement

Formal community involvement or public meetings/hearings may be required for the proposed project. Make a determination if the proposed project has the potential to become highly controversial. The effects of an action are considered highly controversial when reasonable disagreement exists over the project’s risks of causing environmental harm. Opposition on environmental grounds by a Federal, State, or local government agency or by a Tribe, or by a substantial number of the person affected by the action should be considered in determining whether reasonable disagreement regarding the effects of a proposed action exists (see FAA Order 1050.1, paragraph 5-2b (10)).

A. Have persons/officials who might have some need to know about the proposed project due to their location or by their function in the community been notified, consulted, or otherwise informed of this project?  Yes  No

1. Are local citizens and community leaders aware of the proposed project?  Yes  No  
FAA New England Regional Administrator’s office met with Representative Michael Capuano and Representative Stephen Lynch on March 6, 2017, and provided a project update of the CATEX for both proposed actions. FAA informed the elected officials that an EA would be prepared prior to adopting the permanent procedure for BOS RNAV (GPS) RWY 4L and the Jet Blue Special RNAV Visual Flight Procedures (RVFP) RWY 4L (hereafter referred to as Jet Blue RVFP RWY 4L). In addition, FAA will coordinate with Massport regarding proposed procedure

changes and will work with Massport to communicate proposed procedure changes to community outreach groups. Massport community outreach may include publishing FAA's CATEX on Massport's website.

2. Are any opposed to or supporting it? If so, identify the parties and indicate the level of opposition and/or support. It is anticipated there will be minor opposition to the temporary procedure changes, since an EA will be conducted for the permanent implementation of proposed flight procedure changes. As part of the meeting with the Representatives and Massport, FAA committed to conducting an EA for any proposed permanent changes.

- a) If they are opposed, what is the basis of their opposition?
- b) Has the FAA received one or more comments objecting to the proposed project on environmental grounds from local citizens or elected officials?  Yes  No  
If so, state the nature of the comment and how the FAA was notified (e.g. resolution, Congressional, Public meeting/workshop, etc.).

B. Are the airport proprietor and users providing general support for the proposed project?  
 Yes  No

1. Is the proposed project consistent with local plans and development efforts?  
 Yes  No

The FAA's Proposed Action does not impact local plans and development efforts. The proposed project would provide GPS guidance to aircraft that already land on RWY 4L. The Proposed Action flight paths involves: (a) during IMC, shifting approximately 4,000 annual arrivals from RWY 4R to nearby parallel RWY 4L at the same airport and forming part of the same traffic flow; and (b) during VMC, shifting approximately 435 annual arrivals to RWY 4L from use of the RWY 4R ILS to a direct route to RWY 4L.

2. Has there been any previous aircraft-related environmental or noise analysis, including

- a) FAR Part 150 Studies, conducted at this location?  Yes  No

If so, was the study reviewed as a part of this initial review?  Yes  No  N/A

FAA reviewed the ongoing 2003-2016 BLANS report.

## Extraordinary Circumstances

The determination of whether a proposed action may have a significant environmental effect is made by considering any requirements applicable to the specific resource (see FAA Order 1050.1, Appendix B).

A. Will implementation of the proposed project result in any of the following? As stated in FAA Order 1050.1, paragraph 5-2, extraordinary circumstances exist when a proposed action involves any of the following circumstances AND may have a significant effect (40 CFR 1508.4).

1. An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended (see FAA Order 1050.1, paragraph 5-2b (1)).

Yes  No  Possibly

Comment: The proposed temporary approach procedures will not have an adverse effect on cultural resources.

2. An impact on properties protected under section 4(f) of the Department of Transportation Act.  Yes  No  Possibly

Comment: Since the proposed action is affecting very similar airspace, there would be no additional impact to any possible 4(f) properties.

3. An impact on natural, ecological (e.g. invasive species) or scenic resources of Federal, Tribal, State, or local significance (for example, Federally listed or proposed endangered, threatened, or candidate species or proposed or designated critical habitat under the Endangered Species Act); resources protected by the Fish and Wildlife Coordination Act; wetlands; floodplains; prime, unique, State, or locally important farmlands; energy supply and natural resources; wild and scenic rivers, including study or eligible river segments; and solid waste management.  Yes  No

Comment: No impacts are expected as a result of the proposed action.

4. A division or disruption of an established community; a disruption of orderly, planned development; or inconsistency with plans or goals that have been adopted by the community in which the project is located.  Yes  No  Possibly

5. An increase in congestion from surface transportation, by causing a decrease in the Level of Service below the acceptable level determined by the appropriate transportation agency (i.e., a highway agency).  Yes  No  Possibly

Comment: The proposed action is an air traffic navigation procedure; therefore, surface transportation will not be impacted.

6. An impact on noise levels of noise-sensitive areas.  Yes  No  Possibly

A detailed noise analysis using the TARGETS AEDT was conducted for the proposed temporary approach procedures (see Attachment 2).

