

**Environmental Review
Proposed Categorical Exclusion**

For

**The Proposed West Flow Area Navigation Standard Instrument Departure Procedures
at Phoenix Sky Harbor International Airport as described in the Memorandum Regarding
Implementation of Court Order per *City of Phoenix, Arizona v. Huerta*, 869 F.3d 963
(D.C. Circuit 2017)**

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1.0 INTRODUCTION

The Federal Aviation Administration (FAA) is proposing to amend the west flow Area Navigation (RNAV) Standard Instrument Departure (SID) procedures from runways 25 Left, 25 Right and 26 at Phoenix Sky Harbor International Airport (“Phoenix Sky Harbor”), Phoenix, Arizona. The proposed amendments are consistent with the resolution of the parties as stipulated in the Memorandum Regarding Implementation of the Court Order (“Memorandum”), jointly negotiated following the court’s August 29, 2017, Order in *City of Phoenix, Arizona v. Huerta*, 869 F.3d 963 (D.C. Circuit 2017)¹.

This final Environmental Review serves to document the FAA’s compliance with Section 5.b and Section 7 of the Memorandum, and inform the FAA’s compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 et seq.); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* (FAA Order 1050.1F), and FAA Order 7400.2L, *Procedures for Handling Airspace Matters*. FAA Order 7400.2L provides guidance and establishes policy and procedures to assist air traffic personnel in applying the requirements of FAA Order 1050.1F. In addition, this Environmental Review and the associated public involvement has been guided by the principles in the FAA’s February 2016 Community Involvement Manual.

Once the FAA determines that NEPA applies to a proposed action, it needs to decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). A CATEX refers to a category of actions that the FAA has determined, based on previous experience, do not individually or cumulatively have a significant effect on the human environment except in extraordinary circumstances. The presence of extraordinary circumstances would preclude the use of a CATEX and would merit additional review in an EA or EIS. A CATEX is not an exemption or a waiver from NEPA review; it is a level of NEPA review and compliance. FAA Order 1050.1F, Section 5-6.5, *Categorical Exclusions for Procedural Actions* includes the list of CATEXs involving establishment, modification, or application of airspace and air traffic procedures.

The FAA has determined that the Proposed Action would fall under one of the listed categorically excluded actions in FAA Order 1050.1F, Section 5-6.5.i: “*Establishment of new or revised air traffic control procedures conducted at 3,000 feet or more above ground level (AGL); procedures conducted below 3,000 feet AGL that do not cause traffic to be routinely routed over noise sensitive area; modifications to currently approved procedures conducted below 3,000 feet above ground level (AGL) that do not significantly increase noise over noise sensitive areas. . .*”

¹ On February 7, 2018, the Court issued an order amending its opinion. The amendment did not affect the parties’ Memorandum.

Specifically, the proposed action would only alter the beginning of the departure procedures, requiring planes to return to the existing RNAV procedures after the first legs of their departure. Based on the noise screening analysis (described in more detail below), the FAA has determined that the proposed action amending currently approved procedures conducted below 3,000 feet AGL would not significantly increase noise over noise sensitive areas, and thus would be covered by this CATEX. However, before finalizing a decision to categorically exclude the proposed action, the FAA must consider the potential for extraordinary circumstances, pursuant to FAA Order 1050.1F, Paragraph 5-2.

Extraordinary circumstances are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS. For FAA proposed actions, extraordinary circumstances exist when the proposed action involves any of the circumstances described in Order 1050.1F, Paragraph 5-2(b) and has the potential for a significant impact. For the Proposed Action, the FAA is considering the following factors, which, if they result in a significant impact, would preclude use of a CATEX to satisfy NEPA requirements:

- An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended, 54 U.S.C. §300101 et seq.
- An impact on properties protected under Section 4(f) of the Department of Transportation Act.
- An impact on natural, ecological, or scenic resources of Federal, state, tribal, or local significance.
- An impact on noise levels of noise sensitive areas.²
- An impact on air quality.
- Impacts on the quality of the human environment that are likely to be highly controversial on environmental grounds.³
- Likelihood to directly, indirectly, or cumulatively create a significant impact on the human environment.

This document describes how the CATEX applies to the Proposed Action, and presents analysis of extraordinary circumstances that, if present, could require more detailed NEPA review.⁴

² An area is noise sensitive if aircraft noise may interfere with the normal activities associated with the use of the land. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites.

³ The term “highly controversial on environmental grounds” means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action’s environmental impacts or over the action’s risks of causing environmental harm. FAA Order 1050.1F. Section 5-2.b.(10).

⁴ There is not a prescribed format for an environmental review of a CATEX. However, the documentation should “cite the CATEX(s) used, describe how the proposed action fits within the category of actions described in the CATEX, and explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded.” FAA Order 1050.1F. Section 5-3.d.

2.0 BACKGROUND

On September 18, 2014, the FAA published a number of Area Navigation (RNAV) procedures for use at Phoenix Sky Harbor. These procedures took advantage of modern technology to improve the safety and efficiency of aircraft operations in the airspace around Phoenix Sky Harbor. On June 1, 2015, the City of Phoenix and a number of neighborhood groups (together, the “Petitioners”) challenged the FAA’s approval of certain RNAV departure procedures in the U.S. Court of Appeals for the D.C. Circuit (“Court”). On August 29, 2017, the Court ruled in favor of the Petitioners. The proposed amended procedures would replace the current west flow departure procedures the court ordered vacated as of June 15, 2018.

3.0 PURPOSE AND NEED

In response to the Court’s decision, the FAA and the Petitioners worked together on the best way to implement the Court’s order and agreed on an approach to address the Petitioners’ concerns while ensuring that aircraft operations remain safe and efficient. (See Appendix A: *Memorandum*). The FAA, in consultation with the City of Phoenix, developed the Proposed Action to comply with the Court’s Order and to meet the requirements set forth in the Memorandum. The parties agreed to a two-step process for departures for the western RNAV routes. The first step (Step One) of the process would provide interim noise relief to the Petitioners by approximating the western departure routes that were in place before the September 2014 RNAV procedures.⁵ Step Two of the Memorandum, which is not part of the current proposal, would involve the development of long-term replacement procedures for western departures at Phoenix Sky Harbor and would consider other proposed changes to the Phoenix airspace.

Step One was further broken down into Step 1A and Step 1B. The FAA implemented Step 1A on March 29, 2018, to provide more immediate noise relief to the Petitioners. Step 1B is the subject of the current action and would involve replacing the departure routes in Step 1A and implementing nine new RNAV SID procedures. Step 1B is an independent proposed action consistent with Section 5 of the Memorandum and would complete Step One.

4.0 ALTERNATIVES

The FAA considered two alternatives: the Proposed Action and the No Action alternative. The alternatives analysis was conducted to comply with Section 5 of the Memorandum and is consistent with CEQ regulations and FAA guidance provided in FAA Order 1050.1F. This section discussed the following topics:

- The Proposed Action Development Process
- The Alternatives Analysis
 - The No Action Alternative
 - The Proposed Action

4.1 Proposed Action Development Process

The main objective of Step One is to provide Petitioners relief from aircraft noise in a safe manner as expeditiously as possible. To do so, FAA agreed to develop a Letter of Agreement between the Phoenix Terminal Radar Approach Control and the Phoenix Airport Traffic Control Tower that replaces the initial departure instructions for the Western RNAV Routes with alternate departure instructions for turbojet aircraft that approximate to the extent practicable, actual departure paths flown prior to September 18, 2014, while maintaining safe and efficient aircraft operations.

FAA used this framework and objective in the procedure development process. Because the Proposed Action is a package of nine individual, interrelated procedures combined into one alternative, the FAA considered and evaluated variations of these procedures in combination with one another to determine whether the alternative would fulfill the obligations under the Memorandum. For example, FAA originally considered manual radar vectors⁶ for the western departures, where each departing aircraft would be assigned an initial directional heading and altitude, then subsequent course corrections en route to the aircraft's destination.

The FAA instead developed two separate and independent proposals to implement RNAV SID procedures in lieu of manual radar vectors in order to ensure aircraft operations remain safe and efficient in the Phoenix airspace without increasing pilot and controller workload. The set of changes implemented under Step 1A were the first step in order to return the west flow procedures to the pre-September 2014 flight paths. The second set of changes, the Step 1B RNAV SID procedures, would not require radar vectoring and are intended to further address workload concerns. The Step 1B RNAV SID procedures are the Proposed Action for this environmental review, and the details of the Proposed Action are discussed below.

The Proposed Action procedure designs address the Petitioners' concerns by approximating the western departure routes that were in place before the September 2014 RNAV procedures. In developing the Proposed Action, the FAA was responsible for following regulatory and technical guidance as well as meeting criteria and standards in three general categories:

1. RNAV Design Criteria and Air Traffic Control Regulatory Requirements - Flight procedure design is subject to requirements found in several FAA Orders and guidance documents, including FAA Order 8260.3C⁷, *United States Standard for Terminal Instrument Procedures*, FAA Order 8260.58B, *United States Standard for Performance Based Navigation Instrument Procedure Design*, FAA Order 8260.43B, *Flight Procedures Management Program*, FAA Order JO 7110.65X, *Air Traffic Control*, FAA Order JO 7100.41A, *Performance Based*

Step Two of the Memorandum, which is not part of the current proposal, would involve the development of long-term replacement procedures for western d

epartures at Phoenix Sky Harbor and would consider other proposed changes to the Phoenix airspace

Navigation Implementation Process and The Guidelines and Updates for Implementing Terminal RNAV Procedures. In addition, FAA Order JO 7110.65X *Air Traffic Control* includes requirements governing air traffic control procedures, air traffic management, and appropriate technical terminology.

2. Operational Criteria – To the maximum extent possible, Performance Based Navigation (PBN), procedures are developed operationally to ensure aircraft departure and arrival lateral and vertical paths are procedurally separated. Air traffic controllers are responsible for aircraft separation; however, they use PBN procedures to assist with their operational responsibilities at Phoenix Sky Harbor and surrounding airports. Operational criteria were consistent with the Purpose and Need for the project. FAA believes that vacating the challenged departure procedures without a valid replacement procedure may substantially delay operations at Phoenix Sky Harbor and could increase safety risks by complicating airport operations.

3. Safety Risk Management Criteria - FAA evaluated air traffic procedures using the Air Traffic Organization's (ATO) Safety Management System (SMS). The SMS is the system for assessing and managing the safety of air traffic control and navigation services in the National Airspace System. If a procedure introduced a new hazard or increased the severity and/or likelihood of an existing hazard, the design was adjusted or mitigated to reduce the hazard to acceptable levels. In compliance with SMS requirements, the procedures were evaluated by a Safety Risk Management Panel⁸ following a five step process: 1) describe the system; 2) identify the hazards in the system; 3) analyze the risks; 4) assess the risk; and, 5) treat the risk (if any).

Finally, FAA undertook validation exercises that further refined the procedures to ensure they were viable. Specifically, FAA took into account the limitations imposed by mountainous terrain, Class B⁹ Controlled Airspace, and Special Use Airspace¹⁰. Controlled Airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control service is provided to flights in accordance with the airspace classification. Class B Airspace is airspace generally from the surface to 10,000 feet mean sea level (MSL) surrounding the nation's busiest airports in terms of instrument flight rules operations or passenger enplanements. An air traffic control clearance is required for all aircraft to operate in Class B Airspace, and all aircraft so cleared receive separation services within the airspace.

These three factors resulted in restrictions to the design options for the Proposed Action, and the alternative considered.

Safety Risk Management Panel Members or subject matter experts are selected based on their technical expertise or operational responsibilities for the facility or system under consideration and their authority to make decisions for their respective organizations. (FAA Air Traffic Organization Safety Management System Manual, July 2017.)

⁹ Classes of Airspace: https://www.faasafety.gov/gslac/ALC/course_content.aspx?cID=42&sID=505&preview=true

¹⁰ Special use airspace is used to designate airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. See https://www.faa.gov/uas/where_to_fly/airspace_restrictions/.

4.2 Alternatives Analysis

For purposes of this final Environmental Review, the FAA compared the No Action alternative, based on the 2017 flight tracks and those associated with the implementation of the Step 1A procedures, with the Proposed Action, consistent with CEQ regulations and FAA Order 1050.1F.

No Action Alternative

The No Action Alternative comprises the current west configuration RNAV SIDs. Aircraft on a flight path with initial turns to the northwest, and those aircraft on a flight path to the west follow the published procedures implemented under Step 1A. These aircraft climb to an altitude of 500 feet AGL, or 1,635 feet MSL, to an “engagement point” when the aircraft navigation flight management computer begins providing the pilot with route, altitude and speed guidance.¹¹ This “engagement point” does not occur at a specific location, but is determined by when the aircraft leaves the runway surface and the aircraft’s rate of climb through 1,635 feet MSL. Aircraft on a flight path with initial turns to the southwest follow the published procedures where aircraft turn at approximately 3 nautical miles from the west end of the runways.

As originally proposed in the draft Environmental Review document dated January 2018, aircraft on the southwest RNAV SIDs would follow a southwest course to the WETAL fix in order to connect to the en route airway structure for flights to the south, southwest and southeast. The FAA revised the Proposed Action under Step 1A to make the WETAL RNAV SID unavailable to aircraft pending further evaluation and consultation (refer to Section 5.4).¹² As a result, aircraft departing to the west then turning south would follow the procedures that are currently in place. The WETAL RNAV SID was charted with an issuance of a *Notice to Airmen* (NOTAM) that the WETAL procedure is unavailable for use.

The current west configuration RNAV SID procedures at Phoenix Sky Harbor are as follows:

- The ZIDOG RNAV SID services aircraft for flights to the north, northwest and the northeast. Aircraft follow the extended runway centerline then join the ZIDOG RNAV SID to connect to the en route airway structure.
- The KEENS RNAV SID services aircraft for flights to the west. Aircraft follow a southwest course to connect to the en route airway structure.
- The WETAL RNAV SID is unavailable for use.
- The BNYRD RNAV SID heads south towards the STANFIELD VORTAC¹³ (TFD) and service aircraft en route to the south and southeast.

¹¹The “engagement point” refers to lateral navigation where aircraft navigate over a ground track with guidance from an electronic device that gives the pilot (or autopilot) error indications in the lateral direction only and not in the vertical direction.

¹² FAA anticipates that Step 1B would finalize RNAV SIDS for aircraft departing to the west then turning south.

¹³ A VORTAC is a navigational aid for aircraft pilots consisting of a co-located VHF omnidirectional range (VOR) beacon and a tactical air navigation system (TACAN) beacon. Both types of beacons provide pilots azimuth information.

- The JUDTH RNAV SID heads southwest towards the MOHAK fix and serves aircraft en route to the southwest.
- The FTHLS RNAV SID heads east to the BROAK fix then intersects the JSSUA fix, at which point splits into two transitions. It serves aircraft en route to the northeast and southeast.
- The KATMN RNAV SID heads southeast towards the BOXXR fix and services aircraft en route to the southeast.

Proposed Action

As described previously, the changes under Step One of the Memorandum were divided into two actions with independent utility: Step 1A and Step 1B. The Proposed Action addressed in this document, Step 1B, would complete implementation of Step One in the Memorandum between the FAA, the City of Phoenix, and the historic neighborhood associations and replace the current RNAV SIDs which includes the Step 1A RNAV SIDs. The Proposed Action would revise the western flow of aircraft flying the RNAV SID procedures from runways 25 Left, 25 Right and 26, at Phoenix Sky Harbor. Consistent with the Memorandum the FAA originally designed the proposed procedures to initiate the first procedural turn at 43rd avenue in order to approximate the flight paths of the pre-September 2014 procedures. The Proposed Action flight paths were pushed further west of 43rd Avenue to accommodate the broad range of aircraft types and their Distance of Turn Anticipation (DTA).¹⁴ With such an aggressive turn to the north of approximately 90 degrees based on procedure design criteria, the procedure design ensures that no aircraft would begin its turn prior to 43rd Avenue. These nine new procedures being modified under Step 1B are bi-directional; allowing aircraft to depart to the west or to the east depending on the direction of the wind. There are no proposed changes to the east flow operations. The Step 1B proposed RNAV SIDs would provide a seamless predictable flight path from Phoenix Sky Harbor to the en route air traffic structure.

Proposed Step 1B:

The proposed Step 1B RNAV SIDs would replace the Step 1A RNAV SIDs, and the four current RNAV SIDs with initial turns to the southwest. The Step 1B RNAV SIDs incorporate the routes from Step 1A, however have additional routing that no longer requires air traffic control vectoring to join an RNAV route. The four proposed RNAV SIDs with the initial turn to the northwest would retain the Step 1A ZIDOG RNAV SID runway transitions then head north until

¹⁴ Distance of Turn Anticipation (DTA): the distance from (prior to) a fly-by fix at which an aircraft is expected to start a turn to intercept the course/track of the next segment. An aircraft's Flight Management System computer flying an RNAV route will anticipate how soon the aircraft must begin its turn prior to the next waypoint in order to roll out on the next leg without bypassing the waypoint. The tighter the turn, the greater the distance the FMS will begin the turn prior to the next waypoint. Wind, aircraft weight, and air speed are some of the factors the FMS uses to calculate the DTA turn.

the proposed procedures intersect the ZIDOG fix. These proposed procedures would then split to join the appropriate common route to continue to the en route airway structure for flights to the north, northwest and northeast. The four proposed RNAV SIDs with the initial turn to the southwest would replace the current RNAV SID procedures. These proposed procedures would follow a southwest course to the WETAL fix, and then split to join the appropriate common route to continue to the en route airway structure for flights to the south, southwest and southeast. The proposed procedure for destinations to the west would replace the current KEENS RNAV SID.

The proposed RNAV SIDs would be renamed in accordance with FAA criteria (Refer to Appendix B *Proposed Procedures* for Figures B-1 through B-9). The proposed Step 1B RNAV SIDS are:

- The ZEPER RNAV SID would depart to the northwest and service aircraft en route to the northwest.
- The QUAKY RNAV SID would head north until it intersects the CARTL fix, at which point it splits into three transitions. One transition heads north, and two transitions head northeast.
- The MRBIL RNAV SID would head north until it intersects the YOTES fix, at which point it splits into three transitions. One transition heads north, and two transitions head northeast.
- The FORPE RNAV SID would head to the northeast until it intersects the FORPE fix then intersects the ST JOHNS VORTAC (SJN), at which point it splits into two transitions. It serves aircraft en route to the east.
- The BROAK RNAV SID would replace the current FTHLS RNAV SID. After the initial turn to the southwest, the procedure heads east to the BROAK fix then intersects the JSSUA fix, at which point it splits into two transitions. It serves aircraft en route to the northeast and southeast.
- The ECLPS RNAV SID would replace the current KATMN RNAV SID. After the initial turn to the southwest, the procedure heads southeast towards the BOXXR fix and services aircraft en route to the southeast.
- The STRRM RNAV SID replaces the current BNYRD RNAV SID. After the initial turn to the southwest, the procedure heads south towards the STANFIELD VORTAC (TFD) and serves aircraft en route to the south and southeast.
- The FYRBD RNAV SID replaces the current JUDTH RNAV SID. After the initial turn to the southwest, the procedure heads southwest towards the MOHAK fix and serves aircraft en route to the southwest.

- The KEENS RNAV SID would be amended to include departures from the east flow runways 7 Left, 7 Right and 8. The name of this RNAV SID would be retained.

