

Draft Environmental Assessment

Anchorage Terminal Area Airspace and Procedures Study

Prepared by:
United States Department of Transportation
Federal Aviation Administration



Anchorage, Alaska
October 2026

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I. Introduction

The National Environmental Policy Act of 1969 (NEPA), [42 United States Code (U.S.C.) § 4321 *et seq.*], requires federal agencies to disclose to decision makers and the interested public a clear, accurate description of the potential environmental impacts that could arise from proposed federal actions. Through NEPA, Congress has directed federal agencies to consider environmental factors in their planning and decision-making processes and to encourage public involvement in decisions that affect the quality of the human environment. As part of the NEPA process, federal agencies are required to consider the environmental effects of a Proposed Action, reasonable alternatives to a Proposed Action, and a No Action alternative (i.e., analyzing the potential environmental effects of not undertaking the Proposed Action). The Federal Aviation Administration (FAA) has established a process to ensure compliance with the provisions of NEPA through FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*.

The Proposed Action is called the Anchorage Terminal Area Airspace and Procedures Study (ATAAPS). ATAAPS seeks to optimize the airspace and aircraft arrival and departure procedures in the Anchorage basin and surrounding areas and address traffic system inefficiencies while also addressing national security concerns. It would also mitigate potential impacts associated with modifications to Instrument Landing System (ILS) flight procedures at nearby Elmendorf Air Force Base (EDF).

This Draft Environmental Assessment (DEA) documents the potential effects to the environment that could result from the implementation of the following air traffic control (ATC) components at certain airports in and around the Anchorage basin:

- New and revised instrument flight rules (IFR) procedures¹
- New and revised lateral and vertical airspace changes (regulatory changes)²
- New and revised lateral and vertical visual flight rules (VFR) traffic flows³

The airports⁴ included in this analysis are listed below, with their FAA identifier used throughout this document followed by their International Civil Aviation Organization (ICAO) identifier⁵ in parentheses:

- Ted Stevens Anchorage International Airport – ANC (PANC)
- Elmendorf Air Force Base – EDF (PAED)
- Bryant Army Airfield – FRN (PAFR)
- Kenai Municipal Airport – ENA (PAEN)
- Lake Hood Seaplane Base – LHD (PALH)
- Merrill Field Airport – MRI (PAMR)
- Warren “Bud” Woods Palmer Municipal Airport – PAQ (PAAQ)

¹ At airports such as ANC and EDF new procedures would be developed to deconflict arrivals into Runway 17 at EDF. Other current procedures would be amended to accommodate new procedures and approaches.

² Sections of the current Part 93 airspace would be modified, removed, or redefined. Some sections would be converted into Class C or D airspace.

³ VFR traffic flows would be modified to accommodate the new procedures and approaches and take advantage of efficiencies gained with new airspace changes.

⁴ To be considered an ATAAPS study airport, an airport must be served by the Proposed Action and must meet the criteria identified in *Federal Aviation Administration Requirements for Assessing Impacts Related to Noise and Noise-Compatible Land Use and Section 4(f) of the Department of Transportation Act* (49 U.S.C. § 303), provided in FAA Order 1050.1G, Appendix C. See Section 1.3 of this EA for additional information.

⁵ The FAA is responsible for assignment and tracking the designation of unique 3-character (letters only or numbers and letters except those beginning with the letters N, W, Y, and Z) identifiers for aircraft landing facilities published in US Department of Transportation, Federal Aviation Administration, FAA Order JO 7350.9GG, Location Identifiers, January 25, 2024.

- Soldotna Municipal Airport – SXQ (PASX)⁶

This DEA includes the following chapters and appendices:

- **Chapter 1: Introduction.** Chapter 1 provides basic background information on the air traffic system and airspace for ATAAPS, the Study Area, and the Study Airports.
- **Chapter 2: Purpose and Need.** Chapter 2 discusses the need (i.e., problem) and purpose (i.e., solution) for airspace and flight procedure modification, and identifies the Proposed Action.
- **Chapter 3: Alternatives.** Chapter 3 discusses the Proposed Action and the No Action alternative analyzed as part of the environmental review process.
- **Chapter 4: Affected Environment.** Chapter 4 discusses existing environmental conditions within the Study Area.
- **Chapter 5: Environmental Consequences.** Chapter 5 discusses the potential environmental impacts associated with the Proposed Action and the No Action alternative.
- **Appendix A: Basic Concepts of Performance Based Navigation (PBN) and Air Traffic Control (ATC).** Appendix A introduces the basic terminology and concepts related to ATC and the specialized components of air traffic navigation.
- **Appendix AA: Exhibits.** Appendix AA provides full size graphics of all exhibits within the document to facilitate greater legibility.
- **Appendix B: Air Traffic Components.** Appendix B is the comprehensive visualization of all the No Action and Proposed Action air traffic components.
- **Appendix C: Agency Coordination, Community Involvement, and List of Receiving Parties.** Appendix C documents agency coordination and community involvement associated with the DEA process and lists the local agencies and parties identified to receive copies of the Draft and potential Final EA (FEA) documents.
- **Appendix D: List of Preparers.** Appendix D lists the names and qualifications of the principal persons contributing information to this DEA.
- **Appendix E: Acronyms and Glossary.** Appendix E lists acronyms and provides a glossary of terms used in the DEA.
- **Appendix F: Basics of Noise.** Appendix F presents information on aircraft noise, as well as the general methodology used to analyze noise associated with aviation projects.
- **Appendix G: FAA Anchorage Terminal Area Airspace and Procedures Feasibility Study.** Appendix G contains the conceptual FAA Design Team background documentation preceding the proposed final designs.
- **Appendix H: Flight Schedules Technical Report.** Appendix H describes the methodology and inputs used to forecast air traffic for the Study Airports described in this DEA.
- **Appendix I: Noise Analysis Technical Report.** Appendix I presents detailed and technical information on the noise analysis conducted in support of this DEA.
- **Appendix J.** Appendix J is reserved for eventual public comments on the DEA and is not included in this DEA.

1.1 Project Background

ATAAPS⁷ was started in part because of improvements to the runway at Joint Base Elmendorf-

⁶ At ATAAPS inception, ENA, PMR, and SXQ were included as study airports and analyzed for potential airspace and procedure modifications. Therefore, they were included in the Existing Conditions analysis and ancillary enabling work. The Proposed Action does not include any changes to these airports, and the airport operations for these airports are unchanged from the Existing Conditions analysis except for independent utility actions not associated with the Proposed Action.

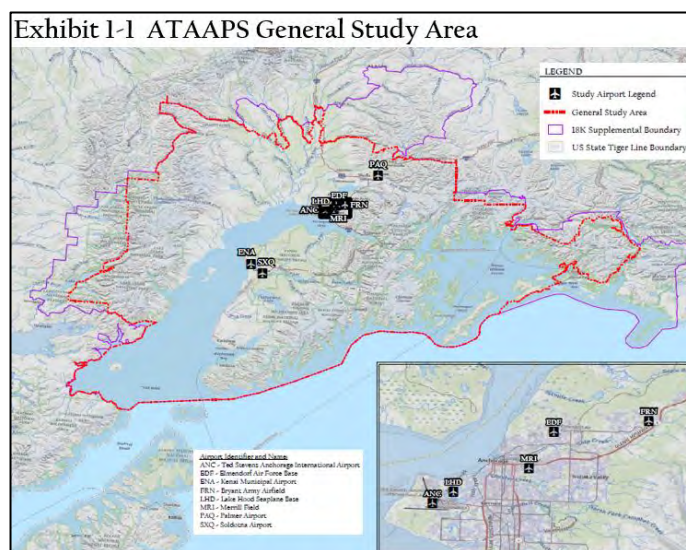
⁷ ATAAPS, and the associated proposed airspace and procedure changes, is being led by the FAA, with the United States Department of the Air Force (DAF) acting as a cooperating agency.

Richardson (JBER).⁸ Due to an increase in the number of JBER-based F-22 aircraft at Elmendorf Air Force Base (EDF) beginning around 2010, the USAF sought to improve F-22 operational efficiency, which would enable the F-22 maximum mission-specific air time from take-off to recovery (giving them more useful flying time during missions). The United States Air Force (USAF) issued a Record of Decision (ROD) in 2018 to extend Runway 17/35⁹ to the north for approximately 3,000 feet to create a 10,000-foot north-south runway and changing EDF F-22 launch and recovery operations to use this extended runway.¹⁰ The subsequent Runway 17/35 construction began in 2023.

In 2018, just prior to the Final Environmental Impact Statement (FEIS) ROD for EDF Runway 17/35, the FAA undertook a Feasibility Study examining the airspace and flight procedures implications related to the installation of an ILS to EDF Runway 17 (See Appendix G). The ATAAP Feasibility Study (2019) recommendations involve mitigating the impacts of the EDF ILS to Runway 17 and improving system efficiencies within the Anchorage basin.¹¹

The Feasibility Study stated that the ILS and missed approach procedures to EDF Runway 17 resulting from the Runway 17/35 modifications would negatively impact the current flow of air traffic to/from and within the Anchorage region. The EDF Class D airspace southern boundary is located less than one nautical mile (NM)¹² from the departure end of Runway 17. This distance would not accommodate necessary EDF air traffic operations without impact to MRI

operations. Exhibit 1-1 depicts the proximities of the airfields, while Section 1.5 discusses designated horizontal corridors (“segments”) with associated aircraft operational altitudes among the closely located airports in the Anchorage basin. *Please note that full-scale, detailed versions of all exhibits may be found in Appendix AA.* The FAA’s Feasibility Study (concluded May 2019) found that the current air traffic flow would be improved should EDF use Runway 17/35 instead of Runway 6/24 when conducting non-instrument approaches. The EDF ILS approach procedure to Runway 17 would have adverse impacts to the current traffic flow, but impacts could be mitigated by the use of advanced traffic management technology currently



While analyzing the impacts of the proposed ILS procedure to EDF, the FAA further examined system efficiencies within the Anchorage area. Recommendations included conducting an “in-

8 JBER is under United States Air Force (USAF) command as part of the Pacific Air Forces (PACAF) and is home to the Alaskan Command, 11th Air Force, Alaskan North American Air Defense region, Air National Guard, and the 3rd Wing.

9 JBER runway designations were 16/34 and 06/24 at this project's inception and have been updated due to Magnetic Variation changes to Runway 17/35 and 06/24.

10 Air Force Civil Engineer Center (AFCEC), US Air Force, and PACAF, JBER 673d CES. Draft Supplemental Environmental Assessment (SEA) for Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska and Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska Final Environmental Impact Statement.

11 US Department of Transportation, Federal Aviation Administration, *Anchorage Terminal Area Airspace and Procedures Feasibility Study*, May 2019, pgs. 1-2.

12 One nautical mile is equal to 6,076 feet, 1,852 meters, or 1.151 statute miles.

depth review of current airspace design to take advantage of new technological advancement in aviation, surveillance, and air traffic control, i.e., Performance Based Navigation (PBN) and Automatic Dependent Surveillance-Broadcast.” The ATAAPS Feasibility Study (2019) sought to develop potential notional instrument flight procedure designs that would safely accommodate the proposed physical ground-based changes in an already complex airport/airspace environment.

1.2 ATAAPS General Study Area

The DEA analysis is framed by a General Study Area (Study Area or GSA).¹³ In developing the Study Area, all IFR flight tracks were captured using radar data from the period of October 1, 2022 through September 30, 2023 (referred to as 2022/2023),¹⁴ which was the most recent year of data available at the ATAAPS Collaborative Working Group’s inception. This Study Area was created separately – and specifically for environmental analysis purposes – from the FAA’s prior ATAAP Feasibility Study (2019). The Study Area presented in **Exhibit 1-1** is used to evaluate the potential for environmental impacts under the identified DEA Alternatives, consisting in this DEA of the No Action alternative and the Proposed Action.

The Study Area is bounded by altitudinal and lateral boundaries. Two overall objectives guided the development of these boundaries:

1. Altitudinal boundaries should capture the majority of flights. As applied to ANC and EDF, the altitudinal component of the Study Area captures IFR-filed flight tracks designed for the Proposed Action in an area along the following two dimensions:
 - a. where 95 percent of departing aircraft leaving the ANC and EDF Study Airports are below 10,000 feet Above Ground Level (AGL)
 - b. where 95 percent of arriving aircraft to ANC and EDF Study Airports are below 7,000 feet AGL

The threshold for capturing flight tracks at ENA, FRN, LHD, MRI, PAQ, and SXQ was set at 85 percent to account for the lower altitudes at which aircraft operating from these airports tend to fly. The thresholds are set below 100 percent to account for outlier operations which do not reach prescribed altitudes within a reasonable distance of an originating or destination Study Airport, or at all. By excluding the flight tracks for these flights, potential distortion of the lateral boundary is avoided, and the Study Area is kept to a reasonable size.

2. The FAA requires consideration of impacts of airspace actions from (1) the surface to 10,000 feet AGL if a study area is larger than the immediate area around an airport or involves more than one airport or (2) the surface up to 18,000’ AGL if the Proposed Action or alternative(s) are over a national park or wildlife refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute.^{15,16} Policy guidance also states that for air traffic project environmental analyses, noise impacts should be evaluated for proposed changes in arrival procedures up to 7,000 feet AGL and departure procedures up to 10,000 feet AGL.¹⁷

¹³ FAA Order 1050.1G, Appendix C, Section C-1.3.

¹⁴ Radar data obtained from the FAA’s Performance Data Analysis and Reporting System (PDARS), System-Wide Information Management (SWIM), and Microprocessor En Route Automated Radar Tracking System (MEARTS) was used to identify military and civilian IFR flights to and from the Study Airports from October 1, 2022 to September 30, 2023.

¹⁵ US Department of Transportation, Federal Aviation Administration, FAA Order 1050.1G, Appendix C. Federal Aviation Administration Requirements for Assessing Impacts Related to Noise and Noise-Compatible Land Use, June 30, 2025.

¹⁶ US Department of Transportation, Federal Aviation Administration, 1050.1 Desk Reference, Ch. II, Noise and Noise-Compatible Land Use, Para II.2, Affected Environment, February 2020.

¹⁷ US Department of Transportation, Federal Aviation Administration, Order JO 7400.2R - Procedures for Handling Airspace Matters, February 20, 2025.

The lateral boundary of the Study Area is defined by 2020 US Census¹⁸ block boundaries where aircraft cross at or below the 7,000/10,000 feet AGL thresholds. In instances where the Study Area is over water, reasonable judgments were made to close boundaries between landforms and, to the extent practicable, follow offshore boundaries defined by the US Census TIGER/Line® boundaries.¹⁹ The extent is concisely defined to focus on areas of existing and anticipated air traffic flow.

Portions of the Proposed Action routes overfly national parks or wildlife refuges where low ambient noise and a quiet setting may be recognized attributes. The FAA extended the noise study area vertically to 18,000 feet AGL consistent with FAA Order 1050.1G, Appendix C-1.3. The lateral extent of this Supplemental Noise Study Area encompasses the portions of relevant existing, No Action, and Proposed Action flight routes where aircraft operate at or below 18,000 feet AGL. The General Study Area is contained within this larger supplemental area. Exhibit I-1 depicts both boundaries.

Alaskan local and regional governance structures are different from other US states in that the borough, rather than the county, serves as the first order administrative subdivision. Table I-1 lists the eight boroughs and US Census areas included in whole or in part in the Study Area.

Table I-1 Boroughs and US Census Areas within the Study Area

Bethel Census Area	Denali Borough	Lake and Peninsula Borough
Chugach Census Area	Kenai Peninsula Borough	Matanuska-Susitna Borough
Copper River Census Area	Kodiak Island Borough	

1.3 Study Airports

Exhibit I-1 depicts the locations of the eight Study Airports. The Anchorage basin and surrounding area are served by many airports; however, airports were only selected if they met two criteria discussed below.

The first criterion is that the airports are anticipated to be served by the Proposed Action air traffic modifications. By this, the FAA is indicating either that a specific proposed flight procedure would be coded to include an identified airport or that airports or air traffic modifications affecting traffic to/from that airport or airports would be made.

The second criterion is that a noise analysis is required at the airport. A noise analysis is required only if an airport has a minimum of 700 annual IFR-filed jet operations or 90,000 or more annual propeller aircraft operations.²⁰

Airports that did not meet these two criteria were not included as Study Airports. As noted above, military as well as civilian airports were selected due to the use and interaction of existing and proposed IFR flight procedures by military aircraft.

The physical infrastructure and current flight procedures at Study Airports are identified below: The airports range from a medium hub commercial service airport (ANC), to the military installations (EDF and FRN), smaller general aviation facilities (ENA, MRI, PAQ, and SXQ),

¹⁸ All US Census data referenced in this document is derived from the US Department of Commerce, US Census Bureau 2020 datasets except where noted, and/or as specific to the data set as noted.

¹⁹ US Census Bureau, *TIGER/Line® Shapefiles 2023 Technical Documentation*, October 2023, Appendix E. MAF/TIGER Feature Class Code (MTFCC) Definitions, Page 116. MTFCC L4150 Coastline “The line that separates either land or Inland water from Coastal, Territorial or Great Lakes water. Where land directly borders Coastal, Territorial or Great Lakes water, the shoreline represents the Coastline. Where Inland water (such as a river) flows into Coastal, Territorial or Great Lakes water, the closure line separating the Inland water from the other class of water represents the Coastline.”

²⁰ FAA Order 1050.1G, Appendix C, Section C-1.

and one seaplane base (LHD).²¹ The aviation activities at these airports differ in both aircraft served and operating environments. ANC and EDF both have instrument procedures including RNAV (Area Navigation) or conventional STARs (Standard Terminal Arrivals) and RNAV or conventional SIDs (Standard Instrument Departures). The other study airports currently lack STARs and SIDs (PAQ has one SID for obstacle clearance only). See Appendix A for additional information relating to airspace navigation and air traffic control.

Ted Stevens Anchorage International Airport (ANC) serves as the primary commercial airport in the area and is classified as a medium hub airport under the FAA's National Plan of Integrated Airport Systems (NPIAS).²² As described in Table 1-2, ANC has one set of parallel runways (Runways 07L/25R and 07R/25L) and a crosswind runway (Runway 15/33). Aircraft arriving at ANC may be assigned one of four RNAV (Area Navigation) STARs or four conventional STARs, then may be assigned to one SIAP (Standard Instrument Approach Procedure) to the appropriate runways. Departing aircraft may be assigned one of two RNAV SIDs or four conventional SIDs.

Elmendorf Air Force Base (EDF) is located approximately seven miles²³ northeast of ANC and three miles northeast of Anchorage. Elmendorf Air Force Base is operated by the US Air Force (USAF) and serves as part of Joint Base Elmendorf-Richardson (JBER). Among the units assigned to EDF are Alaskan Air Command (ALCOM), Alaskan NORAD Region (ANR), Eleventh Air Force (11AF), the 673rd Air Base Wing, the 3rd Wing, the 176th Wing, and the 477th Fighter Group (AFRC).²⁴ It is classified as a regional general aviation facility in the National Plan of Integrated Airport Systems (NPIAS), and functions as a joint-use airport with civilian and military based aircraft. As described in Table 1-2, EDF has two runways (Runway 6/24 and 17/35). EDF is unique among Anchorage basin airports in that equipped military aircraft such as the F-22 can arrive via one of three Tactical Air Navigation System (TACAN) initial approach procedures. EDF arrivals may be assigned one of two RNAV STARs. Departing aircraft may be assigned the one RNAV SID or one of two conventional SIDs.

Bryant Army Airfield (FRN) is located approximately 3.5 miles east of EDF and 11 miles northeast of ANC. Located in Fort Richardson (Anchorage), Alaska, FRN is owned and operated by the US Army and is part of JBER. As described in Table 1-2, FRN has one runway (Runway 18/36). FRN arrivals may be assigned to one of two SIAPs. There are currently no designated published instrument departure (SID) or arrival (STAR) procedures for FRN.

Kenai Municipal Airport (ENA) is located approximately 59 miles southeast of ANC. This airport is classified as a non-hub primary commercial airport in the NPIAS. As described in Table 1-2, the airport has three parallel runways: one asphalt runway (Runway 02L/20R), one gravel runway (Runway 02R/20L), and one water runway (Runway 02W/20W). Arrivals to ENA runway 20R may be assigned one of the three SIAPs. Arrivals to ENA runway 02L may be assigned one of two SIAPs.

Lake Hood Seaplane Base and Strip (LHD) is a seaplane base and airport located immediately adjacent and northeast of ANC accommodating a mix of general aviation activity, primarily

21 At ATAAPS inception, ENA, PMR, and SXQ were included as study airports and analyzed for potential airspace and procedure modifications. Therefore, they were included in the Existing Conditions analysis and ancillary enabling work. The Proposed Action does not include any changes to these airports and the airport operations for these airports are unchanged from the Existing Conditions analysis except for independent utility actions not associated with the Proposed Action.

22 US Department of Transportation, Federal Aviation Administration, *National Plan of Integrated Airport Systems, 2021-2025, Appendix A*. September 30, 2020.

23 All instances of *miles* in this EA will indicate statute miles unless specifically noted as nautical miles or NM. As noted above, one nautical mile is equal to 6,076 feet, 1,852 meters, or 1.151 statute miles.

24 <https://www.jber.jb.mil/Info/Air-Force-Units/> Accessed April 2024.

serving seaplanes. LHD consists of the Lake Hood Seaplane Base (commonly referred to as LHD SPB) and the Lake Hood Strip (a gravel landing runway). LHD is classified as a local general aviation airport in the NPIAS. As described in Table 1-2, the airport has four arrival/departure options: one gravel runway (Runway 14/32) and three water runways (Runways E/W, N/S, and SE/NW). There are currently no designated instrument departure or arrival procedures for LHD.

Merrill Field Airport (MRI) is located approximately five miles southeast of ANC and is a non-hub primary commercial use airport. As described in Table 1-2, the MRI has two asphalt runways (Runway 07/25 and 16/34) and one asphalt-gravel mixed runway (Runway 05/23). MRI arrivals may be assigned the one RNAV GPS-A approach to Runway 07. There are currently no designated instrument arrival procedures and one departure procedure, the MERRILL TWO, for MRI.

Warren “Bud” Woods Palmer Municipal Airport (PAQ) is located approximately 41 miles northeast of ANC and is a local general aviation airport in the NPIAS. As described in Table 1-2, PAQ has two asphalt runways (Runways 10/28 and 16/34) and one gravel runway (Runway 16S/34S). PAQ also has one helipad (H1). There are two SIAPs to which arrivals to PAQ may be assigned. Departing aircraft may be assigned to the one RNAV SID.

Soldotna Municipal Airport (SXQ) is located approximately 51 miles southwest of ANC. This airport is classified as a local general aviation airport in the NPIAS. As described in Table 1-2, SXQ has two parallel runways (Runways 07/25 and 7S/25S). SXQ arrivals may be assigned the one RNAV (RNP) SIAP or one of two RNAV (GPS) SIAPs. There are currently no designated instrument departure procedures for SXQ.

Table 1-2 Study Airports

Airport Name	Airport Code FAA(ICAO)	Location	Runways ¹
Ted Stevens Anchorage International Airport	ANC (PANC)	Anchorage, AK	07L, 25R, 07R, 25L, 15, 33
Elmendorf Air Force Base	EDF (PAED)	Anchorage, AK	06, 24, 17, 35
Bryant Army Airfield	FRN (PAFR)	Anchorage, AK	18, 36
Kenai Municipal Airport	ENA (PAEN)	Kenai, AK	02L, 20R, 02R, 20L, 02W, 20W
Lake Hood Seaplane Base	LHD (PALH)	Anchorage, AK	14, 32, E, W, N, S, SE, NW
Merrill Field Airport	MRI (PAMR)	Anchorage, AK	05, 23, 07, 25, 16, 34
Warren “Bud” Woods Palmer Municipal Airport	PAQ (PAAQ)	Palmer, AK	10, 28, 16, 34, 16S, 34S
Soldotna Municipal Airport	SXQ (PASX)	Soldotna, AK	07, 25, 07S, 25S

^{1/} Runway surfaces can be used in both directions, but are named in each direction separately. Runway number is based on the magnetic direction of the runway (e.g., Runway 09 points to 90 degrees, in the east direction). The two numbers on either side always differ by 180 degrees (e.g., If one runway end is labeled 09 (for 90 degrees), the other runway end is labeled 27 (for 270 degrees). If there is more than one runway pointing in the same direction, each runway number includes an ‘L,’ ‘C,’ or ‘R’ (left, center, or right) at the end. This is based on which side a runway is on when next to another runway in the same direction. Water Runways are indicated by cardinal direction and “W” e.g., 02W.

^{2/} At ATAAPS inception, ENA, MRI, and SXQ were included as study airports and analyzed for potential airspace and procedure modifications. Therefore, they were included in the Existing Conditions analysis and ancillary enabling work. The Proposed Action does not include any changes to these airports, and the airport operations for these airports are unchanged from the Existing Conditions analysis except for independent utility actions not associated with the Proposed Action.

Source: US Department of Transportation, Federal Aviation Administration. Chart Supplements.
(https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/search/ [Accessed October 4, 2023]).
Prepared by: ATAC Corporation, October 2026.

As shown in Table 1-3, for the 2022/2023 radar sample, approximately 91.1 percent of all IFR traffic within the ATAAPS project study area operated at ANC and EDF.

Table 1-3 Distribution of 2022/2023 IFR Traffic Among Study Airports

Airport	IFR Annual Operations	Percent of Total Study Airport IFR Operations	Percent of Total Annual Airport Operations
Ted Stevens Anchorage International Airport	191,045	81.1%	69.6%
Elmendorf Air Force Base	23,426	10.0%	59.8%

Bryant Army Airfield	4,000	1.7%	28.1%
Kenai Municipal Airport	10,757	4.6%	18.3%
Lake Hood Seaplane Base	48	N/A (See Note)	N/A
Merrill Field Airport	4,364	1.9%	2.7%
Warren “Bud” Woods Palmer Municipal Apt	826	N/A (See Note)	N/A
Soldotna Municipal Airport	975	N/A (See Note)	N/A
Total IFR Operations	235,441	100%	N/A

Note: For consistency with military aircraft operating at civilian airports and due to the mixed nature of military operations under IFR and VFR, military aircraft at Elmendorf Air Force Base and Bryant Army Airfield were assumed to be operating under IFR since aircraft were in radar contact at some point in the operation. For airports where data was acquired from FAA’s Traffic Flow Management System Counts, the percentage of annual operations was not calculated due to this data not being available in that system. Results <0.00% listed as N/A.

Source: US Department of Transportation, Federal Aviation Administration. Operations Network: Tower Counts for Ted Stevens Anchorage International, Kenai Municipal, and Merrill Field (<https://aspm.faa.gov/opsnet/sys/Airport.asp>; [accessed October 20, 2023]), US Department of Transportation, Federal Aviation Administration. Traffic Flow Management System Counts for Lake Hood, Warren “Bud” Woods Palmer Municipal, and Soldotna (<https://aspm.faa.gov/tfms/sys/main.asp> [accessed October 20, 2023]), Air Force Civil Engineer Center, Joint Base Elmendorf-Richardson, Alaska, Air Installations Compatible Use Zones (AICUZ) Study, October 2019.

Prepared by: ATAC Corporation, October 2026.

1.4 Major Study Airports Runway Operating Configurations

ANC and EDF combine to account for over 91 percent of all IFR operations within the study and are therefore considered major study airports. The other study airports primarily serve VFR traffic and therefore have fewer IFR operations.

1.5 Ted Stevens Anchorage International Airport (ANC)

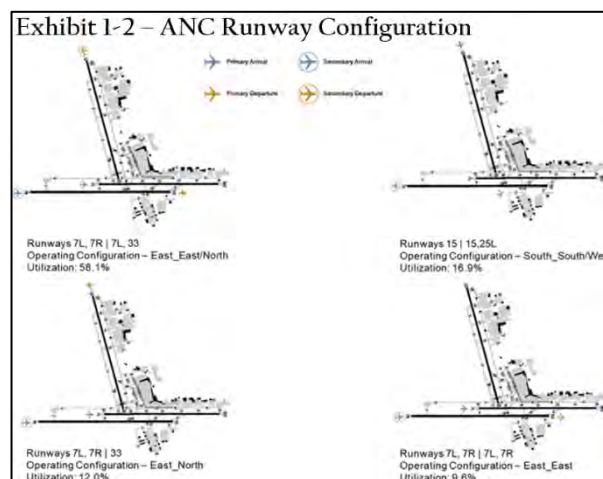
ANC operates under several different runway operating configurations depending on factors such as weather, prevailing wind, a preferential runway use program, and air traffic conditions. As a result, it is common for ATC to use different runway operating configurations for the arrival and departure directions throughout the day. Additionally, ANC operates a preferential runway use program wherein the preferred flow of traffic is arrivals landing from the east and south and the departures departing to the north and west. For arriving traffic, the preferred runways are as follows:

- First preference – 7R/L or 15
- Second preference – 33
- Last preference – 25L/R

For departures, the preferred runways are as follows:

- First preference – 33
- Second preference – Day: 7R/L; Night: 25L/R
- Last preference – 15

Exhibit 1-2 illustrates the primary runway operating configurations at ANC. These configurations are based on the FAA’s Aviation System Performance Metrics (ASPM) runway configuration data for the period 8/1/2013 through 7/31/2023. The primary runway operating configurations account for approximately 96.6% of the operations; the other 3.4% are accounted for with various other runway configurations listed in the primary runway operating configurations.



1.6 Elmendorf Air Force Base (EDF)

At Elmendorf, each runway is used based on standardized directional and aircraft type policies

for arrivals, departures, and pattern work. Exhibit 1-3 illustrates the runway utilizations at EDF. These assumptions are based on the 2019 JBER Air Installations Compatible Use Zones (AICUZ) Study. For arriving traffic, the preferred runways are as follows:

- Arriving from the west and/or departing to the east – 06
- Arriving from the north and/or departing to the south – 17
- Arriving from the east and/or departing to the west – 24
- Arriving from the south and/or departing to the north – 35

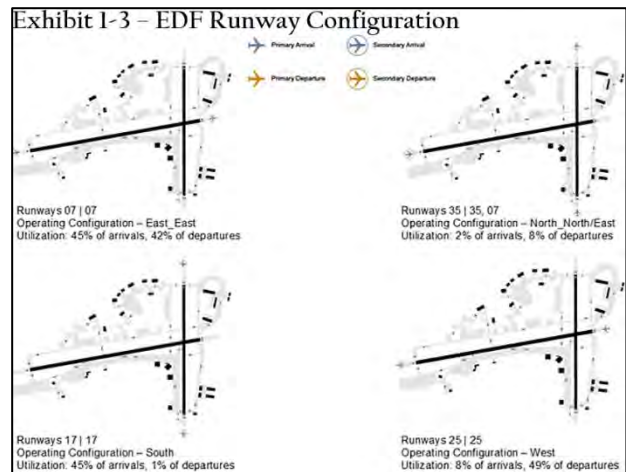
1.7 Other Study Airports

The other airports in the study have various configurations that are predominantly based upon prevailing weather conditions (aircraft normally arrive and depart into a headwind). In addition, the other study airports primarily serve VFR operations as opposed to the predominant IFR operations at ANC and EDF. For all airports in the study, runway usage was determined utilizing radar track data from the study's existing conditions dataset.