7. An impact on air quality or a violation of local, State, Tribal, or Federal air quality standards under the Clean Air Act amendments of 1990.  Yes  No

Comment: This project is not expected to affect air quality and is presumed to conform as Category 14 “Air Traffic Activities and Adopting Approach, Departure and En Route Procedures for Air Operations” as identified in 72 Federal Register 41565, July 30, 2007.

8. An impact on water quality, sole source aquifers, a public water supply system, or State or Tribal water quality standards established under the Clean Water Act and the Safe Drinking Water Act.  Yes  No  Possibly

Comment: The proposed action is an air traffic action with no adverse impacts expected on water quality or water supplies.

9. Effects on the quality of the human environment that are likely to be highly controversial on environmental grounds.  Yes  No  Possibly

Comment: The proposed temporary action is similar to existing flight operations that currently exist. These are temporary approach procedures, and the analysis was based on the conservative scenario.

10. Likelihood of inconsistency with any Federal, State, Tribal, or local law relating to the environmental aspects of the proposed action.  Yes  No

11. Likelihood of directly, indirectly, or cumulatively, creating a significant impact on the human environment.  Yes  No  Possibly

Comment: These are temporary approach procedures, and the analysis was based on the conservative scenario.

## Alternatives

- A. Are there alternatives to the proposed project?  Yes  No If yes, describe any alternatives to the proposed action. The No-Action Alternative was analyzed. Currently, RWY 4L has no published/unpublished approach procedure for any instrument. During RWY 4R's construction, all flights that landed on RWY 4R would have to use RWY 4L, and without the implementation of the Proposed Action, there are safety concerns with the current circling approach, which limits arrival options and causes a potential increase in delay during IMC.
- B. Please provide a summary description of alternatives eliminated and why. N/A

## Mitigation

Are there measures, which can be implemented that might mitigate any of the potential impacts, i.e., GPS/FMS plans, NAVAIDS, etc.?  Yes  No  N/A

The FAA conducted noise modeling for the Proposed Action using the FAA's Aviation Environmental Design Tool (AEDT). The noise analysis was conducted for an average annual day using flight data from four independent one-week periods. The result of closing RWY 4R shifts flights to RWY 4L. The scenario modeled the equal use of the two proposed procedures and resulted in the following noise increases:

- The reportable noise increase exists approximately 1.5 miles to 4 miles from touchdown on RWY 4L and represents a >5 dB noise increase in the range of 45-60 dB.
- The significant noise increase exists approximately 0.25 miles to 1.5 miles from touchdown on RWY 4L and represents a >1.5 dB noise increase for areas where noise levels exceed 65 dB. Areas impacted are primarily over the water.

When weather dictates the use of RWY 4L during RWY 4R construction, to mitigate noise increases the following procedures will be used in the order listed below to the extent practicable:

- When the ceiling is at least 700 ft. and the visibility is at least 2 ½ miles;
  - RNAV (GPS) RWY 4R side-step to RWY 4L (which more similarly overflies current arrival flight paths), or
  - Alternate periodically between RNAV (GPS) RWY 4L and RNAV (GPS) RWY 4R side-step, but no more than 50% of the time flying RNAV (GPS) RWY 4L;
- However, when the ceiling is less than 700 ft. and/or the visibility is less than 2 ½ miles, the RNAV (GPS) RWY 4L will be used.

## Cumulative Impacts

What other projects (FAA, non-FAA, or non-aviation) are known to be planned, have been previously implemented, or are ongoing in the affected area that would contribute to the proposed project's environmental impact? The baseline includes all currently implemented procedures.

## References/Correspondence

Attach written correspondence, summarized phone contacts using Memorandums for the File, etc.

**Attachment 1:** FAA, Flight Standards Service (AFS), *RNAV (GPS) RWY 4L and RNAV (GPS) RWY 4R Prototype Approach Plates*, February 2017.

**Attachment 2:** Proposed Action TARGETS AEDT Noise Modeling Report

**Attachment 3:** RNAV (GPS) RWY 4L and RNAV (GPS) RWY 4R Flight Tracks

**Attachment 4:** Proposed Action Environmental Justice

## Additional Preparers

The person(s) listed below, in addition to the preparer indicated on page 1, are responsible for all or part of the information and representations contained herein:

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## Facility/Service Center Conclusions

**Compliance with FAA Order 1050.1F paragraph 5-6.5.m** — Based upon FAA Order 1050.1F paragraph 5-6.5.m, the Proposed RNAV (GPS) RWY 4L procedure and the RWY 4R Amendment is qualified for the categorical exclusion of paragraph 5-6.5.m, “Short-term changes in air traffic control procedures, not to exceed six months, conducted under 3,000 feet above ground level (AGL) to accommodate airport construction.” **Attachment 3** depicts representative current arrivals to RWY 4L and for FAA’s proposed BOS RNAV (GPS) RWY 4L.

This IER, including its attachments, documents the above statements.

**Facility Manager Review/Concurrence**

Signature:  (Coleman Hartigan) Date: March 24, 2017

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