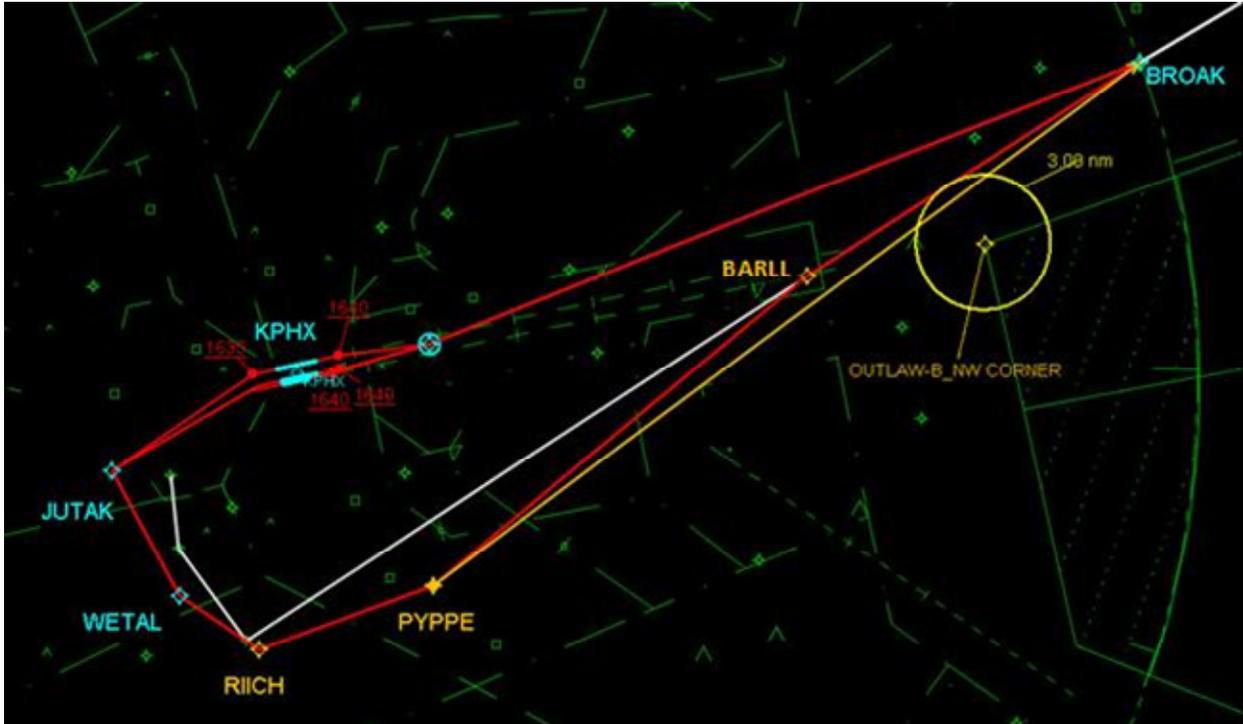
BROAK RNAV SID Re-Design

As originally proposed in the draft Environmental Review document dated January 2018, the proposed BROAK RNAV SID was designed to service aircraft with destinations to the northeast and southeast. As part of the design validation process, the FAA evaluated procedure design criteria to verify the required airspace separation of the proposed procedure in relationship to an established Military Operations Area (MOA) type of special use airspace known as the *OUTLAW MOA*. The *OUTLAW MOA* is subdivided into three sections, *OUTLAW-A*, *OUTLAW-B*, and *OUTLAW-C* to aid in the segregation of the types of military operations contained within the MOA.

The results of the evaluation indicated the BARLL fix needed to be added in order for the proposed BROAK RNAV SID to avoid the *OUTLAW-B* and *OUTLAW-C* portions of the MOA by the required three (3) nautical miles airspace separation criteria. The proposed re-designed west flow flight path from the PYPPE fix to the new BARLL fix was designed to transition through the northernmost *OUTLAW-A* portion of the MOA. This portion of the MOA is rarely used and the proposed transition through this portion is acceptable as per an inter-facility agreement with the FAA and the Arizona Air National Guard. The proposed re-design follows the existing FTHLS RNAV SID west flow flight path and moves the proposed flight path north to clear the *OUTLAW_B* MOA.

As shown in Figure 4-1 below, the red line from the PYPPE fix to the BARLL fix represents the re-designed west flow flight path of the proposed BROAK RNAV SID. The re-designed flight path would connect to the new location for the BARLL fix, which then remains outside of the three nautical mile required airspace buffer from the *Outlaw-B* SUA MOA. The red line on the northern portion of the proposed BROAK RNAV SID from Phoenix Sky Harbor to the BROAK fix represents the east flow flight path, and would not be affected by the procedure re-design. The yellow line represents the proposed flight path of the original design of the proposed BROAK RNAV SID, which transitions within the three nautical mile required airspace buffer. The white line represents the flight path of the current FTHLS RNAV SID, which would be replaced by the proposed re-designed BROAK RNAV SID.

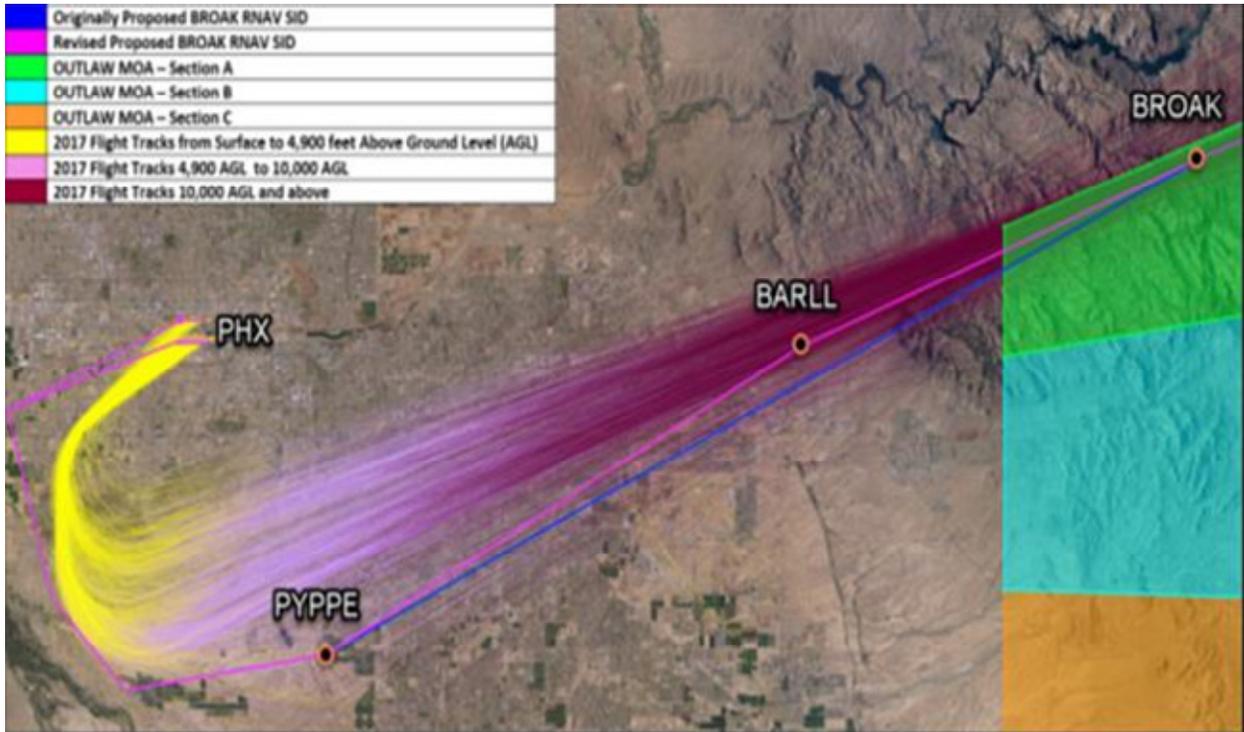
Figure 4-1: Representation of the Re-Designed Proposed BROAK RNAV SID



	Proposed BROAK RNAV SID - Re-design from PYPPE to BARLL
	Proposed BROAK RNAV SID - Original Design from PYPPE to BARLL
	Outlaw-B Military Operations Area Boundary
	3 Nautical Mile Airspace Buffer Area
	Current FTHLS RNAV SID Flight Track

Supplementary analysis of current west flow flight track data was completed to compare current flight tracks with the proposed re-designed BROAK RNAV SID. The analysis indicated that west flow departures on the proposed re-designed BROAK RNAV SID would be above 10,000 feet AGL prior to the BARLL fix and continuing on to the relocated BARLL fix. The noise screening analysis, discussed in Section 5-1, indicated that there would be no measurable change in noise exposure levels as a result of the procedure re-design. As shown in Figure 4-2, the flight tracks are colored by altitude, where the flight tracks change to magenta as the aircraft cross 10,000 feet AGL.

Figure 4-2: Representation of Revised Flight Track Design of the Proposed BROAK RNAV SID



5.0 ENVIRONMENTAL IMPACT ANALYSIS

As explained above, the use of a CATEX to satisfy NEPA is precluded if the proposed action involves any of the circumstances described in Order 1050.1F, Paragraph 5-2(b) and has the potential for significant impact. The determination of whether a proposed action may have a significant environmental impact under NEPA is made by considering the relevant environmental impact categories and comparing impacts to the FAA’s thresholds of significance, where applicable, as well as any other relevant federal laws and statutes, Executive Orders, and regulations as outlined in with FAA Order 1050.1F.

There are 14 environmental impact categories identified by FAA Order 1050.1F. Only those areas where there may be potential environmental impacts caused by the Proposed Action, or where there are uncertainties which require evaluation are discussed in this document.

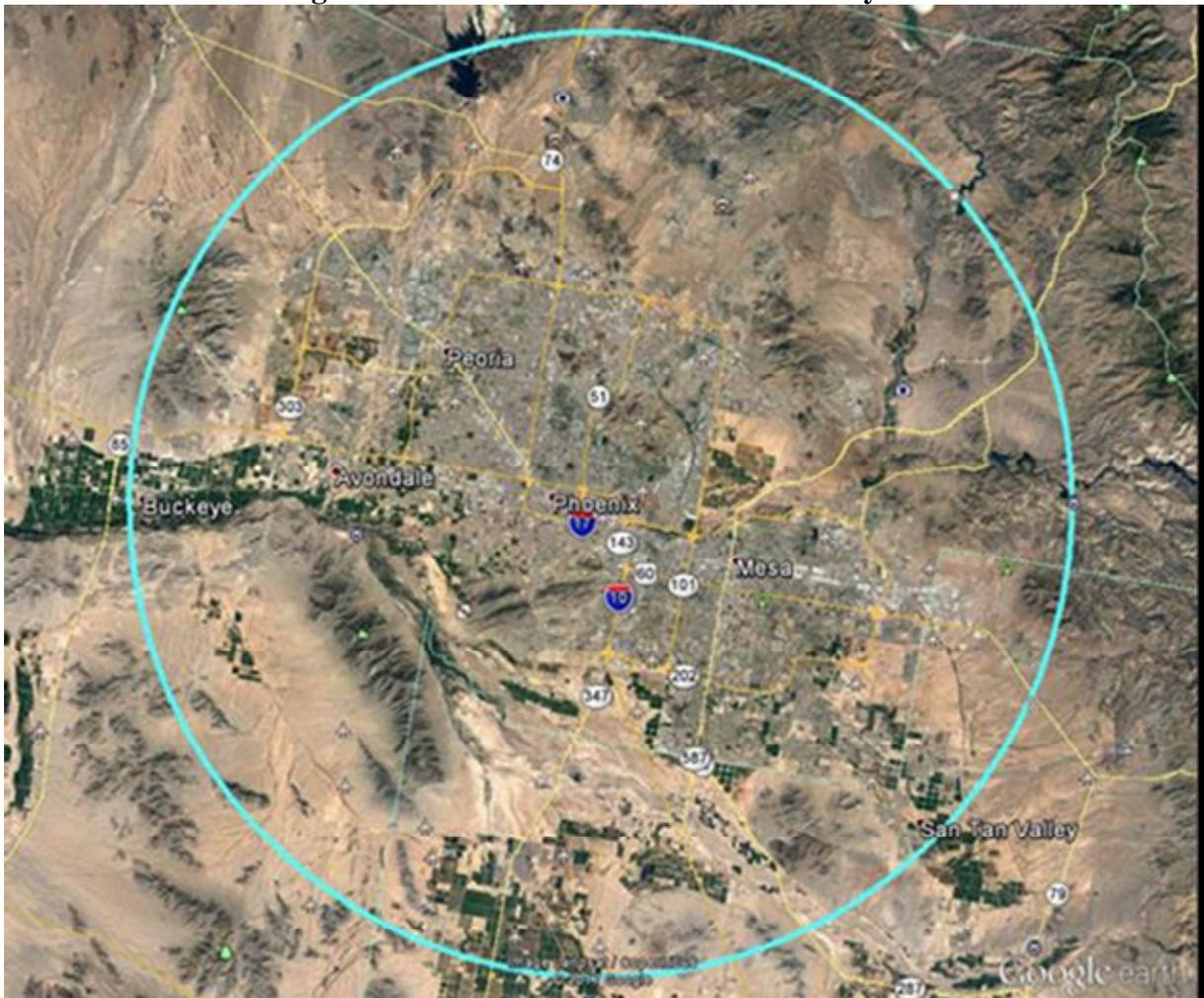
The Proposed Action does not involve land acquisition, physical disturbance, or construction activities. Furthermore, there is no anticipated increase in the number of aircraft operations at Phoenix Sky Harbor associated with the Proposed Action. Given the limited scope of the Proposed Action, the following environmental impact categories were assessed and were considered to have negligible or non-existent effects from the Proposed Action, and in accordance with CEQ regulations, did not warrant further analysis:

- Climate
- Coastal Resources

- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Land Use
- Natural Resources and Energy Supply
- Socioeconomic Impacts and Children’s Environmental Health and Safety Risks.
- Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

The analysis considered potential impacts within the Proposed Action General Study Area (GSA), which encompasses roughly a 30 nautical mile radius around Phoenix Sky Harbor, where departing aircraft cross the GSA boundary at 10,000 feet AGL. The GSA, approximately 3,750 square miles in area, is shown in Figure 5-1 below.

Figure 5-1: Illustration of the General Study Area



The following environmental impact categories have the most potential to be affected by the Proposed Action.

5.1 Noise and Noise-Compatible Land Use

FAA Order 1050.1F provides specific guidance and requirements for assessing potential aircraft noise impacts. This section presents a brief introduction to information regarding noise and land use compatibility criteria applicable to the evaluation of noise impacts.

Methodology for Assessing Noise Impacts

The compatibility of existing and planned land uses with aviation actions is usually determined in relation to the level of aircraft noise by comparing the Day-Night Average Sound Level (DNL)¹⁵ values to the land use compatibility guidelines in FAA's regulations at 14 CFR Part 150. Part 150 identifies a DNL level of 65 decibels (dB) and below as compatible with residential and most other uses (See Exhibit 11-3 of the FAA Order 1050.1F, Desk Reference).

To determine whether aircraft noise impacts are significant under NEPA, the FAA considers whether predicted increase in noise associated with the proposed action exceed defined thresholds of significance. For aircraft noise, that threshold is an increase of 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 level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB.

Order 1050.1F notes that special consideration needs to be given to the evaluation of the significance of noise impacts on certain noise sensitive areas (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.

Ordinarily, actions that are categorically excluded from NEPA do not require detailed environmental analysis. To identify the potential for extraordinary circumstances involving impacts on noise levels of noise sensitive areas, the FAA conducts an initial noise analysis using a "screening tool." Screening tools use simplified but conservative modeling assumptions to quickly provide estimates of where noise increases may occur.¹⁶ This analysis enables the FAA

¹⁵DNL takes into account the noise level of each individual aircraft event, the number of times those events occur, and the time of day in which they occur. DNL includes a 10 dB noise penalty added to noise events occurring from 10:00 p.m. to 7:00 a.m., to reflect the increased sensitivity to noise and lower ambient sound levels at night. FAA Order 1050.1F requires use of the DNL metric in NEPA analyses, although DNL analysis may optionally be supplemented on a case-by-case basis to characterize specific noise impacts.

¹⁶ In general modeling accuracy is dependent on a range of factors, including 1) how well the fundamental quantity to be modeled is understood and calculated, and 2) how accurately the inputs needed by the model are provided. All aircraft noise

to identify areas that may require additional consideration prior to determining whether use of a CATEX is appropriate.

FAA's noise screening tool for projects involving air traffic changes over large areas and altitudes over 3,000 feet AGL uses features available within the Terminal Area Route Generation Evaluation and Traffic Simulation (TARGETS), a flight procedure design tool, combined with the Aviation Environmental Design Tool (AEDT) Environmental Plug-In. This noise screening tool identifies areas that may be exposed to significant noise impacts (i.e., an increase of DNL 1.5 dB or more in an area that is exposed to noise at or above the DNL 65 dB noise exposure level. The noise screening tool also identifies certain areas with potential increases in areas exposed to lower levels of noise, specifically:

- For DNL 60 dB to less than 65 dB: ± 3 dB
- For DNL 45 dB to less than 60 dB: ± 5 dB

The FAA refers to changes in noise exposure levels meeting these criteria as "reportable." Although they do not exceed the threshold of significance for most land uses, for certain land uses where the Part 150 land use guidelines are not relevant to the value, significance, and enjoyment of the area in question, they are factors to consider in whether there are extraordinary circumstances rendering a CATEX inapplicable.

To determine the potential impact(s) from noise, the screening analysis compares the baseline scenario to an alternative scenario or scenarios. The baseline scenario typically represents the existing procedures as they are flown at the time of the modelling, or the No Action Scenario. The alternative scenario(s) represents the radar tracks assigned to the Proposed Action and any other alternatives being considered.

Noise Screening Analysis

Potential noise impacts were screened using the AEDT Environmental Plug-In for TARGETS. Three scenarios were evaluated for this noise screen. Refer to the *Noise Screening Analysis Report* found in Appendix D.

1. No Action Scenario: The scenario represents radar tracks as they are currently flown and is considered the baseline. Noise screening of the No Action Scenario modeled the noise impact(s) of Phoenix Sky Harbor arrivals and departures as they are currently flown. Assigned aircraft routes were unchanged.
2. Proposed Action Scenario: The scenario screened using the simplifying assumption that that Phoenix Sky Harbor departure aircraft would be assigned to the proposed RNAV

modeling tools must accurately account for the fundamentals of noise. However, while a comprehensive modeling tool also needs detailed inputs, a noise screening tool is optimized to take advantage of simplified inputs to produce results for a more narrowly defined purpose, such as a preliminary assessment of potential noise impacts. As a result, noise screening outputs are not suitable for reporting more detailed or precise noise results at specific locations.

SID route that most closely matched their flight track regardless of aircraft equipage or type. This incorporates the simplified assumption that all aircraft are equipped and capable of flying RNAV procedures.

3. Pre-RNAV Western Routes Scenario: This scenario complies with Section 5.b, in the Memorandum that requires FAA to conduct a noise analysis to compare differences in noise between (1) the Pre-RNAV Western Routes and the Proposed Action Scenario. To develop this scenario, track data from a sample set of 90 random days was obtained (prior to the September 2014 RNAV implementation). Using the AEDT Environmental Plug-In, backbones for each departure procedure were created, accounting for the pre-RNAV procedures as well as the increased dispersion of conventional SIDs. To ensure a consistent number of operations and a consistent fleet mix across alternatives, the same flights that were used for the No Action scenario were applied to these backbones. This ensured that differences across scenarios were attributable to flight path changes only.