1.8 Air Traffic Control Facilities

The National Airspace System (NAS)²⁵ is organized into three-dimensional volumes of navigable airspace that are defined by a floor, a ceiling, and a lateral boundary. Depending on location in that airspace, one of three different types of ATC facilities may provide control:

- **Air Traffic Control Tower (ATCT):** ATCT Controllers provide air traffic services for phases of flight associated with aircraft takeoff and landing from the associated airport (or airports) near or on which the ATCT is located. The ATCT typically controls airspace extending from the airport out to a distance of several miles. Six Study Airports shown in Exhibit 1-1 have ATCT facilities. ENA is a non-federal ATCT staffed by qualified third-party contract personnel funded through an FAA program, whereas ANC, LDH, and MRI are staffed by FAA employees, and EDF and FRN are staffed by the US Air Force and civilian (non-FAA) employees.
- **Terminal Radar Approach Control (TRACON, pronounced “tray-con”):** TRACON Controllers provide regionally focused air traffic service to aircraft as they transition between an airport and the en route phase of flight, and from the en route phase of flight to an airport. This includes the departure, climb, descent, and approach phases of flights. The TRACON airspace is broken down into sectors. As an aircraft moves between sectors, responsibility for it transfers from controller to controller. Controllers maintain separation between aircraft that operate within their sectors. The immediate airspace in the Anchorage basin is controlled by Anchorage TRACON (All, pronounced “A-eleven”), whose boundaries are shown in Exhibit 1-4.
- **Air Route Traffic Control Center (ARTCC pronounced “artsy” or referred to as “Center,” e.g., “Anchorage Center,” “Anchorage artsy,” or ZAN):** ARTCC controllers provide air traffic services during the en route phase of flight across a broad lateral distance of coverage. Like TRACON, the Center airspace is broken down into sectors that overlay the Anchorage TRACON airspace. As shown in Exhibit 1-4, Anchorage



²⁵ See Appendix A: Basic Concepts of Performance Based Navigation (PBN) and Air Traffic Control (ATC) for additional descriptions of concepts, terms, and illustrations related to PBN operations in the NAS.

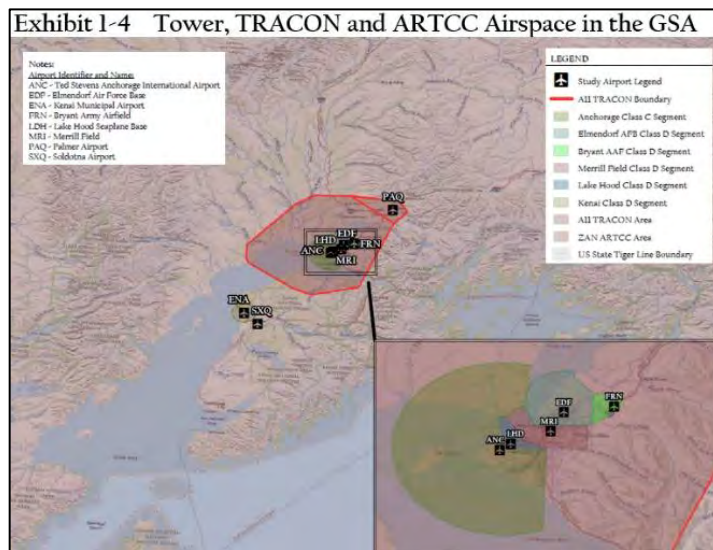
ARTCC (ZAN) has assigned air traffic control responsibility for airspace surrounding the Anchorage TRACON.

1.9 Controlled Airspace in the Project Study Area

The following sections describe the existing airspace structure, type, and constraints of the Project Study Area Airspace. ATAAPS may necessitate changes to the airspace to accommodate new and revised procedures, approaches, and VFR flows.

1.10 Airspace Responsibility

Exhibit 1-4 depicts the terminal and en route airspace structure within the immediate vicinity of the Study Area. For an introduction to air traffic and instrument navigation concepts, graphics, and descriptions, please refer to **Appendix A**.



The Study Area consists of airspace delegated to ZAN and the Anchorage TRACON. ZAN provides ATC services covering 1,647,105 lateral square miles of domestic airspace across the state of Alaska and extending into the Bering Sea covering the Aleutian Islands and into the Gulf of Alaska. ZAN airspace covers the entirety of the Study Area's 41,725 square miles from various base altitudes up to FL600 (flying altitude of 60,000 feet Mean Sea Level (MSL)), occupying roughly 2.5% of ZAN's total lateral coverage. The Study Area abuts Canada's Edmonton Flight

Information Region (CZEG) Flight Information Region (FIR)²⁶ to the east, and the US Pacific Ocean Administrative Airspace to the south, west, and north (Oakland Oceanic FIR, Anchorage Oceanic FIR, and Anchorage Arctic FIR). ZAN is responsible for all military, private, and commercial aircraft arriving, departing, and traversing inside its lateral and vertical boundaries when they are operating under IFR and offers select services to aircraft operating under VFR. ZAN provides air traffic control service to United States and foreign military aircraft operating under both IFR and VFR in ZAN airspace. ZAN controllers provide air traffic services in the airspace above and adjacent to the Anchorage TRACON airspace.

The Anchorage TRACON offers service in a more limited area, namely to regional air traffic in the Anchorage basin. The lateral boundary of the Anchorage TRACON airspace is an irregularly formed circle shape, extending from ANC approximately 32 miles to the north, 25 miles to the east, 42 miles to the west, and 34 miles to the south. Excluding airspace delegated to the ATCTs at ANC, EDF, ENA, FRN, LDH, and MRI, the Anchorage TRACON controllers currently manage the airspace within these boundaries from the surface to 20,000' above mean sea level (MSL). Of the 41,725 square miles of the Study Area, Anchorage TRACON covers laterally 3,457 square miles, or roughly 8.3% of the ATAAPS DEA Study Area.

The Anchorage TRACON is generally the radar facility responsible for separating and sequencing airborne aircraft departing from or landing at airports in its airspace. The Anchorage

²⁶ A Flight Information Region is a specified region of airspace in which a flight information service and an alerting service are provided.

basin contains a diverse mix of civilian and military aircraft types, speeds, and physical airport proximities that demand close arrival and departure coordination. For the military aircraft, the Anchorage TRACON coordinates with EDF and FRN military towers and provides air traffic control services to IFR-filed aircraft and, when requested or required, VFR aircraft. Roughly 7.1% of all IFR and VFR itinerant operations handled by the Anchorage TRACON are military operations.²⁷ For civilian aircraft, the Anchorage TRACON coordinates initial sequencing of ANC departures, as well as providing safe and expeditious flows of traffic into and out of other area civilian airports which have control towers. For example, aircraft arriving to MRI are handled by the Anchorage TRACON, then handed over to Merrill Field ATCT until landing.

1.11 Airspace Constraints

The following sections provide a general overview of the existing constraints related to controlling aircraft within the Study Area airspace.

1.12 Class C Airspace

Class C airspace²⁸ is regulatory and controlled airspace, generally located around complex airspace at mid-sized airports including ANC. Class C generally extends 4,000 feet above an airport elevation, and for ANC, the Class C ceiling is 4,100 feet MSL. The rules for flying inside Class C airspace are more restrictive than for other types of terminal airspace and require ATC contact. These rules make for a safer and more orderly flow of traffic within Class C airspace. Class C airspace design has a direct impact on the flow of traffic within the Study Area.

1.13 Class D Airspace

Class D airspace is regulatory and controlled airspace surrounding those airports with an operational control tower. Class D generally extends upward from the surface to 2,500 feet above the airport elevation and varies for Anchorage basin Study Airports. The EDF and FRN ceilings are 3,000 feet MSL, while LHD and MRI ceilings are 2,500 feet MSL. The Anchorage basin Class D is further defined by 14 Code of Federal Regulations (CFR) Part 93, Special Air Traffic Rules, Subpart D airspace covered in Appendix B.

1.14 Class E Airspace

Class E airspace in the Anchorage basin is airspace designated to extend a Class D surface area. The extension provides controlled airspace to contain standard instrument approach procedures without imposing a communications requirement on pilots operating under VFR. The EDF Class E surface area arrival extensions are part of the Class D and are in effect during the same times as Class D. The EDF Class E ceiling extends from the surface to 3,000 feet MSL consistent with EDF Class D airspace. Class E airspace extends off of runways 7L/R and includes neighboring Fire Island.

²⁷ US Department of Transportation, Federal Aviation Administration, Aviation System Performance Metrics (ASPM) Operations Network (OPSNET) (<https://aspm/faa.gov/opsnet/sys/opsnet-server-x.asp> accessed for All TRACON 10/2022 to 9/2023. [Accessed November 2023]).

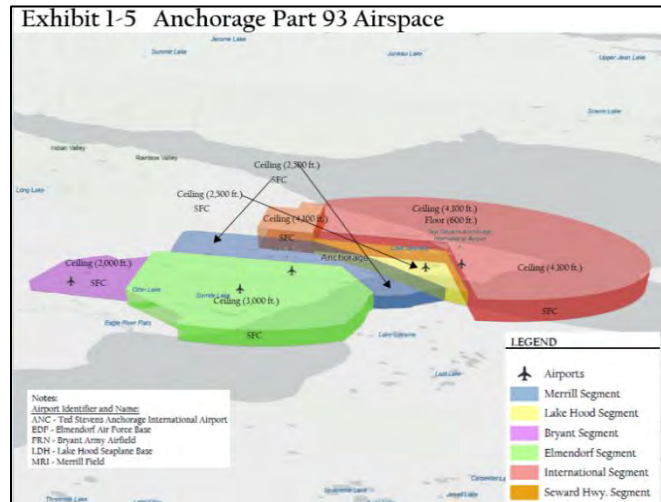
²⁸ The Anchorage basin does not have any Class B regulatory controlled airspace; thus Class B airspace is not covered herein.

1.15 14 CFR Part 93, Special Air Traffic Rules, Subpart D

The immediate Anchorage basin is a complex operational environment including military and civilian vertical and horizontal aircraft necessitating special air traffic rules to ensure safe separation, positive control, and operation of the local airspace. As a result, the Anchorage Terminal Area airspace is historically subdivided into segments that are designated for specific segment users with specific lateral and vertical specifications.²⁹ These subdivisions carry the following designations that have defined lateral boundaries and vertical striations:

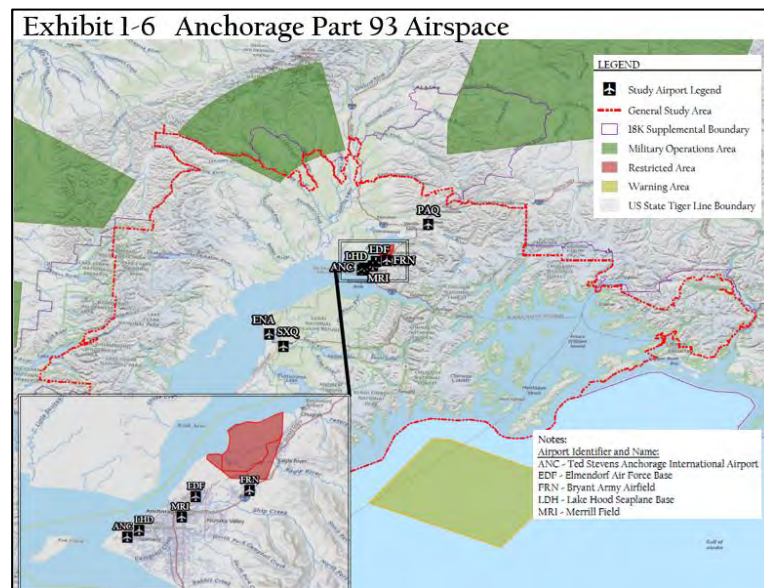
- International Segment
- Merrill Segment
- Lake Hood Segment
- Elmendorf Segment
- Bryant Segment
- Seward Highway Segment

The existing Part 93 segments identified in the immediate Anchorage basin and associated information are presented in Exhibit 1-5.



1.16 Special Use and Regulatory Airspace

Exhibit 1-6 depicts the boundaries of Special Use Airspace (SUA) in the Study Area, illustrating the limited entrance and exit options for the Anchorage basin airspace. SUA has defined vertical and lateral boundaries to contain



certain hazardous activities such as military flight training and air-to-ground military exercises that must be confined. SUA-defined dimensions are identified by an area on the surface within which certain air traffic activities must be confined or where certain restrictions are imposed on aircraft operations that are not a part of those activities, or both. SUA allows for safe airspace use by military and non-military air traffic. In addition to aviation activity, SUA can accommodate ground and combined arms training and testing. These areas either limit

aircraft activity allowed within the airspace or restrict other aircraft from entering during specific days and/or times. Of the 41,725 square miles in the Study Area, 214 square miles or roughly 0.5% is constrained by SUA of various types.

²⁹ 15.2.4 14 CFR Part 93, Special Air Traffic Rules, Subpart D, Anchorage Alaska Terminal Area
<https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-93/subpart-D#toc-1>

Two types of SUA are found within the Study Area:

- **Military Operations Area:** A Military Operations Area (MOA) is airspace established outside of Class A airspace to separate/segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.³⁰ MOAs are established to contain certain military activities such as air combat maneuvers, air intercepts, aerobatics, etc.³¹ Regional MOA airspace are named and referred to as the Birch, Buffalo, Delta, Eielson, Fox, Galena, Naknek, Paxon, Stony, Susitna, Viper, and Yukon. These areas are further broken into maneuvering blocks such as the Viper 1A MOA, the Buffalo 4 MOA, and the Fox 3 High MOA. All MOAs extend to but do not include 18,000' MSL unless otherwise indicated in tabulation or on an FAA-published chart. At and above 18,000' MSL is en route airspace. MOAs have a defined floor and ceiling, with floors ranging from 100' AGL (Eielson, Yukon 1, Yukon 2) to 14,000' MSL (Paxon High).³² All MOAs have scheduled operation hours (e.g., Delta 1 through 3 operates 0700 (7am local) to 2400 (Midnight) Monday-Friday only during major exercises).³³ Within the Study Area is a 178-square-mile portion of the Susitna MOA.
- **Restricted Area:** Restricted areas contain airspace within which aircraft, while not wholly prohibited, are subject to restrictions when the area is being used. The area denotes the existence of unusual, often invisible hazards to aircraft, such as parachuting activity, visual flares, and live fire activities. Restricted Area R-2203 (or R2203) is 36 square miles (consisting of portions A, B, and C) just north of EDF and FRN and is the only Restricted Area within the Study Area. In addition to Department of Defense (DOD) Notice to Airmen (NOTAMs) describing operational activities, R2203 is commonly operated for low-level (1,500 feet MSL-2,000 feet MSL) heavy aircraft (C-130/C-17) formation maneuvering in addition to low-level aerial equipment and personnel drops and live fire exercise. R-2203A, -B, and -C begin at the surface, and the R-2203A and R-2203B ceilings are 11,000 feet MSL, while R-2203C is 5,000 feet MSL.³⁴

In addition to the listed SUAs above, the airspace adjacent to the Anchorage Basin includes Special Activity Airspace (SAA) made up Air Traffic Control-assigned airspace (ATCAA). ATCAAs are specific airspace areas with defined vertical and lateral limits, assigned by Air Traffic Control (ATC) to separate traffic between specific activities and other Instrument Flight Rules (IFR) air traffic. The FAA uses ATCAAs for various purposes, including military training and operations.

³⁰ Class A airspace is generally that airspace from 18,000' MSL up to and including FL 600 over the 48 contiguous States and Alaska. While in Class A airspace, pilots use "flight level" altitudes that rely on a common barometric pressure altitude reference of 29.92 inches of mercury. These "flight level" altitudes are not referenced to sea level or ground level as is the case below 18,000' MSL and outside of Class A airspace.

³¹ US Department of Transportation, Federal Aviation Administration, FAA Order JO 7400.10D, *Special Use Airspace*, February 16, 2022.

³² FAA ATC-assigned airspace (ATCAA) Alert areas in the area have a floor of 18,000' and extend to 60,000'

³³ US Department of Transportation, Federal Aviation Administration, Anchorage/Fairbanks Terminal Area Chart effective 0901Z 30 November 2023 to 0901Z 25 January 2024.

³⁴ Id.

2. Purpose and Need

The FAA is preparing this DEA to evaluate the potential environmental impacts associated with implementation of instrument flight procedures, visual flight corridors, and regulatory airspace changes within the ATAAPS Project Study Area (Exhibit 1-1 in Chapter 1/Appendix AA). This chapter describes the need for the Proposed Action (i.e., the existing issues in the Study Area that would be addressed by the Proposed Action), as well as the DEA Proposed Action itself. Explanations of the technical terms and concepts used in this chapter are found in Appendix A: *Basic Concepts of Airspace Navigation and Air Traffic Control*.

The FAA seeks to provide the safest and most efficient airspace system in the world. That goal is impeded by existing air traffic system inefficiencies. Therefore, the need is to address the air traffic inefficiencies resulting from the three primary factors presented in the bullets below. By developing flight procedures that take full advantage of current design criteria and guidance, the air traffic system would experience enhanced safety and efficiency,³⁵ which would be further enhanced by improved predictability, route segregation, and flexibility.

Although specific military flight paths in proximity to EDF runways were considered in 2018 and 2022 by the USAF for potential environmental impacts,³⁶ a broader analysis of the complex interactions among regional air traffic is the responsibility of the FAA. As a result, the FAA as the lead agency, along with the USAF as a cooperating agency, is undertaking this analysis of potential actions in airspace used for military and civilian aircraft transit.³⁷

The three primary factors under consideration (also refer to Section 1.1 *Background*) by the FAA in no order of importance or priority include:

- new and revised lateral and vertical airspace changes
- new and revised Instrument Flight Rules (IFR) flight procedures
- new and revised lateral and vertical Visual Flight rules (VFR) operational corridors and airspace segments

2.1 The Need for the Proposed Action

“Need” describes the problem that a Proposed Action is intended to resolve. Within the Study Area, there are several inefficiencies associated with existing IFR arrival and departure procedures, common-use VFR corridors, and designated types and classes of airspace. Meanwhile, the introduction of IFR arriving aircraft to EDF Runway 17 to address national security concerns and operational necessities, introduces additional conflicts. These cumulative inefficiencies are predominantly caused by variations in lateral and vertical paths, inadequate runway transitions, conflicts among arriving, departing and missed approach traffic, and delays associated with the close geographic and segmented airspace proximity of ANC, EDF, LHD, FRN, and MRI.

The primary problems to resolve are twofold, beginning with operational inefficiency and aircraft flight procedure conflicts stemming from the EDF Instrument Landing System (ILS) installation on Runway 17, in concert with the EDF Runway 17/35 extension and other affiliated improvements. The EDF ILS to an extended and improved EDF Runway 17 would also create

³⁵ Safety is a key design constraint. Any proposed procedure change or air traffic management strategy to resolve a need must not compromise safety, and where possible, must enhance safety.

³⁶ Air Force Civil Engineer Center (AFCEC). Draft Supplemental Environmental Assessment (SEA) for Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska. January 2022; Leidos for the USAF. Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska. Final Environmental Impact Statement. February 2018

³⁷ The potential air traffic flight procedure and airspace changes evaluated in this DEA would involve neither land acquisition, nor the construction, disturbance, or alteration of any physical structure on, in, or emanating from the ground.

secondary airspace conflicts which impede predictable aircraft movements, thus degrading regional air traffic system efficiency in the Anchorage basin and nearby areas. Secondly, there are several existing regional airspace inefficiencies associated with existing IFR arrival and departure procedures, including inadequate runway transitions, limited predictable IFR routing, common-use VFR corridor conflicts, and outdated designated types and classes of airspace. These conflicts are discussed further below.

2.1.1 Description of the Need

2.1.1.1 Inefficient Lateral and Vertical Paths

Many Study Airport arrival and departure flight paths intersect laterally and vertically, requiring controllers to direct aircraft to vector/level off to maintain adequate vertical and/or lateral separation between aircraft. These complex, converging interactions require more frequent controller-to-aircraft and controller-to-controller communication and reduce the efficient use of the airspace.

Certain Study Airports lack efficient arrival and departure VFR corridors and IFR flight procedures. Due to the close proximity of multiple airports and a broad mix of aircraft differing in size and speed, VFR aircraft rely on low level routes that safely and efficiently enable aircraft to arrive and depart the civilian Study Airports while deconflicting from IFR arrival and departure routes. Similarly, and as an example, integrated IFR routes in and out of MRI are limited. MRI is constrained by ANC and EDF IFR flight procedures, as well as terrain limitations.

While RNAV arrival and departure procedures exist today for EDF and ANC, additional RNAV or improved conventional flight procedures would improve the efficiency and predictability of the overall ATC system. Improved routing results in fewer unanticipated flight vectors to aircraft already on a flight procedure and allows controllers to know the expected location of aircraft, their altitudes, and speeds at key points along an IFR flight path or within common-use VFR corridors. More predictable routes are beneficial to both controllers and flight crews.

Meanwhile, due to conflicts with arrivals into ANC, departures from EDF, MRI, FRN, and LHD may experience delays. There are no departure procedures serving ENA, FRN, LHD, or SXQ. Again, these issues lead to an increase in controller communication and reduce flexibility in airspace management.

2.1.1.2 Flight Procedures Lacking Adequate Runway Transitions

ENA, FRN, LHD, MRI, PAQ, and SXQ currently have no STARs serving them. A lack of STARs increases complexity when the controller must issue lateral vectors, altitude adjustments, and speed adjustments to direct the flight crew as their aircraft approaches a designated runway.

Many of the flight procedures serving ANC, meanwhile, do not provide for runway transitions to all runways. Runway transition is that portion between a designated IFR flight procedure and a specific airport runway. One IFR flight procedure can deliver aircraft to multiple runway transitions depending on what runway or runways are in use. Aircraft arriving to and departing from ANC can be required to level off. Some transitions that intersect other procedures may go unused due to the conflicts. Underutilized transitions limit the number of entry and exit points into ANC airspace. As a result, multiple arriving and departing traffic flows must be sequenced over the same points, increasing both controller and aircraft workload and complexity.

The significance of having adequate runway transitions is that when a controller issues instructions for a flight crew to follow a STAR with a runway transition, the controller knows the expected pathway a flight crew will fly the aircraft until it reaches the SIAP (Standard Instrument Approach Procedure) within three to five miles of a designated runway. Without a

runway transition, the controller must issue vectors and speed adjustments to direct the flight crew to the designated runway approach. The absence of a runway transition therefore requires increased communication between controller and flight crew. Consequently, less-precise flight paths result due to the time it takes the controller to issue an instruction to the flight crew and for the flight crew to read the instruction back to the controller for confirmation before the instruction can be executed. As a result, flight route predictability is reduced, as is airspace efficiency.

2.1.1.3 Aircraft Fleet Mix, Terrain, Geographic Airport Proximity, and Segmented Airspace

The Anchorage basin has a diverse fleet mix ranging from slow cruising sea planes and the USAF F-22, to military and civilian helicopters, all the way up to large international cargo and passenger jet traffic. Geographic factors of terrain and airport proximity force these diverse aircraft into a confined geographic area, creating challenges in the airspace. All of these aircraft arrive and depart within approximately eight miles or less of each other in a variety of speeds, directions, and altitudes. The close proximity is coupled with the terrain that rises, in many cases dramatically, to the east, north, and eventually in all directions. For smaller aircraft preferring to avoid dangerous open water, the Cook Inlet, the Turnagain Arm, and the Knik Arm also present geographic challenges and drive smaller VFR aircraft to hug coastal areas to the greatest extent possible.

Within this close geographic space, there is a sizable assortment of 550,000 annual operations among ANC, MRI, LHD, FRN, and EDF. These operations require ATC sequencing, prioritization, coordination, and clearance for arrival and departure. IFR conditions demand more ATC coordination, sequencing, and prioritization, all of which decrease flexibility and predictability for controllers and flight crews. The resulting complexities demonstrate the need within the Study Area. A need is best addressed by examining the circumstances or factors that cause it. We present the causal factors behind the need that would help develop a reasonable alternative designed to resolve the need (i.e., meet the “purpose”).

The Anchorage Terminal Area is divided by 14 C.F.R. Part 93, Subpart D, into six regulatory segments with defined lateral and vertical boundaries and segment-specific operating requirements. These boundaries, together with published VFR traffic flows and airspace protected for IFR arrivals and departures, constrain the routes and altitudes available to aircraft transitioning among the closely situated airports. Changes in runway configuration or IFR procedure use can further restrict the airspace available for VFR traffic, increasing the number and complexity of interactions at segment boundaries.

2.1.2 Causal Factors

Underlying these issues are causal factors. A causal factor is an isolated contributor that brings consequences within a system. These isolated contributors with unmitigated consequences are:

- Operation of the planned Runway 17 ILS at EDF, without corresponding changes to existing flight procedures and airspace, would create inefficient and complex interactions with existing traffic flows and reduce route predictability for both flight crews and ATC.
- Lack of predictable RNAV and conventional IFR arrival and departure procedures connecting to/from en route airspace and runway transitions for select Study Airports.
- Complex converging and dependent arrival and departure route interactions (e.g. arrival and departure routes that cross, converge, or cannot be operated independently.)

- Lack of flexibility in the efficient transfer of IFR traffic between en route and terminal area airspace.
- Segmented VFR airspace corridor interactions in close geographic proximity with IFR air traffic that increase complexity and reduce flexibility.

These causal factors are discussed below.

2.1.2.1 Conflicts Arising from an ILS to an Extended EDF Runway 17

The installation of the ILS to EDF Runway 17 and subsequent installment of a SIAP to Runway 17 would create conflicting interactions among existing procedures at ANC, EDF, and MRI due to their geographic proximity to each other in the Anchorage basin. While the utilization of Runway 17 is expected to improve air traffic flows when conducting instrument approaches at EDF, it would also introduce several adverse impacts to the throughput at ANC and MRI. Such impacts include lateral and vertical safety separation, arrival and departure sequencing, and flow control between en route and surface. The Anchorage Airport Traffic Control Tower also expressed concern that EDF RWY 17 ILS missed approaches would cause issues within the terminal environment, particularly to MRI airspace and operations, along with adverse impacts to traffic flows to and from ANC RWY 7L/R. Merrill Field Airport Traffic Control Tower expressed concerns that the increased use of EDF RWY 17 would adversely affect the current arrival and departure traffic flow and configuration of the MRI Class D airspace. Specifically, the anticipated increased use EDF RWY 17 would increase the use of CARTEE airspace to protect arrival operations to EDF. Due to the proximity of MRI and EDF, this traffic flow change is expected to adversely affect use of MRI RWY 7/25 by local aircraft. These impacts necessitate new IFR procedure designs using updated RNAV tools and criteria.

2.1.2.2 Lack of Predictable RNAV and Conventional IFR Procedures

Predictable standard routes allow flight crews and controllers to know in advance how, where, and when an aircraft should be operated along a defined route. Predictable standard routes also allow controllers and flight crews to better plan airspace use and the control of aircraft in the given volume of airspace. A predictable route may include expected locations, altitudes, and speeds at key points. A procedure that provides these elements results in a more predictable route for the flight crew and controllers.

Aircraft performance and/or piloting technique can vary and may reduce predictability. Because conventional procedures are less precise than RNAV procedures, controllers will use vectoring, as well as instructions governing speed and altitude level-offs, to ensure safe vertical and lateral separation between aircraft. As discussed in Appendix A, RNAV procedures enable aircraft to follow more accurate and better-defined direct flight routes in areas covered by GPS-based navigational aids. This allows for predictable routes with fixed locations and altitudes that can be planned ahead of time by the flight crew and air traffic control.

2.1.2.2.1 Current Procedures Do Not Take Full Advantage of RNAV Capabilities

As shown in Table 2-1, the Study Airports are currently served by nine RNAV arrival and departure procedures and seven conventional arrival and departure procedures. The development of the current RNAV procedures mirrored the conventional procedures so all aircraft could follow the same route. Because conventional procedures are dependent on the location of ground-based navigational aids, the locations where procedures can be established are limited due to factors such as terrain. Accordingly, existing RNAV procedures that were developed to mirror the conventional procedures do not take full advantage of RNAV design capabilities that could be gained for RNAV-equipped aircraft.