To determine projected noise levels on the ground, it is necessary to determine the frequency of aircraft operations and the position of the aircraft in space laterally (i.e., ground tracks), and vertically (i.e., altitude). Arrival and departure direction to and from an airport are generally a function of the geometry of the airport's runways, procedures used to manage air traffic, and are primarily dictated by wind and weather conditions. Much of this information is obtainable through historical radar track data. Track data provides information regarding lateral path definitions, aircraft types, time of day operations, runway usage percentages for departure/arrival streams and day/night traffic ratios.

Baseline Line Track Data

Historical radar track data was obtained from the FAA's National Offload Program¹⁷. Track data was collected for 90 randomly selected days (using a random day generator) during calendar year 2017 ("2017 Track Data"). The selection of 90 random days is considered to best represent average traffic counts and traffic flows accounting for seasonal variations and peak travel times for Phoenix Sky Harbor.

In order to present a well-defined noise screening analysis, it was determined to compare the three scenarios to this same baseline track data that was utilized for the Step 1A noise screening. The Step 1A RNAV SID procedures were implemented to provide short-term relief from aircraft noise as expeditiously as possible. Flight track data for the Step 1A procedures is insufficient to support an updated 90 random day data set to establish a new baseline. The simplified method for the baseline data set supports a conservative approach to the noise screening analysis.

A separate noise screening analysis was run for each scenario to establish the noise exposure levels for that scenario. Once the three scenarios were screened individually, the TARGETS

¹⁷ All traffic data was obtained using the Phoenix Terminal Radar Approach Control as the radar source facility.

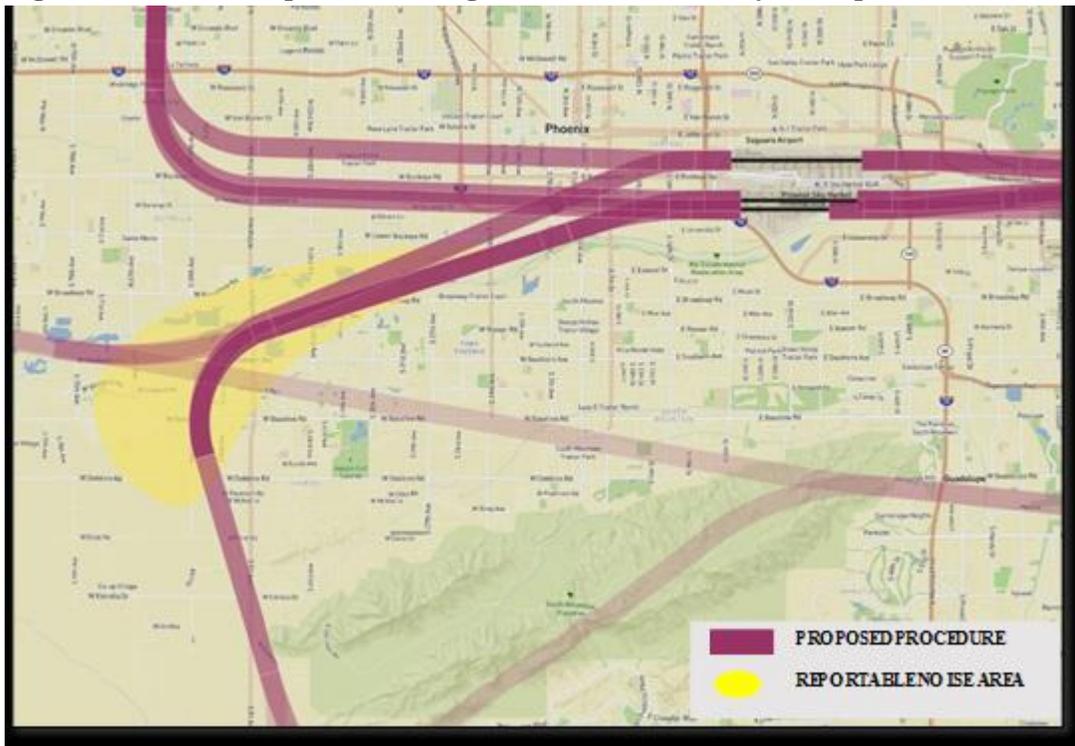
AEDT Environmental Plug-In Tool was used to compare the Proposed Action Scenario to the No Action Scenario to evaluate whether implementing the Proposed Action is expected to result in significant noise impacts when compared to the No Action Scenario.

Results of Noise Screening

The new noise screening indicates that the revised Proposed Action would not result in a significant noise impact on land uses covered by the Part 150 noise compatibility guidelines. However, the Proposed Action noise screening scenario when compared to the No Action noise screening scenario identified an area of reportable change in noise (i.e., a DNL 5 dB or greater increase in an area exposed to DNL 45-60 dB approximately 3 nautical miles southwest of Phoenix Sky Harbor. This area of change encompasses approximately 22 square miles. The area is roughly defined by West Broadway Road and the Salt River riverbed along the northern edge, South 19th Avenue along the eastern edge, West Carver Road along the western edge, and an agricultural field access road making up the southernmost edge approximately 0.5 nautical miles north of West Elliot Road.

Figure 5-2 below depicts the area of the reportable change in noise as a yellow shaded polygon with the proposed procedures overlaying the area.

Figure 5-2. Area of Reportable Change in Noise with Overlay of Proposed Procedures



The FAA reviewed the City of Phoenix, Planning and Development Department, *City of Phoenix General Plan*, which identifies existing land use within the greater Phoenix area.¹⁸ Based on this review, land use within the area of the reportable change in noise consists of approximately 57%

¹⁸ www.phoenix.gov/pdd/pz/general-plan-2002. Accessed December 29, 2017.

residential, 12% industrial, 4% commercial, 3% business parks, 8% public/quasi-public, and 16% parks and open space. The FAA further reviewed individual resources within this area, including parks and historic properties, to determine whether the Part 150 land use guidelines are relevant to their value, significance, and enjoyment. As part of this further review, the FAA completed consultation with local interested parties having jurisdiction by law or special expertise in order to make a final determination regarding the reportable noise impacts. Their conclusions and recommendations are included in Section 5.3 and 5.4 of this final environmental review.

5.2 Air Quality

This section considers the potential for the Proposed Action to have impacts on air quality that could preclude use of a CATEX. Any air quality impacts would be the result of increased emissions from aircraft using the amended procedures as compared to the No Action alternative; there are no other emissions sources associated with the Proposed Action. Under the Proposed Action, departing aircraft would reach the RNAV “engagement point” at the same distance and altitude as aircraft flying today. No additional operations would result from the Proposed Action.

In the United States, air quality is generally monitored and managed at the county or regional level. The U.S. Environmental Protection Agency (EPA) pursuant to mandates of the federal Clean Air Act, (42 U.S.C. § 7401 et seq. (1970)), has established the National Ambient Air Quality Standards (NAAQS) to protect public health, the environment, and quality of life from the detrimental effects of air pollution. Standards have been established for the following criteria air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulfur dioxide (SO₂). Particulate Matter standards have been established for inhalable coarse particles ranging in diameter from 2.5 to 10 micrometers (µm) (PM₁₀) and fine particles less than 2.5 µm (PM_{2.5}) in diameter.

According to FAA Order 10501F, Exhibit 4-1, an emissions impact is significant if “[t]he 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 violations.”

EPA must designate areas as meeting (attainment) or not meeting (nonattainment) the NAAQS standards. The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans are known as State Implementation Plans (SIPs). A SIP is a collection of regulations and documents used by a state, territory, or local air district to reduce air pollution in areas that do not meet NAAQS.

According to the EPA’s website,¹⁹ the SIP status report for the greater Phoenix area includes part of Maricopa, Pima and Pinal counties designated as nonattainment areas. Table 5-1 lists the counties in nonattainment for specific criteria air pollutants.

Table 5-1. Current Nonattainment Counties That Contain the Greater Phoenix Area

County Name	NAAQS	Part County NA ²⁰	Nonattainment Area Name	Classification (if applicable)
Maricopa	PM ₁₀ (1987)	X	Phoenix	Serious
Maricopa	8-Hr Ozone (2008)	X	Phoenix-Mesa	Moderate
<hr/>				
Pima	PM ₁₀ (1987)	X	Ajo (Pima County)	Moderate
Pima	PM ₁₀ (1987)	X	Rillito	Moderate
<hr/>				
Pinal	Lead (2008)	X	Hayden	
Pinal	PM ₁₀ (1987)	X	Hayden	Moderate
Pinal	PM ₁₀ (1987)	X	Phoenix	Serious
Pinal	PM ₁₀ (1987)	X	West Pinal	Moderate
Pinal	PM _{2.5} (2006)	X	West Central Pinal	Moderate
Pinal	Sulfur Dioxide (1971)	X	Hayden (Pinal County)	
Pinal	Sulfur Dioxide (2010)	X	Hayden	
Pinal	8-Hr Ozone (2008)	X	Phoenix-Mesa	Moderate

Under section 176(c)(4)) of the Clean Air Act (42 U.S.C. 7506(c)) and EPA regulations at 40 CFR Parts 51 and 93 (commonly referred to as the General Conformity Rule), the FAA must ensure that its activities do not cause or contribute to new violations of the NAAQS; worsen existing violations of the NAAQS or delay attainment of the NAAQS. When developing the General Conformity Rule, the EPA recognized that many actions conducted by Federal agencies do not result in substantial increases in air pollutant emissions in nonattainment and maintenance areas. Therefore, the EPA established threshold levels (also referred to as *de minimis* levels) for emissions of each of the criteria pollutants. When the sum of the increases in direct and indirect emissions from a project would be less than the *de minimis* levels, a project would not require a general conformity determination. For nonattainment and maintenance areas, applicable *de minimis* thresholds for compliance are provided in CFR 40 part 93.153. Table 5-2 details the *de minimis* rates that apply to nonattainment areas (NAAs).²¹

¹⁹ https://www3.epa.gov/airquality/urbanair/sipstatus/reports/az_areabypoll.html. Accessed on December 29, 2017.

²⁰ “Part County NA” means only a portion of the county is designated nonattainment.

²¹ 40 CFR 93.153(g)(h))

Table 5-2. 40 CFR 93.153(b)(1)-*De minimis* Thresholds for Nonattainment Areas

NAAQS Criteria Pollutant	Tons per Year
Ozone (VOC or NO_x):	
• Serious Nonattainment Areas	50
• Severe Nonattainment Areas	25
• Extreme Nonattainment Areas	10
• Other ozone NNAs outside an ozone transport region	100
Other Ozone NNAs inside an ozone transport region:	
• VOC	50
• NO _x	100
Carbon Monoxide: All Maintenance Areas	100
SO₂ or NO₂: All NAAs	100
PM₁₀:	
• Moderate NAAs	100
• Serious NAAs	70
PM_{2.5}: (Direct emissions, SO₂, NO_x, VOC, and Ammonia):	
• Moderate NAAs	100
• Serious NAAs	70
Pb: All NAAs	25

The General Conformity Rule also allows Federal agencies to develop a list of actions that are presumed to conform to a SIP.²² This can be done by clearly demonstrating that the total of direct and indirect emissions from these types of activities would not cause or contribute to any new violation of any standard in any area; interfere with provisions in the applicable SIP for maintenance of any standard; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area including emission levels specified in the applicable SIP. Alternatively, Federal agencies can establish actions that are presumed to conform by providing documentation that emissions from these types of actions are below the applicable *de minimis* levels. The FAA published a list of Presumed to Conform activities in the Federal Register on July 30, 2007.²³

Air Quality Analysis

The FAA’s Presumed to Conform list includes “Air Traffic Control Activities and Adopting Approach, Departure and Enroute Procedures for Air Operations.” Air traffic control activities are defined for this purpose as “actions that promote the safe, orderly, and expeditious flow of aircraft traffic, including airport, approach, departure, and en route air traffic control. Airspace and air traffic actions (e.g., changes in routes, flight patterns, and arrival and departure procedures) are implemented to enhance safety and increase the efficient use of airspace by

²² 40 CFR 93.153(g)(h))

²³ 72 Fed. Reg. 41565

reducing congestion, balancing controller workload, and improving coordination between controllers handling existing air traffic, among other things.” FAA determined that project-related aircraft emissions released into the atmosphere below the inversion base for pollutant containment, commonly referred to as the “mixing height,” (generally 3,000 feet above ground level) can be presumed to conform when 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.²⁴ This Presumed to Conform covers the Proposed Action.

5.3 Biological Resources

This section describes biological resources within the GSA. The Proposed Action is intended to provide interim relief from aircraft noise, while segregating arrivals and departures to maintain safe aircraft operations. The Proposed Action does not entail any ground-based development that could affect vegetation and land cover, or destroy or modify critical habitat for any protected species. Therefore, the analysis of potential impacts to biological resources is limited to federally listed mammals and birds.

As part of the environmental review for biological resources, the FAA completed a Biological Assessment in consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA). In accordance with Section 7 of the ESA, the FAA requested concurrence from the USFWS with the FAA’s determination of “*may affect but not likely to adversely affect*” federally listed species protected under the ESA.

Federally Listed Species that May be Affected by the Proposed Action

The FAA requested an official species list for the GSA through the *U.S. Fish and Wildlife Information for Planning and Consultation* (IPaC) website²⁵. The official species list identifies the threatened, endangered or candidate species considered in effects analysis for the Proposed Action. The FAA reviewed readily accessible online sources of information regarding species profiles, critical habitat, proposed critical habitat, and range or distribution of species.

Through government-to-government consultation with the Gila River Indian Community, the Salt River Pima-Maricopa Indian Community, the Ak-Chin Indian Community, and the Fort McDowell Yavapai Nation, the FAA learned of the religious and cultural significance of the Sonoran Desert Bald Eagle. Although, not an endangered or candidate species, the FAA included the Sonoran Desert Bald Eagle in the Biological Assessment.

Table 1 below lists the species of concern, identifies potential or known habitat and likely responses to aircraft overflights.

²⁴ 72 Fed. Reg. 41578.

²⁵ Consultation Code: 02EAAZ00-2018-SLI-0435. Dated February 21, 2018. Attachment 2.

Table 5.3-1. Listed Species that May be Affected by the Proposed Action

Mammals	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Lesser Long-nosed Bat <i>Leptonycteris curasaiae yerbabuena</i>	Endangered Listed September 30, 1988 ²⁶ .	Critical habitat not designated. May be present in Gila, Pinal, and Maricopa counties in Arizona. Terrestrial habitat: cliff, desert, forest. Closest likely location: northeast section of GSA. Lower Verde Watershed ²⁷ .	None expected. If present, and depending on location of roosting area, habituation to aircraft noise is likely to lessen potential effects to roosting and evening activity. ^{28, 29} Aircraft are currently overflying the northeast section of the GSA at altitudes greater than 2,000 feet AGL.
Sonoran Pronghorn <i>Antilocapra Americana sonoriensis</i>	Experimental Population, Non-Essential ³⁰	Critical habitat not designated. Habitat: desert. Range: formerly throughout southern Arizona and in Mexico south to Guaymas, Sonora; presently in Yuma, Pima, and Maricopa counties, south of the Bill Williams River and west of the Baboquivari Mountains, southwestern Arizona, and in northwestern Sonora. ³¹ Northeast section of GSA. ³² Location information conflicts with description in Recovery Plan for Sonoran Pronghorn. ³³	Disturbance generally caused by fixed-wing aircraft flying within 1 mile laterally and below 1,000 feet AGL. ³⁴ Aircraft are currently overflying the northeast section of the GSA at altitudes greater than 2,000 feet AGL. Response may include an interruption in grazing.
Reptiles	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Northern Mexican Gartersnake <i>Thamnophis eques megalops</i>	Threatened Listed July 8, 2014. ³⁵	Proposed critical habitat is not within GSA. ³⁶ May be found in Gila, Pinal and Maricopa counties in Arizona. Snake is associated with permanent water with vegetation, including stock tanks, ponds, lakes and riparian woods. Forages in or near streams, lakes, and irrigation ditches. ³⁷	None. There is no construction or other ground disturbance associated with the Proposed Action. The Proposed Action does not require use or consumption of water resources.

²⁶ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0AD>

²⁷ Approximate species location was based on a combination of the EPA WATERS Data identifying hydrologic units/watersheds and online NatureServe Explorer. <http://explorer.natureserve.org/servlet/NatureServe>, which provided species location based on hydrologic units. Hydrologic data was plotted on Google Earth.

²⁸ Le Roux, Darren. Do Long-Tailed Bats Alter Their Evening Activity in Response to Aircraft Noise? Article in Acta Chiropterologica. June 2012.

²⁹ USFWS. Arizona Ecological Services State Office. Lesser Long-Nosed Bat Recovery Plan. May 1994.

³⁰ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A009>. Accessed on February 21, 2018. The Sonoran Pronghorn is listed as Endangered throughout most of its range under ESA, except where listed as an experimental population.

³¹ http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=104902&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=104902&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=104902. Accessed 23 February 2018.

³² Distribution data obtained online from NatureServe Explorer. <http://explorer.natureserve.org/servlet/NatureServe>. Accessed on February 21 and 22, 2018.

³³ Recovery Plan for the Sonoran Pronghorn (*Antilocapra Americana sonoriensis*), Second Revision. November 2016. Prepared for Region 2, Southwest Region, USFWS.

³⁴ Recovery Plan for the Sonoran Pronghorn (*Antilocapra Americana sonoriensis*), Second Revision. November 2016. Prepared for Region 2, Southwest Region, USFWS.

³⁵ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=C04Q>. Accessed 23 February 2018.

³⁶ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=C04Q>. Accessed 23 February 2018.

³⁷ http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=103523&paging=home&save

Table 5.3-1 - continued. Listed Species that May be Affected by the Proposed Action

Fishes	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Desert Pupfish <i>Cyprinodon macularius</i>	Threatened Listed March 31, 1986. ³⁸	Proposed critical habitat is not within study area ³⁹ . May be present in Gila, and Maricopa counties in Arizona. Habitat: freshwater creeks, medium rivers, springs, herbaceous wetland. ⁴⁰ Southwest section of study area. Lower Gila-Painted Rock Reservoir. ⁴¹ Eastern half of project study area –Lower Verde Watershed; Lower Salt; Middle Gila Watershed. Online mapping does not show water bodies that may provide habitat.	None. The Proposed Action does not require construction or other ground disturbance. The Proposed Action does not involve water use or consumption.
Gila Topminnow (incl. Yaqui) <i>Poeciliopsis occidentalis</i>	Endangered Listed March 11, 1967. ⁴²	Critical habitat not designated. May be present in Gila, Maricopa, and Pinal counties in Arizona. Native to the Gila River system. Habitat: freshwater creeks, medium river, springs, herbaceous wetland. ⁴³ Southwest section of GSA. Lower Gila-Painted Rock Reservoir ⁴⁴ Eastern half of GSA –Lower Verde Watershed; Middle Gila Watershed. Northwest – Agua Fria. Online mapping does not show water bodies that may provide habitat.	None. The Proposed Action does not require construction or other ground disturbance. The Proposed Action does not involve water use or consumption.
Razorback Sucker <i>Xyrauchen texanus</i>	Endangered Listed October 23, 1991. ⁴⁵	May be present in Gila, Maricopa, and Pinal counties in Arizona. Southwest section of study area. Lower Gila-Painted Rock Reservoir. ⁴⁶ Eastern half of project study area –Lower Verde Watershed; Lower Salt; Middle Gila Watershed; Agua Fria. Habitat: rivers, herbaceous wetland, shallow water. Species is often associated	None. The Proposed Action does not require construction or other ground disturbance. The Proposed Action does not involve water use or consumption.