Table 2-1 Existing STAR, SID, and SIAPs

Airport Served	Cardinal Direction	Procedure Name	Procedure Type	Transitions
ARRIVALS (STARs)				
ANC	N, NE, NW	KROTO	RNAV	4/2
ANC	S, SW	NEELL	RNAV	3/2
ANC	E, NE, SE	PTERS	RNAV	6/1
ANC	E, NE, SE	WITTI	RNAV	5/1
ANC	S, SW	AMOTT	Conventional	5/0
ANC	E	ELLAM	Conventional	1/0
ANC	N, NW	TAGER	Conventional	5/0
ANC	SE	YESKA	Conventional	2/0
EDF	N, NW, W, SW	GRUUB	RNAV	6/1
EDF	N, NE	JINXX	RNAV	2/1
ENA, FRN, LHD, MRI, PAQ, SXQ	N/A	N/A	N/A	N/A
DEPARTURES (SIDs)				
ANC	W, NW	FFITZ	RNAV	1/3
ANC	E	NOEND	RNAV	1/1
ANC	N/A	ANCHORAGE	Conventional	0/0
ANC	N	KNIK	Conventional	0/0
ANC	N/A	POTTER	Conventional	0/0
ANC	S	TURNAGAIN	Conventional	1/0
EDF	N	EEEGL	Conventional	1/0
EDF	N	ELMENDORF	RNAV	1/0
EDF	S	YUKLA	Conventional	1/0
PAQ	W, SW	PALMR	RNAV	0/3
ENA, FRN, LHD, MRI, SXQ	N/A	N/A	N/A	N/A
STANDARD INSTRUMENT APPROACH PROCEDURES (SIAPs)				
ANC	N/A	ILS OR LOC RWY 07L	Conventional	
ANC	N/A	ILS OR LOC RWY 07R	Conventional	
ANC	N/A	ILS RWY 15	Conventional	
ANC	N/A	ILS RWY 07R (SA CAT I)	Conventional	
ANC	N/A	ILS RWY 07L (SA CAT I - II)	Conventional	
ANC	N/A	ILS RWY 07R (CAT II - III)	Conventional	
ANC	N/A	RNAV (RNP) RWY 33	RNAV	
ANC	N/A	RNAV (RNP) Z RWY 07R	RNAV	
ANC	N/A	RNAV (GPS) RWY 07L	RNAV	
ANC	N/A	RNAV (GPS) RWY 15	RNAV	
ANC	N/A	RNAV (GPS) Y RWY 07R	RNAV	
ANC	N/A	HIGHWAY VISUAL RWY 25R	Visual	
ANC	N/A	SEWARD VISUAL RWY 25L	Visual	
EDF	N/A	ILS Y OR LOC/DME Y RWY 06	Conventional	
EDF	N/A	ILS Z OR LOC/DME Z RWY 06	Conventional	
EDF	N/A	ILS X RWY 06 (SA CAT I)	Conventional	
EDF	N/A	RNAV (GPS) RWY 06	RNAV	
EDF	N/A	TACAN RWY 06	Conventional	
EDF	N/A	TACAN Y RWY 16	Conventional	
EDF	N/A	TACAN Z RWY 16	Conventional	
ENA	N/A	ILS Y OR LOC Y RWY 20R	Conventional	
ENA	N/A	ILS Z OR LOC Z RWY 20R	Conventional	
ENA	N/A	RNAV (GPS) RWY 02L	RNAV	
ENA	N/A	RNAV (GPS) RWY 20R	RNAV	
ENA	N/A	VOR RWY 02L	Conventional	
ENA	N/A	VOR RWY 20R	Conventional	
MRI	N/A	RNAV (GPS)-A	RNAV	
PAQ	N/A	RNAV (GPS) RWY 10	RNAV	

PAQ	N/A	RNAV (GPS)-A	RNAV	
SXQ	N/A	RNAV (GPS) RWY 07	RNAV	
SXQ	N/A	RNAV (GPS) RWY 25	RNAV	
SXQ	N/A	VOR-A	Conventional	
SXQ	N/A	NDB RWY 07	Conventional	
SXQ	N/A	NDB RWY 25	Conventional	
FRN, LHD	N/A	N/A	N/A	N/A

Source: US Department of Transportation, Federal Aviation Administration, Instrument Flight Procedures Information Gateway
https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/, accessed November 2023.

Prepared by: ATAC Corporation, November 2025.

Since the implementation of the existing RNAV procedures, RNAV design criteria and guidance have been regularly updated. Unfortunately, existing RNAV procedures do not reflect the updated design criteria and guidance and do not take full advantage of current RNAV design capabilities, becoming increasingly less efficient. Maintaining the current conventional procedures and the RNAV procedures that mirror them reduces the efficiency of the airspace and increases complexity due to increased controller and flight crew workload.

2.1.2.2.2 Lack of Runway Transitions: ANC Example

As discussed in Section 1.3.1 and depicted in Exhibit 1-3, ANC operates under four generalized runway operating configurations depending on factors such as runway maintenance, weather, wind direction, and air traffic conditions. Depending on the conditions, it is possible for the runway ends used for arrivals and departures to change several times throughout a day. Because of the high level of aircraft traffic, especially during peak periods, a lack of runway transition procedures for each of the four runway ends contributes to a less efficient air traffic system.

The lack of adequate runway transitions at ANC also results in extensive aircraft vectoring, increasing controller and flight crew workload and reducing predictability. ANC is currently served by four RNAV STARs. These STARs are the only existing procedures to provide any runway transitions into ANC. However, each STAR has only one or two runway transitions associated with the procedure. The lack of runway transitions for the other runways results in controllers having to use vectors to direct aircraft to their final visual or instrument arrival to a designated runway.

2.1.2.3 Overlapping and Interdependent VFR and IFR Arrival and Departure Routes

In some areas, the separation between arrival and departure flight routes (e.g., lateral separation between two routes or vertical separation between crossing routes) does not allow for efficient use of the airspace. This requires that controllers carefully observe aircraft activity along nearby or crossing routes and be prepared to provide guidance to ensure standard separation is maintained.³⁸ For example, where arrival and departure routes intersect, level-offs may be required to ensure adequate vertical separation between aircraft. In some cases, aircraft on nearby flight routes may need to be vectored to ensure safe lateral separation. In other cases, controllers may need to issue point-outs (when a controller transfers the radar identification of an aircraft to another controller if the aircraft may enter the airspace of another controller and radio communications will not be transferred).

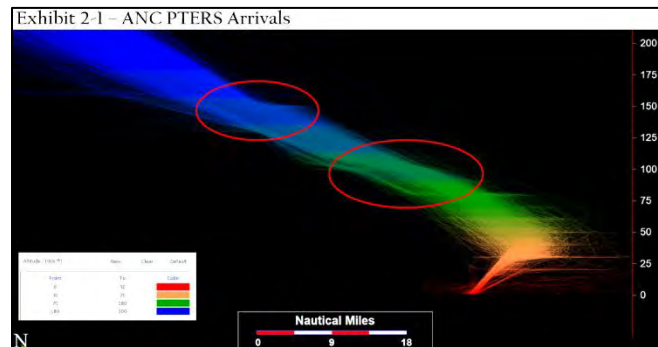
Because the procedures currently in use in the Study Area do not take full advantage of RNAV capabilities, multiple procedures share the same NAVAIDS. Sharing the same NAVAIDS may result in conflicts such as aircraft flying at different speeds along adjacent routes, or requiring greater separation to prevent conflicts between aircraft. To avoid potential conflicts, controllers may need to reroute aircraft by issuing vectors or directing aircraft to level off, thereby

³⁸ Areas where the lateral or vertical separation distances are inadequate to allow efficient use of the airspace are referred to as “confliction points” by air traffic controllers.

increasing flight crew/controller workload and system complexity and decreasing efficiency.

Aircraft destined for ANC are frequently required to level off or be vectored off a procedure during descent to maintain vertical and/or lateral separation from other arriving and departing aircraft. Aircraft operating on the STARs at ANC (see Table 2-1) typically experience one or more periods of level-off of more than 5 NM.³⁹ Similarly, aircraft operating on SIDs departing the Study Airports may also be required to level-off.

Exhibit 2-1 (full-scale, detailed versions of all chapter exhibits may be found in Appendix AA) shows the vertical profiles for aircraft destined for ANC on the PTERS STAR. As shown by the red ovals, aircraft using the PTERS STAR are directed to level off for approximately 10 NM at 16,000 feet MSL and again at 10,000 feet MSL. Extended level-offs often result in increased controller-to-flight crew communication and may require traffic alerts to flight crews in the proximity of other aircraft or point-outs to other controllers responsible for neighboring airspace sectors. The increased communication and alerts add to the complexity of managing and operating in the airspace due to higher controller workload, increased controller-to-flight crew communication, and inefficient use of aircraft performance capabilities during descent or climb.



2.1.2.4 Lack of Flexibility in the Efficient Transfer of IFR Traffic Between En Route and Terminal Area Airspace

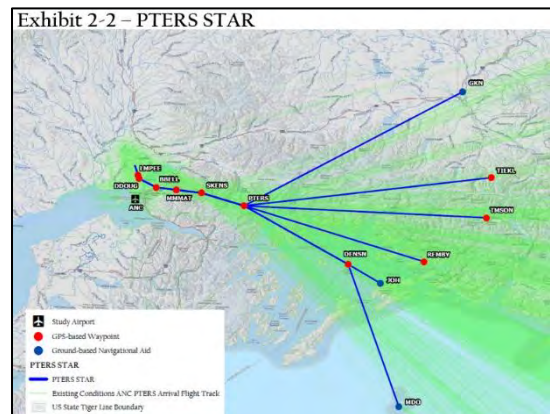
Flexibility allows controllers to plan for and adapt to traffic demands. Traffic demands change frequently throughout the day. For example, even though commercial flights are scheduled, delays in other regions of the US or severe weather along a route may cause aircraft to enter or exit the en route and terminal area airspace at unscheduled times. Controllers therefore require options to manage shifting traffic demand.

Other reasons to encourage system flexibility include limited entry or exit points that require multiple aircraft flows to be sequenced over the same point, increasing the amount of vectoring needed to merge traffic and maintain safe separation. Meanwhile, too few departure procedures can increase airspace complexity and workload for both controllers and aircraft.

2.1.2.4.1 Entry Points

Exhibit 2-2 depicts aircraft arriving on the PTERS STAR. Aircraft arriving on the PTERS STAR have six en route transitions available on the procedure. However, three of the arrival transition waypoints (GKN, TIEKL, and MDO) are largely unused.

In addition, some existing waypoints are not procedurally separated from other waypoints, thus requiring increased communications. These terminal airspace entry and exit points require excessive coordination between sectors, which can result in



³⁹ A nautical mile measures 6,076 feet or 1,852 meters.

gaps in the arrival flows to the Study Airports.

Several of the existing RNAV procedures utilize ground-based navigational aids rather than Performance Based Navigation (PBN) waypoints. Exhibit 2-3 depicts the WITTI STAR arriving to ANC. The points that are represented by five letter names (REMBY, WITTI, GAYLL, etc.) are defined in airspace laterally on the route by a ground-based navigational aid with limited range and precision. These limitations, in turn, restrict the design flexibility in the placement of entry points on the right side of the exhibit.

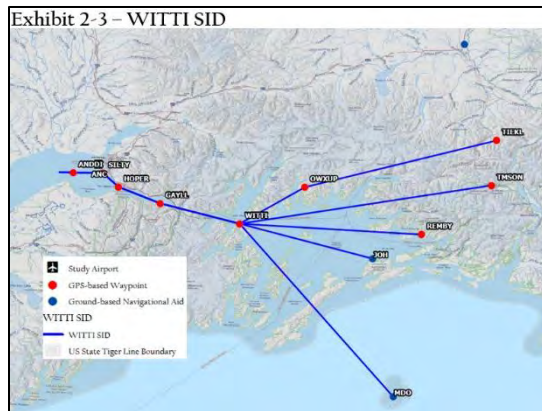
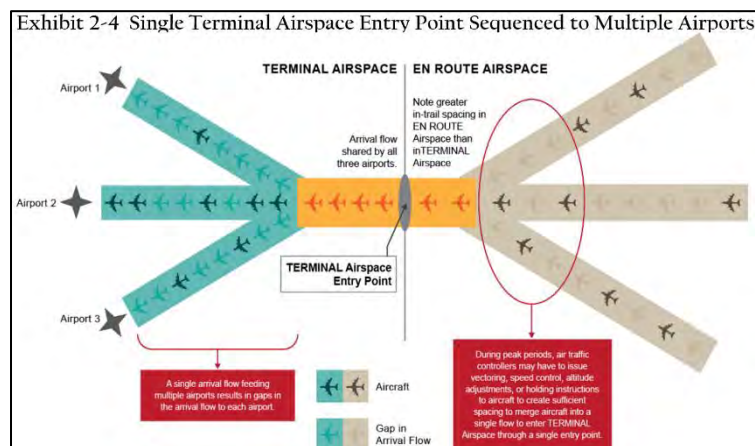


Exhibit 2-4 illustrates how aircraft arrivals are sequenced in the en route airspace and then merged to enter terminal airspace through a single-entry gate. Aircraft arriving from en route airspace must be merged into a single arrival flow before entering

terminal airspace through an entry gate. This is similar to automobile traffic traveling in multiple freeway lanes merging into one lane before exiting a freeway. The process of multiple lanes of traffic merging into one lane can cause congestion. In terms of air traffic, to maintain safe separation, controllers must create sufficient gaps between aircraft along a route to safely line up aircraft from multiple

streams. This may require controllers to vector aircraft off procedures or direct flight crews to reduce speed. These air traffic management techniques can increase congestion while also increasing the workload for both the controller and aircraft crew.

Aircraft arriving to the Study Airports share arrival procedures that enter the terminal airspace on a single arrival flow through an entry point. Aircraft are then split from a single arrival flow and issued instructions to the final approaches to the various runways at the different Study Airports. Gaps in the aircraft path, or flow, to the individual Study Airports can develop after aircraft are sequenced and directed to the final approaches to the Study Airport runways.



To some extent, the gaps can be closed if controllers direct the rear aircraft to increase speed along the arrival route to the airport. However, at this critical phase of flight, when aircraft are descending and maneuvering to the final approach to a runway, the feasibility of making significant speed adjustments and reducing the gaps in the arrival flow is limited.

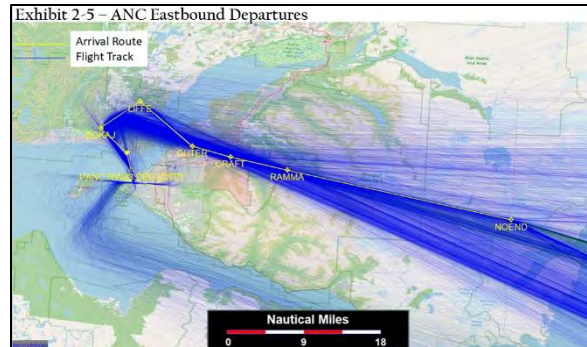
2.1.2.4.2 Exit Points – ANC Eastbound Departures

Exhibit 2-5 depicts traffic departing ANC to the east. The current departure procedure, NOEND, for aircraft departing to the east has only one runway transition serving Runway 33. This single runway transition requires controllers to issue vectors for other runways. For example, the light blue departures north and south of the NOEND waypoint are vectored departures that are not on the SID. Only Runway 33 departures can use the NOEND SID, thus

reducing efficiency and increasing complexity for all other eastbound ANC departures. The lack of en route transitions for the NOEND departure procedure for the eastbound traffic increases the complexity of the operations while reducing the predictability of aircraft movements.

In addition, east-bound departing aircraft may conflict with arriving aircraft when sequenced over the same point or lateral area. Similar conflicts are present at other Study Airports. There are several consequences that result from these conflicts. These consequences include:

- The need to merge arriving aircraft into a single arrival flow at each entry point can increase flight time and distances
- Gaps in the final arrival flows do not allow for the formation of a constant stream of aircraft to the Study Airports
- Merging departing aircraft into a single departure stream for each exit point requires controllers to create greater separation between subsequent departures from the same airport than would otherwise be required if the routes were separated
- Holding aircraft on the runway to protect enough airspace to allow for adequate separation leads to departure delays, especially during peak air traffic periods
- The variety of instructions required to merge and desegregate the flow of aircraft adds to the workload of both controllers and flight crews
- Options for controllers to redirect aircraft to avoid bad weather or to more efficiently handle sequencing are limited when the flight crew does not have the runway in sight due to low visibility



2.1.2.5 Segmented VFR Airspace Corridor Interactions in Close Geographic Proximity with IFR Air Traffic That Increase Complexity and Reduce Flexibility

The airspace reserved for IFR operations varies with runway usage, weather conditions, military aircraft, national security needs, time of day/night, and the level of operational necessity. Beyond the confines of the active IFR airspace lies the airspace available for VFR operations that are tightly defined by regulatory definitions that account for nearly all potential IFR airspace needs. When the reserved IFR airspace needs to change, consequently so does the available VFR airspace. This dependent relationship against a high cadence and density of both VFR and IFR operations increases complexity for both ATC and flight crews. This is most evident in the Anchorage basin and surrounding areas, but also impacts aircraft arriving to or departing from all of the Study Airports more broadly, in that every Study Airport needs access to the IFR and VFR airspace in the Study Area. A secondary outcome is the reduction in flexibility afforded ATC and pilots when using the airspace and given the system dynamics between IFR and VFR operations among civilian and military aircraft of all sizes and speeds.

Section 2.2 addresses the primary study factors. Mitigating and/or resolving these issues would improve air traffic procedure efficiency and airspace utilization in the Study Area.

2.2 Purpose of the Proposed Action

The Proposed Action would institute various improvements in the airspace: (1) optimize VFR air traffic procedures and establish defined VFR corridors, (2) create new IFR air traffic procedures, and (3) adjust regulatory airspace over the Anchorage basin, meeting these goals

while maintaining or enhancing safety. In particular, these identified improvements are anticipated to have the following beneficial results:

- Improve the flexibility and efficiency in aircraft traffic among the various Anchorage basin facilities by deconflicting procedures, routes, and airspace
- Improve the predictability in transitioning air traffic between en route and terminal area airspace and between terminal area airspace area and the runways
- Improve the segregation of arrivals and departures in terminal area and en route airspace

By decreasing the complexity of the procedures, the frequency of controller/aircraft communication would decrease, reducing both controller and flight crew workload. The improvements would independently or collectively reduce the need for VFR and IFR vectoring, reduce VFR and IFR confliction points, and level IFR flight segments, resulting in more predictable traffic flows. The IFR arrival and departure procedures and VFR corridors serving the Study Airports would be improved to increase efficiency in airspace use to the benefit of all users. Airspace efficiency among a diverse aircraft fleet mix would be improved by implementing navigational technology and air traffic management strategies, providing accurate and precise navigational benefits for aircraft, including predetermined speeds and altitudes. Furthermore, as discussed in Appendix A: *Basic Concepts of Performance Based Navigation (PBN) and Air Traffic Control (ATC)*, updated navigation technology such as RNAV reduce or eliminate lateral and vertical flight path limitations. More efficient application and use of flight procedures can reduce the need for controllers to employ vectoring and speed adjustments, thus reducing controller and flight crew workload. In turn, this improves efficiency, flexibility, and predictability while maintaining a commensurate level of safety. By taking advantage of the increased benefits associated with RNAV and newer navigation technology, the FAA is better able to meet primary mission: to provide the safest, most efficient aerospace system in the world.

Each objective of the Proposed Action is discussed in greater detail below.

2.2.1 Deconflicting the Air Traffic Flows EDF, ANC, and MRI

Air traffic flows from ANC and MRI need to be procedurally separated from the new instrument flight traffic to Runway 17 at EDF. This objective can be measured with the following criteria:

- Ensure that missed approaches, SIAPs and other IFR procedures are procedurally separated from anticipated VFR flows and standardized for ANC, EDF, and MRI
- Accommodate military and general aviation aircraft in the vicinity of MRI (CARTEE) by creating procedures that segregate military and civilian IFR and VFR traffic

2.2.2 Improve the Predictability of Transitioning Air Traffic

As discussed in Section 2.1.2.2, the lack of safe and efficient procedures requires controllers to use inefficient air traffic management techniques to ensure safe separation. As a result, controllers and flight crews experience a more complex workload. In addition, Study Airport runway transitions are insufficient. Finally, there is a lack of RNAV arrival and departure procedures to and from the Study Airports, preventing flight crews from filing (submitting a flight plan to ATC) their preferred arrival or departure with predictable flight expectations. These factors negatively affect predictability within the Study Area. This objective can be measured with the following criteria:

- Ensure the number of STARs and SIDs to and from the Study Airports utilizing the most current RNAV criteria is increased (measured by count of RNAV STARs and SIDs for an individual Study Airport).

- Increase the number of runway transitions (measured by count of runway transitions for all STAR procedures).

2.2.3 Segregate Arrivals and Departures

As discussed in Section 2.1.2.3, aircraft are frequently required to level off to ensure adequate separation between traffic flows. RNAV procedures can be designed with capabilities such as speed control and altitude restrictions that segregate aircraft on the route, thereby reducing controller and flight crew workload. The Proposed Action would implement procedures that would better segregate arrivals and departures within the airspace. This objective can be measured by the number of RNAV STARs and/or SIDs that can be used independently to/from Study Airports and those that have altitude and/or speed controls.

2.2.4 Improve Flexibility in Transitioning Aircraft Traffic

As discussed in Section 2.1.2.4, the limited number of available transitions and associated procedures constrain efficiency in the terminal and en route transitional airspace. This requires merging multiple traffic flows before aircraft arrive into and depart from terminal airspace. One objective of the Proposed Action is to minimize the need for merging traffic flows by increasing the number of transitions and procedures that are dedicated to specific Study Airports.

This objective can be measured with the following criteria:

- Increase the number of available independent transitions compared with the No Action alternative (measured by number of independent exit/entry points)
- Increase the number of RNAV STARs and SIDs compared with the No Action alternative (measured by total count of RNAV STARs and RNAV SIDs for each of the Study Airports)

2.3 Criteria Application

The FAA will evaluate the Proposed Action to determine how well it meets the purpose and need based on the measurable criteria and objectives described above. The criteria are intended to help compare the Proposed Action with the No Action alternative.

Under the No Action alternative the existing 2022/2023 air traffic procedures serving the Study Airports would remain unchanged except for planned procedure modifications, independent of ATAAPS, which were or are expected to be approved for implementation.

2.4 Description of the Proposed Action

The factors under consideration by the FAA as noted in Section 2.1.1, *Description of the Need* were:

- new and revised Instrument Flight Rules (IFR) flight procedures
- new and revised lateral and vertical airspace changes
- new and revised lateral and vertical Visual Flight rules (VFR) operational corridors

In succinctly describing the Purpose and Need for the Proposed Action within the Study Area, the FAA has identified a Proposed Action that would:

- implement new SIAPs at EDF
- optimize VFR flight traffic paths throughout the Study Area
- optimize existing SID and STAR procedures or create new SID and STAR procedures to the Study Airports
- improve the air traffic efficiency of regulatory airspace in the Study Area

These enhancements would improve the predictability and segregation of air traffic routes,

while increasing flexibility and efficiency in providing air traffic services. The Proposed Action is described in detail in Chapter 3, *Alternatives*.

Implementation of the Proposed Action would not increase the number of aircraft operations or fleet mix at the Study Airports. Furthermore, the Proposed Action would not involve physical construction of any facilities such as additional runways or taxiways, and would not require permitting or other approvals or actions at either the state or local level. Therefore, the implementation of the proposed changes to procedures in the Study Area would not require any physical alterations.

2.5 Required Federal Actions to Implement Proposed Action

Implementing the Proposed Action requires the FAA to publish new or revised STARs, SIDs, SIAPs, designated VFR Flight Corridors, designated regulatory airspace, IFR runway transitions and undertake controller training.

2.6 Agency Coordination

Early notification of the Federal Aviation Administration's (FAA) intent to prepare an Environmental Assessment (EA) was published in the Federal Register on July 16, 2026 (91 FR 43723, FR Doc. 2026-14367 Filed 7-15-26; 8:45 A.M.)

On October 7, 2026, a Notice of Availability of the DEA was published in the Federal Register. Appendix C, *Agency Coordination, Community Involvement and List of Receiving Parties*, includes a copy of the Notice of Intent (and attachments), the Notice of Availability of the DEA and all comments received in response to the notices.

In September and October of 2026, the FAA initiated formal Section 106 consultation with the Alaska Office of History and Archaeology State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officers (THPOs)/representatives from the various Native Alaska Village/Tribe/Corporation, who may have interests within the General Study Area in accordance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. § 470 et seq.) and the implementing regulations at 36 C.F.R. Part 800.

2.7 Summary

ATAAPS addresses national security concerns as well as air traffic system inefficiencies within the Anchorage basin and surrounding areas. The ATAAPS DEA was prepared pursuant to the National Environmental Policy Act of 1969. The DEA evaluates the Proposed Action and the No Action alternative. The Proposed Action focuses on airspace optimization for aircraft routes and controlled airspace within the Anchorage basin and surrounding areas. Area navigation (RNAV)-based standard instrument departure (SID) and standard terminal arrival (STAR) procedures have been in effect in the Anchorage basin and surrounding areas for over 20 years. These arrival and departure procedures will be designed with advanced RNAV capabilities and will maintain safety and improve efficiency of the NAS, benefitting pilots, air traffic controllers, and the general public.

3. Alternatives

The alternatives analysis is prepared pursuant to FAA guidance provided in FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedure* (FAA Order 1050.1G). This chapter discusses the following topics:

- Alternative Development Process
- Comparison of Alternatives
- Alternatives Overview
- Listing of Federal Laws and Regulations

The technical terms and concepts discussed in this chapter are explained in Chapter 1, *Introduction* and in Appendix A, *Basic Concepts of Performance Based Navigation (PBN) and Air Traffic Control (ATC)*.

3.1 ATAAPS Alternative Development

Developing alternatives for ATAAPS was a multi-step process. At the request of the USAF, a Feasibility Study Team (and subsequent Supplemental Feasibility Study Team) examined whether the safety or efficiency of the Anchorage Terminal area would benefit from an airspace redesign, as well as whether planned installation of an instrument landing system (ILS) at Elmendorf Air Force Base would fit into that system. The Study Team defined operational issues related to improving efficiency, reducing complexity, and improving predictability in the ATAAPS area in the period from August 2018 - May 2019. The study team determined that the current flow of aircraft within the Anchorage basin and surrounding areas would need to be improved if EDF opted to utilize Runway 17/35⁴⁰ instead of Runway 6/24 when conducting non-instrument approaches. The Feasibility Study Team made the following recommendations:

1. Standardize missed approach procedures for ANC arrival aircraft.
2. Implement Converging Runway Display Aid (CRDA) or Arrival Departure Window (ADW) procedures into the Anchorage terminal environment.
3. Conduct a more in-depth review of current airspace design to take advantage of new technological advancements in navigation, surveillance, and air traffic control, i.e., Performance Based Navigation (PBN) and Automatic Dependent Surveillance-Broadcast (ADS-B). The replacement of Micro-En route Automated Radar Tracking System (Micro-EARTS) with En Route Automation Modernization (ERAM) in the next four to seven years (2029-2032) will facilitate the use of more advanced traffic management tools, such as Time-Based Flow Management (TBFM).
4. Evaluate airspace sectorization at Anchorage Terminal Radar Approach Control (TRACON) (All) and Anchorage Air Route Traffic Control Center (ARTCC or Center) (ZAN). Changes in arrival/departure flows at EDF would likely produce a workload imbalance at some operational air traffic control positions at All and ZAN. More in-depth investigation would be required to identify options and appropriate action.
5. Develop two ILS approaches at EDF – one for slower maneuvering aircraft, and the other for faster, more maneuverable aircraft.
6. Track the use of Cartee airspace on the east side of MRI Class D airspace designated for use by EDF upon coordination with MRI.
7. Change the current configuration of the Cartee airspace to accommodate use by both military and general aviation aircraft.

The conceptual recommendations resulted in the creation of the ATAAPS Collaborative Work Group (CWG), (formed in May 2022, as discussed below), which was tasked with creating procedures and airspace alterations that would address these issues. The recommended

⁴⁰ Runway 16/34 has been redesignated Runway 17/35 as part of the FAA's periodic Magnetic Variation evaluation which assigns runway designations based upon magnetic headings.

procedures were documented for the ATAAPS CWG for further consideration and procedure development. Each procedure that the ATAAPS CWG designed had to meet several design criteria as well as the project's purpose and need. As discussed in Chapter 2, the purpose and need for the Proposed Action is to address air traffic inefficiencies within the ATAAPS study area and surrounding region. The FAA rejected individual procedures that, on their own merit, did not meet the purpose and need of the project.

Following the design process, the Western Service Area Operations Support Group (OSG) held a series of public outreach meetings to introduce the proposed ATAAPS to relevant organizations, communities, and officials via web-based presentations to gather comments on the proposed designs (see Appendix B: *Proposed Action Air Traffic Components*). The feedback received from this user community involvement was instructive and considered in the alternative development process. In addition to this procedure development, and in accordance with FAA Order 7400.2, *Procedures for Handling Airspace Matters*, the OSG requested that the Alaska Department of Transportation form an ad hoc committee in January 2025 to address the numerous airspace design changes required to add, modify, and eliminate portions of Part 93 airspace in the Anchorage basin and surrounding areas.

The Proposed Action is a package of related procedures combined into one alternative. These procedures were considered and evaluated individually and in combination with one another to determine whether the alternative would meet the project's purpose and need. The FAA considered multiple versions of each air traffic procedure, and several versions were not carried forward as they failed to meet the purpose of the project.

The following sections describe the alternatives development process the FAA used to create and evaluate a series of procedures which, when employed together, would enhance the air traffic efficiency in the Anchorage basin and surrounding areas.

3.1.1 ATAAPS Feasibility Study Team, ATAAPS Collaborative Work Group, and the PBN Full Work Group

From August 13, 2018 through May 24, 2019, the ATAAPS Feasibility Study Team worked to identify operational needs in the ATAAPS area and define potential solutions to those needs. This work included defining the scope for changes necessary to meet the proposed USAF operational changes and culminated in Appendix G: *FAA Anchorage Terminal Area Airspace and Procedures Feasibility Study*, released in May 2019. The ATAAPS Collaborative Work Group (ATAAPS CWG) was established in May 2022. The ATAAPS CWG includes subject matter experts on the ATC system for the Anchorage basin and surrounding areas, Terminal Area Route Generation Evaluation and Traffic Simulation (TARGETS) specialists, and OSG staff.

The PBN Full Work Group (FWG) work began in October 2023 and was completed following a multi-step process that included: (1) working collaboratively with local aviation facilities and industry stakeholders to identify and characterize existing issues in the ATAAPS, (2) proposing multiple iterations of flows to and from each runway and conceptual procedure designs and airspace changes to address these issues, (3) identifying expected benefits and potential risks associated with the conceptual designs, and (4) participating in subsequent procedure development meetings with the stakeholders in the PBN FWG. The ATAAPS CWG applied FAA Order JO 7110.65BB - *Air Traffic Control* and FAA Order 8260.3G - *United States Standards for Terminal Instrument Procedures (TERPS)* to determine options for inclusion.

The FAA held meetings with the local ATC facilities, industry representatives, and other stakeholders including the DoD, business and general aviation interests, and airports during the

drafting of, and following the release of the feasibility study.⁴¹ Additional public meetings between the PBN FWG and local FAA ATC facilities, industry representatives, and other stakeholders including the DoD, business and general aviation interests, and airports were held during the development of the Proposed Action and will be held through issuance of this Draft EA document and the associated public comment period. These meetings were held to discuss requirements for operating aircraft in the ATAAPS area, including identifying operational needs associated with existing airspace and procedures, as well as potential solutions that would increase efficiency in the airspace. The PBN FWG also worked to analyze the expected benefits of these potential solutions. Finally, the ATAAPS CWG engaged with military and civilian specialized experts (including environmental, safety, and airports) to help identify benefits and potential risks associated with the conceptual procedure designs.

The ATAAPS CWG identified several PBN airspace redesign solutions expected to improve efficiency in the ATAAPS area. The modifications proposed were at first conceptual in nature and did not include a detailed technical assessment to evaluate the feasibility of the procedures. A detailed technical assessment of the proposed solutions was conducted on the mature designs after several iterations were considered by the ATAAPS CWG.