=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=103523&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=103523. Accessed 23 February 2018.

³⁸ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E044>. Accessed 23 February 2018.

³⁹ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E044>. Accessed 23 February 2018.

⁴⁰ http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=105718&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=105718&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=105718. Accessed 23 February 2018.

⁴¹ Location selected using EPA WATERS Data

⁴² <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E00C>. Accessed 23 February 2018.

⁴³ http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=103793&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=103793&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=103793&selectedIndexes=101756. Accessed 23 February 2018.

⁴⁴ Location selected using EPA WATERS Data

⁴⁵ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E054>. Accessed 23 February 2018.

⁴⁶ Location selected using EPA WATERS Data

Table 5.3-1 - continued. Listed Species that May be Affected by the Proposed Action

Fishes - Continued	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Razorback Sucker <i>Xyrauchen texanus</i> (continued)		with sand, mud, and rock substrate in areas with sparse aquatic vegetation, where temperatures are moderate to warm. Unlikely that species is present. Since the late 1980s, the Arizona Game and Fish Department has attempted to establish populations in the Verde and Salt rivers through stocking, but few fish survive. ⁴⁷ Online mapping does not show water bodies that may provide habitat.	
Flowering Plants	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Arizona Cliffrose <i>Purshia</i> (= <i>Cowania</i>) <i>subintegra</i>	Endangered Listed May 29, 1984. ⁴⁸	Critical habitat not designated. May be present in Maricopa county in Arizona. Habitat: gravelly clay loams over limestone on rolling hills dominated by creosote bush. ⁴⁹ Endemic to Arizona. Unknown. Distribution information not located among readily available information sources.	None. Implementation of the Proposed Action does not require construction, nor any form of ground disturbance. There be no destruction of vegetation including the Arizona Cliffrose.
Birds	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
California Least Tern <i>Sterna antillarum browni</i>	Endangered Listed June 6, 1970. ⁵⁰	Critical habitat not designated. USFWS: may be found in Maricopa county in Arizona. ⁵¹ Located in California. Near shore habitats; sand/dune habitats. Online map does not show presence in Arizona. ⁵²	None expected. Species is not likely to be present.
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened Listed March 16, 1993. ⁵³	Final critical habitat designated. Critical habitat is not within GSA ⁵⁴ . May be present in Gila, Maricopa, and Pinal counties in Arizona.	Response to aircraft overflight may range from none, sudden turning of the head, or change of roost. ^{55,56}

⁴⁷http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=104297&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=104297&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=104297. Accessed 23 February 2018.

⁴⁸ <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=866>. Accessed 23 February 2018.

⁴⁹http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=148380&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=148380&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=148380. Accessed 23 February 2018.

⁵⁰ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B03X>. Accessed 23 February 2018.

⁵¹ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B03X>. Accessed 23 February 2018.

⁵²http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=104205&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=104205&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=104205

⁵³ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B074>

⁵⁴ USFWS.

⁵⁵ Johnson, Charles L., and Reynolds, Richard T. Responses of Mexican Spotted Owls to Low-flying Military Jet Aircraft. USDA Forest Service Research Not RMRS-RN-12. January 2002.

⁵⁶ Bowles. A.E. et al. Effects of Jet Aircraft Noise on Mexican Spotted Owls. Undated.

Table 5.3-1 - continued. Listed Species that May be Affected by the Proposed Action

Birds - Continued	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Mexican Spotted Owl <i>Strix occidentalis lucida</i> (Continued)		Many populations occur disjunctively in relatively isolated mountain ranges of canyon systems; riparian; highest densities occur in mixed-conifer forests. ⁵⁷ Species likely not present within GSA .	Studies were conducted at 1,509 feet above canyon rims ⁵⁸ . If species is present, likely no adverse response; aircraft are currently flying throughout the GSA at altitudes greater than 2,000 feet AGL.
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered Listed March 27, 1995. ⁵⁹	Final critical habitat designated. Critical habitat is not within project area ⁶⁰ . May be found in riparian and wetland habitats/thickets. May be present in Gila, Maricopa, and Pinal counties in Arizona; species may be present in southeast section of project study area.	If species is present, likely no adverse response; aircraft are currently overflying the southeast section of the GSA at altitudes greater than 2,000 feet AGL.
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened Listed November 2, 2014. ⁶¹	Proposed critical habitat is present in the area along the north boundary of the Gila River Indian Community extending to the easternmost boundary of the project study area. Populations may be found in scrub-shrub wetland, riparian habitat, woodland, or forests. ⁶² At the closest point to the proposed flight track of the KEENS procedure, the northern boundary of the proposed critical habitat is approximately 0.37 NM from the procedure centerline.	Aircraft are currently overflying the area of the proposed critical habitat at altitudes greater than 2,000 feet AGL.
Yuma Clapper Rail <i>Rallus longirostris yumanensis</i>	Endangered Listed March 11, 1967. ⁶³	May be present in Gila, Maricopa, and Pinal counties in Arizona. Habitat: herbaceous wetland; freshwater marshes. ⁶⁴ Southwest section of study area. Lower Gila-Painted Rock Reservoir. ⁶⁵ Eastern half of project study area – Lower Salt Watershed; Lower Verde Watershed; Middle Gila Watershed.	Aircraft are currently overflying the area at altitudes greater than 2,000 feet AGL; no adverse effect is anticipated.

⁵⁷ <http://explorer.natureserve.org/servlet/NatureServe?searchName=Strix+occidentalis+lucida>. Accessed 23 February 2018.

⁵⁸ Johnson, Charles L., and Reynolds, Richard T. Responses of Mexican Spotted Owls to Low-flying Military Jet Aircraft. USDA Forest Service Research Not RMRS-RN-12. January 2002.

⁵⁹ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B094>. Accessed 23 February 2018.

⁶⁰ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B094>. Accessed 23 February 2018.

⁶¹ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B06R>. Accessed 23 February 2018.

⁶²

http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=subset_tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&elKey=105709&paging=home&save=false&summaryView=subset_tabular_report.wmt&selectedRtype=&reset=false&pageStartIndex=1&radiobutton=radiobutton. Accessed 23 February 2018.

⁶³ <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B00P>. Accessed 23 February 2018.

⁶⁴

http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=104295&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=104295&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=104295. Accessed 23 February 2018.

⁶⁵ Location selected using EPA WATERS Data

Table 5.3-1 - continued. Listed Species that May be Affected by the Proposed Action

Sonoran Desert Bald Eagle	Federal Status	Habitat/Potential Species Location Relative to GSA	Possible Response Behavior to Aircraft Overflights
Sonoran Desert Bald Eagle <i>Haliaeetus leucocephalus</i>	Not listed under ESA. ⁶⁶	Population is defined as those eagles in the Sonoran Desert residing in central Arizona (including Maricopa county) and northwestern Mexico. ⁶⁷ A small, primarily year-round resident population nests in the central part of the state along the Salt, Verde, Gila, Bill Williams, and Agua Fria rivers; and Tonto, Oak, Beaver, Cibecue, Tangle, and Canyon creeks, and at higher elevations near Lake Mary, Woods Canyon, Canyon de Chelly, and along the San Francisco and Little Colorado rivers and Silver Creek. These areas occur in Apache, Coconino, Gila, Graham, La Paz, Maricopa, Mohave, Pinal, and Yavapai counties. ⁶⁸ The Pee Posh wetlands nest location is located on the northeast corner of the intersection of W Baseline Road with 91st Avenue.	May be susceptible to startle effects from loud noises during the breeding season. Observed to become habituated to external stimuli. The nest is a lateral distance of approximately 1.00 NM south of the centerline of proposed KEENS. Eagles typically respond to closeness of a disturbance rather than the noise level. Flights at altitudes less than 2,000 feet AGL could have a negative impact ⁶⁹ . Flights at a lateral distance less than approximately 0.27 NM are likely to cause a response such as flushing, i.e., circling or soaring, or displaying other agitated behavior such as vocalization. ⁷⁰ Aircraft are currently overflying the area at altitudes greater than 2,000 feet AGL. At these altitudes and lateral distance from the nest, it is not likely that eagles will react in an adverse manner.

Biological Resources Analysis

Federally Listed Species Analysis

The Proposed Action does not include any ground disturbing activities, nor components that would touch or otherwise directly affect the ground or water surfaces. The FAA determined the Proposed Action would have no effect on proposed critical habitat, likely habitat, or species’ range because the Proposed Action does not involve ground disturbance nor use or consumption of water resources.

The FAA determined that implementation of the Proposed Action “*may affect, but is not likely to adversely affect*” the following endangered species:

- the Lesser long-nosed bat ,

⁶⁶ Protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and the Lacey Act.

⁶⁷http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=817080&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=817080&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=817080. Accessed 23 February 2018.

⁶⁸http://explorer.natureserve.org/servlet/NatureServe?sourceTemplate=tabular_report.wmt&loadTemplate=species_RptComprehensive.wmt&selectedReport=RptComprehensive.wmt&summaryView=tabular_report.wmt&elKey=817080&paging=home&save=true&startIndex=1&nextStartIndex=1&reset=false&offPageSelectedElKey=817080&offPageSelectedElType=species&offPageYesNo=true&post_processes=&radiobutton=radiobutton&selectedIndexes=817080. Accessed 23 February 2018.

⁶⁹ Grubb, Teryl G., and Bowerman William W. Variations in Breeding Bald Eagle Responses to Jets, light Planes and Helicopters. *J. Raptor Res.* 31 (3): 213-222.

⁷⁰ Ellis, David H. and Catherine H., and Mindell, David P. Raptor Response to Low-Level Jet Aircraft and Sonic Booms. *Environmental Pollution* 74 (1991) 53-83.

- the Southwestern willow flycatcher,
- the Western yellow-billed cuckoo, and
- the Yuma Ridgway's clapper rail

The USFWS concurred with the FAA's determination for the Lesser long-nosed bat citing that any direct or indirect effects to bats, their behavior, or habitat are discountable due to the infrequent occurrence of Lesser long-nosed bats within the GSA surrounding Phoenix Sky Harbor, and the altitude of aircraft would be greater than 2,000 feet AGL where occasional bats could occur.

The USFWS concurred with the FAA's determination for the Southwestern willow flycatcher, the Western yellow-billed cuckoo, and the Yuma Ridgway's clapper rail; citing that any direct or indirect effects to these birds, their behavior, or habitat are discountable due to the low abundance of breeding and migratory flycatchers, cuckoos, and rails and that the altitude of aircraft would be greater than 2,000 feet AGL within areas of the Salt, Verde, or Gila rivers where these species may occur.

Sonoran Desert Bald Eagle Analysis

The FAA reviewed readily accessible online sources of information regarding the Sonoran Desert Bald Eagle species profile, habitat and range of distribution. The review indicated an eagle nest had been listed within the Pee Posh Wetlands⁷¹ on land managed by the Gila River Indian Community Department of Environmental Quality Wildlife Program. The nest was destroyed by fire in 2012⁷². In September 2017, the Gila River Indian Community raised an artificial eagle nest to replace the original nest⁷³. Available information is unclear as to whether the species has re-established a natural nest near the Gila River Indian Community boundary, or has used the artificial nest for nesting activity.

Although no longer listed under the ESA, the Sonoran Desert Bald Eagle is protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act of 1918, as amended, and the Lacey Act. These special purpose laws prohibit the intentional taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by USFWS.

The Proposed Action is unlikely to have a significant impact on the Sonoran Desert Bald Eagle as no aircraft overflights would occur below 1,000 feet AGL over the Pee Posh Wetland nesting site or the artificial nesting site, including during nesting season.

⁷¹ <http://www.swbmc.org/nestSites.html>. Accessed on February 14, 2018.

⁷² Indian Country News. "2 baby bald eagles die in Arizona tribal land fire". April 2012. Accessed 10 February 2018. <http://www.indiancountrynews.com/index.php/culture/wildlife/12479-2-baby-bald-eagles-die-in-arizona-tribal-land-fire>

⁷³ Gila River Indian Community Newspaper. Online. "Arizona's Only Artificial Bald Eagle's Nest Raised in the Community." October 20, 2017. Accessed 10 February 2018. <http://www.gricnews.org/index.php/grin-articles/2017-articles/october-20-2017-articles/arizonas-only-artificial-bald-eagles-nest-raised-in-the-community>

Appendix E, *Biological Resources Analysis* contains copies of the FAA Biological assessment and correspondence with USFWS.

5.4 Department of Transportation Act, Section 4(f)

An impact on properties protected under Section 4(f) of the Department of Transportation Act is one of the factors FAA considers in determining whether there are extraordinary circumstances that would preclude use of a CATEX to satisfy NEPA requirements for a proposed action. Section 4(f), as amended and re-codified at 49 U.S.C. § 303(c), states that, subject to exceptions for *de minimis* impacts⁷⁴:

... 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 and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance,⁷⁵ (as determined by the officials having jurisdiction over the park, area, refuge, or site) only if . . . there is no feasible and prudent alternative to the use of such land and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

As noted above, the Proposed Action does not involve land acquisition, physical disturbance, or construction activities. However, the term “use” within the meaning of Section 4(f), includes not only direct physical impacts or occupation of a Section 4(f) resource, but also “constructive” use resulting from impacts to Section 4(f) properties. A constructive use can occur when an action’s noise, air pollution, water pollution, or other impacts are so severe that the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. In determining whether an FAA action would result in the constructive use of a Section 4(f) property, the FAA must consult the appropriate official(s) having jurisdiction over the property to identify the activities, features, or attributes that qualify the property for protection under Section 4(f) and assess whether project-related impacts would substantially impair them. In the case of public parks, recreation areas, and wildlife and waterfowl refuges, the official with jurisdiction is the official of the agency or agencies that own or administer the property in question, who has authority to represent the agency on matters related to the property. In the case of historic sites, the official with jurisdiction is the State Historic

⁷⁴ The term “highly controversial on environmental grounds” means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action’s environmental impacts or over the action’s risks of causing environmental harm. FAA Order 1050.1F. Section 5-2.b.(10).

⁷⁵ There is no prescribed format; however, the documentation should cite the CATEX(s) used, describe how the proposed action fits within the category of actions described in the CATEX, and explain that there are no extraordinary circumstances that would preclude the proposed action from being categorically excluded.” FAA Order 1050.1F. Section 5-3.d.

Preservation Officer (SHPO), or the Tribal Historic Preservation Officer (THPO)⁷⁶ if the property is located on tribal land.

The FAA may rely on the land use compatibility guidelines in 14 CFR part 150 to determine whether there is a constructive use by noise where the land uses specified in the part 150 guidelines are relevant to the value, significance, and enjoyment of the Section 4(f) lands in question. For example, the FAA may rely on the part 150 guidelines for outdoor sports arenas and spectator sports, golf courses and water recreation in evaluating constructive use of lands devoted to those recreational activities. The FAA may also rely upon the part 150 guidelines for residential use to evaluate noise impacts on historic properties that are in use as residences. If a historic house or neighborhood is significant only for its architecture, then project-related noise would not substantially impair the characteristics that make it eligible for protection under Section 4(f) and would not constitute a constructive use. However, the Part 150 guidelines may be insufficient to determine the noise impact on certain types of Section 4(f) properties where a quiet setting is a generally recognized purpose and attribute (e.g., where it has been identified as a contributing factor to a historic site's significance, such as a historic village preserved specifically to convey the atmosphere of rural life in an earlier era or a traditional cultural property). In determining whether to apply the Part 150 guidelines to Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks, national wildlife and waterfowl refuges, and historic sites), the FAA must weigh additional factors such as the impacts of noise on the expectations and purposes of people visiting areas where other noise is very low and a quiet setting is a generally recognized purpose and attribute.

Section 4(f) Analysis

The Proposed Action would not result in noise levels at properties protected by Section 4(f) that would be incompatible with the land uses specified in the Part 150 guidelines. In addition, the results of the noise screening analysis indicated no significant changes in noise exposure levels as a result of the Proposed Action. The FAA consulted with the Arizona SHPO, the City of Phoenix Historic Preservation Office (CHPO), and the federally recognized tribes of the Ak Chin Indian Community of the Maricopa, the Fort McDowell Yavapai Nation, the Gila River Indian Community THPO, and the Salt River Pima-Maricopa Indian Community officials with jurisdiction over historic properties protected under Section 4(f) in the study area. The consultation process did not identify any resources for which different standards would be necessary to assess whether project related impacts would substantially impair the activities, features, or attributes that qualify the property for protection under Section 4(f). Therefore, the FAA has concluded that the Proposed Action would not result in a constructive use of properties protected by Section 4(f).

⁷⁶ If the property is on tribal lands, but the tribe has not assumed the responsibilities of the SHPO, a representative designated by the tribe is recognized as an official with jurisdiction in addition to the SHPO.

5.5 Historical, Architectural, Archaeological and Cultural Resources

An adverse effect on cultural resources protected under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101 et seq., as amended) that results in a significant impact is another extraordinary circumstance that would preclude use of a CATEX. Section 106 requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing in the National Register of Historic Places (“National Register”). For the purposes of Section 106 of the NHPA, the undertaking is the Proposed Action described above. Compliance with Section 106 requires consultation to identify historic properties that might be affected by the undertaking and develop approaches to avoid, minimize or mitigate any adverse effects on those properties. The specific requirements for consultation are set forth in regulations of the Advisory Council on Historic Preservation at 36 CFR part 800.

The FAA initiated consultation on Step One in December 2017 with the Arizona SHPO, and the City of Phoenix CHPO. Because some of the potential effects of the undertaking could occur on the Gila River Indian Community tribal lands, the FAA initiated consultation in December 2017 with the Gila River Indian Community THPO. The FAA also contacted other federally recognized tribes including the Ak-Chin Indian Community of the Maricopa, the Fort McDowell Yavapai Nation, the Salt River Pima-Maricopa Indian Community, and the Tohono O’odham Nation based on the potential affects to historic properties identified as having religious or cultural significance to those tribes. In consultation with the THPO, the FAA learned that the Ak-Chin Indian Community of the Maricopa, the Salt River Pima-Maricopa Indian Community, and the Tohono O’odham Nation asked the Gila River Indian Community to represent their interests in this formal consultation. In February 2018, the FAA initiated consultation with the historic neighborhood Petitioners (“Historic Neighborhood Associations”).⁷⁷

Step 1A Section 106 Consultation

Separately, the FAA concluded the Section 106 consultation process for the Step 1A Proposed Action on March 21, 2018. The FAA revised the action under Step 1A in order to make the WETAL RNAV SID unavailable to aircraft pending further evaluation and consultation pursuant to Section 106. The Arizona SHPO and the CHPO concurred with the finding of “no historic properties affected for the rerouting of flight paths” proposed in Step 1A. Correspondence from the SHPO and CHPO are available in Appendix C *Consultation Correspondence* of the Final Environmental Review for Step 1A located at https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/

⁷⁷ The Historic Neighborhood Petitioners are the Encanto-Palmcroft Historic Preservation Association; Roosevelt Action Association; Willo Neighborhood Association; Story Preservation Association

Step 1B Section 106 Consultation

The proposed procedures in Step 1B would replace the procedures in Step 1A thereby completing the implementation of Step One consistent with the Memorandum. The FAA determined that the undertaking of implementing nine new RNAV SIDs would have the potential to affect historic properties. Consistent with suggestions from the SHPO and CHPO, the FAA considered the potential for overflights to introduce visual, atmospheric or auditory elements to historic properties.