3.1.2 Key Western Service Area OSG Considerations

Following completion of the draft designs, the OSG engaged the public (e.g., local residents, the general public, and stakeholders) by developing informational materials on the ATAAPS website and shared on social media sites. In developing the proposed procedures, the OSG was responsible for following regulatory and technical guidance, as well as meeting criteria and standards in three general categories:

1. Performance Based Navigation (PBN) Design Criteria and Air Traffic Control Regulatory Requirements – Flight procedure design is subject to requirements found in several FAA Orders, including:
 - a. FAA Order 8260.58D, *The United States Standard Performance Based Navigation (PBN) Instrument Procedure Design*
 - b. FAA Order JO 7110.65BB, *Air Traffic Control*
 - c. FAA Order 8260.3G, *United States Standards for Terminal Instrument Procedures (TERPS)*
 - d. FAA Order 7100.41A, *Performance Based Navigation Implementation Process*⁴²
 - e. FAA Order 8260.19K, *Flight Procedures and Airspace*
 - f. FAA Order 8260.46K, *Departure Procedure (DP) Program*

These FAA Orders together define the majority of processes, procedures, and methods for PBN and instrument flight procedure design, amendment, and implementation, collectively referred to as criteria. Requirements governing air traffic separation minima, air traffic management, and appropriate technical terminology are considered as integral process components.

2. **Operational Criteria** – Operational criteria were consistent with the purpose and need for the project. This includes increasing efficiency and flexibility while decreasing complexity in air traffic management. These criteria were evaluated, and they validated that operations in the ATAAPS Area would not be limited by the proposed procedures. The evaluation and validation ensured that aircraft could fly the proposed procedures as designed without detrimental effects to efficiency (e.g., controller/pilot workload).
3. **Safety Factors** – Proposed changes were evaluated using the FAA Air Traffic

⁴¹ Id.

⁴² On November 5, 2024 7100.41A was canceled, and an interim IFP process developed by the FAA to be more fully aligned with other Instrument Flight Procedures was implemented. This analysis follows FAA Order JO 7400.2R.

Organization (ATO) Safety Management System (SMS).⁴³ The SMS is the system for assessing and managing the safety of ATC and navigation services in the National Airspace System (NAS). If a proposed change introduced a new hazard or increased the severity and/or likelihood of an existing hazard, the design was adjusted to mitigate the hazard. In compliance with SMS requirements, the proposed changes were evaluated by a Safety Risk Management Panel (SRMP) following a five-step process: (1) system analysis, (2) identify hazards, (3) analyze safety risk, (4) assess safety risk, and (5) control safety risk.⁴⁴

3.1.2.1 Community Involvement in Design Process

At the behest of the FAA, the Alaska Department of Transportation created a Class C Ad Hoc committee which met on 10 different occasions beginning in January of 2025 and continuing through May 2025.

Following the ad hoc committee process and proposed designs, the FAA Headquarters and OSG engaged in virtual community involvement through website⁴⁵ updates and social media announcements. The goal was to educate and involve participants, including communities, with this project. Specific information was provided about this project, including graphics containing current and proposed flight paths.⁴⁶

3.1.2.2 Alternative Design Process

The ATAAPS Study Area consists of air traffic flows managed by ATC Facilities and controlled airspace as noted in Sections 1.4 (Air Traffic Control Facilities) and 1.5 (Controlled Airspace in the Project Study Area). While the ATAAPS CWG focused on aircraft operations within the Anchorage basin and surrounding areas (ANC, LHD, EDF, FRN, and MRI), they also evaluated operations at three satellite Study Airports (ENA, PAQ, and SXQ) as identified in Section 1.3 (Study Airports).

While the design of one procedure into one airport can be a fairly simple process, the ATAAPS CWG was charged with providing a more complete and integrated solution to air traffic complexities and inefficiencies over a large area. The ATAAPS CWG produced design procedures that would remain laterally and vertically separated from each other to the extent feasible.

Arrival procedure designs are most efficient when they allow aircraft to descend at or near idle speed, unaffected by other procedures or obstructions. Departure procedure designs are most efficient when they allow aircraft to climb unrestricted to cruising altitude. Although procedures in the ATAAPS Study Area will often accommodate unrestricted climbs and/or descents, the procedure designs allow for complex interactions amongst procedures at ANC and the other airports in the Study Area. This increase in interactions among aircraft operating on different procedures reduces available design options.

PBN procedure designs were developed with lateral routings, crossing points, and altitude restrictions that were as optimal as possible, considering the lateral and vertical constraints inherent in the study. The OSG considered a multitude of factors and continuously refined proposed procedures based on design solution tools such as TARGETS software, aircraft simulator results, airspace modeling and simulations, and the criteria described above. The

⁴³ US Department of Transportation, Federal Aviation Administration, FAA Order JO 1000.37C, Air Traffic Organization Safety Management System, October 1, 2021.

⁴⁴ US Department of Transportation, Federal Aviation Administration, FAA Order 8040.4C, Safety Risk Management Policy, September 9, 2023.

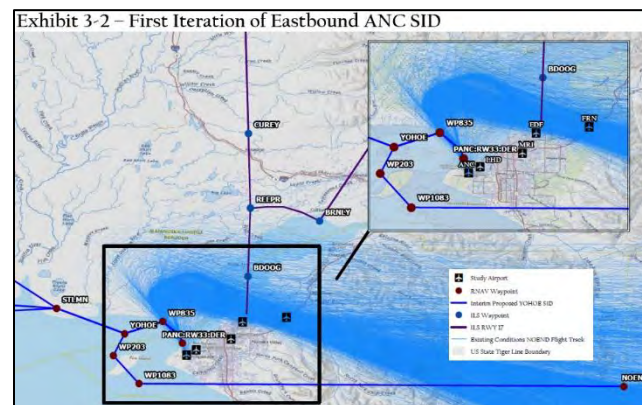
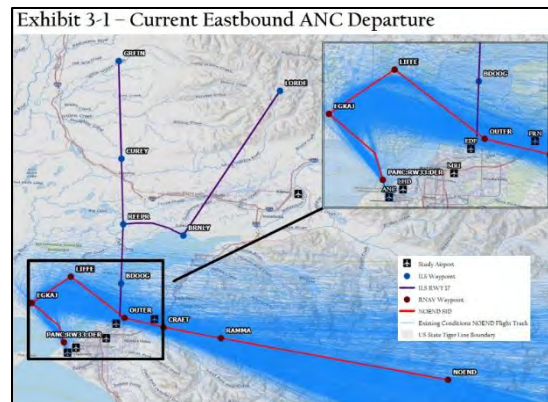
⁴⁵ https://www.faa.gov/about/office_org/headquarters_offices/ara/alaskan_region/ataaps

⁴⁶ More details on the project Community Involvement process can be found in Appendix C of this Draft EA and on the FAA's website at: <https://www.faa.gov/nextgen/communityengagement/>

combined procedure designs in this Draft EA are the Proposed Action. The following sections provide two examples of the process used to develop procedures carried forward as part of the Proposed Action.

3.1.2.2.1 Design Process Example - ANC Eastbound SIDs

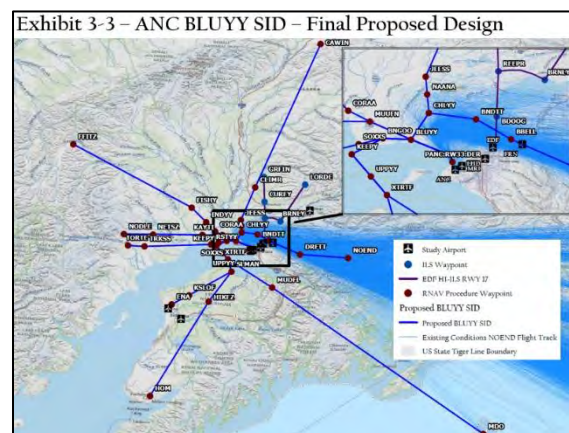
The development of the proposed ANC Eastbound SIDs provides a good example of the alternative development process. The FAA developed and evaluated different versions of the proposed ANC Eastbound SIDs. The existing RNAV procedure, the NOEND SID, as depicted in Exhibit 3-1 (full scale, detailed versions of all exhibits may be viewed in Appendix AA), traverses the final approach path for the newly extended EDF Runway 17 when departing ANC Runway 33 (the primary departure runway for NOEND traffic). The current procedure directs traffic to the west when departing Runway 33 and then to the north, before turning eastward. To deconflict this departing ANC traffic with the newly proposed ILS arrival into EDF Runway 17, the ATAAPS CWG developed several new eastbound departure



procedures that would depart ANC (from multiple optional runways) and proceed further westbound before turning north and then east, thereby providing additional time to climb above the proposed ILS approach to EDF Runway 17. The new route also remains further north of EDF to procedurally separate the traffic.

The first proposed version was evaluated during the initial meetings of the PBN FWG in October, 2023. As depicted in Exhibit 3-2, it was tentatively called the YOHOE SID and entirely by routing traffic to the south. In

was designed to avoid the area to the north of EDF in addition to serving eastbound traffic, the original proposed YOHOE SID was also designed to serve traffic departing to the west. When the PBN FWG continued their work, they refined the procedure based upon stakeholder feedback and interdependencies with other proposed procedures and airspace changes. Additional en route transitions were added, and the Runway 33 transition was refined and placed back on a northly, procedurally separated (from the EDF ILS 17) routing. After several revisions, the final iteration was the PBN FWG's procedure, BLUYY, based on the aforementioned recommendations and the criteria for the SID. The final iteration, BLUYY, is depicted in Exhibit 3-3. The BLUYY traffic has an altitude restriction at the BNDTT and BBELL waypoints requiring all aircraft to be above 8,000 feet AGL and 10,000 feet AGL respectively, well above the landing traffic at EDF Runway 17.



Departures from ANC to the east represent approximately 45% of all departures from the airport, with approximately 11% of the total departures using the NOEND departure. Other departures to the east use the ANCHORAGE Vector SID or receive vectors from the Tower, TRACON, and ARTCC, or depart under Visual Flight Rules (VFR). The PBN FWG identified several issues resulting from these conditions, including additional communications between pilot and controller due to vectoring, as well as potential conflicts among arriving and departing aircraft that were deconflicted by the proposed routing. To further accommodate this traffic, the PBN FWG created the departure SIDs (not pictured), DIPNT, GLCRR, and KRAWL that depart to NOEND from other ANC runways.⁴⁷

3.1.2.2.2 Design Process Example - ANC East-Southeast STAR - PTERS/WITTI STARs

The amendment of the proposed WITTI STAR, which would replace the current WITTI and PTERS STARs, is another good example of the alternative development process. The FAA developed and evaluated several versions of the proposed STAR that would serve ANC to the east-southeast. The current PTERS STAR serves arrivals from the east as far north as the Gulkana VHF Very High Frequency Omnidirectional Range (VOR) (GKN) and as far south as the Middleton Island VOR (MDO), but the runway transition conflicts with the standard

instrument approaches proposed to serve Runway 17 at EDF.

Additionally, only ANC Runway 15 is served by a defined runway transition on the PTERS procedure, requiring extensive vectoring to land on other runways. The current WITTI procedure does not provide defined runway transitions to any runways other than Runways 7L and 7R, requiring extensive vectoring to any other runways. The stakeholders requested that additional runway transitions be provided for the other primary arrival runways and that PTERS be deconflicted from the proposed SIAPs into EDF Runway 17. A new procedure was developed that would separate these flows.

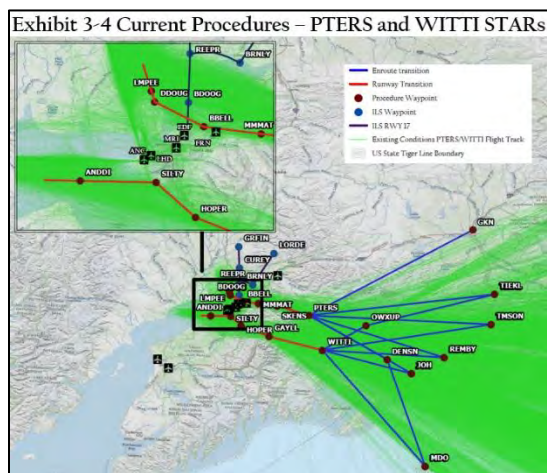
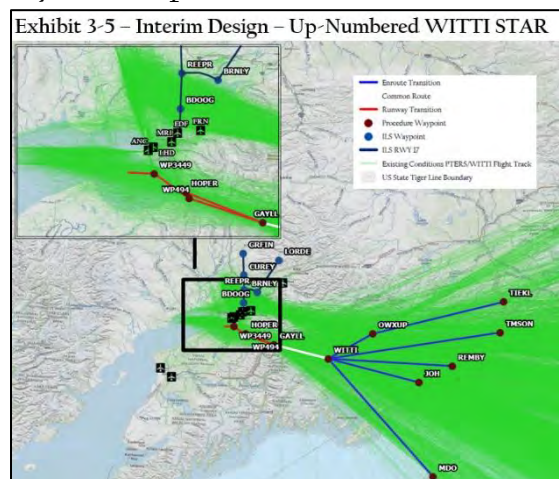


Exhibit 3-4 depicts the existing PTERS and WITTI procedures and associated flight tracks, while also depicting the proposed SIAPs to EDF Runway 17. As depicted, the PTERS arrival intersects the proposed SIAPs into EDF Runway 17, and the WITTI has only a single defined runway transition serving Runways 7L and 7R.

The PBN FWG made recommendations to address the issues identified with the PTERS and WITTI STARs. Two of these recommendations were:

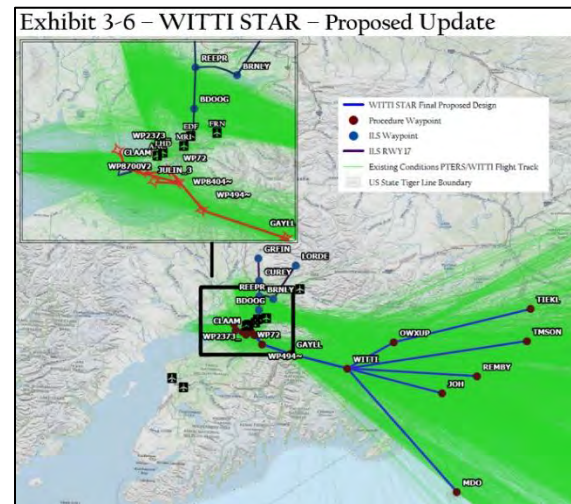
- Create an RNAV STAR with multiple transitions that deliver aircraft to ANC from the south of the airport, thereby eliminating the conflict with EDF Runway 17 SIAPs
- Create an independent RNAV STAR that incorporates multiple transitions to ANC runways



⁴⁷ DIPNT serves the NOEND transition from ANC Runways 07L and 07R. GLCRR serves the NOEND transition from ANC Runways 25L and 25R. KRAWL serves the NOEND transition from ANC Runway 15. See Appendix B for additional details.

Exhibit 3-5 depicts an iteration of the proposed WITTI STAR that would serve traffic from the current PTERS and WITTI STARs. Note this version has only two defined runway transitions to serve the runways at ANC. As depicted, the traffic of both the current PTERS and WITTI STARs would arrive from the south of ANC, utilizing the runway transitions that end at the HOPER and ANDDI waypoints. These proposed changes serve to separate civilian and military operations and deconflict the routing of civilian operations, moving them away from the military airspace.

In further refining the proposed design, the PBN FWG added an additional runway transition and extended the previously proposed transitions separating the traffic on Runways 07L, 07R, 15, and 33, allowing for greater efficiency and flexibility. Exhibit 3-6 depicts the proposed final design of the up-numbered WITTI STAR.



3.2 Alternatives Overview

The following sections discuss the No Action alternative and the Proposed Action, which are the two alternatives carried forward for analysis in this EA.

3.2.1 No Action Alternative

Under the No Action alternative, the FAA would maintain existing arrival/departure procedures. The related routes and air traffic flow in use in 2025 would remain largely the same under the No Action alternative. Some procedure modifications and/or cancellations independent of those recommended as part of the ATAAPS are anticipated to be implemented prior to the Proposed Action to address specific issues separate from this project.

A new departure procedure, MERRILL, now serves MRI. Existing procedures with expected modifications are listed on the FAA Instrument Flight Procedure Gateway website.⁴⁸ Details related to procedure changes were collected and defined for purposes of the No Action alternative.

The No Action alternative accounts for current airport runway and facility modifications under construction or those to be implemented during the planning horizon of the EA (2027) and preceding the potential implementation year of 2027. These changes are taken into account in the analyses of impacts associated with the No Action alternative (see Chapter 5, *Environmental Consequences*).

3.2.1.1 No Action Alternative Procedures

The No Action alternative includes 22 procedures (SIDs and STARs) and 32 approaches (SIAPs): 10 conventional procedures and 17 conventional approaches (procedures that use conventional NAVAIDs [navigational aid]), and 12 RNAV procedures and 13 RNAV approaches. The No Action alternative also includes two visual approaches. Table 3-1 lists the names of the No Action alternative procedures, the procedure type (i.e., SID, STAR, or SIAP), the basis of design, and the number of runway and en route transitions for each procedure.

⁴⁸ https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/

Table 3-1 No Action Alternative SIDs, STARS, and SIAPS

Airport Served	Procedure Type	Procedure Name	Procedure Type	Transitions (en route/runway)
ANC	STAR	AMOTT	Conventional	5/0
ANC	STAR	ELLAM	Conventional	1/0
ANC	STAR	KROTO	RNAV	3/2
ANC	STAR	NEELL	RNAV	3/3
ANC	STAR	PTERS	RNAV	6/1
ANC	STAR	TAGER	Conventional	5/0
ANC	STAR	WITTI	RNAV	5/1
ANC	STAR	YESKA	Conventional	2/0
EDF	STAR	BRODE	RNAV	6/1
EDF	STAR	CRUZR	RNAV	2/1
EDF	STAR	GRUUB	RNAV	6/1
EDF	STAR	JINXX	RNAV	2/1
FRN, LHD, MRI	N/A	N/A	N/A	N/A
ANC	SID	ANCHORAGE	Conventional	0/0
ANC	SID	FFITZ	RNAV	1/3
ANC	SID	KNIK	Conventional	0/0
ANC	SID	NOEND	RNAV	1/1
ANC	SID	POTTER	Conventional	0/0
ANC	SID	TURNAGAIN	Conventional	1/0
EDF	SID	EEEGL	Conventional	1/0
EDF	SID	ELMENDORF	RNAV	1/0
EDF	SID	YUKLA	Conventional	1/0
MRI	SID	MERRILL	RNAV	1/2
FRN, LHD	N/A	N/A	N/A	N/A
ANC	SIAP	HIGHWAY VISUAL RWY 25R	Visual	N/A
ANC	SIAP	ILS OR LOC RWY 07L	Conventional	N/A
ANC	SIAP	ILS OR LOC RWY 07R	Conventional	N/A
ANC	SIAP	ILS RWY 07L (SA CAT I - II)	Conventional	N/A
ANC	SIAP	ILS RWY 07R (CAT II - III)	Conventional	N/A
ANC	SIAP	ILS RWY 07R (SA CAT I)	Conventional	N/A
ANC	SIAP	ILS RWY 15	Conventional	N/A
ANC	SIAP	RNAV (GPS) RWY 07L	RNAV	N/A
ANC	SIAP	RNAV (GPS) RWY 15	RNAV	N/A
ANC	SIAP	RNAV (GPS) Y RWY 07R	RNAV	N/A
ANC	SIAP	RNAV (RNP) RWY 33	RNAV	N/A
ANC	SIAP	RNAV (RNP) Z RWY 07R	RNAV	N/A
ANC	SIAP	SEWARD VISUAL RWY 25L	Visual	N/A
EDF	SIAP	ILS X RWY 06 (SA CAT I)	Conventional	N/A
EDF	SIAP	ILS Y OR LOC/DME Y RWY 06	Conventional	N/A
EDF	SIAP	ILS Z OR LOC/DME Z RWY 06	Conventional	N/A
EDF	SIAP	RNAV (GPS) RWY 06	RNAV	N/A
EDF	SIAP	TACAN RWY 06	Conventional	N/A
EDF	SIAP	TACAN Y RWY 17	Conventional	N/A
EDF	SIAP	TACAN Z RWY 17	Conventional	N/A
FRN, LHD	N/A	N/A	N/A	N/A
MRI	SIAP	RNAV (GPS)-A	RNAV	N/A

Notes: 1\ A runway transition is counted if there is at least one waypoint or fix beyond (or prior to) the common route to create a defined segment between the runway and common route (i.e. a defined route between two fixes or waypoints).

Bolded names indicate a new or revised procedure when compared to the Existing Conditions.

N/A = Not Applicable STAR = Standard Terminal Arrival SID = Standard Instrument Departure SIAP = Standard Instrument Approach Procedure RNAV = Area Navigation

ANC - Ted Stevens Anchorage International; EDF - Elmendorf Air Force Base; FRN - Bryant Army Airfield; LHD - Lake Hood; MRI - Merrill Field

Sources: National Flight Data Center National Airspace System Resources Database, accessed January 2025; US Department of Transportation, FAA Operational Procedure Files, January 2025.

Prepared by: ATAC Corporation, November 2025

3.2.1.2 Airspace Control Structure under the No Action Alternative

When aircraft depart from or arrive into the ATAAPS area on an assigned route or SID/STAR, transfer of control occurs between multiple air traffic facilities. Under the No Action alternative, the transfer areas would remain unchanged from Existing Conditions. For purposes of this EA,

the areas where transfers occur are defined based on entry and exit gates/points. The gates/points are purposely located to segregate arrivals and departures where possible.

ANC and EDF have independent operating configurations that are based on weather and wind (refer to Section 1.3.1). Certain airport traffic flows can interact with other airport traffic flows in different runway operating configurations. Therefore, the ATAAPS CWG was required to consider all possible combinations of the various runway operating configurations.

Appendix B: *Action Air Traffic Components* illustrates all arrival and departure flows to/from the Study Airports associated with the No Action alternative. Corridors are grouped by procedure type (conventional or RNAV), operation (arrival or departure), and airport. Depending on specific airport traffic flows, their interactions may change.

3.2.2 Proposed Action

As discussed in Section 3.1 (ATAAPS Alternative Development), the Proposed Action includes the proposed mature designs for all procedures the ATAAPS CWG developed, plus existing procedures that would continue to be used. This Proposed Action would increase efficiency in the ATAAPS area by improving flexibility in transitioning aircraft, segregating arrivals and departures, and improving the predictability of air traffic flows.

The Proposed Action includes 29 procedures:

- 12 new/amended RNAV SIDs
- 5 revised conventional SIDs
- 8 new/amended RNAV STARs
- 4 revised conventional STARs

The Draft EA also includes actions related to existing procedures with planned modifications that are carried forward as part of the Proposed Action.

Appendix B: *Air Traffic Components* illustrates all arrival and departure flows to/from the Study Airports associated with the Proposed Action Alternative. Corridors are grouped by procedure type (conventional or RNAV), operation (arrival or departure), and airport. Depending on specific airport traffic flows, their interactions may change.

Table 3-2 lists the Proposed Action, the No Action alternative procedure that the Proposed Action would replace (if applicable), the procedure type, and the basis of design. The table also shows the airports that the Proposed Action procedures serve and the number of runway and en route transitions for each procedure, as well as the objectives each procedure design achieves.

In addition to 29 SID and STARs, ATAAPS incorporates 41 existing and new RNAV/ILS approaches. Table 3-2 lists the existing, new, or revised Standard Instrument approaches, as well as the type of procedure and the airports served.

Table 3-2 Proposed Action SIDs, STARs, and SIAPs

No Action Procedure	Proposed Action Procedure	Procedure Type	Basis of Design	Airports Served	Transitions (enroute/runway)	Objectives
AMOTT	AMOTT	STAR	Conventional	ANC	5/0	P
ELLAM	ELLAM	STAR	Conventional	ANC	1/0	P
KROTO	MRDOR	STAR	RNAV	ANC	4/3	E
NEELL	AYZEE	STAR	RNAV	ANC	4/4	E
N/A	DYLG7	STAR	RNAV	ANC	4/4	E
PTERS	WITTI	STAR	RNAV	ANC	5/2	E
TAGER	TAGER	STAR	Conventional	ANC	5/0	P
WITTI	WITTI	STAR	RNAV	ANC	5/1	R
YESKA	YESKA	STAR	Conventional	ANC	2/0	P
BRODE	AMRMM	STAR	RNAV	EDF	6/1	E
GRUZR	BANZI	STAR	RNAV	EDF	2/1	E
GRUUB	N/A	N/A	N/A	N/A	N/A	N/A
JINXX	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	STAR	N/A	FRN, LHD,	N/A	N/A

ANCHORAGE	ANCHORAGE	SID	Conventional	MRI		
FFITZ	N/A	N/A	N/A	ANC	0/0	P
KNIK	KNIK	SID	Conventional	ANC	N/A	N/A
NOEND	N/A	N/A	N/A	ANC	1/3	P
POTTER	POTTER	SID	Conventional	ANC	N/A	N/A
TURNAGAIN	N/A	N/A	N/A	ANC	0/0	P
N/A	BLUYY	SID	RNAV	ANC	N/A	N/A
N/A	GLCRR	SID	RNAV	ANC	8/1	E
N/A	GDLCK	SID	RNAV	ANC	8/2	E
N/A	DIPNT	SID	RNAV	ANC	3/2	E
N/A	KRAWL	SID	RNAV	ANC	8/2	E
EEEGL	SOAPP	SID	RNAV	ANC	8/1	E
ELMENDORF	ELMENDORF	SID	RNAV	EDF	1/4	E
YUKLA	YUKLA	SID	Conventional	EDF	1/4	P
N/A	HLION	SID	Conventional	EDF	1/0	P
N/A	GRRID	SID	Conventional	EDF	1/4	P
N/A	WUULF	SID	Conventional	EDF	1/4	P
MERRILL	MERRILL	SID	Conventional	EDF	1/3	P
N/A	FRWED	SID	RNAV	MRI	1/2	E
N/A	GRLZY	SID	RNAV	MRI		E
N/A	N/A	SID	N/A	MRI		E
N/A	N/A	SID	N/A	FRN/ LHD	N/A	N/A
HIGHWAY VISUAL RWY 25R	HIGHWAY VISUAL RWY 25R	SIAP	Visual	ANC	N/A	P
No Action Procedure	Proposed Action Procedure	Procedure Type	Basis of Design	Airports Served	Transitions (enroute/ runway)	Objectives
SEWARD VISUAL RWY 25L	SEWARD VISUAL RWY 25L	SIAP	Visual	ANC	N/A	P
ILS OR LOC RWY 07L	ILS OR LOC RWY 07L	SIAP	Conventional	ANC	N/A	P
ILS OR LOC RWY 07R	ILS OR LOC RWY 07R	SIAP	Conventional	ANC	N/A	P
ILS RWY 07L (SA CAT I-II)	ILS RWY 07L (SA CAT I-II)	SIAP	Conventional	ANC	N/A	P
ILS RWY 07R (CAT II-III)	ILS RWY 07R (CAT II-III)	SIAP	Conventional	ANC	N/A	P
ILS RWY 07R (SA CAT I)	ILS RWY 07R (SA CAT I)	SIAP	Conventional	ANC	N/A	
ILS RWY 15	ILS RWY 15	SIAP	Conventional	ANC	N/A	P
RNAV (GPS) RWY 07L	RNAV (GPS) RWY 07L	SIAP	RNAV	ANC	N/A	P
RNAV (GPS) RWY 15	RNAV (GPS) RWY 15	SIAP	RNAV	ANC	N/A	P
RNAV (GPS) Y RWY 07R	RNAV (GPS) Y RWY 07R	SIAP	RNAV	ANC	N/A	P
RNAV (RNP) RWY 33	RNAV (RNP) RWY 33	SIAP	RNAV	ANC	N/A	P
RNAV (RNP) Z RWY 07R	RNAV (RNP) Z RWY 07R	SIAP	RNAV	ANC	N/A	P
N/A	RNAV (GPS) RWY 33	SIAP	RNAV	ANC	N/A	E
N/A	RNAV (RNP) Z RWY 07L	SIAP	RNAV	ANC	N/A	P
N/A	RNAV (RNP) Z RWY 15	SIAP	RNAV	ANC	N/A	P
ILS X RWY 06 (SA CAT I)	ILS X RWY 06 (SA CAT I)	SIAP	Conventional	EDF	N/A	P
ILS Y OR LOC/DME Y RWY 06	ILS Y OR LOC/DME Y RWY 06	SIAP	Conventional	EDF	N/A	P
ILS Z OR LOC/DME Z RWY 06	ILS Z OR LOC/DME Z RWY 06	SIAP	Conventional	EDF	N/A	P
RNAV (GPS) RWY 06	RNAV (GPS) RWY 06	SIAP	RNAV	EDF	N/A	P
TACAN RWY 06	TACAN RWY 06	SIAP	Conventional	EDF	N/A	P
TACAN Y RWY 16	TACAN Y RWY 17	SIAP	Conventional	EDF	N/A	E
TACAN Z RWY 16	TACAN Z RWY 17	SIAP	Conventional	EDF	N/A	E

N/A	ILS W OR LOC/DME W RWY 17	SIAP	Conventional	EDF	N/A	E
N/A	HI-ILS X OR LOC DME X RWY 17	SIAP	Conventional	EDF	N/A	E
N/A	ILS Y OR LOC/DME Y RWY 17	SIAP	Conventional	EDF	N/A	E
N/A	ILS Z OR LOC/DME Z RWY 17	SIAP	Conventional	EDF	N/A	E
N/A	ILS Z RWY 17 (CAT II)	SIAP	Conventional	EDF	N/A	E
N/A	RNAV (GPS) RWY 17	SIAP	RNAV	EDF	N/A	E
N/A	TACAN RWY 35	SIAP	Conventional	EDF	N/A	R
RNAV (GPS) RWY 35	RNAV (GPS) RWY 35	SIAP	RNAV	MRI	N/A	E
RNAV (GPS) Y RWY 08	RNAV (GPS) Y RWY 08	SIAP	RNAV	MRI	N/A	E
RNAV (GPS) Z RWY 08	RNAV (GPS) Z RWY 08	SIAP	RNAV	MRI	N/A	E
RNAV (GPS)-A	RNAV (GPS)-A	SIAP	RNAV	MRI	N/A	P
N/A	RNAV (GPS)-B	SIAP	RNAV	MRI	N/A	E
No Action Procedure	Proposed Action Procedure	Procedure Type	Basis of Design	Airports Served	Transitions (enroute/runway)	Objectives
RNAV (GPS) RWY 18	RNAV (GPS) RWY 18	SIAP	RNAV	FRN	N/A	E
RNAV (GPS) RWY 36	RNAV (GPS) RWY 36	SIAP	RNAV	FRN	N/A	E
N/A	N/A	N/A	N/A	LHD	N/A	N/A

Notes:: 1) A runway transition is counted if there is at least one waypoint or fix beyond (or prior to) the common route to create a defined segment between the runway and common route (i.e., a defined route between two fixes or waypoints). Bolded names indicate a new or revised procedure when compared to the Existing Conditions. Objectives Key: E=Efficiency & P= Predictability

N/A = Not Applicable STAR = Standard Terminal Arrival SID = Standard Instrument Departure SIAP = Standard Instrument Approach Procedure RNAV = Area Navigation

ANC - Ted Stevens Anchorage Int'l; EDF - Elmendorf Air Force Base; ; FRN - Bryant Army Airfield; LHD - Lake Hood; MRI - Merrill Field

Sources: Alaska Terminal Area Airspace and Procedures Study PBN Design Team 100% Design TARGETS File, February 2025.
National Flight Data Center National Airspace System Resources Database, accessed February 2025; US Department of Transportation, FAA Operational Procedure Files, February 2025.