Area of Potential Effects

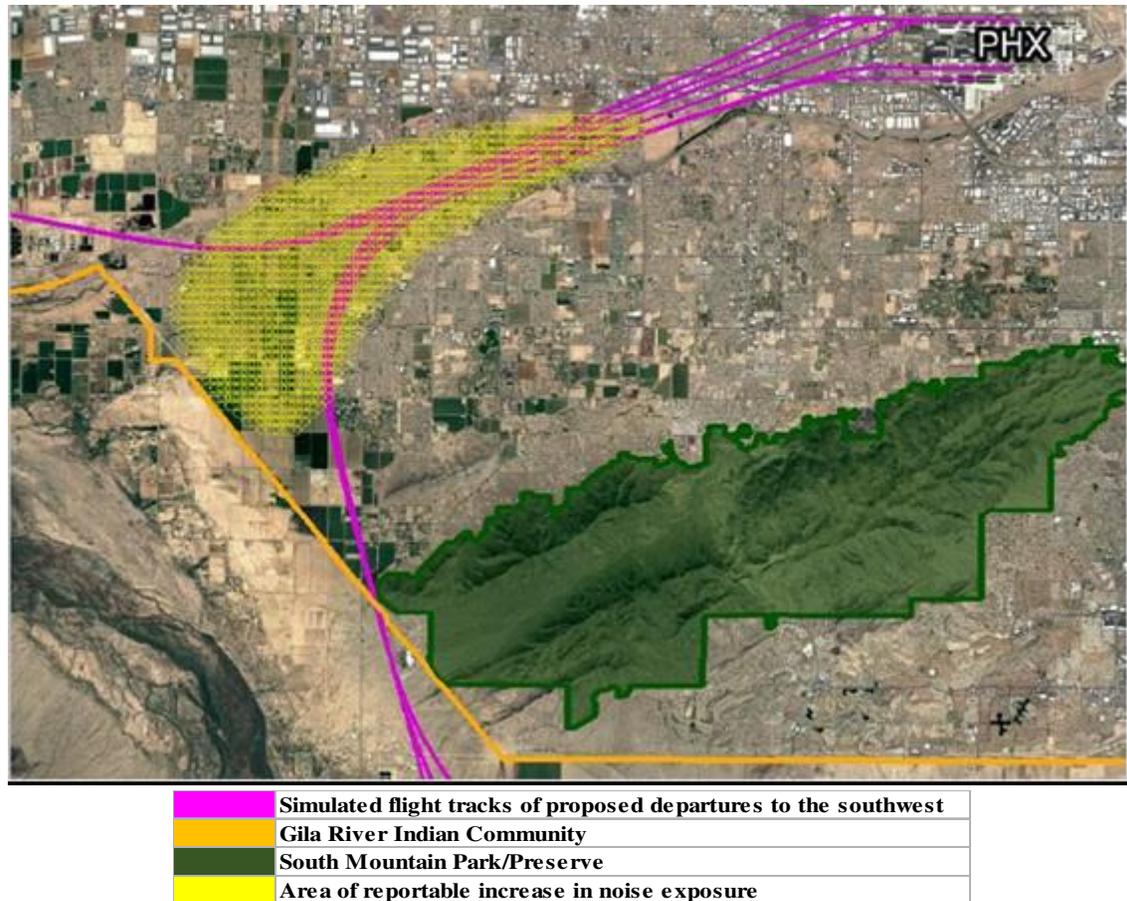
The Area of Potential Effects (APE) under Section 106 is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alternation in the character or use of historic properties, if any such properties are present (36 CFR § 800.16(d)). The APE is influenced by the scale and nature of the undertaking and may vary for different kinds of effects caused by the undertaking. “Effects” are further defined by the regulations as alterations to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

Noise Based APE

Because this undertaking does not require land acquisition, construction, or other ground disturbance, there would be no direct physical effects to historic resources. Therefore, potential effects are limited to effects from aircraft overflights, primarily noise. The FAA originally proposed an APE encompassing areas that could receive reportable noise increases from aircraft overflights within the General Study Area.⁷⁸ The proposed APE identified areas that are projected to receive noise increases of DNL +5 dB or more within areas exposed to the DNL 45 - 60 dB. The FAA updated this proposed APE for noise to reflect more recent analysis, as depicted in Figure 5.4-1.

⁷⁸ Refer to Appendix D, *Draft Noise Screening Report*, Draft Environmental Review (January 2018) at https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/.

Figure 5.4-1: Area of Reportable Change in Noise with Overlay of Proposed Procedures

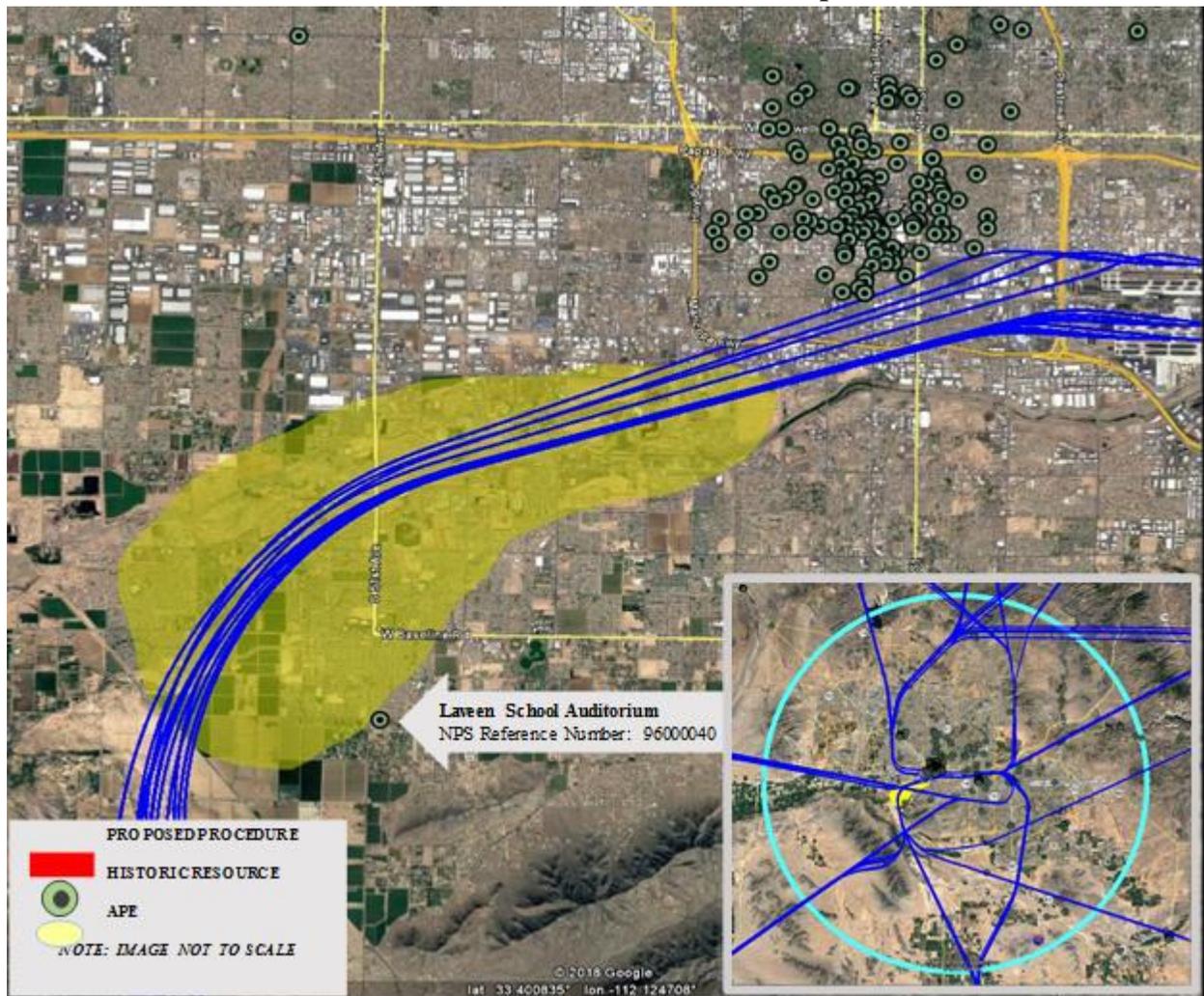


The FAA’s noise screening analysis indicated that the undertaking would not result in changes to noise exposure that exceed the FAA’s significant noise threshold. Recognizing that some types of historic properties may be affected even at a noise level below these thresholds, the FAA considered the characteristics of those properties that have been identified as eligible for listing in the National Register within this APE.

Identification of Historical, Architectural, Archeological, and Cultural Resources

Section 106 regulations direct federal agencies to make reasonable and good faith efforts to identify historic properties within the APE (36 CFR § 800.4(b)(1)). One historic property listed in the National Register, the Laveen School Auditorium was identified near the APE, as shown in Figure 5.4-2.

Figure 5.4-2. Area of Potential Effect with Overlay of Proposed Procedures and the Location of Listed Historic Properties



The Laveen School Auditorium (National Register reference number National Park Service 96000040) is located at 5001 West Dobbins Road, Laveen, Arizona, near the southwestern boundary of the APE. The Laveen School Auditorium, first constructed in 1925 as the Laveen Women’s Club Hall and used for club meetings, dances, plays, and community gatherings was donated to the school in 1940 and, with financial assistance from the Work Projects Administration (WPA), was dismantled from its original location and moved about a quarter mile east to the school property where it was placed over a basement dug for that purpose and rebuilt with adobe walls. Once reconstructed on the Laveen School campus, it was used as a cafeteria, as well as for home economics and shop classes. The property is significant to the local Laveen community as an example of the trend of rural school centralization in Arizona, and representative of Federal WPA construction. After 1988, the building was retired from active educational use. The function of the property was identified as “storage” per the National Register registration form dated January 16, 1996. It was subsequently used as meeting space for community organizations, according to the Laveen School District web site (<http://www.laveeneld.org/about-laveen/history/>).

Several other properties in the APE have previously been identified as eligible for the National Register:

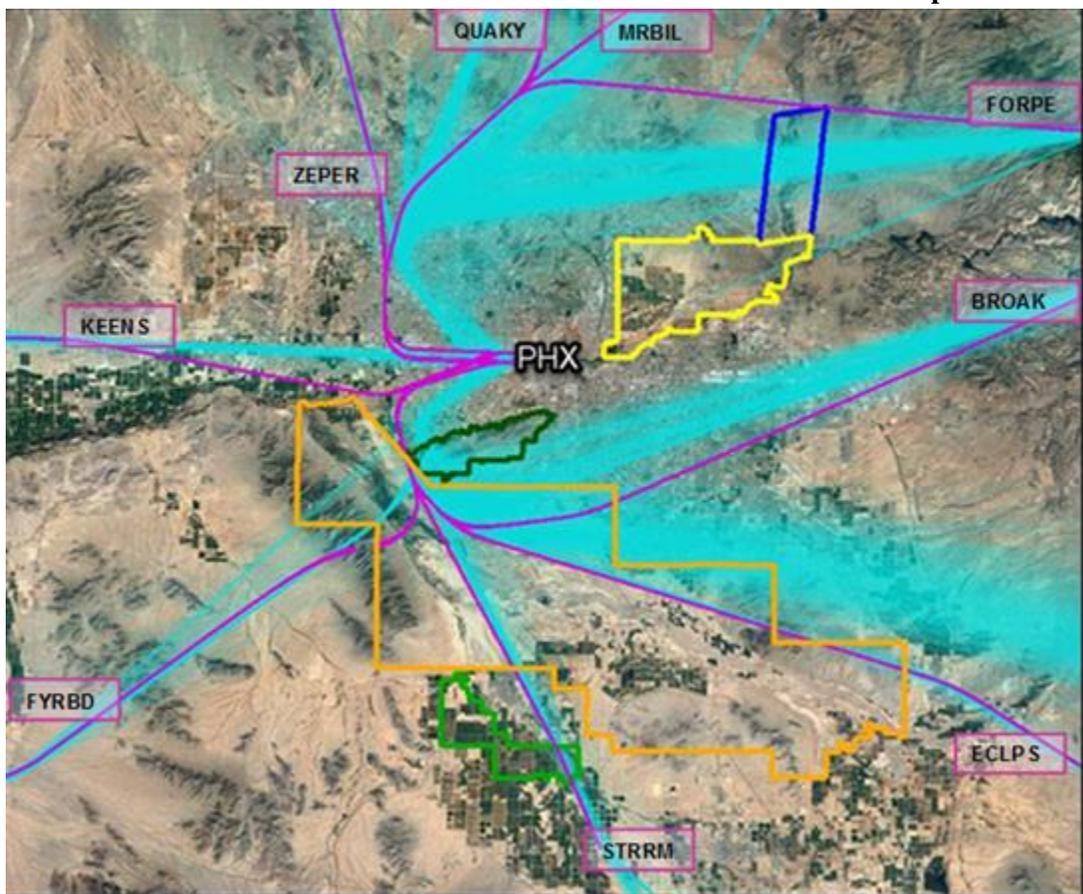
- the Hudson Farm District
- the Hackin Farmstead and Dairy Barn
- the Tyson House and Barnes Dairy barn

Consultation did not identify any historic properties within the noise based APE for which a quiet setting is a characteristic that qualifies it for the National Register, and that therefore could be affected at a lower level of noise exposure.

Overflight Based APE

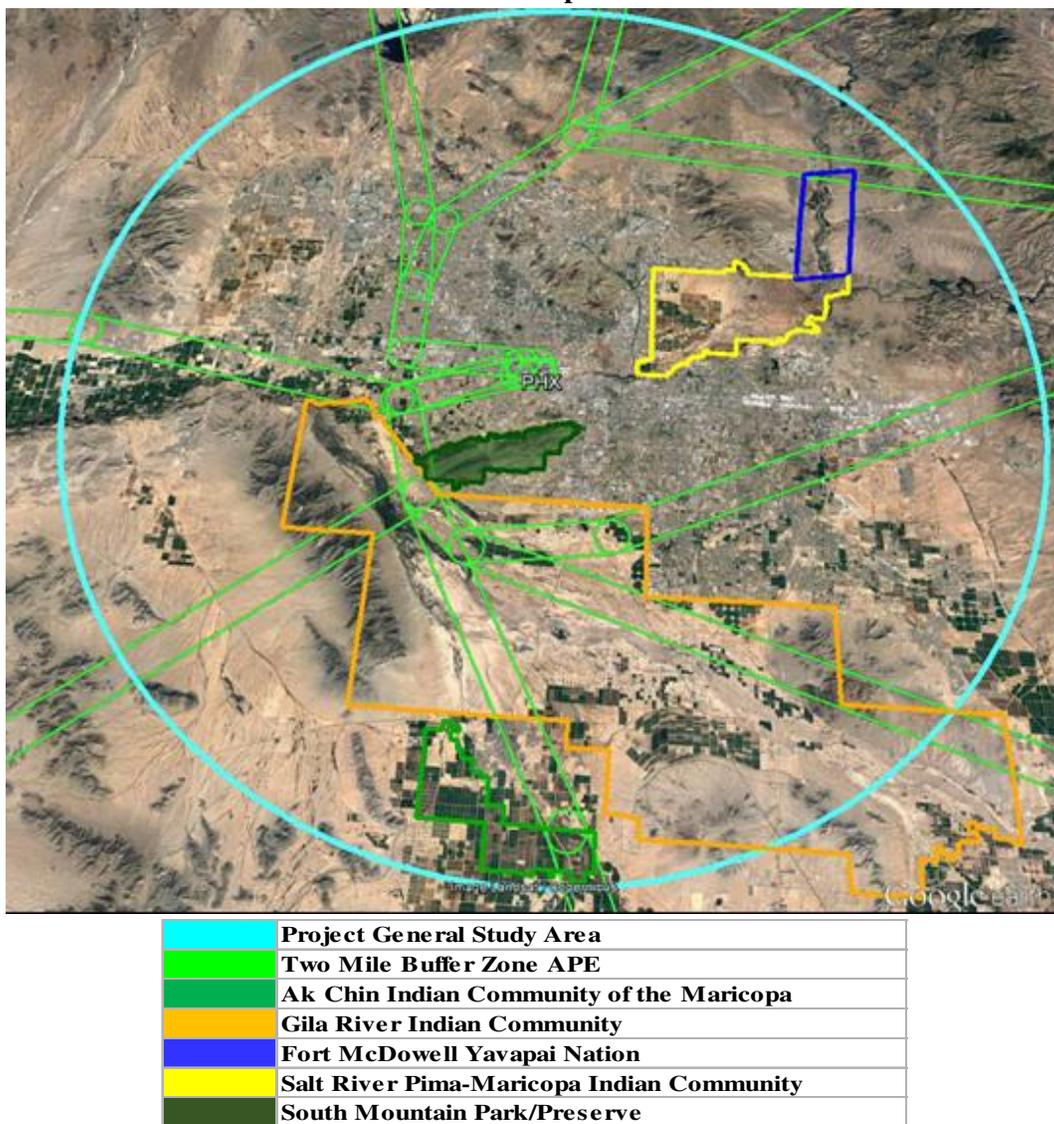
Through initial consultation conducted with the consulting parties, the FAA was made aware of the presence of traditional cultural properties in the area overflown by aircraft departing west and turning south. As part of the consultation process for Step 1B, these traditional cultural properties were assessed to consider their sensitivity to effects of overflights that introduce a visual, atmospheric, or auditory element. Figure 5.4-3 below depicts the simulated centerlines of the proposed procedures departing to the west.

Figure 5.4-3: Simulated Centerlines of the of the nine west flow RNAV SID Proposed Procedures



The SHPO and the CHPO proposed an alternate APE consisting of a two-mile buffer zone around each proposed departure route in order to assess the indirect effects (i.e., visual, atmospheric or auditory) to historic properties. In response to the SHPO's and CHPO's recommendation and further consultation with the Gila River Indian Community,⁷⁹ the FAA established a second APE to encompass the potential for the introduction of visual, atmospheric, or auditory elements that could diminish the integrity of a property's historic features. As shown in Figure 5.4-4, the overflight based APE consists of a two mile buffer zone on the proposed west flow RNAV SIDs to assess the potential for overflights to introduce new visual, atmospheric or auditory elements in the area overflow by aircraft departing to the west from Phoenix Sky Harbor.

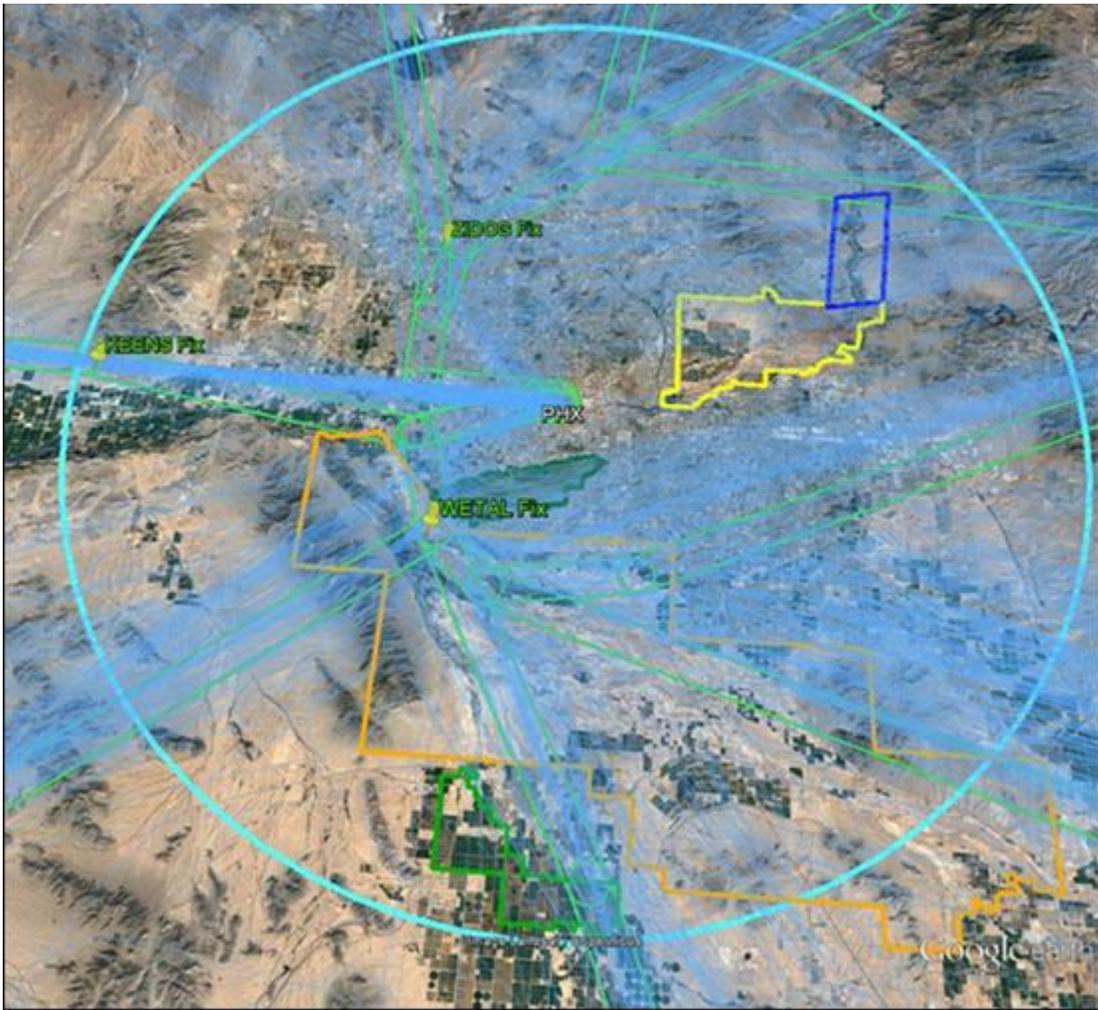
Figure 5.4-4: Proposed Area of Potential Effect Consisting of a Two-Mile Buffer Zone On the West Flow Proposed Procedures

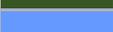
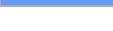


⁷⁹ Refer to Appendix C: Consultation Correspondence at https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/

The FAA compared the proposed procedures with current flight tracks, as shown in Figure 5.4-5, and determined that there would be no new areas overflowed and therefore no potential to introduce new visual, atmospheric or auditory elements that could diminish the integrity of a historic property. In addition, the FAA determined through consultation with the tribes that the proposed procedures would move flight tracks away from sensitive areas within the South Mountain traditional cultural properties and raise altitudes of aircraft overflying both South Mountain and Estrella Mountain, thereby reducing any existing impacts on those historic properties.

Figure 5.4-5: Proposed Area of Potential Effect Consisting of a Two-Mile Buffer Zone On the West Flow Proposed Procedures with Overlay of 2017 Flight Tracks



	Project General Study Area
	Two Mile Buffer Zone APE
	Ak Chin Indian Community of the Maricopa
	Gila River Indian Community
	Fort McDowell Yavapai Nation
	Salt River Pima-Maricopa Indian Community
	South Mountain Park/Preserve
	2017 Flight Tracks for West Flow Departures

Assessment of Effects

Implementation of the Proposed Action would involve changes to aircraft departure procedures, and would not include any project components that would touch or otherwise directly affect the ground surface. Archaeological resources such as surface or subsurface artifacts or other intact cultural deposits would not be disturbed since there would be no ground-disturbing activities (e.g., construction or demolition) associated with any project components included in the Proposed Action.

Consequently, the assessment of effects was limited to the introduction of atmospheric, audible or visual features resulting from aircraft overflights. The proposed action would have an effect on a historic property if it altered the characteristics qualifying that property for the National Register. Such effects are considered “adverse” if they would diminish the integrity of a property’s significant historic features (including its setting, provided the setting is a contributing factor to the property’s historic significance).

The FAA consulted with the SHPO, CHPO, the Gila River Indian Community THPO, and other consulting parties on the effects of the undertaking to determine if noise or the introduction of atmospheric, audible or visual elements would adversely affect historic properties. On April 9, 2018, the FAA notified the SHPO, the CHPO, the Gila River Indian Community THPO, the Historic Neighborhood Associations, and other consulting parties, of the above-described Proposed Action and proposed a finding of “no adverse effect” to historic properties for the nine proposed RNAV SIDs. The FAA received no objections from any consulting party to the finding that the Proposed Action presents no adverse effects on cultural resources and historic properties. The FAA therefore is making a final finding of “no adverse effect,” thereby completing the process under Section 106 of the NHPA for Step 1B. Appendix C, *Consultation Correspondence* summarizes and includes copies of correspondence with the consulting parties.

5.6 Environmental Justice

This section addresses the potential for impacts on minority⁸⁰ and low-income populations of the Proposed Action as compared with No Action. In weighing whether the proposed action raises environmental justice concerns, the FAA considers whether a proposed action may have disproportionately high and adverse human health or environmental effects on minority and low-income populations. This analysis draws on the findings of the other impact analyses, particularly noise, land use, and air quality.

⁸⁰ DOT Order 5610.2(a) defines “minority” as a person who is Black: a person having origins in any of the black racial groups of Africa; Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race; Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent; American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America) and who maintains cultural identification through tribal affiliation or community recognition; or Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. A minority population is any readily identifiable group of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Meaningful Involvement* means that:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- their concerns will be considered in the decision making process; and
- the decision makers seek out and facilitate the involvement of those potentially affected.

The following executive orders and guidelines require federal agencies to consider the effects of their actions on minority and low income populations (Environmental Justice):

- Executive Order 12989, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629)
- U.S. Department of Transportation (U.S.DOT) Order 5610.2, *Environmental Justice in Minority and Low Income Populations*
- *Environmental Justice: Guidance Under the National Environmental Policy Act (CEQ, 1997)*
- *Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews*, (EPA, 1999)

Requirements for assessing potential impacts to minority and low-income populations are addressed in Paragraph 2-5.2.b of FAA Order 1050.1F. As stated in the Order, the FAA must provide for meaningful public involvement by minority and low-income populations. In accordance with DOT Order 5610.2(a), this public involvement must provide an opportunity for minority and low income populations to provide input on the analysis, including demographic analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. The public involvement process can also provide information on subsistence patterns of consumption of fish, vegetation, or wildlife. This information should be disclosed to potentially affected populations for proposed actions and alternative(s) that are likely to have a substantial effect and for Comprehensive Environmental Response, Compensation, and Liability Act sites.

An environmental justice analysis considers the potential of the Proposed Action to cause disproportionately high and adverse effects⁸¹ on low-income or minority populations due to significant impacts in other environmental impact categories; or impacts on the physical environment that affect an environmental justice population in a way that FAA determines are unique to the environmental justice population and significant to that population. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts.

The Proposed Action study area was determined by evaluating the potential noise changes on the west side of the airport for Phoenix Sky Harbor. The study area encompasses areas of Maricopa County, Arizona. The AEDT Environmental Justice module was used to identify these populations in the vicinity of Phoenix Sky Harbor. The AEDT Environmental Justice module relies on U.S. Census demographic data to identify communities that may include minority and low-income populations and may be candidates for outreach activities to ensure opportunities for meaningful involvement.⁸² AEDT incorporates Census 5-year American Community Survey data that includes low-income and minority information to the Block Group level. The intent of this analysis is to quantitatively identify populations potentially covered by the principles of environmental justice based on readily available Census data using standard techniques.

Within this study area, minority and low-income populations were identified by census block group and the percentages compared with the overall percentage of minority and low-income populations within the study area. Note that the data is presented by Census Block Group, and actual concentrations of poverty and minority populations may not be uniformly distributed within the block group.

Low-Income

Within the study area, the average low-income population is 30.9%. By comparison, using the same methodology, the average county level low-income population is 17.1% for Maricopa County. The average state level low-income population is 18.2% for Arizona. The average national level low-income population is 15.6%. Table 5-3 presents a summary of the county, state, and national level low-income percentages.

⁸¹ “Adverse effects” means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects. DOT Order 5610.2(a) provides the definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations.

⁸² The AEDT Environmental Justice module does not identify impacts to EJ populations from the proposed action or determine the potential for disproportionately high and adverse effects.

Table 5-3. Low-income data for the counties included in the Phoenix study area

State	County	County % Low-Income	State % Low-Income	National % Low-Income	Study Area % Low- Income
Arizona	Maricopa	17.1	18.2	15.6	30.9

Minority

Within the study area, the average minority population is 68.1%. For comparison, using the same methodology, the average county level minority population is 42.2%. The average state level minority population is 43.1% for Arizona. The average national minority population is 37.2% Table 5-4. presents a summary of the county, state, and national level minority percentages.

Table 5-4. Minority population data for the counties included in the Phoenix study area

State	County	County % Minority	State % Minority	National % Minority	Study Area % Minority
Arizona	Maricopa	42.2	43.1	37.2	68.1

Results

Some adverse impacts may not be significant impacts in another environmental impact category as defined by Exhibit 4-1 in FAA Order 1050.1F, yet they may be a significant impact when examined in the context of their effects on minority or low-income populations. As a result, the responsible FAA official must undertake a case-by-case analysis of an action’s unique facts.

Implementation of the Proposed Action would not adversely affect air quality or land use within the General Study Area. Additionally, the results of the noise screening analysis when comparing the No Action alternative to the Proposed Action alternative indicate that changes in noise exposure level would be below the threshold of significance for implementation of the Proposed Action. As a result, there are no disproportionate impacts on minority, or low-income populations as a result of the Proposed Action as compared to the No Action Alternative.

The following figures display the results of the AEDT analysis of identifying the location of minority and low-income populations within the study area. Figure 5.5-1 presents the boundary and demographics for the entire study area. Figure presents the demographic information at a higher zoom level to the west of the airport. Figure 5.5-3 presents the area of the reportable change in noise exposure in relation to the demographic information. Figure 5.5-4 through Figure 5.5-12 display the demographic information with the overlay of the proposed procedures, along with the historic tracks associated with the Pre-September 2014 flight paths.

Figure 5.5-1: Phoenix Sky Harbor Study Area and Demographics

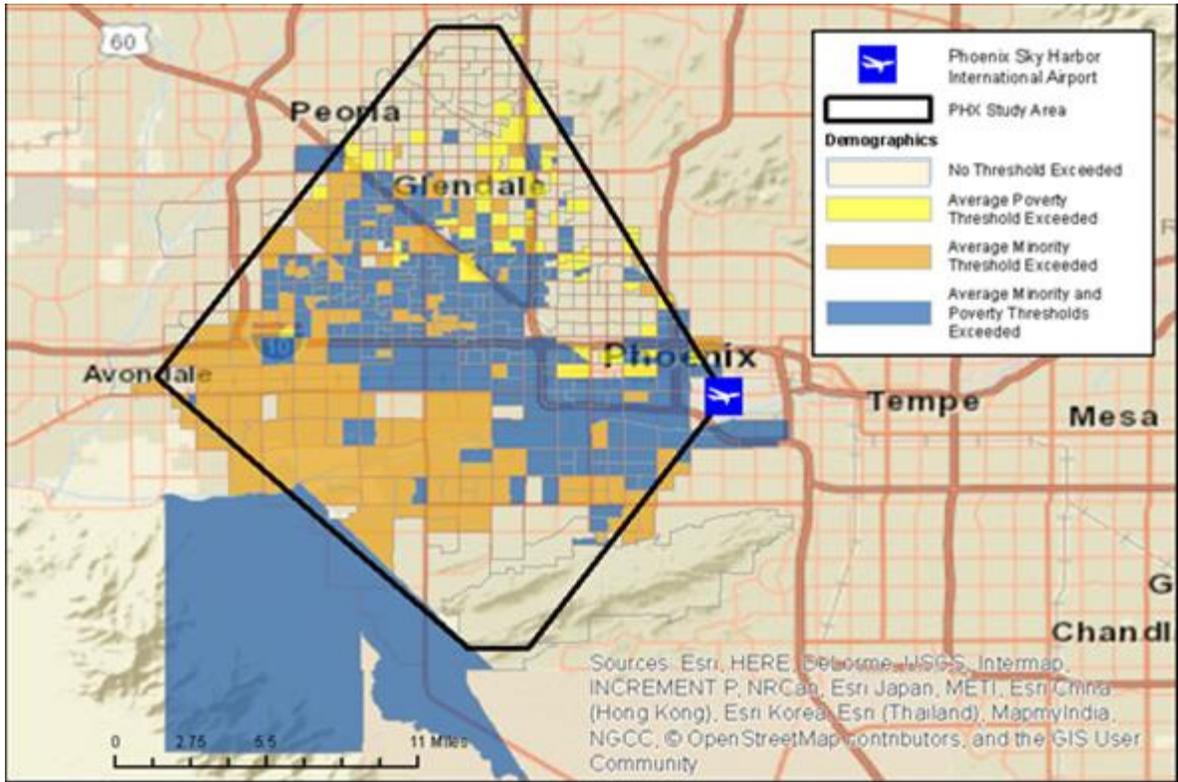


Figure 5.5-2: Close Up View of Phoenix Sky Harbor Study Area and Demographics.

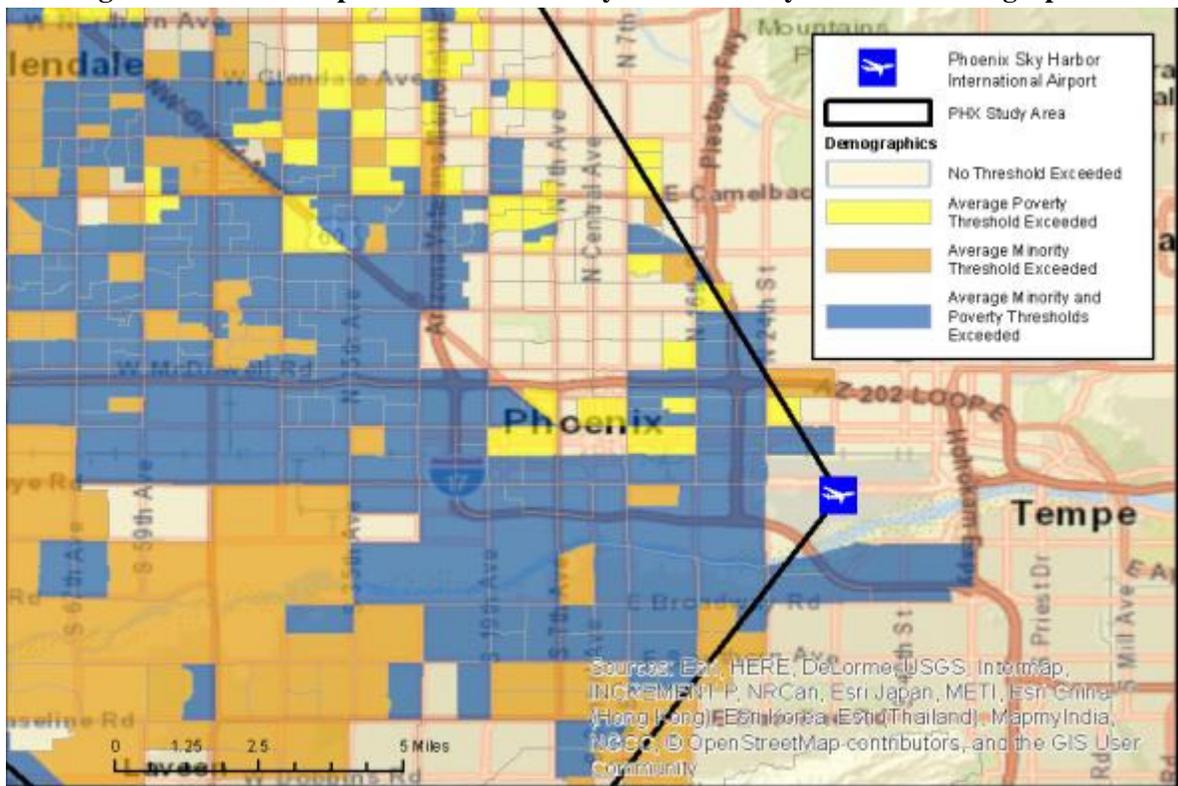


Figure 5.5-3: Reportable Change in Noise Exposure in the Phoenix Sky Harbor Study Area

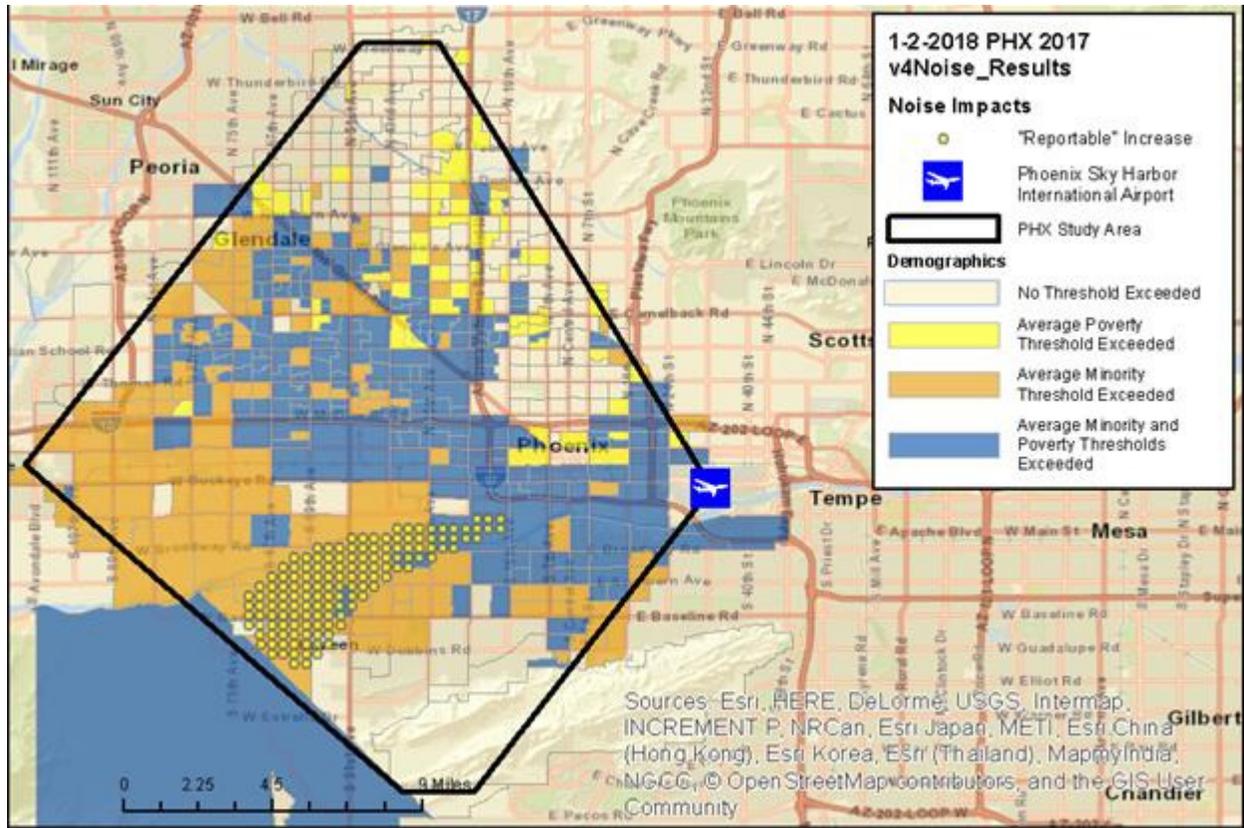


Figure 5.5-4: Proposed Departure Paths for BROAK Procedure and Historic Flight Tracks