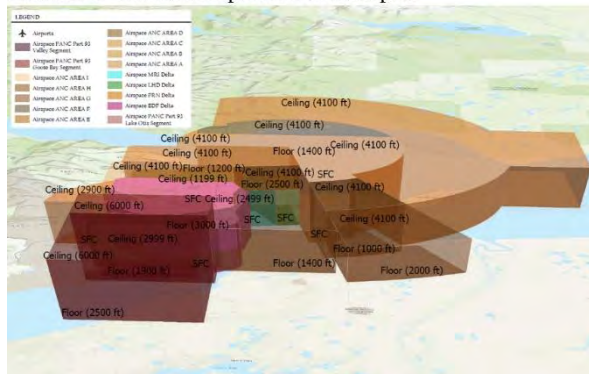
Prepared by: ATAC Corporation, November 2025

The Study Airports all have independent operating configurations, dependent upon weather and wind. Airport traffic flows can interact with other airport traffic flows in different runway operating configurations. Therefore, the ATAAPS CWG took into consideration all possible runway operating configurations or combinations thereof. Appendix B: *Proposed Action Air Traffic Components* illustrates all arrival and departure flows to the Study Airports associated with the Proposed Action. Corridors are grouped by procedure type (conventional or RNAV), operation (arrival or departure), and airport. Depending on specific airport flows, their interactions may change.

3.2.2.1 Airspace Control Structure under the Proposed Action Alternative

In addition to the above listed procedural changes, the airspace within the Anchorage basin would be updated, replacing much of the Code of Federal Regulations (CFR) Part 93 airspace with Class C and D controlled air space served by active air traffic control towers. Exhibit 3-7 depicts the proposed airspace changes. While these changes do not directly change the way aircraft fly within the area, all proposed procedures and VFR routes were designed to be incorporated into the proposed airspace control structure. Please note full-scale individual exhibits for each airspace component may be found in Appendix AA.

Exhibit 3-7 ATAAPS Proposed Action Airspace



3.3 Summary Comparison of the Proposed Action and No Action Alternative

This section provides a comparative summary between the Proposed Action and No Action alternative based on the objectives defined in Section 2.2 (Purpose of the Proposed Action):

- Improve the flexibility in transitioning traffic between en route and terminal area airspace and between terminal area airspace and the runways
- Improve the segregation of arrivals and departures in terminal area and en route airspace
- Improve the predictability in transitioning traffic between en route and terminal area airspace and between terminal area airspace area and the runways

3.3.1 Improve Predictability of Air Traffic Flow

Section 2.2.2 includes two criteria to measure the objective to increase flexibility in transitioning aircraft between terminal and en route airspace:

- RNAV procedures are designed with altitude controls intended to optimize descent or climb patterns (measured by count of procedures with altitude controls)
- The majority of STARs and SIDs to and from the Study Airports are based on RNAV technology (measured by count of RNAV STARs and SIDs for the individual Airport)

Under the No Action alternative, eleven procedures include altitude controls. In comparison, the Proposed Action includes nineteen procedures with altitude controls. Table 3-3 provides a summary comparison of the Proposed Action and No Action alternative based on the criteria defined above. The total number of RNAV procedures/airport combinations with altitude controls serving the study airports increases from 11 under the No Action alternative to 19 under the Proposed Action. The No Action alternative has seven published conventional/radar vector procedures, and the Proposed Action maintains six of those seven conventional procedures.

Table 3-3 Alternatives Evaluation: Improve Predictability of Air Traffic Flow

Airport	Number of RNAV Procedures with Altitude Controls	
	No Action	Proposed Action
ANC	6	10
EDF	4	6
FRN	0	0
LHD	0	0
MRI	1	3
Total	11	19

ANC - Ted Stevens Anchorage Int'l; EDF - Elmendorf Air Force Base; FRN - Bryant Army Airfield; LHD - Lake Hood; MRI - Merrill Field;

3.3.2 Segregate Arrival and Departure Flows

Section 2.2.3 includes one criterion to measure the objective to increase flexibility in transitioning aircraft between the terminal and en route airspace:

- Segregate arrival and departure traffic (measured by number of RNAV STARs and/or SIDs that can be used independently to/from Study Airports)

Table 3-4 provides a summary comparison of the Proposed Action and No Action alternative based on the criteria defined above. Under the No Action alternative, there are 12 RNAV procedures/airport combinations. The Proposed Action has 20 RNAV procedures/airport combinations. The greater number of RNAV routes serving the study airports and better usability allows for greater segregation of arrival and departure flows.

Table 3-4 Alternatives Evaluation: Segregate Arrival and Departure Flows

Airport	Number of Independent RNAV Procedures	
	No Action	Proposed Action
ANC	6	10
EDF	5	7
FRN	0	0
LHD	0	0

MRI	1	3
Total	12	20

ANC - Ted Stevens Anchorage Int'l; EDF - Elmendorf Air Force Base; FRN - Bryant Army Airfield; LHD - Lake Hood; MRI - Merrill Field

Sources: National Flight Data Center National Airspace System Resources Database, accessed July 2022; Department of Transportation, FAA Operational Procedure Files, February 2025. ATAAPS PBN 100% TARGETS Design File, February 2025.

Prepared by: ATAC Corporation, November 2025.

3.3.3 Improve the Flexibility in Transitioning Aircraft

Section 2.2.4 (Deconflicting the Air Traffic Flows EDF, ANC, and MRI) includes two criteria established to measure the objective to increase the flexibility in transitioning aircraft between the terminal and en route airspace:

- Where possible, increase the number of available transitions compared with the No Action alternative (measured by number of exit/entry points)
- Where possible, increase the number of RNAV STARs and SIDs compared with the No Action alternative (measured by total count of RNAV STARs and RNAV SIDs for each of the Study Airports)

Table 3-5 provides a summary comparison of the Proposed Action and No Action alternative based on the criteria defined above. Under the No Action alternative, there are four IFR entry transfer control points into the ATAAPS airspace and four exit transfer control points. Under the Proposed Action, the number of IFR entry transfer control points increases to six, while the IFR exit transfer control points increases to eight. The increase allows for more efficient use of the airspace.

Under the No Action alternative, there are 53 en route transitions and 17 runway transitions.⁴⁹ Under the Proposed Action, the number of en route transitions increases to 69, and the number of runway transitions increases to 42. The additional en route transitions result from more procedures being designed to tie into both existing and proposed entry and exit points, allowing for more flexibility within the airspace. The additional runway transitions allow controllers to assign aircraft to routes that were not available previously or would have required vectoring to the common route.

Table 3-5 Alternatives Evaluation: Improve Flexibility in Transitioning Aircraft

Criteria	Alternative	
	No Action	Proposed Action
Total Entry Points	4	6
Total Exit Points	4	8
Total En Route Transitions	53	69
Total Runway Transitions	17	42

Sources: National Flight Data Center National Airspace System Resources Database, accessed February 2025; US Department of Transportation, FAA Operational Procedure Files, February 2025. ATAAPS PBN 100% TARGETS Design File, February 2025.

Prepared by: ATAC Corporation, November 2025.

3.4 Preferred Alternative Determination

Of the two alternatives carried forward for analysis, only the Proposed Action would meet the purpose and need for ATAAPS based on the criteria discussed above. Therefore, the Proposed Action is the preferred alternative. Although it would not meet the purpose and need, the No Action alternative was carried forward, as required by FAA regulations, to establish a norm against which decision makers can measure the potential environmental effects of implementing the Proposed Action.

3.5 Listing of Federal Laws and Regulations Considered

Table 3-6 lists the relevant federal laws and statutes, Executive Orders, and regulations applicable to the Proposed Action and the No Action alternative and considered in preparation of this EA.

⁴⁹ A transition is counted if at least one waypoint defining the route beyond the common route/point exists.

Table 3-6 List of Federal Laws and Regulations Considered

Federal Laws and Statutes	Citation
National Environmental Policy Act of 1969	42 U.S.C. § 4321 et seq.
Clean Air Act of 1970, as amended	42 U.S.C. § 7401 et seq.
American Indian Religious Freedom Act of 1978	42 U.S.C. § 1996a
Department of Transportation Act of 1966, Section 4(f)	49 U.S.C. § 303(c)
Aviation Safety and Noise Abatement Act of 1979	49 U.S.C. § 47501 et seq.
Federal Aviation Act of 1958, as amended	49 U.S.C. § 40101 et seq.
Endangered Species Act of 1973	16 U.S.C. § 1531 et seq.
Fish and Wildlife Coordination Act of 1958	16 U.S.C. § 661 et seq.
The Bald and Golden Eagle Protection Act of 1940	16 U.S.C. § 668 et seq.
Lacey Act of 1900	16 U.S.C. § 3371 et seq.
Migratory Bird Treaty Act of 1918	16 U.S.C. § 703 et seq.
National Historic Preservation Act of 1966, as amended	16 U.S.C. § 470, 54 U.S.C. § 300101 et seq.
The Wilderness Act of 1964	16 U.S.C. § 1131-1136
Archaeological and Historic Preservation Act of 1974, as amended	16 U.S.C. § 469 et seq. 54 U.S.C. §§ 312501-312508
Executive Orders	Citation
11593, Protection and Enhancement of the Cultural Environment	36 Federal Register (FR) 8921
13045, Protection of Children from Environmental Health Risks and Safety Risks	62 FR 19885
14148, Initial Rescissions of Harmful Executive Orders and Actions	90 FR 8237
14173, Ending Illegal Discrimination and Restoring Merit-Based Opportunity	90 FR 8633
Federal Regulations	Citation
General Conformity Regulations	40 C.F.R. Part 93 Subpart B
Protection of Historic Properties Regulations	36 C.F.R. 800
Airport Noise Compatibility Planning Regulations	14 C.F.R. Part 150
Federal Aviation Regulations (FAR) Part 71: Designation of Class A, Class B, Class C, Class D, and Class E Airspace Areas; Airways; Routes; and Reporting Points.	14 C.F.R. Part 71
FAA/US Department of Transportation Orders	
US DOT Order 5610.ID: <i>DOTS Procedures for Considering Environmental Impacts</i> , July, 2025.	
FAA Order 8260.58D, <i>The United States Standard Performance Based Navigation (PBN) Instrument Procedure Design</i> , January, 15, 2025.	
FAA Order 8260.43C, <i>Flight Procedures Management Program</i> , April 9, 2019.	
FAA Order JO 7110.65BB, <i>Air Traffic Control</i> , February 20, 2025.	
FAA Order 1050.1G: <i>FAA National Environmental Policy Act Implementing Procedures</i> , June 30, 2025.	
FAA Order JO 7400.2R, <i>Procedures for Handling Airspace Matters</i> , February 20, 2025.	
FAA Order 8260.3G, <i>United States Standard for Terminal Instrument Procedures (TERPS)</i> , July 01, 2024.	
FAA Order 8040.4C, <i>Safety Risk Management Policy</i> , September 29, 2023.	
FAA Order JO 1000.37C, <i>Air Traffic Organization Safety Management System</i> , October 01, 2021.	
FAA Order 8260.19K, <i>Flight Procedures and Airspace</i> , January 15, 2025.	
FAA Order 8260.46K, <i>Departure Procedure (DP) Program</i> , July 01, 2024.	
FAA Advisory Circulars	
FAA Advisory Circular 150/5020-1: <i>Noise Control and Compatibility Planning for Airports</i> , August 5, 1983.	
FAA Advisory Circular 150/5200-33C: <i>Hazardous Wildlife Attractants on or near Airports</i> , February 21, 2020.	
FAA Advisory Circular 36-3H: <i>Estimated Airplane Noise Levels in A-Weighted Decibels</i> , April 24, 2002.	

Source: ATAC Corporation, October 2025
 Prepared by: ATAC Corporation, November 2025

4. Affected Environment

This chapter describes the human, physical, and natural environmental conditions that could be affected by the Proposed Action. Specifically, this DEA considers effects on the environmental resource categories identified in FAA Order 1050.1G. The potential environmental impacts of the Proposed Action and No Action alternative are discussed in Chapter 5, *Environmental Consequences*.

The technical terms and concepts discussed in this chapter are explained in Appendix A: *Basic Concepts of Performance Based Navigation (PBN) and Air Traffic Control (ATC)* and Appendix F: *Basics of Noise*.

4.1 Resource Categories or Sub-Categories Not Affected

This section discusses the environmental resource categories or sub-categories that would remain unaffected by the Proposed Action. These resource categories would remain unaffected because the resource either does not exist within the Study Area or the types of activities associated with the Proposed Action would not affect them. The FAA Order 1050.1G-defined categories are used in the primary reference with the closest corresponding DOD NEPA-defined category in parentheses and italicized for cross-reference. Throughout the remainder of the document, the FAA Order 1050.1G-defined resource category names are used.⁵⁰ The resource categories or sub-categories are:

- **Coastal Resources (DOD: *Water Resources*):** The Proposed Action would not involve any actions (physical changes or development of facilities) that would be inconsistent with management plans for designated Coastal Barrier Resource System (CBRS) areas, which are not found in the General Study Area. The Proposed Action is not expected to directly affect shorelines or change the use of shoreline zones, or be inconsistent with the NOAA-approved Kachemak Bay National Estuarine Research Reserve or state Coastal Zone Management Plan (CZMP).⁵¹
- **Farmlands (DOD: *Geological, Topography, and Soil Resources*):** The Farmland Protection Policy Act (FPPA)⁵² regulates federal actions with potential to convert farmland to non-agricultural uses. Implementation of the Proposed Action would not normally involve the development of land regardless of use,⁵³ nor does it have the potential to convert farmland to non-agricultural uses.
- **Biological Resources (including non-avian wildlife, fish and plants only) (DOD: *Biological Resources (including fish and vegetation only)*):** The Proposed Action would not involve ground disturbing activities and would not normally impact critical habitats or non-avian wildlife populations. The Proposed Action would not normally affect, non-avian wildlife, or habitat for non-avian wildlife, fish, or plants. The Proposed Action would not normally have adverse impacts on a species reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.
- **Water Resources – including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers (DOD: *Water Resources*):**
 - **Wetlands:** The Proposed Action would not involve the construction of facilities or infrastructure and would therefore not impact wetlands or navigable waters. Therefore, no further analysis is required.

⁵⁰ DOD branches of service may refer to the DOD environmental impact/resource categories differently. Additionally, three resource/impact categories do not correspond directly to FAA NEPA resource/impact categories and they are: Airspace Management, Ground Transportation, and Public Health and Safety. These DOD resource/impact categories are thus not cross-referenced in this document.

⁵¹ Office for Coastal Management, As of July 1, 2011, Alaska does not have a federally approved coastal management program, and federal consistency does not apply to Alaska.

⁵² 7 U.S.C. §§ 4201-4209

⁵³ The Soil Survey Geographic Database (SSURGO) identified no prime farmlands, farmlands of unique importance, or farmlands of statewide importance in the GSA. The Farmlands of local importance and the not-prime farmland will not be developed as a result of this project.

- o **Floodplains:** The Proposed Action would not involve the construction of facilities. Therefore, it would not cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.
- o **Surface Waters:** The Proposed Action would not adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or present difficulties based on water quality impacts when obtaining a permit or authorization, and thus, no further analysis is required.
- o **Groundwater:** The Proposed Action does not involve land acquisition or ground disturbing activities that would (1) adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values, (2) adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated, or (3) present difficulties based on water quality impacts when obtaining a permit or authorization. Thus, no further analysis is required.
- o **Wild and Scenic Rivers:** Portions of the Chilikadrotna River, Mulchatna River, and Tlikakila River are designated *Wild and Scenic Rivers*. All three river segments located within the 18K Supplemental Boundary are within the Lake Clark National Park and Preserve. In addition to the aforementioned wild and scenic river segments in the 18K Supplemental Boundary, there are 35 river segments that are eligible and/or suitable for wild and scenic designation but are not designated as such. The Proposed Action would not have an adverse impact on the values for which a river was designated (or considered for designation) through: (1) destroying or altering a river's free-flowing nature; (2) a direct and adverse effect on the values for which a river was designated (or under study for designation); (3) introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river's setting; (4) causing the river's water quality to deteriorate; (5) allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor (which cannot exceed an average of 320 acres per mile, which, if applied uniformly along the entire designated segment, is one-quarter of a mile on each side of the river); or (6) any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river that is not included in the NRI from being included in the Wild and Scenic River System or causing a downgrade in its classification (e.g., from wild to recreational). Therefore no further analysis is required.
- **Hazardous Materials, Solid Waste, and Pollution Prevention (DOD: *Hazardous and Toxic Materials and Waste*):** The Proposed Action would not involve construction or development, or any physical disturbances of the ground. The Proposed Action would not have the potential to: (1) violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management; (2) involve a contaminated site (including but not limited to a site listed on the National Priorities List), produce appreciably larger quantities or increased or more types of hazardous waste; (3) generate appreciably larger quantities or types of solid waste; (4) use a different method of waste collection, treatment, storage, or disposal that, as an action, would adversely impact the site, surroundings, or affected community, and/or would exceed extant state, tribal, or local capacity; or (5) adversely affect human health and the environment (through activities described in the action and their fidelity with federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management). Therefore, the potential for impact from hazardous materials, pollution, or solid waste is not anticipated, and no further analysis or pollution

prevention actions would be required.

- **Historical, Architectural, Archeological, and Cultural Resources –Archeological and Architectural sub-category only (DOD: *Cultural Resources and Native American Resources*):** The Proposed Action would not involve any construction, development, or any physical disturbance of the ground or excavation that could impact archaeological resources on federal, state, or Indian lands and therefore would not impact cultural resources, or affect the physical integrity or access to American Indian sacred or culturally significant sites. The Proposed Action would not involve any construction, development, or any physical disturbance of the ground. Therefore, the potential for impact in relation to architectural compatibility with the character of a surrounding historic district or property is not anticipated. However, in certain circumstances, some analysis of the potential for impacts to the architectural and archeological resources related to aircraft noise may be required. Additional historic and cultural resources discussed in section 4.2 will be analyzed.
- **Land Use (DOD: *Land Use and Recreation*):** The Proposed Action would not involve any changes to existing, planned, or future land uses within the General Study Area. Therefore, no further analysis is required.
- **Visual Effects – Light Emissions only (DOD: *Visual Resources*):** There are no special purpose laws for light impacts and visual impacts. Aviation lighting is required for safety, obstruction clearance, and navigation and is the chief contributor to light emissions from airports. The Proposed Action will not normally involve aviation lighting. Therefore, no further analysis is required. Other visual effects (related to aircraft operations) discussed in section 4.2.7 will be analyzed.
- **Natural Resources and Energy Supply – Natural Resources sub-category only (DOD: *Utilities and Infrastructure or Natural Resources and Energy*):** The Proposed Action would not require the need for unusual natural resources and materials or those in short supply and would not have the potential to cause demand to exceed available or future supplies of these resources or adversely impact extant federal, tribal, state, or local resource planning already in place. Therefore, no further analysis is required. Energy supply as discussed in section 4.2 will be analyzed.
- **Socioeconomic Impacts and Children's Environmental Health and Safety Risks (DOD: *Protection of Children Socioeconomics and General Services*):**
 - **Socioeconomic Impacts sub-category:** The Proposed Action would not involve the disruption or division of the physical arrangement of an established community, relocation of residents or community businesses, disruption of local traffic patterns or the level of service of roads serving any airport, or result in a loss in community tax base. Therefore, no further analysis is required.
 - **Children's Environmental Health and Safety Risks sub-categories:** The Proposed Action would not result in environmental health and safety risks that could disproportionately affect children.

4.2 Potentially Affected Resource Categories or Sub-Categories

This section provides information on the current conditions within the General Study Area for environmental resource categories or components that the Proposed Action could potentially affect. FAA Order 1050.1G defined categories are used in the primary reference with the closest corresponding DOD NEPA defined category in parentheses and italicized for cross-reference. Throughout the remainder of the document, the FAA Order 1050.1G defined resource category names are used. These environmental resource categories or sub-categories include:

- Noise and Noise-Compatible Land Use (DOD: Noise) (Section 4.2.1)
- Department of Transportation Act Section 303, Section 4(f) and Section 6(f) (Not applicable to DOD NEPA Documentation) (Section 4.2.2)
- Historic, Architectural, Archeological, and Cultural Resources – Historic and Cultural

Resources sub-categories only (DOD: Cultural Resources and Native American Resources) (Section 4.2.3)

- Biological Resources – Avian and Bat Wildlife sub-category Beluga Whales/endangered Pinnipeds only (DOD: Biological Resources - Threatened and Endangered Wildlife subcategory only) (Section 4.2.4)
- Natural Resources and Energy Supply – Energy Supply sub-category only (Aircraft Fuel only) (DOD: Utilities and Infrastructure or Natural Resources and Energy) (Section 4.2.5)
- Aviation Emissions and Air Quality (DOD: Air Quality) (Section 4.2.6)
- Visual Effects – Visual Resources/Visual Character Only (DOD: Visual Resources) (Section 4.2.7)

The following sections discuss each of the above listed environmental resource categories in detail.

4.2.1 Noise and Noise-Compatible Land Use

Aircraft noise is often the most noticeable environmental effect associated with any air traffic project. This section discusses FAA guidance on conducting noise analyses, noise model input development, and existing aircraft noise conditions. Appendix F: *Basics of Noise* provides background information on the physics of sound, the effects of noise on people, and noise metrics. Detailed application and use of two specific noise models and results of the combined noise analyses are included in Appendix I: *Noise Analysis Technical Report*.

FAA Order 1050.1G differentiates significant noise increases with reportable noise. A significant impact is an increase of DNL 1.5 dB at noise-sensitive land use locations (e.g., residences, schools, etc.) exposed to aircraft noise of DNL 65 dB or higher under the Proposed Action. Whereas a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase in areas exposed to DNL 45 to 60 dB are considered reportable noise increases but not significant.

4.2.1.1 Noise Modeling Methodology

To comply with NEPA requirements, the FAA has issued policies and procedures for assessing aircraft noise in Order 1050.1G. This order requires that aircraft noise analysis use the yearly Day-Night Average Sound Level (DNL) metric. The DNL metric is a single value representing the aircraft sound level over a 24-hour period and includes all of the sound energy generated within that period. The DNL metric includes a 10-decibel (dB) weighting for noise events occurring between 10 p.m. and 7 a.m. (nighttime). This weighting helps account for the greater level of annoyance caused by nighttime noise events. Accordingly, the metric essentially equates one nighttime flight to 10 daytime flights. The DNL metric is further discussed in Appendix F.

Order 1050.1G also requires the FAA to evaluate aircraft noise using the current FAA-approved computer model at the beginning of the environmental analysis process. In accordance with this requirement, the FAA is using the Aviation Environmental Design Tool Version 3e (AEDT 3e).⁵⁴ Also in this project, due to the presence of a significant population of military aircraft originating from dedicated military bases (EDF and FRN), the FAA Office of Environment and Energy (AEE) directed the use of NOISEMAP issued under the BaseOPS version 7.368 software suite. Both models were used to analyze noise associated with Existing Conditions, the Proposed Action, and the No Action alternative.

Although the noise environment around major airports comes predominantly from jet aircraft operations, the DNL calculations reflect noise from many types of jet and propeller aircraft on IFR flight plans and VFR operations that could be affected by the Proposed Action.

When operating outside certain categories of controlled airspace, aircraft operating under VFR are not required to be in contact with ATC. Because these aircraft operate at the pilot's

⁵⁴ AEDT Version 3e was the current model when the Existing Conditions and No Action alternative models were developed.

discretion and are not required to file flight plans, consequently there is no known source for comprehensive route, altitude, aircraft type, and frequency information for VFR operations in the General Study Area. Utilizing a combination of the FAA's Performance and Data Reporting System (PDARS) information with other data sources to augment missing information provides for a more complete dataset. In limited instances, where the data was incomplete, the origin/destination, aircraft type, and/or trajectories were developed based upon existing known traffic flows. However, as a result of the Proposed Action, adjustments to VFR traffic flows have been made to indicate the anticipated changes to VFR routings that would occur.

AEDT 3e requires a variety of inputs, including local environmental data (temperature and humidity), runway layout, number and type of aircraft operations, runway use, and flight tracks. Accordingly, the FAA assembled detailed information on aircraft operations for the Study Airports for input into AEDT 3e. This includes specific aircraft fleet mix information such as aircraft type, arrival and departure times, and origin/destination airports.

NOISEMAP required extensive knowledge and forecasting for the specific military aircraft at EDF and FRN. The models for EDF and FRN were developed from recent Air Installations Compatible Use Zones (AICUZ) studies directed by the US Air Force Civil Engineer Center. The FAA utilized two studies, with a NOISEMAP model and report for each study. The first study was focused on EDF from the year 2014, while the second study was more recent, from 2019, each with an accompanying report.^{55,56} Information and data within these reports supported assumptions and decisions made during the modeling process including traffic flows, procedure utilization and fleet mix. An additional resource for F22 and F35 operation levels for the modeled scenarios was referenced as needed.⁵⁷

Radar data obtained from the FAA's PDARS and MEARTS identified 209,716 IFR-filed flights⁵⁸ to and from the Study Airports for 2022/2023. The 2022/2023 usable data spans all seasons and runway usage configurations for the Study Airports. The FAA used this data to develop the average annual day (AAD) fleet mix, time of day and night, and runway use input for AEDT 3e. More detailed information about the AEDT 3e and NOISEMAP input for Existing Conditions can be found in Appendix I: *Noise Analysis Technical Report*.

The PDARS and MEARTS data provided tracks for each relevant flight that occurred during the 2022/2023 sample. The data was used to define the Average Annual Day (AAD) track locations, also referred to as "trajectories," as representing a typical day's traffic flow, as well as the typical climb and descent patterns that occur along each flow. All trajectories were "bundled" into a set of tracks representing a flow. The flows comprise all the typical flight routings within the General Study Area for an AAD.⁵⁹ AEDT 3e tracks are then developed based on the group of radar tracks representing each flow. NOISEMAP flight tracks were derived from the respective AICUZ studies. Overall, all available radar and flight tracks were used to evaluate and model typical flight routes and flows throughout the General Study Area, irrespective of AEDT 3e or NOISEMAP usage.

⁵⁵ Department of the Air Force, Joint Base Elmendorf-Richardson, Alaska Air Installations Compatible Use Zones (AICUZ) Study Final, October 2019.

⁵⁶ Department of the Air Force, Joint Base Elmendorf-Richardson, Alaska Air Installations Compatible Use Zones (AICUZ) Study Final, October 2014.

⁵⁷ Department of the Air Force, Final Environmental Impact Statement for Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska, February 2018. Draft Supplemental Environmental Assessment (SEA) for Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska, January 2022.

⁵⁸ Radar flight track counts differ from Operations Network: Tower Counts in Chapter 1 due to radar data availability limitations. Radar track data was scaled to account for the differences.

⁵⁹ Appendix H: Flight Schedules Technical Report.

The AEDT 3e and NOISEMAP models were used to calculate noise levels for the following specific locations on the ground:

- **Census Block Centroids:** The AEDT 3e and NOISEMAP models were used to calculate DNL at the geographic centers (centroids) of census blocks to estimate the population exposed to varying levels of aircraft noise. This EA analyzed population within the General Study Area using 2020 US Census block geometry. A census block is the smallest geographical unit that the United States Census uses to collect data. The census block population centroid DNL represents the DNL for the total maximum potential population within that census block. Because noise levels are analyzed only at the centroid point and applied to the entire census block area population, and because the area represented by each centroid varies depending on the density of population, the actual noise exposure level for individuals will vary from the reported level based on their proximity to the geographic centroid.
- **Grid Points:** The AEDT 3e and NOISEMAP models calculated noise exposure at evenly spaced grid points. This EA covered the 18K Supplemental Boundary and the General Study Area with a grid of noise receptor points spaced evenly at 0.5 NM intervals. Noise at regular intervals was calculated for these grid points as identified in Appendix I: *Noise Analysis Technical Report*. In addition, these grid points were evaluated for noise at any Section 4(f) resource or historic property not captured using unique points as described below.
 - **Unique Points – Section 4(f) and Historical and Cultural Resources:** The AEDT 3e and NOISEMAP models analyzed noise levels at sites of interest that are more specific and finite than those captured in the 0.5 NM grid. These sites include individual Section 4(f) resources that are less than one square NM in area (such as public parks or trails), and specific historic sites listed on the National Register of Historic Places (such as individual buildings).^{60,61} See Section 4.2.2 for a discussion of what constitutes a Section 4(f) resource and Section 4.2.3 for a discussion of historic properties and cultural resources.
 - **Unique Points – Noise Sensitive Areas and Uses:** In addition to the unique points identified for individual Section 4(f) resources and specific listed historic sites, the AEDT 3e and NOISEMAP models were used to analyze noise at noise sensitive areas and uses generally exposed to existing noise of DNL 65 dB and above.

In total, noise exposure levels were calculated at 5,598 census block centroids, 160,980 grid points, and 626,601 unique points (Section 4(f) and Historical and Cultural Resources) and 1,035 unique points (Noise Sensitive Areas and Uses).

⁶⁰ Multiple state and federal databases were used, resulting in duplicates of the same point. To best capture all named resources from various federal and state sources, some points are duplicated in name but represented by and reported for the same receptor point.

⁶¹ Appendix I: Noise Analysis Technical Report.

4.2.1.2 Existing Aircraft Noise Exposure

Table 4-1 identifies the total population exposed to aircraft noise between DNL 45 dB and 60 dB, DNL 60 dB and 65 dB, and DNL 65 dB and higher. This data establishes a baseline for existing aircraft noise exposure. Exhibit 4-1 provides a graphical representation, by DNL 5 dB differences, of existing noise exposure based on radar data collected for 2022/2023 within the General Study Area. Each point on the exhibit represents a census block population centroid. As shown in Exhibit 4-1, areas exposed to higher DNL are generally aligned with Study Airport runways and areas with existing aircraft traffic. (Please note that full-size, detailed versions of all exhibits may be found in Appendix AA.)

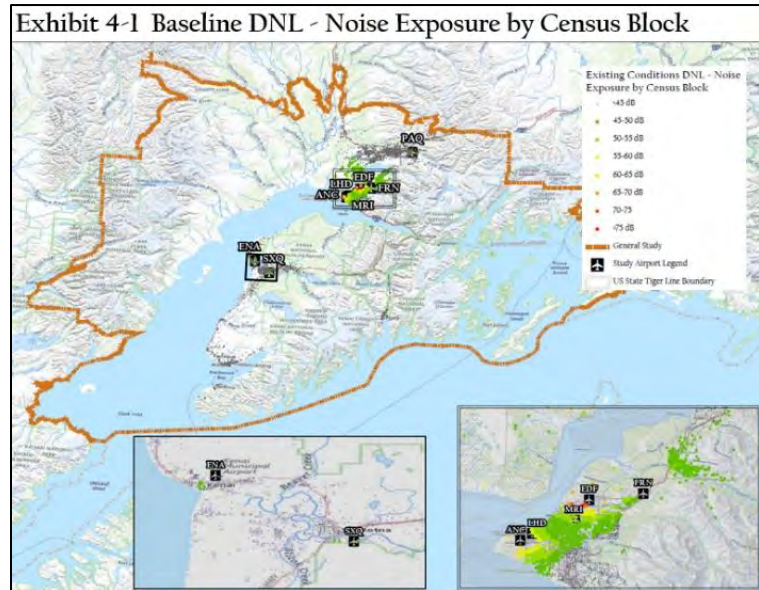


Table 4-1 Population Exposed to Aircraft Noise (DNL) within the General Study Area

DNL Range (dB)	Population
DNL 45 dB to DNL 60 dB	192,889
DNL 60 dB to less than DNL 65 dB	2,915
DNL 65 dB and higher	1,788
Total at/above DNL 45 dB	197,592

Sources: AEDT version 3e; US Census Bureau, 2020 Tracts, American Community Survey Selected Economic Characteristics, 2016-2020.
Prepared by: ATAC Corporation, November 2025.

4.2.1.3 Noise Sensitive Areas and Uses

Appendix C to FAA Order 1050.1G, paragraph C-1.3, *Affected Environment*, requires the FAA to identify the location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, parks, recreation areas) that could be significantly impacted by noise. Within this study, 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.” Potential impacts to residential population are considered using US Census block population centroids as described in Section 4.2.1.2. Parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites are further discussed in Sections 4.2.2 and 4.2.3, below. Appendix I: *Noise Analysis Technical Report*, Table S6.1 lists those locations identified as noise sensitive in the General Study Area and reports the noise values associated with each location.

4.2.1.4 Noise-Compatible Land Coverage and Use

The noise compatibility of land use is determined by comparing the aircraft DNL values at a site to the values of the FAA’s land use compatibility guidelines in Title 14, Code of Federal Regulations, Part 150, Appendix A, Table 1.

Existing land types that suggest potential land uses in the General Study Area are depicted in Exhibit 4-2. It is characterized using generalized land coverage data from the USGS National Land Cover Database 2016 (NLCD 2016) (Alaska). As depicted in the exhibit, the majority of the

General Study Area is open water, while the dominant feature on land is shrub/scrub. The next largest categories represented (in order) are barren land (rock/sand/clay), evergreen forest,



dwarf scrub, deciduous forest, mixed forest, woody wetlands, and emergent herbaceous wetlands. The General Study Area is, to a lesser extent, also comprised of grassland/herbaceous, cultivated crops, sedge/herbaceous, pasture/hay, and moss. The majority of urban development lies in the Anchorage area of the General Study Area, predominantly characterized by areas developed and open space. The next most prominent type of development is low intensity, followed by medium intensity. The least common type of development is high intensity. The General Study Area also includes

numerous large parks, recreational areas, wilderness areas, and other types of resources managed by local, state, and federal agencies. These resources potentially affected are further discussed in Section 4.2.2.

4.2.2 Department of Transportation Act, Section 4(f)⁶²

Section 4(f) of the DOT Act (codified at 49 U.S.C. § 303(c)), states that, subject to exceptions for *de minimis*⁶³ impacts:

the Secretary may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) 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 (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

4. there is no prudent and feasible alternative to using that land
- 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

The term “use” includes both physical and indirect or “constructive” impacts to Section 4(f) resources. Direct use is the physical occupation or alteration of a Section 4(f) property or any portion of a Section 4(f) property. A “constructive” use does not require direct physical impacts or occupation of a Section 4(f) resource. A constructive use would occur when a Proposed Action would result in substantial impairment of a resource to the degree that the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. The determination of use must consider the entire property and not simply the portion of the property used for a proposed project.

⁶² Note: Section 4(f) refers to the original section within the US Department of Transportation Act of 1966, as such the Federal Aviation Administration (A US Department of Transportation Administration), as the lead agency, will comply with its requirements although its applicability does not extend to the Department of Defense.

⁶³ A *de minimis* impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in either: a determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f); or a Section 106 finding of no adverse effect or no historic properties affected on a historic property.

Parks and natural areas where a quiet setting is a generally recognized purpose and attribute receive special consideration. In these areas, the FAA “...must consult all appropriate federal, state, and local officials having jurisdiction over the affected Section 4(f) resources when determining whether project-related noise impacts would substantially impair the resource.” Privately-owned parks, recreation areas, and wildlife refuges are not subject to the Section 4(f) provisions.

4.2.2.1 Section 4(f) Resources

Data from federal and state sources identified 626,601 Section 4(f) resources, which are catalogued in Appendix I: *Noise Analysis Technical Report*. **Exhibit 4-3** depicts the locations of Section 4(f) resources, other than those listed or eligible for listing in the National Register of Historic Places (NRHP). The locations of Section 4(f) resources that are listed or eligible for listing in the NRHP are discussed in Section 4.2.3 and depicted in **Exhibit 4-4**. A list of the

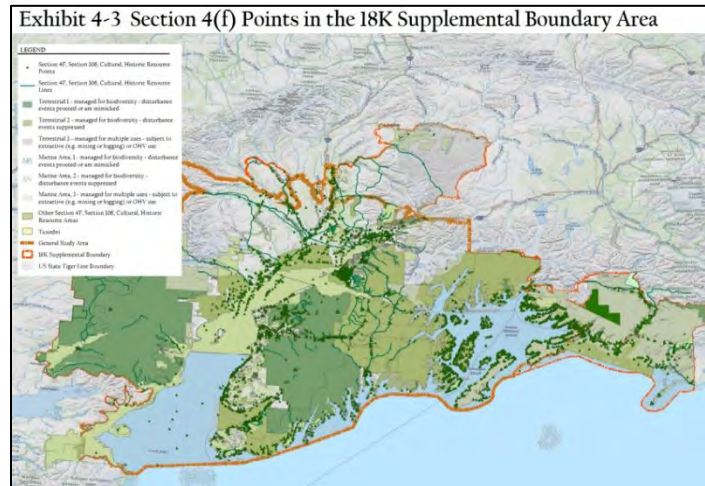
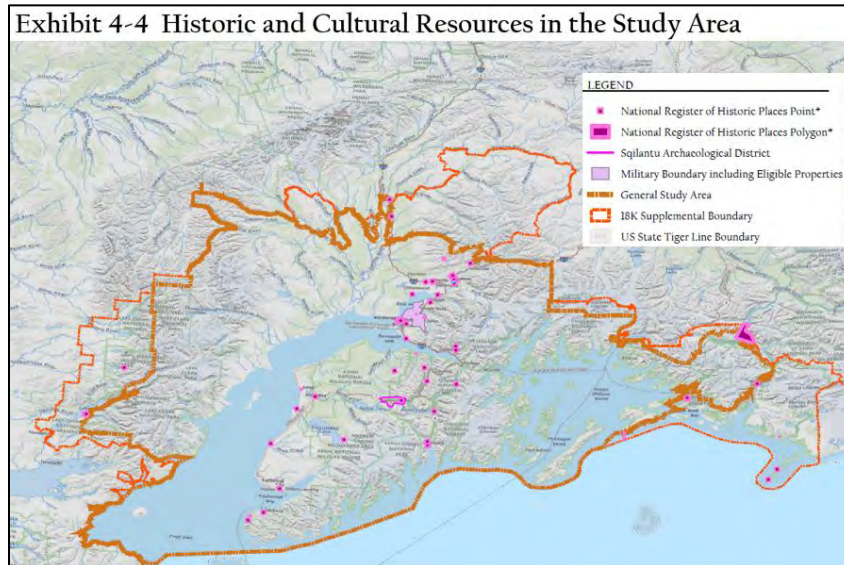


Exhibit 4-4 Historic and Cultural Resources in the Study Area



Section 4(f) resources identified in the General Study Area, the type of resource (i.e., federal, state, or local), the borough/census area in which they are located, site acreage, and DNL calculated for each resource under existing conditions is included in the Appendix I: Noise Analysis Technical Report.

4.2.3 Historic, Architectural, Archeological, and Cultural Resources – Historic Properties and Cultural Resources Sub-Categories

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. §470 et seq., as amended) requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing in the National Register of Historic Places (NRHP). Regulations implementing Section 106 of the NHPA are located in Title 36 CFR Part 800, Protection of Historic Properties. In accordance with Executive Order 13175 Consultation and Coordination with Indian and Tribal Governments and FAA Order 1210.20 American Indian and Alaska Native Tribal Consultation Policy and Procedures, the FAA invited identified tribal government-to-government consultations regarding any concerns that uniquely or significantly affect a Tribe related to the proposed project.

Consistent with Section 106, this EA defines “historic property” as “...any prehistoric or historic district, site, building, structure, resource, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe, Alaska Native, or Native Hawaiian Organization and that meet the NRHP criteria.”⁶⁴ It is possible that changes in aircraft flight routes associated with the Proposed Action could introduce or increase aircraft routing over historic properties and result in potential adverse noise impacts. As noted in Section 4.2, the Proposed Action would not involve ground disturbance that, including FAA-defined significant noise, would physically impact archaeological or architectural resources. The Proposed Action is located above the ground and would not involve the construction, disturbance, or alteration of any physical structure on, in, or emanating from the ground. Thus, the EA does not further discuss these resources.

4.2.3.1 Historic Properties in the Study Areas

Exhibit 4-4 shows the location of historic properties and cultural resources identified in the Study Areas. 96 NRHP-listed properties were initially identified, and consultations to identify other listed or eligible resources are ongoing.

Federal regulations require the FAA to define an area of potential effect (APE) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.⁶⁵ The FAA initially defined the APE as coterminous with the General Study Area boundary. The FAA subsequently determined that the Proposed Action would not introduce aircraft overflights to any area within the General Study Area where they do not already occur. Accordingly, the FAA redefined the APE to focus on the potential for the Proposed Action to cause adverse noise effects on Section 106 resources. Therefore, the resulting APEs are based on places where noise modeling showed any significant or reportable noise, and these noise grid points were sorted and bounded to define the smaller and focused APEs.

4.2.4 Biological Resources – Wildlife Sub-Category

This section discusses the existing wildlife resources within the ATAAPS Area. The Proposed Action involves redesigning IFR procedures and VFR traffic flows and the supporting airspace management structure serving the Study Airports. Accordingly, the discussion is limited to avian and bat species that may be present within the 18K Supplemental Boundary (of which the General Study Area is a contained subset).

4.2.4.1 Threatened and Endangered Species and Migratory Birds

The Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531 et seq. (1973)) requires the evaluation of all federal actions to determine whether a Proposed Action is likely to jeopardize any proposed or listed threatened or endangered species or proposed or designated critical habitat. A federal action is one conducted, funded, or permitted by a federal agency. Section 7 of the ESA requires the lead federal agency (in this case the FAA) to consult with the US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries to determine whether the proposed federal action would jeopardize the continued existence of any species listed or proposed for listing as threatened or endangered or result in the destruction or adverse modification of designated or proposed critical habitat. Critical habitat includes areas that will contribute to the recovery or survival of a listed species. Federal

⁶⁴ Title 36 CFR Part 800.16(l)(1)

⁶⁵ Title 36 CFR 800.16(d).

agencies are responsible for determining if an action “may affect” listed species. If so, the federal agency is required to prepare a Biological Assessment (BA) to determine if the action is “likely to adversely affect the species.” The potential for federal- and state-listed avian and bat species was assessed based on agency lists and reports. Data from the Alaska Department of Fish and Game was used to identify and geo-reference federal- and state-listed species.

4.2.4.2 Migratory Birds

The Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703-712) prohibits the taking of any migratory bird and any part, nest, or egg of any such bird, without a permit issued by the USFWS. “Take” under the MBTA is defined as the action or attempt to “pursue, hunt, shoot, capture, collect, or kill.” Migratory birds listed under the ESA are managed by the agency staff members who handle compliance with Section 7 of the ESA; management of all other migratory birds is overseen by the Migratory Bird Division of the ESA. Several migratory bird species occur in, or migrate through, the General Study Area.

Birds migrate along four main routes or flyways in North America: The Atlantic, the Central, the Mississippi, and the Pacific flyways, which are loosely delineated in these geographic regions. The 18K Supplemental Boundary is located within the Pacific flyway. These flyways are not specific lines the birds follow but broad areas through which the birds migrate, traveling from their breeding grounds to their winter quarters.

The actual routes followed by a given bird species differ by distance traveled, starting time, flight speed, and geographic position and latitude of the breeding and wintering grounds. Hundreds of bird species make the round-trip each year along the Pacific Flyway from their breeding grounds in the Arctic tundra and northern United States to wintering grounds found in western Mexico.

Table 4-2 lists the federally-listed bird species of concern which are known or believed to occur within the 18K Supplemental Boundary. Table 4-3 lists the State of Alaska-listed bird species of concern which are known or believed to occur within the 18K Supplemental Boundary. No bat species⁶⁶ of concern is listed by the State of Alaska or federal government.

Table 4-2 Federally-Listed Threatened or Endangered Bird Species

Federal Status	Species	Type	18K Supplemental Boundary of Occurrence
Endangered	Eskimo Curlew (<i>Numenius borealis</i>)	Bird	Critical habitat is not required for species listed under the Endangered Species Act prior to 1978. The Eskimo Curlew (<i>Numenius borealis</i>) was listed as endangered prior to 1978.
Endangered	Short-tailed Albatross (<i>Phoebastria albatrus</i>)	Bird	Critical habitat is not required for species listed under the Endangered Species Act prior to 1978. The Short-tailed Albatross (<i>Phoebastria albatrus</i>) was listed as endangered prior to 1978.
Threatened	Spectacled Eider (<i>Somateria fischeri</i>)	Bird	Yukon-Kuskokwim Delta, Norton Sound, Ledyard Bay, and the Bering Sea between St. Lawrence and St. Matthew islands
Threatened	Steller's Eider (<i>Polysticta stelleri</i>)	Bird	Yukon-Koyukuk, Northwest Arctic, North Slope, Nome, Lake and Peninsula, Kodiak Island, Kenai Peninsula, Dillingham, Bristol Bay, Bethel, Aleutians West, Aleutians East

Sources: US Fish and Wildlife Service, <https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=AK&stateName=Alaska&statusCategory=Listed> (accessed January 15, 2024).

Prepared by: ATAC Corporation, November 2025.

⁶⁶ Little Brown bats are the only known species within the Study Area and are not currently ESA listed.

Table 4-3 State of Alaska Listed Threatened Bird Species

State Status	Species	Type	18K Supplemental Boundary of Occurrence
Endangered	Eskimo Curlew (<i>Numenius borealis</i>)	Bird	US Fish and Wildlife Service Region 7 (Alaska), Gulf of Alaska
Endangered	Short-tailed Albatross (<i>Phoebastria albatrus</i>)	Bird	US Fish and Wildlife Service Region 7 (Alaska)

Sources: Alaska Department of Fish and Game, <https://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.main> (accessed 1/30/2024)
Prepared by: ATAC Corporation, November 2025.

4.2.5 Energy Supply (Aircraft Fuel)

This section describes fuel consumption by IFR and VFR military and civilian aircraft arriving at and departing from ANC and the other civilian Study Airports (excluding EDF and FRN). Using the AEDT 3e noise model, aircraft fuel consumption was calculated to estimate fuel consumption associated with air traffic flows under existing conditions. AEDT 3e calculates fuel consumption using the same input used for calculating noise. Based on the 2022/2023 AEDT 3e calculation, IFR jet civilian and military aircraft arriving and departing ANC and the other civilian Study Airports consume approximately 183,565 gallons of fuel⁶⁷ on an annual average day. NOISEMAP, the required model for traffic operating at DOD airports (EDF and FRN), does not calculate fuel consumption for military aircraft, thus no fuel consumption was calculated for IFR and VFR military aircraft arriving and departing EDF and FRN (See Appendix I: *Noise Analysis Technical Report* for a discussion of AEDT 3e and NOISEMAP model inputs.). The fuel consumption for both the No Action alternative and the Proposed Action alternative will be compared against each other to determine potential impacts.

4.2.6 Aviation Emissions and Air Quality

This section describes air quality conditions within the General Study Area. In the United States, air quality is generally monitored and managed at the county or regional level (*boroughs* in the State of Alaska). The US 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 pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulfur dioxide (SO₂). PM 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.

In accordance with the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq., EPA uses air-monitoring data. The EPA uses air monitoring data it compiles, as well as data collected by local air quality agencies, to classify counties (*boroughs*) and some sub-county geographical areas by their compliance with the NAAQS. An area with air quality that meets the NAAQS is designated as an attainment area. An area with air quality that does not meet the NAAQS is designated as a nonattainment area. Nonattainment areas are further classified as extreme, severe, serious, moderate, and marginal by the extent the NAAQS are exceeded. Areas that have been reclassified from nonattainment to attainment are identified as maintenance areas. An area may be designated as unclassifiable when there is a temporary lack of data on which to base its attainment status. Table 4-5 identifies those areas that fall within the General Study Area that are in nonattainment or maintenance status for these pollutants.

⁶⁷ For fuel consumption purposes, Jet A-1 at 15C/59F is 6.71lbs/gal. Jet A-1 is the most common jet fuel for the US. Approximately 12,298,956 lbs. of fuel are consumed by AEDT calculated IFR military and civilian aircraft arriving and departing 6 Civilian Study Airports on an existing conditions annual average day.

Table 4-5 NAAQS Nonattainment and Maintenance Areas in the General Study Area

Pollutant	Status	Area
Carbon Monoxide (1971 Standard)	Maintenance (07/23/2004)	Anchorage; AK
PM-10 (1987 Standard)	Maintenance (03/08/2013)	Anchorage; Eagle River, AK

Source: US Environmental Protection Agency Green Book (<https://www.epa.gov/green-book> [Accessed March 2024]).
 Prepared by: ATAC Corporation, November 2025.

Both the EPA and the FAA have determined that aircraft operations at or above a mixing height of 3,000 feet above ground level (AGL) have a very small effect on pollutant concentrations at ground level.^{68,69,70} The mixing height represents the height of the completely mixed portion of the atmosphere that begins at the earth's surface and extends to a few thousand feet overhead where the atmosphere becomes fairly stable.⁷¹ Mixing heights will vary based on a variety of factors including topography, time of day, temperature, wind, and season. A mixing height of 3,000 feet AGL represents the annual national average mixing height. While 3,000 feet AGL is the threshold established by the EPA and the FAA, FAA research on mixing heights indicates that changes in air traffic procedures above 1,500 feet AGL and below the mixing height would have little if any effect on emissions and ground concentrations.⁷²

4.2.7 Visual Effects (Visual Resources/Visual Character Only)

Visual Effects deal with the extent to which a Proposed Action would result in visual impacts within the General Study Area. The Proposed Action includes IFR procedure changes that would generally occur at altitudes at or above 3,000 feet AGL (with IFR procedure lateral and/or vertical changes at and below that altitude occurring within the footprint of existing flight operations). The Proposed Action includes VFR changes that would generally occur at altitudes at or below 4,000 feet AGL (with VFR lateral and/or vertical changes at and below that altitude occurring within the footprint of existing flight operations). Currently, portions of the General Study Area are exposed to the sight of aircraft arriving and departing from the Study Airports. Any potential visual impacts would only arise from changes in the visibility of aircraft within the General Study Area as perceived from the ground.

68 Wayson, Roger, and Fleming, Gregg. "Consideration of Air Quality Impacts by Airplane Operations at or Above 3,000 feet AGL," Volpe National Transportation Systems Center and FAA Office of Environment & Energy, FAA-AEE-00-01-DTS-34, September 2000. (http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/)

69 40 C.F.R. § 93.150(c)(2) (xxii).

70 72 Fed. Reg. 6641 (February 12, 2007).

71 US Department of Transportation, Federal Aviation Administration, Air Quality Procedures for Civilian Airports & Air Force Bases, April 1997.

(http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Handbook.PDF)

72 Report on "Consideration of Air Quality Impacts by Airplane Operations at or Above 3,000 feet AGL," FAA-AEE-00-01, September 2000, p. 5

5. Environmental Consequences

This chapter discusses the potential environmental impacts that could result from implementing the Proposed Action or the No Action alternative. Both the Proposed Action and the No Action alternative were evaluated under forecasted 2027 conditions, which is the first year the Proposed Action could potentially be implemented, and under forecasted 2032 conditions. This evaluation considers the direct, indirect, and cumulative effects associated with the Proposed Action and No Action alternative, as required under FAA Order 1050.1G.

Potential environmental impacts are identified for the environmental resource categories described in Section 4.3. Neither the Proposed Action nor the No Action alternative would involve (1) land acquisition; (2) physical changes to the environment resulting from ground disturbance or construction activities; (3) changes in patterns of population movement or growth, increases in public service demands or business and economic activity; or (4) generation, disturbance, transportation, or treatment of hazardous materials. Therefore, neither alternative is expected to result in impacts to certain environmental resource categories (please see Section 4.2 for a list of excluded categories). The excluded environmental resource categories are not further discussed in this chapter.

Table 5-1 identifies the environmental impact categories that the Proposed Action could potentially affect, the thresholds of significance used to determine the potential for impacts, and a side-by-side comparative summary of the potential for environmental impacts resulting from implementing the Proposed Action under 2027 and 2032 forecast conditions.

Table 5-1 Summary of Potential Environmental Impacts

Environmental Impact Category	Threshold of Significance/Factors to Consider	Potential Impact?	
		2027	2032
Noise and Noise Compatible Land Use	The significance threshold applies to all civil aviation activities, including aircraft and airports; Unmanned Aircraft Systems (UAS) and hubs; Advanced Air Mobility (AAM) and vertiports; and commercial space vehicles and launch and reentry sites. The proposed action would result in noise exposure from impulsive noise sources (e.g., sonic booms) that meet or exceed 60 CDNL – equivalent to DNL 65 dBA.* The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB 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. Special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties (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. For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute, and due to the nature of the resource has limited options for mitigation. *A C-weighted day-night average noise level (CDNL) of 60 dBC from impulsive noise sources is equivalent to DNL 65 dBA.	Yes(1)	Yes(1)
Department of Transportation Act, Section 4(f) and Land and Water Conservation Fund (referred to as “Section 6(f)”)	The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a “constructive use” based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.* Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. * Minimal physical use does not always equate to de minimis. NEPA practitioners may	Yes(2)	Yes(2)

Environmental Impact Category	Threshold of Significance/Factors to Consider	Potential Impact?	
		2027	2032
	find it useful to refer to the definition of “use” in 23 CFR § 774.17, where that definition is instructive in relation to the nature of the project under consideration by the FAA. However, because the following definition may not always appropriately address the nature of impacts that are associated with uses of the air space, the definition is not controlling.		
Historical, Architectural, Archeological, and Cultural Resources	The FAA has not established a significance threshold for Historical, Architectural, Archeological, and Cultural Resources. This EA considers if the action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of an EIS (i.e., a significant impact).	No	No
Wildlife (Avian and Bat, Beluga Whales/endangered Pinipeds)	The US Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat. The FAA has not established a significance threshold for non-listed species. The EA should consider if the action would have the potential for: • A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport) • Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats • Substantial loss, reduction, degradation, disturbance, or fragmentation of native species’ habitats or their populations • Adverse impacts on a species’ reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.	No	No
Natural Resources and Energy Supply (Aircraft Fuel)	The FAA has not established a significance threshold for Energy Supply. The EA should consider if the action would have the potential to cause demand to exceed available or future supplies of these resources or adversely impact extant federal, Tribal, state, or local resource planning already in place (e.g., negatively impact energy efficiency, clean or renewable energy, or natural resource or sustainability planning in place in the area of interest by a federal, state, tribal, or local government entity).	No	No
Aviation Emissions and Air Quality	A significant impact would occur if the Proposed Action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.	No	No
Visual Effects	The FAA has not established a significance threshold for Light Emissions or Visual Resources/Visual Character. Factors to consider include the degree to which the action would have the potential to: Create annoyance or interfere with normal activities from light emissions Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources. The extent the action would have the potential to: Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources Contrast with the visual resources and/or visual character in the study area Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.	No	No

Notes:

1/ While FAA discloses the identified 1.5 dB noise increases, all significant noise receptor points are contained within the Joint Base Elmendorf-Richardson (JBER)-controlled property boundaries, and thus falls under DOD or are located over water. The US Air Force has not defined universally-applicable thresholds above which noise impacts are to be considered significant in NEPA analysis. In addition, no noise sensitive land uses were found within the vicinity (0.5 NM) of increases in noise by DNL 1.5 dB or more for an area exposed to noise at or above the DNL 65 dB noise exposure level.

Source: FAA Order 1050.1G, Exhibit A-1, June 2025.
Prepared By: ATAC Corporation, November 2025.

The following sections describe the impact findings for each environmental resource category. In summary, no significant impacts requiring mitigation to any environmental resource category have been identified.

5.1 Noise and Compatible Land Use

This section discusses the analysis of aircraft noise exposure under the Proposed Action and the No Action alternative, under both 2027 and 2032 forecast conditions. This discussion includes identifying the differences in noise exposure between the Proposed Action and the No Action alternative. This comparison is used to determine if implementing the Proposed Action would result in significant noise impacts. Additional information on noise metrics and the basics of noise can be found in Appendix F: *Basics of Noise*. Detailed information on the noise analysis is included in Appendix I: *Noise Analysis Technical Report*.

5.1.1 Summary of Impacts

Aircraft noise exposure was modeled for both the Proposed Action and the No Action alternative under 2027 and 2032 forecast conditions. The noise analysis demonstrates that implementing the Proposed Action for both the 2027 and 2032 forecast conditions would result in a DNL increase of 1.5 DNL dB or higher in areas exposed to DNL 65 dB or higher. However, the associated noise receptor points that reach FAA criteria for “Significant” are located within the Cook Inlet and the DOD-owned and DOD-controlled boundary of the Joint Base Elmendorf-Richardson (JBER) complex. Within JBER boundaries, the US Air Force has not defined universally-applicable thresholds above which noise impacts are to be considered significant in NEPA analysis.

No civilian areas or noise sensitive land uses are exposed to a noise increase of 1.5 DNL dB (or higher) in areas that are found in the DNL 65 dB or higher range. For areas over the Cook Inlet, the FAA applied the level B Harassment criteria under the U.S. Fish and Wildlife Service (USFWS) and the Marine Mammal Protection Act (MMPA) and found that none of the grid points with significant noise would rise to the level to cause disturbance or disrupt behavior.

Summary impacts are as follows:

For 2027:

- +5.0 dB or higher resulting in a value of 45-60 DNL dB
 - 64 0.5 NM evenly spaced grid receptor points
 - 61 4(f) unique locations representing nine named resources
- +3.0 dB or higher resulting in a value of 60-65 DNL dB
 - Four 0.5 NM evenly spaced grid receptor point
 - Six 4(f) unique locations representing two named resources
- +1.5 dB or higher resulting in a value of 65 DNL dB or higher
 - Five 0.5 NM evenly spaced grid receptor points
 - Eight 4(f) unique locations representing eight named resources

For 2032:

- +5.0 dB or higher resulting in a value of 45-60 DNL dB.
 - Two Census block centroid receptor points representing 93 persons
 - 62 0.5 NM evenly spaced grid receptor points
 - 105 4(f) unique locations representing 18 named resources
- +3.0 dB or higher resulting in a value of 60-65 DNL dB
 - One Census block centroid receptor point representing 271 persons
 - Three 0.5 NM evenly spaced grid receptor point
 - Six 4(f) unique locations representing two named resources
- +1.5 dB or higher resulting in a value of 65 DNL dB or higher
 - Five 0.5 NM evenly spaced grid receptor points

- o Eight 4(f) unique locations representing eight named resources on JBER-controlled property

5.1.2 Methodology

This section describes and provides an overview of the noise methodology applied to obtain noise results for the alternatives as applied to IFR and VFR forecast operations. Appendix I: *Noise Analysis Technical Report* presents detailed information on the methodology used to analyze aircraft noise.

5.1.2.1 Instrument Flight Rules – IFR

The noise analysis evaluated noise exposure within the ATAAPS General Study Area (“Study Area”) from aircraft forecasted to be operating under IFR-filed flight plans, at altitudes from ground level up to 18,000 feet AGL. If the FAA approves the Proposed Action, the Agency expects to begin implementation in 2027. Therefore, aircraft noise modeling was conducted for 2027 and five years later (2032), as required by the FAA. IFR-filed and VFR aircraft activity was forecasted for the years 2027 and 2032 and that forecast activity was used to model conditions under both the Proposed Action and the No Action alternative. Noise modeling was conducted using Aviation Environmental Design Tool version 3e (AEDT 3e), the FAA-required noise model for aviation projects including air traffic changes over large areas and altitudes over 3,000 feet AGL.

Due to the presence of JBER, which includes EDF and FRN, in the study, NOISEMAP was used for military aircraft modeling, and the results were combined with AEDT 3e noise output using the BaseOPS NMPlot version 4.974 to combine results.

Noise was modeled from the ground level up to 18,000’ AGL for the Study Area and the ATAAPS DEA Supplemental Study Area (henceforth referred to as the 18K Supplemental Boundary) due to the presence of national parks and/or wildlife refuges.⁷³

Future year noise exposure levels modeled for the Proposed Action and the No Action alternative were compared to determine whether there is a potential for noise impacts. While the overall number and type of aircraft operations will increase between 2027 and 2032, the number and type of aircraft operations are the same under both the Proposed Action and No Action alternative in 2027 and 2032. The Proposed Action would not include developing or constructing facilities, such as runways or terminal expansions, that would be necessary to accommodate an increase in aviation activity; therefore, no additional growth in operations associated with the Proposed Action is anticipated. The noise analysis reflects the change in noise exposure resulting from the proposed changes in aircraft routes (i.e., flight tracks) under the Proposed Action compared to the No Action alternative.

Detailed information on VFR and IFR-filed aircraft operations within the Study Area and Supplemental Study Area was assembled for input into AEDT 3e and NOISEMAP, including the following data:

Average Annual Day IFR-Filed Aircraft Flight Schedules: The IFR-filed aircraft flight schedules identify arrival and departure times, aircraft types, and origin/destination information for an average annual day (AAD) in 2027 and 2032. The AAD represents all the aircraft operations for every day in a study year divided by 365, the number of days in a year. The AAD does not reflect a particular day but is meant to represent a typical day over a period of a year. The AEDT forecast was based on the FAA’s Fiscal Years 2023-2033 Terminal Area Forecast (TAF),⁷⁴ modified for 2027 and 2032 with additional details using previously identified

⁷³ FAA 1050.1G, C-1.3 *Affected Environment*.

⁷⁴ US Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast, FY 2023-2033* (<https://taf.faa.gov/>; accessed October 2023)

arrival/departure times, aircraft types, and origin/destination information. For NOISEMAP, the 2027 and 2032 aircraft operations were developed from information contained in the NOISEMAP AICUZ models in combination with projected future basing for F-22 taken from the EIS.^{75,76} More detail related to the development of the forecasts is provided in Appendix H: *Flight Schedules Technical Report*.

5.1.2.2 Visual Flight Rules – VFR

Included in this project are changes to airspace boundaries set forth in the Code of Federal Regulations, Title 14, Chapter I, Subchapter F, Part 93, Subpart D – Anchorage, Alaska, Terminal Area. This regulation defines guidelines and airspace boundaries to regulate traffic in special airspace. As part of the project, several sectors within the current Part 93 airspace are being changed to Class C and Class D airspace. These proposed changes can impact VFR routings and have therefore been modeled accordingly.

Additional analysis of VFR traffic in the areas of proposed changes to airspace was performed and all environmental modeling of VFR traffic was conducted in AEDT. VFR traffic was processed similarly to IFR traffic in preparation for modeling in AEDT. Consultations were held with FAA Subject Matter Experts (SMEs) and modeled according to their input.

5.1.2.3 Modeling Inputs

Weather: The AEDT 3e and NOISEMAP models include data for multiple meteorological parameters, including temperature, pressure, and humidity. Weather conditions for all Study Airports were defined and used in the noise study. Terrain is consistent between both models, but EDF and FRN weather models relied on the respective AICUZ study inputs reflecting typical local July conditions. Further discussion on the weather data employed in the AEDT 3e model can be found in Appendix I: *Noise Analysis Technical Report*.

Flight Tracks: The flight tracks used in noise modeling were based on radar data collected for the existing conditions (2022/2023) noise analysis and information provided by FAA and US Air Force Air Traffic Control (ATC) personnel.⁷⁷ Aircraft routings and flight corridors under both the No Action alternative and Proposed Action are depicted in Appendix B: *Proposed Action Air Traffic Components*. For the Proposed Action, flight tracks were developed from the aircraft procedures created by the ATAAPS Design Team using the Terminal Area Route Generation, Evaluation, Traffic and Simulation (TARGETS) flight evaluator.⁷⁸ The majority of the No Action alternative modeled flight tracks are based on the existing conditions noise analysis. The remaining No Action alternative flight tracks for amended or new procedures that arose during the course of development of this EA were modeled based on input from the air traffic control experts who developed the procedures. Illustrations depicting Existing Conditions radar tracks and Proposed Action procedure designs were developed and used to determine utilization with representatives of the ATAAPS Design Team as part of the consultation process. The consultations were conducted to seek out key model input assumptions such as frequency of Proposed Action procedure usage and air traffic control techniques such as vectoring. The assumptions were then used for refining model track locations, altitude profiles, and

75 Department of the Air Force. *Final Environmental Impact Statement: Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska*. February 2018

76 Department of the Air Force. *Draft Supplemental Environmental Assessment (SEA) for Proposal to Improve F-22 Operational Efficiency at Joint Base Elmendorf-Richardson, Alaska*. January 11, 2022

77 Due to DOD data security protocols regarding PDARS military flight track data, this document only visualizes those civilian and military flight tracks originating from and arriving into a civilian Study Airport (ANC). Flight tracks for civilian and military aircraft arriving and departing to all Study Airports were used for all NEPA analysis.

78 TARGETS User Guide, Version 6.4 0-RC7, Checking Flyability with Flight Evaluator. MITRE CAASD, April, 2025.

utilization.⁷⁹

TARGETS flyability lines, the lines indicating the actual three-dimensional path of different categories of aircraft ideally flying the procedure for the Proposed Action procedures, served as the center of the 1 NM and 0.3 NM containment areas for RNAVs and RNP, respectively. The containment area is generally where dispersed tracks are contained, but during the design consultation process, air traffic control experts could indicate the need for vectors off of the RNAV with a rejoin of the RNAV at a later point. For those identified cases, AEDT 3e model tracks were developed to account for that type of dispersion.

NOISEMAP limitations, meanwhile, do not enable track dispersion similar to AEDT 3e, however multiple tracks were used to approximate dispersion along a flight track.

Runway Use: Runway use percentages were identified for all runways at the Study Airports through a number of previously referenced resources for AEDT 3e and NOISEMAP. Forecasted aircraft operations were assigned to particular runways representing operating conditions at the Study Airports under Proposed Action and No Action alternative conditions. Runway use patterns at the Study Airports did change under the Proposed Action alternative compared to the No Action alternative at JBER due to the IFR procedures on Runway 17 that allow for arriving aircraft to primarily operate on that runway.

More detail related to the development of the AEDT 3e and NOISEMAP model input files is provided in Appendix I: *Noise Analysis Technical Report*.

Application of Modeling Inputs: As discussed in Section 4.2.1.1, DNL is the FAA's primary noise metric. Table 5-2 provides the criteria used to assess the changes in aircraft noise exposure attributable to the Proposed Action compared with the No Action alternative. FAA Order 1050.1G defines a significant impact as an increase of DNL 1.5 dB at noise-sensitive land use locations (e.g., residences, schools, etc.) exposed to aircraft noise of DNL 65 dB or higher under the Proposed Action. For example, an increase from 63.5 dB to 65 dB DNL is considered a significant impact. The USAF, by contrast, has not defined universally-applicable thresholds above which noise impacts are to be considered significant in NEPA analysis. Instead, significance is assessed in the context of location specific sensitivities with the intensity of impacts being measured against accepted criteria where applicable.

As discussed in Section 4.2.1.1, the AEDT 3e and NOISEMAP models were used to compute DNL values for 2027 and 2032 Proposed Action and No Action alternative conditions at multiple sets of data points. The data points that were analyzed included the following:

- 5,598 2020 Census block centroids
- 160,980 uniform grid points at 0.5-NM intervals on a uniform grid covering the Study Area, which were also used to calculate DNL values at potential Department of Transportation Act (DOT), Section 4(f) resources and historic sites
- 626,601 unique points, that are separate from the other grids, representing Section 4(f) resources, including 106 National Register of Historic Places (NRHP) listed and eligible historic sites.
- Noise sensitive land use points evaluated an additional 1,035 sites around the Study Airports exposed to noise levels of DNL 65 dB or higher.

FAA Order 1050.1G differentiates significant noise increases – discussed above – with reportable noise. As shown in Table 5-2, a 3 dB increase in areas exposed to DNL 60 to 65 dB and a 5 dB increase

⁷⁹ See Sections 3.1.10 and 3.1.11 for AEDT model input assumptions and 3.2.9 and 3.2.10 for NOISEMAP model input assumptions.

in areas exposed to DNL 45 to 60 dB are considered reportable noise increases but not significant. Exposure of DNL 5 dB or greater in areas exposed to aircraft noise between DNL 45 dB and 60 dB should be considered for airspace actions such as changes to air traffic routes. This threshold was established in 1990, following issuance of an FAA noise screening procedure to evaluate whether certain airspace actions above 3,000 feet AGL might increase DNL levels by 5 dB or more. The FAA prepared this noise- screening procedure, because experience indicated that DNL increases 5 dB or more at cumulative levels well below DNL 65 dB could be disturbing to people and become a source of public concern.

Table 5-2 Criteria for Determining Potential Impact of Changes in Aircraft Noise¹

DNL Noise Exposure Level	Increase in DNL with Proposed Action as Compared to No Action Alternative	Aircraft Noise Exposure Change Consideration
DNL 65 and higher	DNL 1.5 dB or more	Exceeds FAA Threshold of Significance if occurring over noise-sensitive area but does not exceed DOD thresholds as there are none defined.
DNL 60 to 65	DNL 3.0 dB or more	Reportable Noise Increase (Considered When Evaluating Air Traffic Actions)
DNL 45 to 60	DNL 5.0 dB or more	Reportable Noise Increase (Information Disclosed When Evaluating Air Traffic Actions)

Notes:

1/ Source FAA 1050.1G, Pg. C3-C4; Title 14 C.F.R. Part 150.21 (2) (d); and Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Issues, August 1992.

Source: FAA, 1050.1G, Pg. C3-C4, June 2025
Prepared by: ATAC Corporation, November 2025

5.1.3 Potential Impacts – 2027 and 2032

Table 5-3 summarizes the results of the noise analysis for population exposure for 2027 and 2032 conditions. While the noise results for both years indicate that, when compared to the No Action alternative, the Proposed Action would result in a DNL 1.5 dB or higher increase on property exposed to DNL 65 dB or higher that is within the Cook Inlet or is owned and managed by JBER, no populations exist within these areas. These results indicate the Proposed Action would not result in a significant noise exposure impact on population exposed to DNL 65 dB or higher levels under the Proposed Action. Additional information, exhibits, as well as a full accounting of all receptor points can be found in Appendix I: *Noise Analysis Technical Report*.

Table 5-3 Change in Potential Population Exposed to Aircraft Noise That Exceeds the Noise Thresholds – 2027 and 2032

DNL Noise Exposure Level Under the Proposed Action	Increase in DNL with the Proposed Action	Population Exposed to Noise that Exceeds the Threshold	
		2027	2032
DNL 65 and higher	DNL 1.5 dB or greater	0	0
DNL 60 to 65	DNL 3.0 dB or greater	0	271
DNL 45 to 60	DNL 5.0 dB or greater	0	93

Sources: US Census Bureau, 2020 Census Population Centroids, ATAC Corporation, February 2025 (AEDT 3e and NOISEMAP modeling results)

Prepared by: ATAC Corporation, July 2026

5.1.3.1 Census Block Centroids

Although certain reportable noise increases are present for population centroids, as depicted in Table 5-3, no significant noise increases result from the Proposed Action. The 2027 Proposed Action did not result in reportable noise increases associated with population centroids. The 2032 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or greater in areas exposed to DNL 45 dB to 60 dB, as well as reportable noise increases of DNL 3.0 dB or greater in areas exposed to DNL 60 dB to 65 dB. According to census data, a total of 364 people, associated

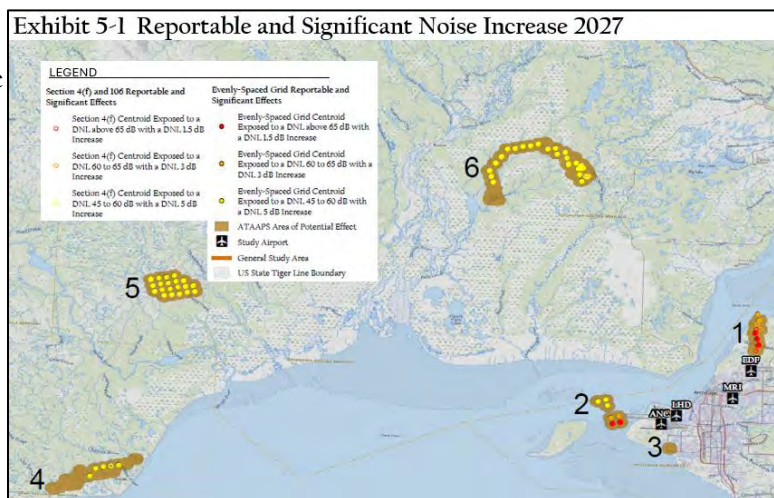
with three population centroids, would be impacted by this increase. In 2032, the centroids are in two groups. The first area of reportable noise increase is south of ANC, which is attributable to the redesigned KRAWL SID on Runway 15 as well as the arrivals usage of RNP 33. In A second area is west of Anchorage in and southwest of the village of Tyonek in the Kenai Peninsula Borough. The reportable noise increase for this area is attributable to Proposed Action SQIRL STAR to ANC.

The 2027 Proposed Action resulted in neither a significant noise increase nor a reportable noise increase compared with the 2027 No Action scenario. The 2032 Proposed Action did not result in a DNL 1.5 dB or higher significant noise increase in populations exposed to DNL 65 dB or higher compared with the 2032 No Action alternative. However, the 2032 noise results indicate that 271 people would be exposed to a 3.0 or greater dB increase in areas with a DNL between 60 and 65 dB and 93 people would experience an increase of 5.0 dB or greater within the 45 to 60 DNL range.

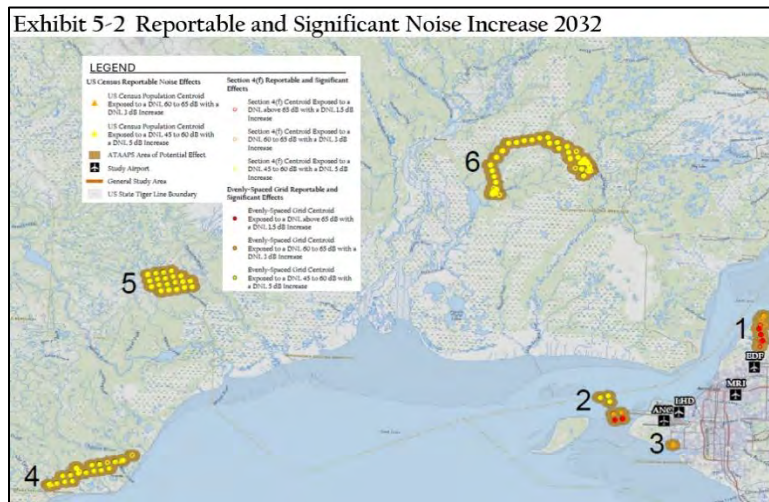
5.1.3.2 4(f) Historic and Cultural Resources Centroids

The 2027 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or higher in areas exposed to DNL 45 dB to 60 dB for points representing nine named Section 4(f) and/or Historic and Cultural Resources. In addition, points representing two named resources experience a 3.0 dB increase in DNL ranges from 60-65. Eight named resources were exposed to significant noise increases greater than 1.5 dB above the 65 DNL threshold. The 2032 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or higher for points representing 18 named Section 4(f) and/or Historic and Cultural Resources in areas exposed to DNL 45 dB to 60 dB. Two Section 4(f) and/or Historic and Cultural Resources were exposed to 3.0 dB or greater noise increases within the 60-65 DNL range. Eight named resources were exposed to significant noise increases greater than 1.5 dB above the 65 DNL threshold.

For both 2027 and 2032 the locations of the Section 4(f) and/or Historic and Cultural Resource reportable noise points are located in six geographic areas. The first area is located on JBER controlled property, north of EDF Runway 17. The noise increase in this area is attributable to arrivals on runway 17 at EDF. The second area is located approximately 2.5 NM west of ANC, in the Cook Inlet. The noise increase in this area is attributable to departures on runway 25L/R heading east to NOEND on the GLCRR SID at ANC. The third area is south of ANC located near Sand Lake Road and Diamond boulevard and is attributed to departures off of Runway 15 at ANC. The fourth area is west of Anchorage in the village of Tyonek in the Kenai Peninsula Borough. The reportable noise increases for this area are attributable to the Proposed Action SQIRL STAR. The fifth area is approximately seven NM east of the Lower Beluga Lake and adjacent to the Theodore River, also in the Matanuska Susitna Borough. This noise increase in this area is attributable to operations on the Runway 33 and Runway 07L/07R SID to the NODLE waypoint. The sixth area is approximately 5 NM to the east of the Susitna River extending 7 NM to the east ending two miles to the west of West Papoose Lake. Exhibits 5-1 and 5-2 depict these area as Areas of



Potential Effect (APE). (Please note full-size, detailed versions of all exhibits may be found in Appendix AA. In addition, each Area of Noise Increase has a separate exhibit in Appendix AA)



The 2027 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or higher in areas exposed to DNL 45 dB to 60 dB including nine named Section 4(f) and/or Historic and Cultural Resources. The 2027 Proposed Action also resulted in reportable noise increases of DNL 3.0 dB or higher in areas exposed to DNL 60 dB to 65 dB representing two named Section 4(f) and/or Historic and Cultural Resources. The 2032 Proposed Action resulted in reportable noise

increases of DNL 5.0 dB or greater representing 18 named Section 4(f) and/or Historic and Cultural Resources exposed to DNL 45 dB to 60 dB. The 2032 Proposed Action resulted in reportable noise increases of DNL 3.0 dB or greater representing two named Section 4(f) and/or Historic and Cultural Resources exposed to DNL 60 dB to 65 dB. For both 2027 and 2032 the locations of these 4(f) Historic and Cultural Resource reportable noise points are located in aforementioned six geographic areas.

The 2027 and 2032 Proposed Action resulted in significant noise increases of DNL 1.5 dB or higher in areas exposed to DNL 65 dB or higher for eight points representing eight named Section 4(f) and/or Historic and Cultural Resources. For both 2027 and 2032 the locations of Section 4(f) and/or Historic and Cultural Resource significant noise points are located in the first and second geographic areas discussed above. The significant noise increases in the first area are attributable to the Proposed Action F-22 Recovery Route to EDF Runway 17. The second area is located in the Cook Inlet west of ANC and the noise is attributable to departures on runway 25L/R heading east to NOEND on the GLCRR SID at ANC.

5.1.3.3 One-Half Nautical Mile Grid Centroids

DNL 45 dB to 60 dB

The 2027 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or higher at 64 evenly spaced grid points in areas exposed to DNL 45 dB to 60 dB for 0.5 NM. The 2032 Proposed Action resulted in reportable noise increases of DNL 5.0 dB or higher at 62 evenly spaced grid points in areas exposed to DNL 45 dB to 60 dB. For both 2027 and 2032 the locations of these reportable noise points are located within four of the previously discussed six geographic areas (depicted in Exhibits 5-1 and 5-2). The areas of reportable noise of 5.0 dB or greater exposed to DNL 45 dB to 60 dB for the evenly-spaced grid are in areas two, four, five, and six.

DNL 60 dB to 65 dB

The 2027 Proposed Action resulted in four reportable noise increases of DNL 3.0 dB or higher in areas exposed to DNL 60 dB to 65 dB for 0.5 NM evenly spaced grid points. The 2032 Proposed Action resulted in three reportable noise increases of DNL 3.0 dB or higher in areas exposed to DNL 60 dB to 65 dB for 0.5 NM evenly spaced grid points. For both 2027 and 2032 the locations of these reportable noise points are located in two of the previously discussed six geographic areas. The areas of reportable noise of 3.0 dB or greater exposed to DNL 60 dB to 65 dB for the

evenly-spaced grid are in areas one and two.

DNL 65 dB or Higher

The 2027 and 2032 Proposed Action result in five points of significant noise increases of DNL 1.5 dB or higher in areas exposed to DNL 65 dB or higher for 0.5NM evenly spaced grid points. For 2027 and 2032, the locations of these 0.5NM evenly spaced grid significant noise points are located in two geographic areas. Three receptors are located on JBER-controlled property in the Anchorage Borough on the EDF base (area one). The significant noise increases in this area are attributable to the Proposed Action F-22 Recovery Route to EDF Runway 17. Two receptors, located in the Cook Inlet, are approximately 2.5 NM west of ANC (area two). The significant noise increases are attributable to departures on runway 25L/R heading east to NOEND on the GLCRR SID at ANC.

5.1.3.4 Noise Sensitive Land Use Areas Centroids

In addition to disclosing potential noise impacts to residential population, FAA Order 1050.1G requires the FAA to identify and describe noise sensitive land uses areas in the Study Area. Noise sensitive areas may include schools, churches, hospitals recreation areas, and areas within national parks, national wildlife and waterfowl refuges, and historic sites including traditional cultural properties. Potential impacts to recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites are discussed in Sections 5.2 and 5.3.

As discussed below, FAA separately evaluated 1,035 grid points representing identified noise-sensitive uses, including residential, educational, healthcare, religious, recreational, and other potentially sensitive uses for both the 2027 and 2032 Proposed Action. These grid points are distinct from the resource-specific receptors discussed in 5.1.3.2 and the evenly spaced general-grid receptors in 5.1.3.3. Potential effects on the activities, features, or attributes of Section 4(f) and historic resources are evaluated separately in 5.2 and 5.3. The Proposed Action did not result in increases of DNL 5.0 dB or higher in areas exposed to DNL 45 dB to 60 dB for noise sensitive land use areas, nor did they result in DNL 3.0 dB or higher in areas exposed to DNL 60 dB to 65 dB for noise sensitive land use areas. The 2027 and 2032 Proposed Action did not result in any significant noise increases for noise sensitive land uses defined as being a 1.5 dB DNL increase above 65 DNL.

5.1.4 Noise Compatible Land Use

FAA Order 1050.1G requires that EA documents discuss possible conflicts between the Proposed Action and the objectives of federal, regional, state, local, and tribal land use plans, policies, and controls for the area concerned. Analysis of the potential impacts to noise compatible land use was focused on changes in aircraft noise exposure resulting from implementing the Proposed Action. FAA Order 1050.1G states, “The compatibility of existing and planned land uses with proposed aviation actions is usually determined in relation to the level of aircraft noise.” Air traffic actions such as ATAAPS do not result in direct impacts to land such as ground disturbance. Accordingly, the compatible land use analysis relies on changes in aircraft noise exposure between the Proposed Action and the No Action alternative (discussed in Section 5.1) as the basis for determining compatible land use impacts within the Study Area.

5.1.4.1 Potential Impacts – 2027 and 2032

As stated in Section 5.1.1, the Proposed Action, when compared with the No Action alternative, would result in no changes in aircraft noise exposure in 2027 and 2032 that would exceed the FAA’s significance threshold for noise compatible land uses as the significant impact points are located either over the Cook Inlet or on JBER property that has not been identified as a noise sensitive land use. The areas over the Cook Inlet were analyzed for level B Harassment criteria

under the U.S. Fish and Wildlife Service (USFWS) and the Marine Mammal Protection Act (MMPA) and found that none of the grid points with significant noise would rise to the level to cause disturbance or disrupt behavior. Therefore, the Proposed Action would not result in significant compatible land use impacts.

Under the No Action alternative, there would be no changes to air traffic routing in the Study Area, and no changes in aircraft noise exposure are expected to occur in either 2027 or 2032. Therefore, the No Action alternative would not result in significant compatible land use impacts.

5.2 Department of Transportation Act, Section 4(f) Resources

This section discusses potential impacts to Department of Transportation (DOT) Act, Section 4(f) Resources. In Chapter 4, **Exhibit 4-3** depicts Section 4(f) resources other than those listed or eligible for listing in the National Register of Historic Places (NRHP) within the Study.

5.2.1 Summary of Impacts

Evaluating potential impacts to Section 4(f) resources focuses on changes in aircraft noise exposure resulting from implementing the Proposed Action. The FAA's aircraft noise exposure analysis indicates that the Proposed Action would result in a reportable noise increase at 11 named Section 4(f) resources in 2027 and 20 named Section 4(f) resources in 2032 within the Study Area, when compared with the No Action alternative. The Section 4(f) resources identified within the areas of reportable noise increase consist of Bureau of Land Management administered lands, environmental wetlands, a bald eagle nesting site, critical habitat for the Cook Inlet beluga whale, a coastal wildlife refuge, and trails. None of the resources are managed for a quiet setting. None of the resources have been designated by the state, local, or federal resource managers as having a high potential value for further noise reduction. Those Section 4(f) resources closest to ANC and JBER have historically experienced jet aircraft noise since the earliest days of military jet aviation in the 1950s. Furthermore, changes in aircraft overflight would occur at altitudes and distances from viewers that would not substantially impair the view or setting of Section 4(f) resources. Therefore, no constructive use of a Section 4(f) resource associated with the Proposed Action would occur and no significant impact would be anticipated.

Under the No Action alternative, no changes in air traffic routes in the Study Area would occur. Therefore, no changes to aircraft noise exposure or aircraft overflight patterns would occur over Section 4(f) resources, and no impacts would be anticipated.

5.2.2 Methodology

The FAA evaluates potential effects on Section 4(f) resources in terms of both physical impacts (i.e., physical use) and non-physical impacts (i.e., constructive use). A physical impact would occur as a result of land acquisition, construction, or other ground disturbance activities that would result in physical use of all or a portion of a Section 4(f) property. As land acquisition, construction, or other ground disturbance activities would not occur under either the Proposed Action or the No Action alternative, neither alternative would have the potential to cause a physical impact to a Section 4(f) resource. Therefore, analysis of potential impacts to Section 4(f) resources is limited to identifying non-physical impacts resulting from constructive use.

A constructive use of a Section 4(f) resource would occur if there were a substantial impairment of the resource to the degree that the activities, features, or attributes of the site that contribute to its significance or enjoyment are substantially diminished. A substantial impairment could result from both visual and/or noise impacts. Concerning aircraft noise, a constructive use would occur if noise levels substantially impair the resource. Refer to Section 5.7, Visual Effects,

regarding potential visual impacts within the Study Area.

Noise exposure levels were calculated for noise receptor points placed at Section 4(f) resources. A list of the resources evaluated is provided in Appendix I: *Noise Analysis Technical Report*. The analysis of potential noise impacts to Section 4(f) resources considered whether these resources would experience a significant or reportable noise increase when comparing the Proposed Action with the No Action alternative using the applicable thresholds shown in Table 5-2.

If a reportable noise increase were to occur, the Section 4(f) resources would be evaluated further to determine if the project-related effects would constitute a constructive use. Further evaluation can include confirming that the property is in fact a Section 4(f) resource and identifying the specific attributes for which the resource is managed (e.g., for traditional recreational uses or where other noise is very low and a quiet setting is a generally recognized purpose and attribute).

In cases where Land and Water Conservation Fund Act (LWCF)⁸⁰ resources are “used” by a transportation project, the FAA stipulates that a replacement satisfactory to the Secretary of the Interior is required for recreation lands aided by the Department of Interior’s LWCF. Therefore, these resources are considered as part of the Section 4(f) impact analysis process.

5.2.3 Potential Impacts – 2027 and 2032

As stated in Section 5.1, the Proposed Action, when compared with the No Action alternative, would result in changes in aircraft noise exposure in 2027 and 2032 that would exceed the FAA’s significance threshold for noise increases to Section 4(f) resources. However, the significant noise receptor points are located either in the Cook Inlet (over water) or on JBER-controlled property. Noise analysis results for Section 4(f) resources can be found in Appendix I: *Noise Analysis Technical Report*.

In 2027 and 2032, eight 4(f) resource receptor points would experience a DNL 1.5 dB increase in areas exposed to DNL of 65 dB and higher. Six 2027 and 2032 4(f) resource receptor points would experience a reportable noise increase of DNL 3 dB or higher in areas exposed to DNL 60 dB to 65 dB. 61 2027 4(f) resource receptor points and 105 2032 4(f) resource receptor points would experience a reportable noise increase of DNL 5 dB or higher in areas exposed to DNL 45 dB to 60 dB. Tables S4.2-S4.4 (2027) and Table S4.5-S4.7 (2032) of Appendix I: *Noise Technical Report* identifies the 75 total 2027 and 119 total 2032 4(f) resource points that are exposed to reportable or significant noise increases. See Section 5.3 for geographic locations of Section 4(f) Resources. Consultations with the appropriate parties are on-going and will be finalized in the Final EA.

As noted in the preceding section, constructive use of a 4(f) resource occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the Section 4(f) property that contribute to its significance or enjoyment are substantially diminished. This means that the value of the Section 4(f) property, in terms of its prior significance and enjoyment, is substantially reduced or lost. Special consideration was given to noise sensitive areas within Section 4(f) properties (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. Parks and recreation plans and descriptions for the Kenai Peninsula, Matanuska Susitna, and Anchorage Boroughs,

80 54 U.S.C. § 200301-200310.

state parks and recreation plans and regulations, and local parks and recreation plans and regulations were reviewed for quiet enjoyment and noise intrusions, with a focus on the identified APEs within the areas of reportable noise outside of JBER-controlled property. Within the APE areas, no specific descriptions of resources being managed for natural quiet were found that would indicate expectations of prior use and enjoyment thresholds.

In reviewing the Appendix I Tables S4.2-S4.4 (2027) and Table S4.5-S4.7 properties, the historic incidence of overflight, and the respective dB DNL changes in 2027 and 2032, the noise would need to be at levels high enough to have negative consequences of a substantial nature that amount to a taking of a resource or portion of a resource for air transportation purposes. Due to the reportable noise values that are less than significant noise values for those areas not JBER-controlled, the FAA does not find that the reportable noise values amount to a taking of a park or a portion of a park, nor does the reportable noise diminish the significance or enjoyment of the 4(f) resource. In addition, the areas over the Cook inlet were subjected to additional scrutiny as directed by the National Oceanic and Atmospheric Administration's (NOAA) Fisheries division and the US Fish and Wildlife Services (USFWS) criteria and tested for significance in relation to Level A and Level B harassment and found not to be impactful⁸¹. The areas over JBER controlled property that were determined to experience significant noise impacts are on final approach to Runway 17 and are BLM administered lands that are categorized as Protected Areas Database of the United States (PADUS) GAP Status Code 3, designating them as an area with permanent protection from the conversion of natural land cover for the majority of the area, but which remains subject to broad, low-intensity or localized high-intensity extractive uses. Thus, the Proposed Action, when compared to the No Action alternative, would not result in a constructive use of the aforementioned Section 4(f) resources.

As stated in Section 5.7, the Proposed Action, when compared with the No Action alternative, would not cause a significant visual impact in 2027 or 2032. Any changes in aircraft traffic patterns would occur at altitudes and distances from viewers that would not substantially impair the view or setting of the Section 4(f) resources. As stated in Section 5.3, there would be no physical taking of a Section 106 or 4(f) property or adverse effects that would substantially impair a Section 106 or 4(f) resource's historical integrity, thus there would be no potential for "use" under Section 4(f) of those resources. Therefore, the Proposed Action would not result in potential impacts to Section 4(f) resources. The Proposed Action would not occupy, physically alter, or convert any LWCF-assisted property from public outdoor recreation use. Therefore, no conversion subject to Section 6(f)(3) would occur.

Under the No Action alternative, no changes to air traffic routes in ATAAPS would occur in either 2027 or 2032, and no effects related to changes in aircraft noise exposure or impairment to the view or setting of Section 4(f) resources would be anticipated. Therefore, the No Action alternative would not result in potential impacts to Section 4(f) resources or 6(f) resources.

5.3 Historic and Cultural Resources

This section discusses the analysis of impacts to historic and cultural resources under the Proposed Action and the No Action alternative. Section 4.2.3 provides information on historic or cultural resources within the Study Area and Supplemental Study Area. The FAA initiated consultation with the State Historic Preservation Officer (SHPO) for the State of Alaska and Tribal Historic Preservation Officers (THPOs) of Alaska Natives that may have interests within the Study Area in September and October of 2026, in accordance with Section 106 of the *National Historic Preservation Act of 1966* (54 USC 300101-320303) and the implementing regulations at 36 C.F.R. Part 800. The original outreach effort will include contacting Alaska Native

⁸¹ Marine Mammal Protection Act, 16 U.S.C. 1361.

representatives with identified interests in the Boroughs of the Study Area in the outreach. For additional information, see Appendix C – *Agency Coordination, Public Involvement, and List of Receiving Parties*. There are Alaska Native lands associated with various native Alaskan corporations located within the Study Area or revised Areas of Potential Effect (APEs). The FAA process of consulting with federal and state agencies regarding the APEs is ongoing and will be completed prior to the issuance of a Final EA.

5.3.1 Summary of Impacts

The aircraft noise exposure analysis indicates that outside of JBER-controlled properties, there would be no significant impact to the noise environment at any historic or cultural resources under the Proposed Action compared with the No Action alternative. The aircraft noise exposure analysis indicates there would be no reportable or significant noise increases (see Exhibits 5-1 and 5-2) to listed or eligible NRHP resources in the Study Area. Changes in historic and current aircraft traffic patterns would occur at altitudes and distances from viewers that would not substantially impair the view or setting of historic or cultural resources or those resources potentially eligible for NRHP listing. The Proposed Action would not directly or indirectly change any known characteristics qualifying or potentially qualifying a historic resource for inclusion in or its eligibility for the NRHP. Consultation is ongoing regarding historic resources in the APEs. No adverse effects to historic or cultural resources under the Proposed Action would be anticipated for either 2027 or 2032.

Under the No Action alternative, no changes to air traffic routes in ATAAPS would occur in either 2027 or 2032, and no changes to aircraft noise exposure or changes in aircraft overflight patterns over historic or cultural resources would be anticipated. Therefore, no historic or cultural resources would be affected by aircraft noise, nor would there be any visual impacts at historic or cultural resources under the No Action alternative.

5.3.2 Methodology

Section 106 of the National Historic Preservation Act of 1966 requires the FAA to consider the effects of its undertakings on historic properties listed or eligible for listing in the NRHP. **Exhibit 4-4** in Section 4.2.3 shows the historic and cultural resources listed on the NRHP that are found within the Study Area. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. The Proposed Action is located over and above the ground and would not involve the construction, disturbance, or alteration of any physical structure on, in, or emanating from the ground. Resources were obtained from multiple federal, state, and local georeferenced databases specific to Section 106 resources. These are identified in Appendix I: *Noise Analysis Technical Report*. Consistent with the Section 106 regulations, the FAA has focused its analysis on whether the Proposed Action would introduce visual elements or noise effects that would diminish the integrity of any historic properties.

Federal regulations require the FAA to define an APE as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.⁸² At the time of project initiation, the FAA initially defined the APE as coterminous with the Study Area boundary in order to ensure capturing the broadest range of resources. Overflights may vary for any number of reasons (e.g., weather, ATC vectors, ATC safety factors, aircraft

⁸² Title 36 CFR 800.16(d)

performance capability), both related and unrelated to flight procedures. The flight procedures themselves have overflight variance within acceptable safety parameters of precision and accuracy. The FAA subsequently determined that the Proposed Action would not introduce aircraft overflights to any area within the Study Area where they do not or have not already occurred, given the extensive military and civilian aviation history within the Study Area. Accordingly, the FAA redefined the APE to focus on the potential for the Proposed Action to cause adverse noise effects on Section 106 resources. Therefore, the resulting APEs are based on places where noise modeling showed any significant or reportable noise, and these noise grid points were sorted and bounded to define the smaller and focused APEs. Within these smaller focused APEs Study no listed or eligible NRHP properties were identified. Additional resources may be analyzed when the FAA presents the APE to the Alaska SHPO and Tribal THPO/representative for consultation purposes.

Consultation with the Alaska SHPO is ongoing with respect to the APE and the FAA's methodology for assessing potential effects on historic properties. Communication regarding the resources, methodology, and preliminary draft conclusion of this EA are currently being discussed with the SHPO.

The analysis of potential impacts to the Section 106 listed and eligible resources concluded that none of the properties would experience a significant or reportable noise increase. This conclusion was reached by comparing the Proposed Action with the No Action alternative, and applying applicable thresholds shown in Table 5-2. Properties exposed to DNL 65 dB or higher under the Proposed Action and an increase of DNL 1.5 dB or higher may be considered to be potentially adversely affected by the Proposed Action. No reportable increases in noise were detected for resources listed or eligible within the NRHP. The FAA considered whether the lack of a reportable or significant increase would result in an adverse effect on historic or cultural resources.

Beginning in 1915 as a company town for the Alaska Railroad,⁸³ Anchorage was primarily accessible via water and rail until the era of commercial and military aircraft arrived. Personal aircraft began flying in the area in 1917, and passenger aircraft began operating regionally beginning in 1926 out of Delaney Park Strip, which was a dual use airfield and golf course. Aviation Field, later renamed Merrill Field, opened in 1929 and served all civilian aviation needs, resulting in Delaney Park Strip landing area closing but remaining a park to this day.⁸⁴ Aircraft have therefore have been continuously and increasingly visually present since 1922. Military aircraft arrived following the US Army constructing Elmendorf Field in 1940, co-located with Fort Richardson.⁸⁵ Opening the commercial jet age era, Merrill Field was to remain a regional airport, with Anchorage International Airport opening in 1953 with one 8,400 foot east-west runway and one 5,000 foot north/south runway.⁸⁶ These original runways have been lengthened, upgraded, and improved multiple times since. The Airport was transferred from federal control upon Alaska Statehood in 1959.⁸⁷

5.3.3 Potential Impacts – 2027 and 2032

As stated in Section 5.1, the Proposed Action, when compared with the No Action alternative, would not result in reportable or significant changes in aircraft noise exposure in 2027 or 2032 that would exceed the FAA's significance threshold for noise increases to Section 106 resources.

⁸³ <https://www.alaskahistory.org/anchorage-timeline/> Accessed January 2025

⁸⁴ <https://www.alaska.org/detail/delaney-park-strip> Accessed January 2025

⁸⁵ <https://www.jber.jb.mil/Info/Fact-Sheets/Display/Article/290356/elmendorf-air-force-base-history/> Accessed January 2025

⁸⁶ <https://dot.alaska.gov/anc/about/history.shtml> Accessed January 2025

⁸⁷ Id.

As stated in Section 5.1, as applied to Cultural and Historic Resources and when compared with the No Action alternative, the Proposed Action would not result in changes in aircraft noise exposure in 2027 or 2032 that would exceed the FAA's reportable or significance threshold for noise with regard to Cultural and Historic Resources. There are no historic and/or archaeological properties in the APEs. Therefore, the Proposed Action is not anticipated to result in an adverse effect to historic or cultural resources.

Under the No Action alternative no changes to air traffic routes in ATAAPS would occur in either 2027 or 2032, and no adverse effects related to changes in aircraft noise exposure would be anticipated. Therefore, the No Action alternative would not result in an adverse effect to historic or cultural resources.

5.4 Biological Resources – Wildlife Avian and Bat Species, including Migratory Birds, and Beluga Whales/endangered Pinnipeds sub-category only

This section discusses the analysis of potential impacts to avian and bat species as well as the potential impacts to Beluga whales and endangered pinnipeds under the ATAAPS Proposed Action and the No Action alternative.

5.4.1 Summary of Impacts

The greatest potential for impacts to avian and bat species would result from wildlife strikes at altitudes below 3,000 feet AGL.⁸⁸ Changes to flight paths under ATAAPS would primarily occur at or above 3,000 feet AGL. Further, the Proposed Action would not increase the frequency of military or civilian flight operations. The Proposed Action would involve no ground disturbance, it would not remove, fragment, or degrade habitat. Aircraft operations would not increase and the material route changes would occur at or above 3,000 feet AGL, therefore, the action would not materially increase collision risk or disturbance to avian or bat species. The FAA also compared the changed flight corridors with known occurrences and habitat of special-status species and identified no affected species or habitats requiring additional analysis. Therefore, the Proposed Action would not result in significant impacts to any biological resources when compared with the No Action alternative.

In addition, the FAA considered the areas over the Cook inlet with reportable and significant noise and subjected them to additional analysis as directed by the National Oceanic and Atmospheric Administration's Fisheries division criteria and tested for significance in relation to Level A and Level B harassment and were found not to be impactful.⁸⁹

The No Action alternative would not involve changes to air traffic flows, land acquisition, construction, or other ground disturbance activities. Therefore, the No Action alternative would not result in significant impacts to fish, wildlife, or plants.

5.4.2 Methodology

The FAA's *Wildlife Strike Database* is the best information available for assessing potential impacts of aircraft on wildlife for civilian airports. Strike reports over the past 33 years are aggregated nationally as well as for individual airports and are available from the database to understand existing conditions. Strike reports are comparable to known information on the presence of specific species of concern to corroborate the reports. The FAA has initiated consultation with the USFWS and NOAA to ascertain any additional factors useful to determining potential adverse effects.

⁸⁸ Wildlife Strikes to Civil Aircraft in the United States, 1990–2024, Tables II-12.

⁸⁹ See Appendix C: Agency Coordination, NOAA Fisheries Memo Re: Level A and Level B Harassment findings.

This analysis involved a review of wildlife strike reports⁹⁰ for the Study Airports that have primarily civilian air traffic (ANC, ENA, MRI and LHD) and that have reported strikes. The airports PAQ and SXQ do not have any reported wildlife strikes, and EDF and FRN are military airports, which do not report wildlife strikes to the FAA's *Wildlife Strike Database*. Under both the Proposed Action and the No Action alternative, an evaluation of the potential presence of federal- and state-listed threatened and endangered species (i.e., special-status species) within the Supplemental Study Area was completed. The FAA compared modifications in flight procedures to the occurrence of special-status species to qualitatively assess the likelihood of whether wildlife strikes might change under the Proposed Action. Further consultation is pending regarding the potential for the project to constitute harassment of the species within the area. See Appendix C for information regarding consultations with outside agencies.

The USAF maintains aggregate data across the service and does not provide airfield-specific breakdowns in a fashion similar to the FAA. However, the aggregate data available does identify species and phase of flight aggregate data as a relative risk to aircraft (Wildlife hazard rankings). This data was checked for threatened and endangered species that have critical habitat within the ATAAPS Study Area (Table 4-2 and 4-3), and no endangered species were found on the military wildlife hazard rankings (no strikes to these birds or bats were reported at any military airports.²³ The FAA compared modifications in flight procedures to the occurrence of special-status species to qualitatively assess the likelihood of whether wildlife strikes might change under the Proposed Action.

5.4.3 Potential Impacts – 2027 and 2032

A significant impact would be likely to occur if the Proposed Action were to jeopardize the existence of special-status species or result in destroying or adversely modifying critical habitat in the Study Area. Changes to flight paths under the Proposed Action would primarily occur at or above 3,000 feet AGL, so there is no potential for these effects in the Study Area. The FAA is conducting ongoing consultation to obtain any noise-related potential thresholds for adverse effects. Accordingly, the analysis is focused on the potential for significant impacts to species resulting from increased wildlife strikes with aircraft and potential noise impacts to Cook Inlet Beluga whales.

Since 1990, the FAA has compiled reports of wildlife strikes with aircraft. The information is available to the public through the FAA's *Wildlife Strike Database* and the "Annual Report: Wildlife Strikes to Civil Aircraft in the United States." Between 1990 and 2024, the Wildlife Strike Database reported 313,716 wildlife strikes nationally.⁹¹ Of the records that identify the type of avian or bat species involved in the strike incident, birds represent 95.8 percent of all strikes, and bats represented 1.9 percent of all strikes.⁹² Of those records, for commercial and General Aviation (GA) aircraft, over 71 percent of the strikes occurred at or below 500 feet AGL and, for every 1,000-foot gain in height, declined by 34 percent for commercial aircraft and 42 percent for general aviation aircraft. The Wildlife Strike Database reports that of identified species, waterfowl, gulls, and raptors are the species groups of birds with the most damaging strikes.⁹³ No state or federally listed or eligible species were identified in reviewing generalized military strike records containing species identification for the military airports EDF and FRN.⁹⁴

⁹⁰ US Department of Transportation, Federal Aviation Administration, *Wildlife Strike Database* (http://www.faa.gov/airports/airport_safety/wildlife/database/ [Accessed February 2024])

⁹¹ Federal Aviation Administration. *Wildlife Strikes to Civil Aircraft in the United States 1990-2024*, pg. 4-9, October 2025.

⁹² Federal Aviation Administration. *Wildlife Strikes to Civil Aircraft in the United States 1990-2024*, excel database, September 2025.

⁹³ Federal Aviation Administration. *Wildlife Strikes to Civil Aircraft in the United States 1990-2024*, pg. vi, October 2025.

⁹⁴ https://www.denix.osd.mil/dodpif/denix-files/sites/37/2020/07/Relative-wildlife-hazard-scores-for-military-aircraft-Report-FINAL_508.pdf, Accessed February 2024

Though there is no location specific information, the military bird strike reports include all species of birds that have been involved in incidents with aircraft, and none of the threatened or endangered species in the ATAAPS Study Area were found in the previously referenced military report.

Table 5-4 provides a summary of wildlife strikes reported for the four civilian owned and operated Study Airports (ANC, ENA, MRI and LHD) between January 1, 1990 and September 13, 2025 (34+ years). The US Military maintains no publicly accessible and location-specific bird strike data for EDF or for FRN⁹⁵. The civilian airports PAQ and SXQ have no reported strikes within the database.

The *Migratory Bird Treaty Act (MBTA) of 1918* (16 U.S.C. §§ 703–712) protects all the bird species identified in these reports. Furthermore, federal and state laws protect listed endangered and threatened species. In Chapter 4, Table 4-3 identifies the four federally-listed bird species, and Table 4-3 lists the two state-listed bird species found in boroughs in the 18,000-foot Study Area. None of the bird strike reports at the Study Airports included the species listed in Table 4-2 or Table 4-3.

The number of aircraft operations under the Proposed Action and No Action alternative would be the same. Therefore, the assessment of the potential impacts focuses on changes to flight paths and the potential for impact due to wildlife strikes. As shown in Table 5-4, 20 total bird/bat strikes (less than one bird per year) occurred at altitudes above 3,000 feet AGL. The decline in the number of civilian strikes reported above 3,000 feet AGL indicates that there is a decreasing likelihood of bird/bat strikes at higher altitudes. Under the Proposed Action, changes to proposed flight paths would primarily occur at or above 3,000 feet AGL, and no significant changes to arrival and departure corridors below 3,000 feet AGL would be expected. Therefore, no effects on biological resources would be expected due to continued aircraft operations for ANC, ENA, MRI or LHD. The military reports contain no strikes involving the ATAAPS-area threatened or endangered species. Therefore, no significant impacts to avian or bat species would occur at the military airports EDF or FRN.

The Cook Inlet beluga whale is protected under both the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). Under Section 3(18)(A)(ii) of the MMPA, Level B harassment is defined as any act that has the potential to disturb a marine mammal by causing disruption of behavioral patterns, including migration, breathing, nursing, breeding, feeding, or sheltering (16 U.S.C. §1362).

A two-step screening-level approach was used to estimate potential underwater sound levels. The results from this analysis concluded that the estimated underwater sound levels remain at least 13.2dB below the NMFS Level B behavioral harassment threshold of 120 dB re 1 µPa (rms)⁹⁶, providing a substantial margin below the level associated with behavioral disturbance. Therefore, no significant impacts to the Cook Inlet Beluga whale or other animals within the vicinity are anticipated.

The No Action alternative would not involve changes to air traffic flows, land acquisition, construction, or other ground disturbance activities. Therefore, no impacts to avian or bat species would occur.

⁹⁵ Although no database is publicly available, EDF conducts a Bird/Animal Aircraft Strike Hazard (BASH) program that actively manages a 2,400-acre Bird Exclusion Zone that was developed in response to a catastrophic bird strike incident. JBER utilizes non-lethal pyrotechnics (screamers, bird bangers), propane cannons, and active raptor trapping to continuously sweep the airfield.

⁹⁶ Appendix C: Cook Inlet Supplemental Noise analysis.

Table 5-4 FAA Wildlife Strike Records for ANC, ENA, MRI and LHD by Altitude (1990-2024)

Type of Strike	Civilian Airport	3,000 feet AGL or less	> 3,000 feet AGL to ≤ 10,000 feet AGL	Greater than 10,000 feet AGL	Total
Identified Bird and Bat Species	ANC	233	14	2	249
	ENA	22	0	0	22
	MRI	13	0	0	13
	LHD	20	0	0	20
Total		288	14	2	304
Annual Average		95%	5%	1%	100%

Source: US Department of Transportation, Federal Aviation Administration, FAA Wildlife Strike Database (<https://wildlife.faa.gov/search> [Accessed January 2024]). https://www.faa.gov/sites/faa.gov/files/airports/airport_safety/wildlife/resources/Multi_Agency_Wildlife_MOA.pdf Relative Wildlife Hazard Scores for US Navy, Marine Corp, and Air Force Fixed-Wing Aircraft: https://www.denix.osd.mil/dodpif/denix-files/sites/37/2020/07/Relative-wildlife-hazard-scores-for-military-aircraft-Report-FINAL_508.pdf

Prepared by: ATAC Corporation, November 2025.

5.5 Energy Supply (Aircraft Fuel)

This section discusses whether changes in the movement of IFR jet aircraft would result in measurable effects on local energy supplies under the Proposed Action and the No Action alternative.

5.5.1 Summary of Impacts

In comparison to the No Action alternative, the Proposed Action would result in a slight increase in IFR jet aircraft fuel consumed in 2027 of 3.83 percent. The Proposed Action would result in a slight increase in IFR jet aircraft fuel consumed in 2032 of 3.78 percent. These increases would not be expected to be disruptive to or meaningfully affect local aircraft fuel supplies. Therefore, no significant impacts to energy supply would be anticipated.

The No Action alternative would not involve changes to air traffic flows, construction, or other ground disturbance activities. Therefore, the No Action alternative would not result in the depletion of local energy supply.

5.5.2 Methodology

The Proposed Action would involve changes to air traffic flows during the departure, descent, and approach phases of flight. These changes affect the route an aircraft may follow, as well as the aircrafts climb-out and descent profiles. This in turn may directly affect aircraft fuel consumed. Aircraft fuel consumption is considered a proxy for determining whether the Proposed Action would have a measurable effect on local fuel supplies when compared with the No Action alternative.

In addition to calculating aircraft noise exposure, the FAA's AEDT 3e model calculates aircraft-related fuel consumption (e.g., AAD flight schedules, flight tracks, and runway use). See Section 5.1.2 and Appendix I: *Noise Analysis Technical Report* for further discussion on AEDT 3e input data. NOISEMAP does not calculate fuel consumption, thus no consumption was calculated for aircraft arriving and departing EDF or FRN. However, those military aircraft calculated within AEDT at civilian airports were counted. Determining the difference in fuel consumption between alternatives can be used as an indicator of changes in fuel consumption resulting from implementation of the Proposed Action when compared with the No Action alternative.

5.5.3 Potential Impacts – 2027 and 2032

Table 5-5 presents the results of the fuel consumption analysis for the Proposed Action and No Action alternative. The FAA expects that when compared with the No Action alternative, the Proposed Action would not have a measurable effect on local fuel supplies. Therefore, no significant impacts to energy supply would be anticipated.

Table 5-5 Energy Consumption Comparison

	2027		2032	
	No Action Alternative	Proposed Action	No Action Alternative	Proposed Action
Fuel Consumption (MT)	699.16	725.96	765.05	793.99
Annual Weight Change (MT) (Proposed Action – No Action Alternative)		26.8		28.94
Percent Change from No Action Alternative		3.83%		3.78%

Note: MT = Metric Ton

Source: ATAC Corporation, AEDT 3e modeling results, March 2025.

Prepared by: ATAC Corporation, November 2025.

5.6 Aviation Emissions and Air Quality

This section discusses the analysis of air quality impacts under the Proposed Action and the No Action alternative.

5.6.1 Summary of Impacts

The Proposed Action would result in a slight increase in emissions when compared to the No Action alternative. However, changes to flight paths under the Proposed Action would primarily occur at or above 3,000 feet AGL and are presumed to conform to the applicable state implementation plans (SIPs). Furthermore, changes to flight paths below the mixing height are also presumed to conform when modifications to procedures are designed to enhance operational efficiency. The slight increase in emissions is expected to have little if any effect on emissions or ground concentrations. Therefore, no significant impacts to air quality would be anticipated.

The No Action alternative would not result in a change in the number of aircraft operations or air traffic routes; therefore, no impacts to air quality would be anticipated.

5.6.2 Methodology

Typically, significant air quality impacts would be identified if an action would result in the exceedance of one or more of the NAAQS for any time period analyzed.⁹⁷ Section 176(c) of the *Clean Air Act* requires that federal actions conform to the appropriate SIP in order to attain the air quality goals identified in the CAA. However, a conformity determination is not required if the emissions caused by a federal action would be less than the *de minimis* levels established in regulations issued by EPA.⁹⁸ FAA's air quality assessment process established in the FAA Air Quality handbook provides a list of exempt actions where further analysis for NEPA purposes is normally not required where emissions do not exceed the screening criteria thresholds.⁹⁹ For this EA, the proposed action is deemed to be exempt pursuant to 43 CFR 93.153. The EPA regulations identify certain actions that would not exceed these thresholds, including ATC activities and adoption of approach, departure, and en route procedures for aircraft operations above the mixing height specified in the applicable SIP (or 3,000 feet AGL in places without an established mixing height). In addition, the EPA regulations allow federal agencies to identify specific actions as "presumed to conform" to the applicable SIP.¹⁰⁰ In a notice published in the Federal Register, the FAA has identified several actions that "will not exceed the applicable *de minimis* emissions levels" and, therefore, are presumed to conform, including ATC activities and

⁹⁷ FAA 1050.1G, Exhibit A-1, October 2025.

⁹⁸ 40 C.F.R. § 93.153(b)

⁹⁹ Federal Presumed to Conform Actions under General Conformity Summary, 72 Fed. Reg. 41565 (July 30, 2007), Aviation Emissions and Air Quality Handbook, Version 4, July 2024.

¹⁰⁰ Id at 93.153(f)

adoption of approach, departure, and en route procedures for air operations.¹⁰¹ This notice further explains that aircraft emissions above the mixing height do not have an effect on pollution concentrations at ground level, specifically noting that changes in air traffic procedures above 1,500 feet AGL and below the mixing height “would have little if any effect on emissions and ground concentrations.”¹⁰² Furthermore, “air traffic actions below the mixing height are also presumed to conform when modifications to routes and procedures are designed to enhance operational efficiency (i.e., to reduce delay).”¹⁰³

5.6.3 Potential Impacts – 2027 and 2032

Under the Proposed Action there would be a slight increase in fuel consumption (3.83%) in 2027 and a slight increase in fuel consumption (3.73%) in 2032 when compared to the No Action alternative. With an increased fuel consumption there would be a slight increase (in CO₂ emissions in 2027 (3.84%) and 2032 (3.78%). Operational changes that could result in an increase in fuel consumption would occur at 3,000 feet AGL or above and therefore would not result in an increase in emissions and ground concentrations. Procedures above 3,000 feet AGL are exempt under 40 CFR 93.153(c)(2)(xxii), and the FAA has demonstrated this applies to actions as low as 1,500 feet AGL, where such changes would have little if any effect on emissions and ground concentrations, and are presumed to conform to all SIPs for criteria pollutants. Additionally, procedural changes below 3,000 feet that are modified to enhance operational efficiency such as the proposed changes of this project are presumed to conform. Therefore, no further air quality analysis is necessary¹⁰⁴, a conformity determination is not required, and the Proposed Action would not result in a significant impact to air quality. The No Action alternative would not result in a change in the number of aircraft operations or air traffic routes; therefore, no impacts to air quality would be anticipated.

5.7 Visual Effects

This section discusses the analysis of visual impacts under the Proposed Action and the No Action alternative.

5.7.1 Summary of Impacts

As stated in Section 5.1, implementation of the Proposed Action would not increase the number of aircraft operations at the Study Airports compared with the No Action alternative. Changes in aircraft traffic movement under the Proposed Action are expected to be at altitudes and distances sufficiently removed from viewers that new visual impacts would not be anticipated.

Under the No Action alternative, no changes in air traffic routes would occur, and no changes in aircraft overflight would be expected. Therefore, the No Action alternative would not result in visual impacts.

5.7.2 Methodology

As discussed in FAA Order 1050.1G, visual or aesthetic impacts are difficult to define and evaluate because of the subjectivity involved, therefore the FAA has not established a significance threshold for light emissions or visual resources / visual character. Aesthetic impacts deal more broadly with the extent to which the project affects the nature of the visual character of the area (including the importance, uniqueness, and, aesthetic value of the affected visual resources), contrasts with the existing environment, and whether the project will block or obstruct the views of visual resources, including whether these resources would still be

¹⁰¹ Federal Presumed to Conform Actions under General Conformity, 72 Fed. Reg. 41565 (July 30, 2007)

¹⁰² Id.

¹⁰³ Id.

¹⁰⁴ Aviation Emissions and Air Quality Handbook, Version 4, July 2024. Table 4-1, Table 4-2.

viewable from other locations.. Visual impacts are typically related to the disturbance of the aesthetic integrity of an immediate lateral foreground “view shed” (typically less than 0.5 mile) caused by development, construction, or demolition. Thus, these criteria would not apply to airspace changes which typically occur at vertical distances of over 0.5 mile or greater than 2,600 feet AGL. As noted in Sections 5.2 and 5.3, both 4(f) and Section 106 resources identified in this EA have current and historic day and night overflight of military aircraft dating to 1940 and civilian aircraft beginning in 1922, with both military and civilian aircraft overflight continuing to the current era.

To evaluate the potential for indirect impacts resulting from changes in aircraft routings and visual intrusion, aircraft altitudes along the route where changes occur are considered and evaluated for potential visual impacts.

5.7.3 Potential Impacts – 2027 and 2032

Changes to flight paths under the Proposed Action would primarily occur at or above 3,000 feet AGL; therefore, the visual sight of aircraft and aircraft lights would not be considered intrusive. Close to the respective Study Airports, the lateral and vertical movement of aircraft is fixed by the length, location, and direction of a particular runway or runways. IFR military and civilian aircraft below 3,000 feet AGL are generally either on approach to a runway, or within the designated landing pattern for a specific runway. Similarly, aircraft departing a runway do so climbing on a departure runway heading, and typically alter course after exiting the immediate tower-controlled airfield area. The Proposed Action does not consider aircraft repetitively landing and departing in a closed loop operation since they would not use flight procedures included in the Proposed Action. No new annoyance or interference that could affect the visual character of the study area resources is introduced under the proposed action. Consequently, the Proposed Action would not result in significant visual impacts. Neither the Proposed Action nor the No Action alternative would result in significant visual impacts.

5.8 Effects of the Proposed Action

FAA Order 1050.1G requires consideration of reasonably foreseeable effects of a proposed action. 1050.1G further defines “reasonably foreseeable” as “sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision.” Effects or Impacts, meanwhile, should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to the limits of its regulatory authority or, that would occur regardless of the proposed action.

5.8.1 Summary of Impacts

The implementation of the Proposed Action when considered reasonably foreseeable effects would not be expected to result in significant impacts.

The No Action alternative would not result in a change in the number of aircraft operations or air traffic routes; therefore, no reasonably foreseeable effects would be anticipated.

5.8.2 Methodology

Research was conducted to identify planned airport and airspace improvement projects at all Study Airports that, in combination with the Proposed Action, might result in reasonably foreseeable environmental impacts relevant to the alternatives evaluated in this document. Due to the nature of the resources affected by the Proposed Action, only past, present, and reasonably foreseeable future actions that would have direct or indirect effects on aircraft flight patterns within the Study Area were to be considered. Therefore, the type of projects that would be considered under the cumulative impact analysis were primarily limited to airfield and

airspace projects, specifically projects that directly affect or involve runways and modifications to parallel taxiways and aircraft routing. “Reasonably foreseeable future actions” refers to projects that would likely be completed and in service before 2032.

The same significance thresholds used to determine impacts associated with the Proposed Action are applied to determine significant reasonably foreseeable impacts¹⁰⁵. Because there is no potential for impact, those environmental resource categories that are not affected by the Proposed Action (listed in Section 4.1) are not further evaluated for reasonably foreseeable impacts. Similarly, if no impacts to an environmental resource category were identified under the Proposed Action when compared to the No Action alternative, then no further analysis for reasonably foreseeable impacts was required.

5.8.3 Potential Impacts – 2027 and 2032

As stated in Section 5.8.2, research was conducted to identify relevant airspace and airport improvement projects related to runway and parallel taxiway changes. Sources reviewed included FAA, state, and local capital improvement project lists and websites for all civilian and military airports and associated state, borough, and local planning, public works, and transportation agencies.

- ANC is conducting various runway and associated parallel taxiway rehabilitation and improvement, but is not conducting any permanent runway end point alterations (e.g. lengthening, shortening, or changing the runway category or type).
- JBER is currently conducting the EDF runway extension mentioned in Chapter 2 but is making no relevant runway end point improvements beyond that change. As noted in Chapter 2, that project was considered and a decision reached under a series of separate NEPA documents.
- One additional project was found to be underway with regards to potential airspace changes in the ATAAPS area. The Joint Pacific Alaska Range Complex (JPARC) project Environmental Impact Statement currently in development would account for any potential impacts the project may cause and would not impact the development of the ATAAPS Proposed Action. ATAAPS has no dependencies with regards to the proposed JPARC project. As of the issuance date of this DEA, no impacts or conflicts were identified to the airspace and procedure changes proposed under ATAAPS as a result of the JPARC project.

No additional documents were identified that included information on past, present, and reasonably foreseeable future actions with potential for direct or indirect effects on aircraft flight patterns within the Study Area. Accordingly, no reasonably foreseeable impacts are anticipated for the Proposed Action when compared to the No Action alternative for 2027 or 2032.

¹⁰⁵ See *Seven Cty. Infrastructure Coal. v. Eagle Cty.*, No. 23-975 (May 29, 2025)