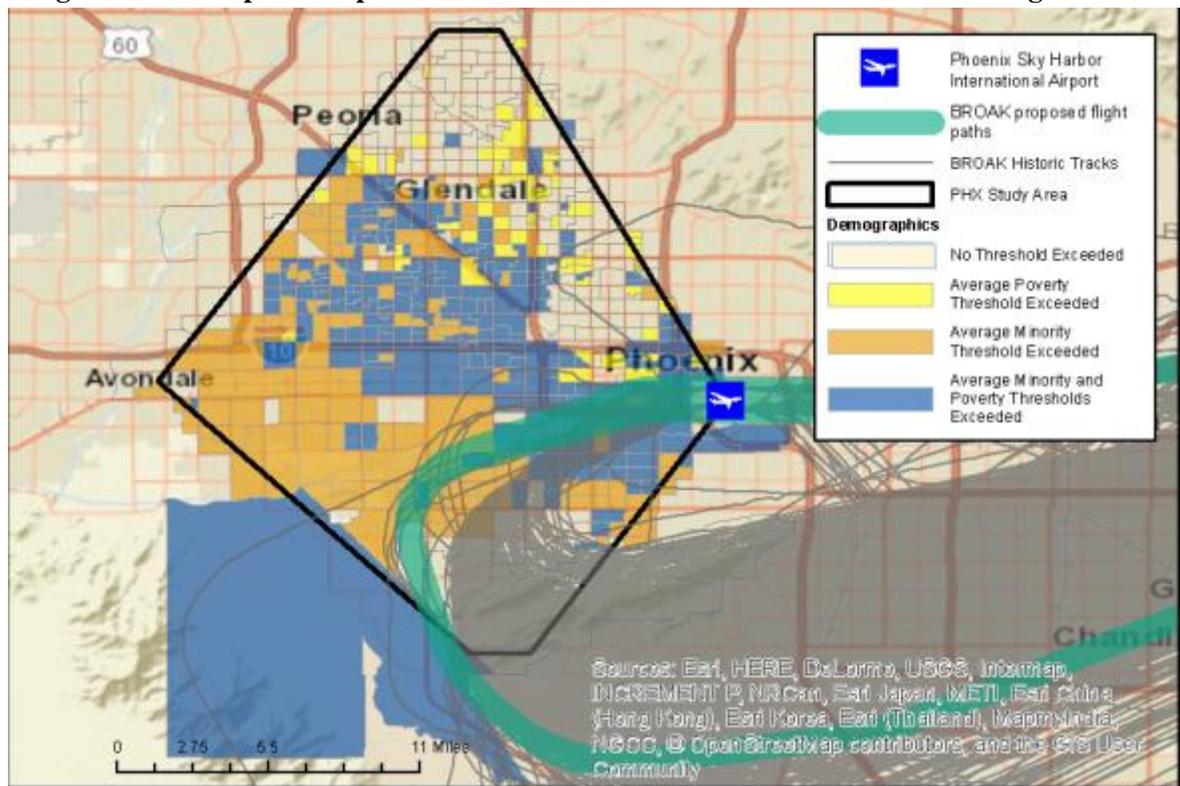


Figure 5.5-5: Proposed Departure Paths for ECLPS Procedure and Historic Flight Tracks

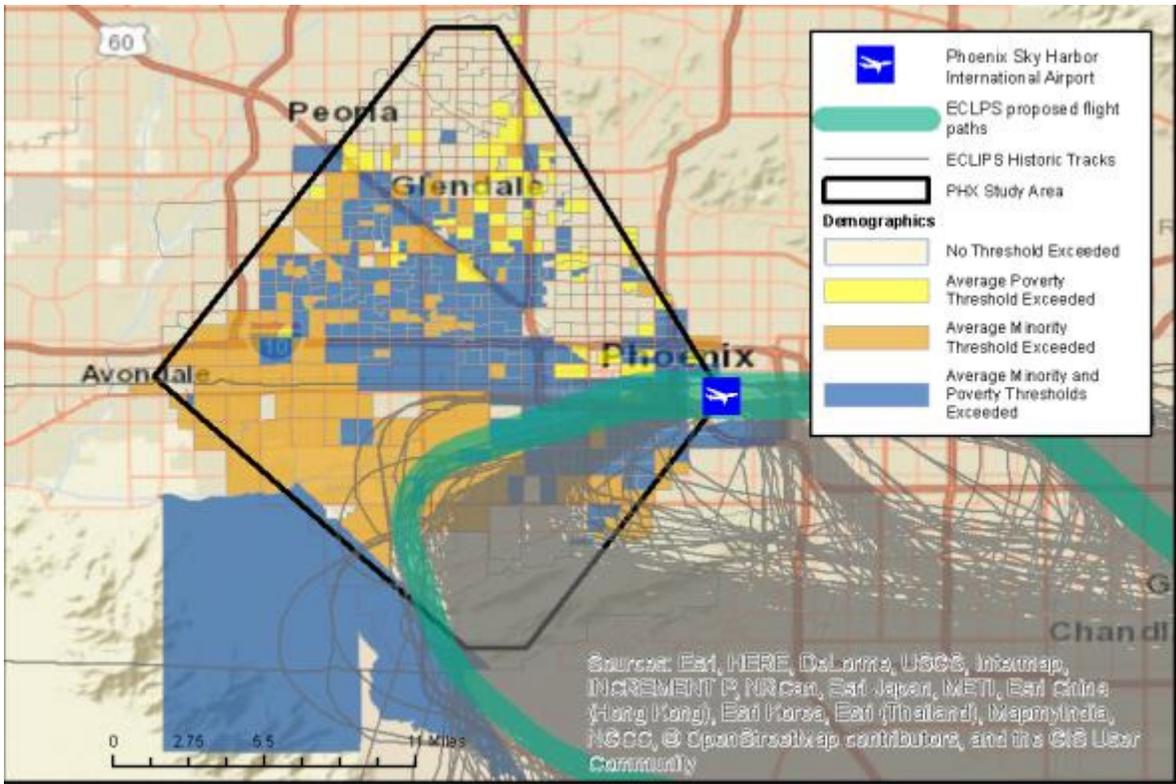


Figure 5.5-6: Proposed Departure Paths for FORPE Procedure and Historic Flight Tracks

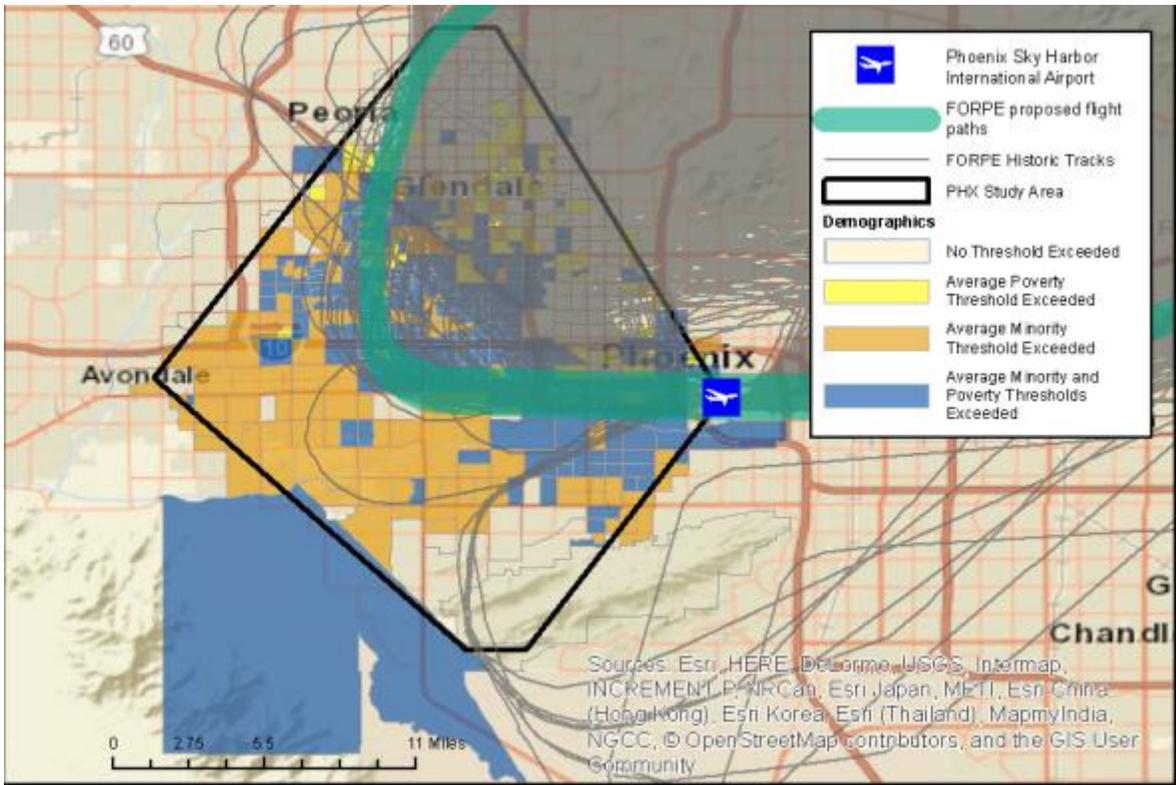


Figure 5.5-7: Proposed Departure Paths for FYRBD Procedure and Historic Flight Tracks

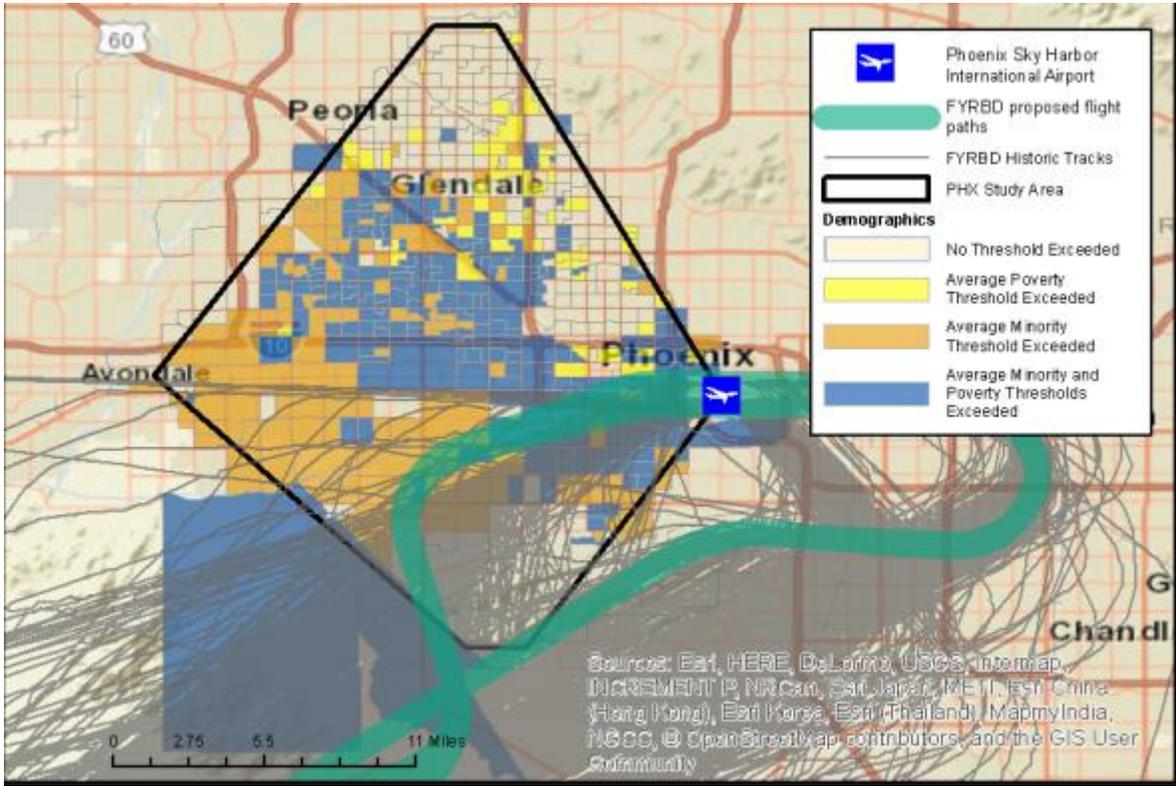


Figure 5.5-8: Proposed Departure Paths for KEENS Procedure and Historic Flight Tracks

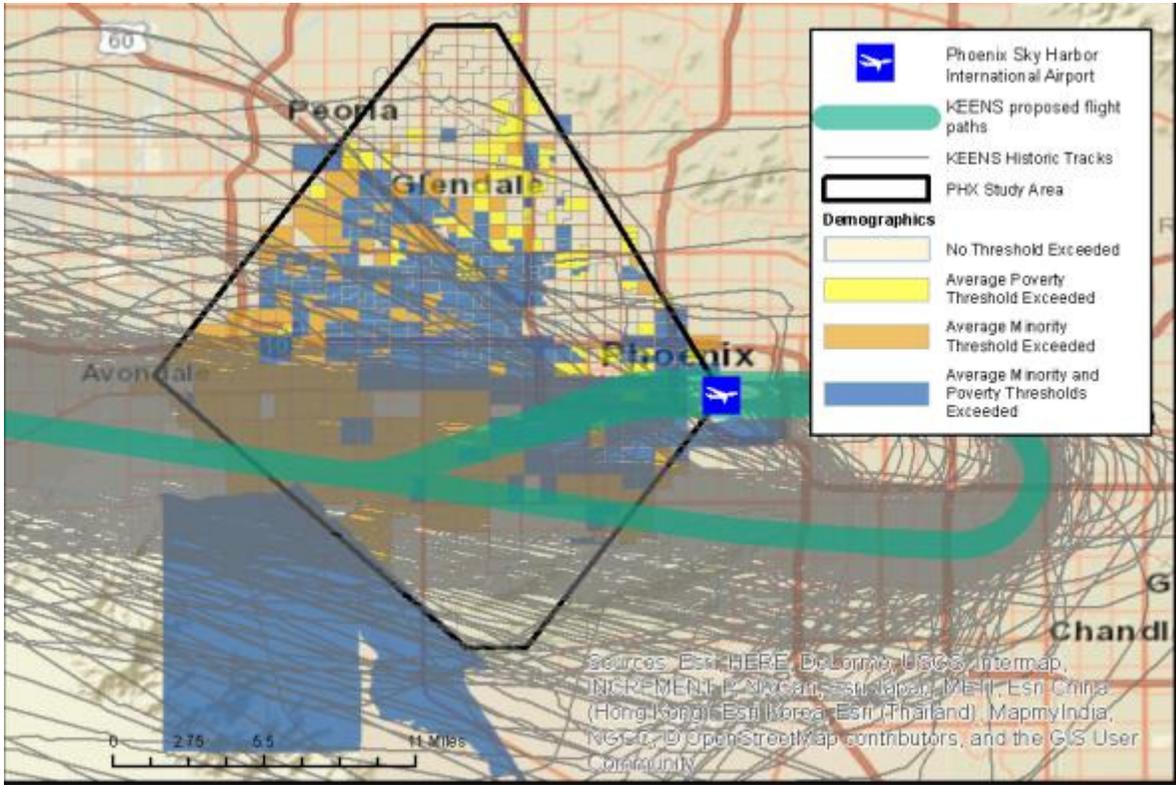


Figure 5.5-9: Proposed Departure Paths for MRBIL Procedure and Historic Flight Tracks

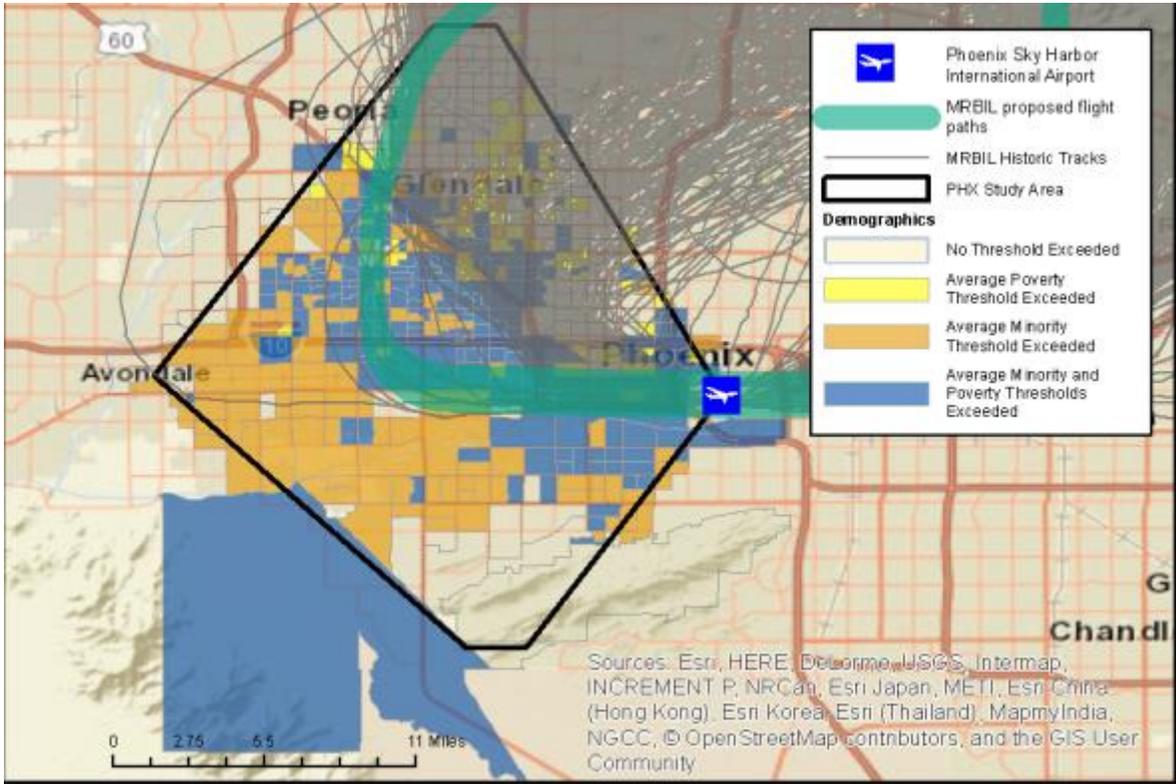


Figure 5.5-10: Proposed Departure Paths for QUAKY Procedure and Historic Flight Tracks

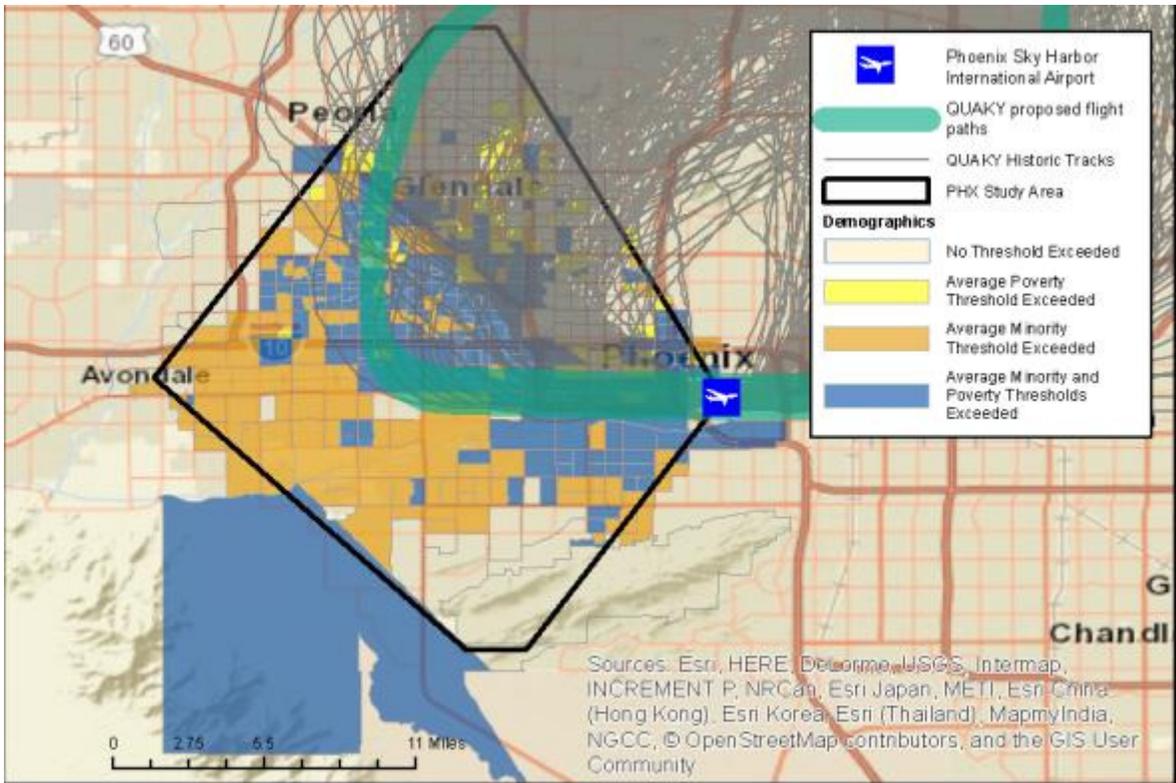


Figure 5.5-11: Proposed Departure Paths for STRRM Procedure and Historic Flight Tracks

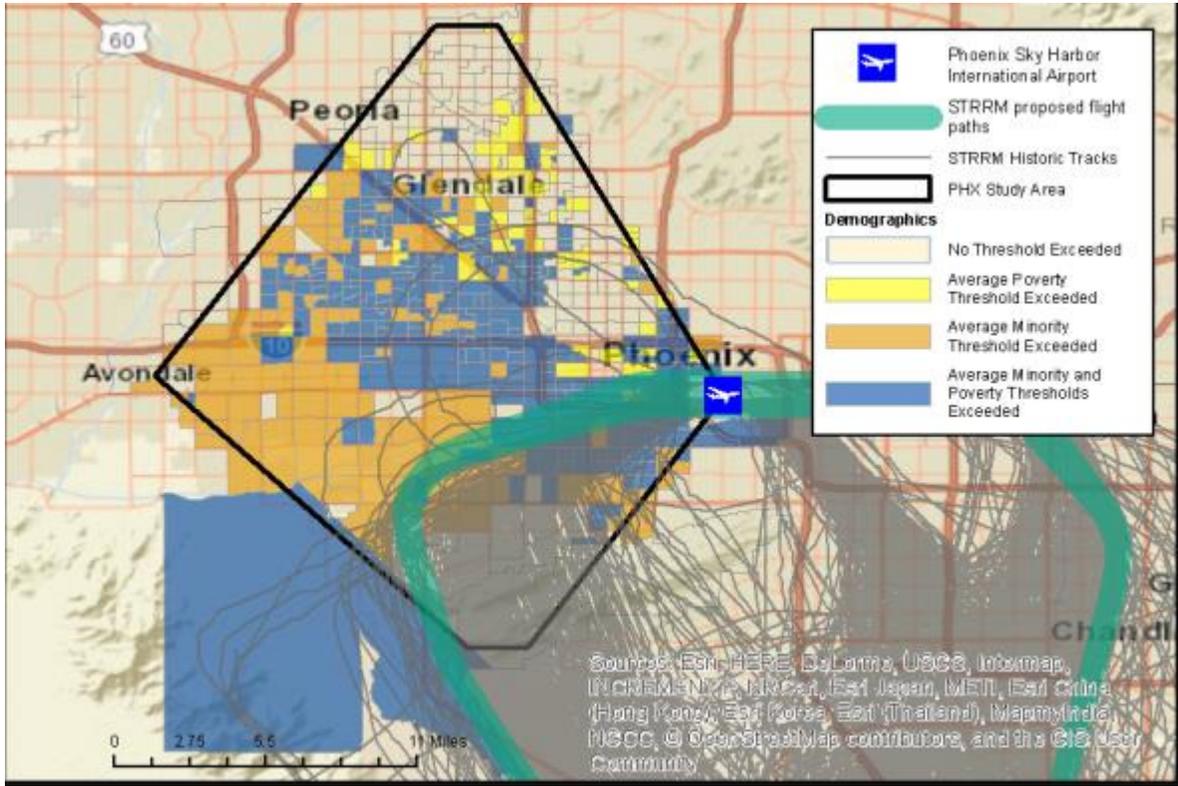
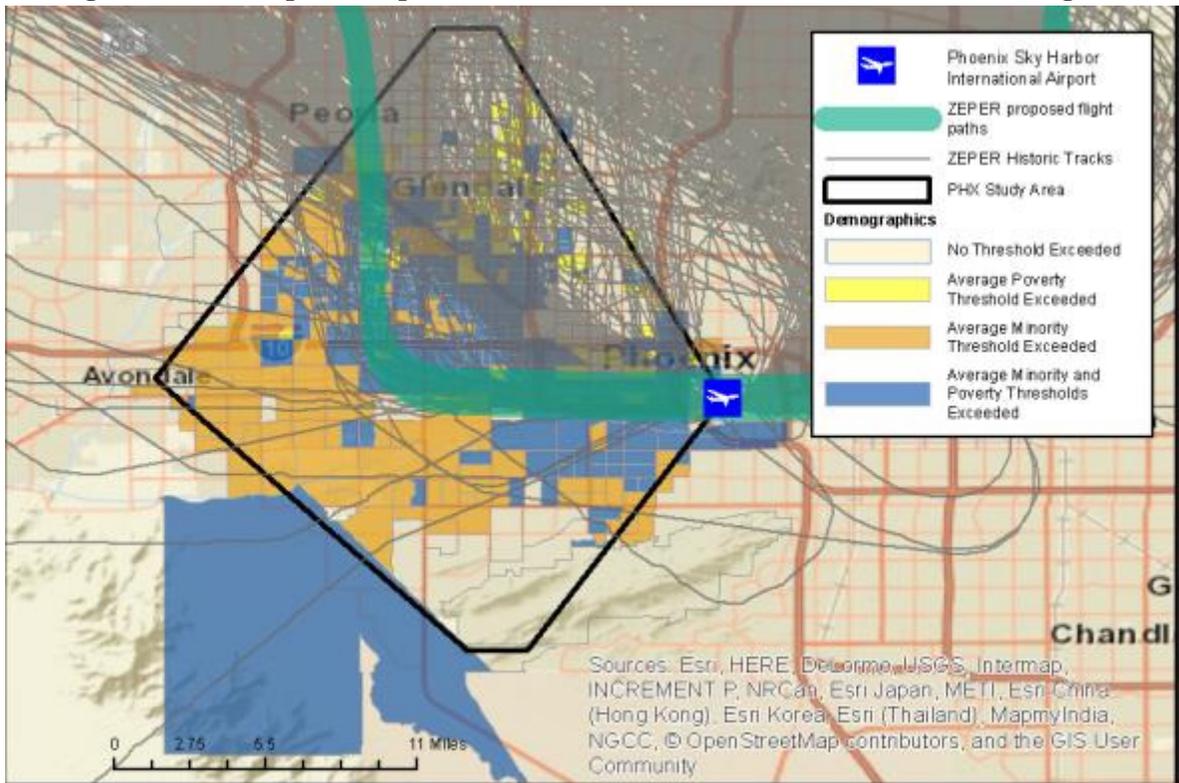


Figure 5.5-12: Proposed Departure Paths for ZEPER Procedure and Historic Flight Tracks



5.7 *Visual Effects*

The FAA considered the potential for visual impacts related to the shift in west flow departure flight paths on scenic resources of Federal, state, tribal, or local significance, which if significant could constitute an extraordinary circumstance precluding the use of a CATEX. Potential impacts resulting from the Proposed Action would be limited to short-term discrete effects resulting from aircraft overflights. Lands sensitive to visual impacts include National Parks, National Wilderness Areas, and Tribal lands. The aircraft overflights above scenic and otherwise sensitive land use settings may be perceived as annoying or intrusive.

The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects. Consultation pursuant to Section 106 and Section 4(f), described above, identified resources that could have been visually affected by the Proposed Action. As noted above, it was determined that there would be no new areas overflowed and that the Proposed Action would not result in an introduction of new atmospheric, visual, or auditory elements that could diminish the integrity of historic and traditional cultural resources. The FAA has concluded that the Proposed Action would not have a significant visual effect on parks, wilderness areas, tribal lands and historic properties.

5.8 *Cumulative Impacts*

The likelihood that an action would cumulatively create a significant impact on the human environment is another extraordinary circumstance that the FAA must consider before categorically excluding an action from further NEPA review. A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions”.⁸³ Past, present, and reasonably foreseeable future action initiated by other Federal agencies, state, tribal, or local governments, or private entities must be considered in determining whether there are potential cumulative impacts. The GSA for the Proposed Action was used to define the geographic extent for the cumulative impacts analysis. The cumulative impacts analysis focuses on those resource areas that may be impacted by the Proposed Action in conjunction with the past, present, and reasonable foreseeable future actions.

Cumulative Analysis

The FAA has discretion to determine whether, and to what extent, information about past actions are useful for the analysis of the impacts of the proposed action and alternative(s). Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and

⁸³See 40 CFR § 1508.7 and CEQ’s Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (June 2005) at: http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-PastActsCumulEffects.pdf.

alternative(s). Present actions occurring in the same general time frame as the proposal may have noise or other environmental concerns that should be considered in conjunction with those that would be generated by the FAA proposed action and alternative(s) under consideration. Reasonably foreseeable future actions are actions that may affect projected impacts of a proposal and are not remote or speculative.

Noise and Noise-Compatible Land Use

In accordance with FAA Order 1050.1F, the significance of cumulative impacts should be determined in the same manner as the significance of direct and indirect impacts.⁸⁴ The Proposed Action is not anticipated to contribute to a cumulative noise impact. As discussed in Section 5.1, analysis of the predicted noise levels in conjunction with the Proposed Action indicate that changes in noise exposure level would be below the threshold of significance.

Air Quality

No projects or proposals have been identified that, when combined with the Proposed Action, would violate any aspect of the current State Implementation Plan or threaten the attainment status of the region. In addition, no projects or proposals have been identified that, when combined with the Proposed Action, would have substantial GHG emissions, or would lead to a violation of any Federal, state, or local air regulation. The cumulative impact of this proposed action on the global climate when added to other past, present, and reasonable foreseeable future actions is currently not scientifically predictable. Aviation has been calculated to contribute approximately three percent of global carbon dioxide (CO₂) emissions; and this contribution may grow to five percent by 2050. Actions are underway within the U.S. and by other nations to reduce aviation's contribution to climate change. Such measures include new aviation related technologies to reduce emissions and improve fuel efficiency, renewable alternative fuels with lower a carbon footprint, more efficient air traffic management, market-based measures and environmental regulations including an aircraft CO₂ standard. At present, there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO₂ emissions. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies, (e.g., NASA, NOAA, EPA, and DOE), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions, with quantified uncertainties for current and projected aviation scenarios under changing atmospheric conditions.

6.0 PUBLIC/COMMUNITY INVOLVEMENT

NEPA requires federal agencies to disclose to decision makers and the interested public a description of the potential environmental impacts that could arise from certain proposed federal actions. The FAA implements NEPA through FAA Order 1050.1F. In addition, the FAA's Community Involvement Manual reaffirms its commitment to inform and involve the public and to give meaningful consideration to community concerns and views as the FAA makes aviation decisions that affect them.

⁸⁴ FAA Order 1050.1F, Paragraph 15.3

The FAA recognizes the importance and value of public input in the environmental and historic review process. Therefore, the FAA used a variety of methods to conduct community outreach and solicit public comment. Notably, the FAA, with the assistance and cooperation of the City of Phoenix, held three public workshops in the greater Phoenix Metropolitan area between February 6 and February 8, 2018. The FAA published a public notice in the *Arizona Republic*, the *Arizona Informant*, and *La Voz* newspapers notifying the public that the FAA and the City of Phoenix would jointly host three public workshops as part of the community engagement process. The purpose of these workshops was to give the public a better understanding of the plan to address concerns about certain westerly routes that the FAA implemented in September 2014 at Phoenix Sky Harbor. In particular, the workshops informed the public about the proposed changes to western departure procedures at Phoenix Sky Harbor, consistent with the parties' Memorandum.

The workshop format consisted of multiple stations where representatives from the FAA and the City were available to answer questions. Each station provided information on a specific topic. These stations included an Air Traffic Control and Procedures station; an Environmental Computer station, which allowed the public to input an address to learn whether it was in an area of reportable noise change for the Proposed Action; an Environmental station; a Phoenix Airport station; a Legal station; a Feedback and Public Comment station; and an Interpreter/ADA⁸⁵ station. There was also a video presentation about the proposed departure procedures that attendees were invited to view. All materials that were presented at the workshop were also available online on the FAA's Community Involvement website for Phoenix.⁸⁶

In addition to the public workshops, the FAA held a public comment period from February 1 to February 16, 2018. The FAA received approximately 1,100 comments from private citizens and groups, elected officials, municipalities, and local, state and federal agencies. The FAA accepted comments at the workshops, online using the FAA Phoenix Community Involvement Website, through e-mail, and through regular mail. Many of the same issues were raised by multiple commenters as discussed below. There were approximately 845 comments related to the proposed Step One. All comments have been considered. Although the FAA will not respond individually to each comment, the FAA has prepared responses for each comment category listed in Table 6.0 below. Further, the FAA has considered these comments in developing the final procedure designs and in making a final NEPA determination. The FAA is providing these responses to comments as part of the Step 1B environmental documentation in Appendix F, *General Definitions and Topical Responses for Comments Categories*. The FAA grouped the Step One comments into seven categories. The assignment of a comment to a category occurred if there was a direct reference to that category or definition. A comment that contained a reference to more than one category was assigned to the additional categories as applicable.

⁸⁵ The American Disabilities Act (ADA) requires that public meetings be accessible to members of the public who have a disability to ensure they have the opportunity to participate.

⁸⁶ See https://www.faa.gov/nextgen/nextgen_near_you/community_involvement/phx/.

Below is a list of the categories and the number of Step One comments that fell within each category:

Table 6.0. Comment Categories

Comment Category	Number of Comments
Air quality/Emissions	38
Biological	5
Environmental Justice	7
Noise	549
Section 106	2
Other*	656
Workshop Comments/Feedback	42

**Contains all comments for Step 1 that did not reference any of the other six categories.*

Below are the general definitions that the FAA used to categorize the Step One comments and a description of the nature of the comments received.

- **Air Quality/Emissions** – A reference to airborne pollutants and/or claims of breathing issues caused by the introduction or existence of aircraft, etc. Some commenters wanted to know whether the Proposed Action would result in the exceedance of one or more of the National Ambient Air Quality Standards (NAAQS), established by the Environmental Protection Agency (EPA), for any time period analyzed. Some comments included a reference or references to pollutants directly related to jet exhaust, including soot, fuel (either visible residue or vapor odor), etc. Other comments related to potential greenhouse gases (GHG) emissions or other pollutants resulting from the Proposed Project. Some commenters wanted more information on the level of GHG emissions and what potential harm could be caused by these impacts including impacts regarding global climate change.
- **Biological** – Referencing wildlife and/or habitats. FAA received five comments related to biological resources. Some of these comments related to the potential for bird or bat strikes by aircraft. Some commenters also asked whether endangered or threatened species could be impacted by the Proposed Action.
- **Environmental Justice** – References and/or claims to a decision to place flight paths or aircraft over low income or minority neighborhoods. FAA received seven comments on potential environmental justice impacts including more information on the location of environmental justice communities. The environmental justice analysis considered the

potential of the Proposed Action to cause disproportionately high and adverse effects⁸⁷ on low-income or minority populations.

- **Noise** – A reference to noise directly related to aircraft that is either preexisting, or is expected to occur with the implementation of the proposed procedures. The majority of public comments on a specific environmental impact category related to noise impacts. This is normally the case for air traffic procedure changes or runway projects.
- **Section 106** – A reference to a specific resource or location that may require special consideration under Section 106 of the National Historic Preservation Act (i.e., historic or culturally significant properties). There were two comments related to the potential impacts of the proposal on historic properties. These issues included how potential noise impacts might affect historic properties.
- **Other** – A comment or portion of a comment that did not fall into any of the other categories. This also includes comments that solely described support or opposition to Step One. With respect to Step One, the FAA, City of Phoenix and historic property groups agreed that revising PHX western RNAV departure procedures to approximate the western departures that were in place before the September 2014 RNAV procedures was an acceptable approach for all parties. FAA received comments that were in favor of this approach. FAA also received many comments that did not agree with this approach, with some indicating that the current routes should remain in place. Other commenters wanted new routes developed. Some commenters also wanted procedures changed in addition to the western departure procedures.
- **Workshop Feedback** – FAA received 42 comments directly pertaining to the workshops (i.e., not related to air traffic, the proposed procedures, or the project itself).

Periodic postings to the FAA community involvement website were made to provide updated information related to the Proposed Action. These postings also included documentation related to the environmental review of the Proposed Action.

7.0 PREPARER(S)

The FAA Air Traffic Organization, Western Service Center, Operations Support Group is responsible for all of the information and representations contained herein.

⁸⁷ “Adverse effects” means the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects. DOT Order 5610.2(a) provides the definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations.