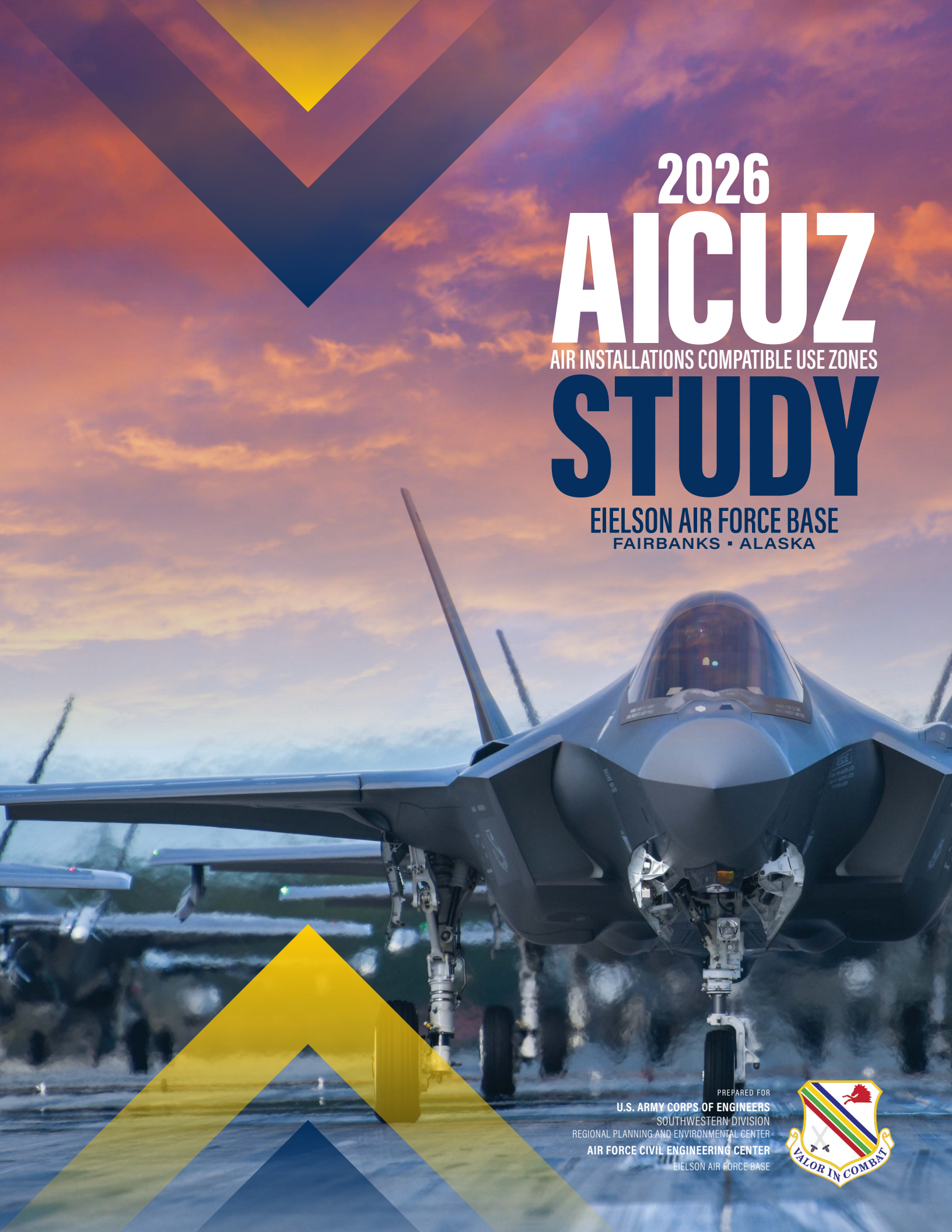
2026 AICUZ STUDY

AIR INSTALLATIONS COMPATIBLE USE ZONES

EIELSON AIR FORCE BASE

FAIRBANKS • ALASKA



PREPARED FOR

U.S. ARMY CORPS OF ENGINEERS

SOUTHWESTERN DIVISION

REGIONAL PLANNING AND ENVIRONMENTAL CENTER

AIR FORCE CIVIL ENGINEERING CENTER

EIELSON AIR FORCE BASE

VALOR IN COMBAT

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DEPARTMENT OF THE AIR FORCE
354TH FIGHTER WING (PACAF)
EIELSON AIR FORCE BASE, AK

18 February 2026

MEMORANDUM FOR AREA GOVERNMENTS

FROM: 354 FW/CC
354 Broadway St., Building 3112
Eielson AFB, AK, 99702

SUBJECT: Air Installations Compatible Use Zones (AICUZ) Study

1. The 2026 AICUZ Study for Eielson Air Force Base (AFB) is an update of the installation's 2018 version. The Air Force initiated the update to include operational changes that have occurred since the 2018 study was released such as the full complement of F-35 aircraft, along with a reevaluation of the installation's regularly scheduled exercises and related operational noise and safety zones. The Air Force provides this AICUZ study to aid in the development of local planning mechanisms that will protect the health, safety, and welfare of the public, as well as preserve the operational capabilities of Eielson AFB.

2. The AICUZ Study contains a description of the affected area around the installation. It outlines the location of runway Clear Zones (CZs), Accident Potential Zones (APZs), operational noise footprint, and provides recommendations for development that is compatible with military operations. It is the Air Force's proposal that local governments incorporate these recommendations into long-range plans, zoning ordinances, subdivision regulations, building codes, and other related documents.

3. This study provides noise contours based upon the Day-Night Average Sound Level (DNL) metric. Long-range planning by local authorities involves strategies to influence present and future land uses. In accordance with DoDI 4715.13, DoD Operational Noise Program, the Air Force provides planning contours noise contours based on reasonable projections of future missions and operations. Through planning contours, the AICUZ study provides a description of the noise environment for projected aircraft operations that is more consistent with the planning horizon used by state, Tribal, regional, and local planning bodies.

4. The Air Force greatly values the positive relationship Eielson AFB has experienced with its neighbors over the years. As a partner in the process, the installation has worked closely with local communities on local development issues and attempted to limit noise disturbances by avoiding flights over heavily populated areas. The Air Force appreciates the cooperation of all community stakeholders in the collaborative implementation of the recommendations and guidelines presented in this AICUZ Study update.

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MATTHEW R. JOHNSTON, Colonel, USAF
Commander

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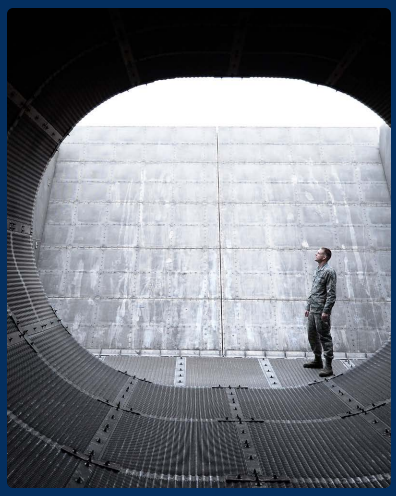
Unless otherwise noted, all photos are courtesy of the Defense Visual Information Distribution Service (DVIDS).

ABBREVIATIONS AND ACRONYMS

ADF	Alaska Defense Forum
ADNL	A-Weighted Day-Night Average Noise Level
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFFSA	Air Force Flight Standards Agency
AFOSI	Air Force Office of Special Investigations
AFTAC	Air Force Technical Applications Center
AGL	Above Ground Level
AICUZ	Air Installations Compatible Use Zones
Air Force	United States Air Force
AMAC	Alaska Military Affairs Commission
ANG	Air National Guard
APZ	Accident Potential Zone
ASOG	Air Support Operations Group
ATC	Air Traffic Control
BASH	Bird/Wildlife Aircraft Strike Hazard
CFR	Code of Federal Regulations
CW	Composite Wing
CZ	Clear Zone
DAFH	Department of the Air Force Handbook
DAFI	Department of the Air Force Instruction
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
DNR	Department of Natural Resources
DoD	Department of Defense
DoDI	Department of Defense Instruction
EMI	Electromagnetic Interference
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Floor Area Ratio (also Federal Aviation Regulation)
FEDC	Fairbanks Economic Development Corporation
FHWA	Federal Highway Administration
FNSB	Fairbanks North Star Borough
FW	Fighter Wing
FY	Fiscal Year
GIS	Geographic Information System
HAFZ	Hazards to Aircraft Flight Zone
Hz	Hertz
IFR	Instrument Flight Rules
JLUS	Joint Land Use Study
JPARC	Joint Pacific Alaskan Range Complex
LED	Light-Emitting Diode
MACA	Midair Collision Avoidance
MOU	Memorandum of Understanding
MSL	Mean Sea Level
NLR	Noise Level Reduction
NVG	Night Vision Goggles
OLDCC	Office of Local Defense Community Cooperation
PA	Public Affairs
PACAF	Pacific Air Forces
REPI	Readiness and Environmental Protection Integration
SFS	Space Force Station
SLUCM	Standard Land Use Coding Manual
T&G	Touch-and-Go
TDY	Temporary Duty
UAS	Unmanned Aircraft System
UFC	Unified Facilities Criteria
USAF	United States Air Force
USDA	United States Department of Agriculture
USACE	United States Army Corps of Engineer
VFR	Visual Flight Rules

1. INTRODUCTION

The 2026 Eielson Air Force Base (AFB) Air Installations Compatible Use Zones (AICUZ) Study focuses on the installation's flying missions. This update presents and documents changes since the previous AICUZ study, released in 2018. It reaffirms the United States Air Force's policy of promoting public health, safety, and general welfare in areas surrounding Eielson AFB, while seeking development that is compatible with the defense mission. This study presents changes in flight operations since the previous study and provides noise contours and recommendations for compatible land use.



1.1 AICUZ PROGRAM

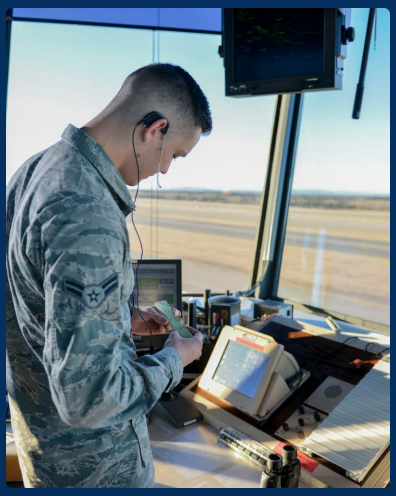
Military installations attract development, as people who work on the installation want to live nearby, while others want to provide services to installation employees and residents. When incompatible development occurs near an installation or training area, affected parties within the community may seek adjudication through political channels that could restrict, degrade, or eliminate capabilities necessary to perform the defense mission.

In the early 1970s, the Department of Defense (DoD) established the AICUZ Program to protect the health, safety, and welfare of those living and working near air installations while sustaining the Air Force's operational mission. The Air Force accomplishes this goal by promoting proactive, collaborative planning for compatible development to sustain mission and community objectives.

The AICUZ Program recommends that local land use agencies incorporate noise zones, Clear Zones (CZs), Accident Potential Zones (APZs), and Hazards to Aircraft Flight Zones (HAFZ) associated with military operations into local community planning regulations to maintain the airfield's operational requirements while minimizing impacts to residents in the surrounding community. The CZ begins at the end of the runway and is the area of highest accident potential.

APZ I lies beyond the CZ and has a lower level of accident potential, while still considerable. APZ II is beyond APZ I and possesses less accident potential, but still warrants land use restriction recommendations. The HAFZ is defined as the area within the Imaginary Surfaces that are described in the Unified Facilities Criteria (UFC) 3-260-01, and in Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace, Subpart C, Obstruction Standards.*

Cooperation between military airfield planners and community-based counterparts serves to increase public awareness of the importance of air installations and encourage the public planning process to support mission requirements and address associated noise and risk factors. As the communities that surround military airfields grow and develop, the Air Force has the responsibility to communicate and collaborate with local governments on land use planning, zoning, and similar matters that could affect the installation's operations or missions. Likewise, the Air Force has a responsibility to understand and communicate potential impacts that new and changing missions may have on the local community.



1.2 SCOPE AND AUTHORITY

1.2.1 Scope

This AICUZ Study provides Eielson AFB's CZs, APZs, and noise zones associated with the airfield's runways to the local communities, along with recommendations for compatible land use near the installation for incorporation into comprehensive plans, zoning ordinances, subdivision regulations, building codes, and other related documents. The study analysis is informed by the latest projected air operations.

1.2.2 Authority

Authority for the Air Force AICUZ Program lies in three documents:

- Department of Defense Instruction (DoDI) 4165.57, *Air Installations Compatible Use Zones,* which establishes policy, assigns responsibilities, and prescribes procedures for air installations.
- Department of the Air Force Instruction (DAFI) 32-1015, *Integrated Installation Planning,* applies to all Air Force installations with active runways located in the United States and its territories. This DAFI outlines the AICUZ program objectives and responsibilities.
- Department of the Air Force Handbook (DAFH) 32-7084, *AICUZ Program Management,* provides installation AICUZ Program Managers with specific guidance concerning the organizational tasks and procedures necessary to implement the AICUZ Program. It is written in a "how to" format and includes the land use compatibility tables used in AICUZ studies.

1.3 PREVIOUS AICUZ EFFORTS AND RELATED STUDIES

Previous studies relevant to this AICUZ Study include (listed chronologically):

- *Eielson Air Force Base Joint Land Use Study (JLUS)—Fairbanks North Star Borough,* 2006.
- *Air Installation Compatible Use Zone Study,* 2018.
- *Final Environmental Assessment for the Redistribution of KC-135 Stratotanker Aircraft to Eielson AFB, Alaska,* 2023.
- *Eielson Air Force Base, 2025 Airfield Noise Study,* 2025.

1.4 CHANGES THAT REQUIRE AN AICUZ STUDY UPDATE

This 2026 Eielson AFB AICUZ Study replaces the 2018 version. It provides the installation's flight tracks, CZs, APZs, and noise contour information, presenting the most accurate representation of current military activities. With this information, the AICUZ Program allows the installation and surrounding communities to consider both current and potential activities when making land use decisions.

As the DoD aircraft fleet mix and training requirements change over time, the resulting flight operations change as well. These changes can affect noise contours and necessitate an AICUZ Study update. Additionally, non-operational changes, such as refinements to noise modeling methods and a local community's land use, may also require the need for an update. The primary changes occurring since the previous Eielson AFB AICUZ Study include:

- **Capturing the mix of aircraft and operational tempo.** The new noise study accounts for operational changes over the past several years with the increased understanding of how F-35 pilots operate their aircraft while flying at Eielson AFB. In addition, the new noise study captures the recent addition of four KC-135 aircraft and the re-designation of the 18th Aggressor Squadron to the 18th Fighter Interceptor Squadron in 2024.
- **Supporting of large-scale exercises.** The continued support and hosting of a variety of large-scale exercises, including Red Flag Alaska, Arctic Defender, and Pacific Air Forces (PACAF)-directed field training exercises, joint offensive counter-air, interdiction, close-air support, and large force employment training in a simulated combat environment is represented in the new noise contours. These exercises are conducted on the Joint Pacific Alaskan Range Complex (JPARC) with air operations flown out of Eielson AFB.

- **Changes to planning noise contours.** Due to the aforementioned operational changes at Eielson AFB, the operational noise contours have changed since the 2018 AICUZ Study was completed.
- **Changes in AICUZ DAFI noise modeling software.** Technical improvements to NOISEMAP, the Air Force's noise modeling software, have occurred since the 2018 AICUZ Study and have changed the way noise is modeled across the Air Force.
- **Changes in off-installation land use and/or projected land use.** Since the 2018 AICUZ Study was prepared for Eielson AFB, land use, zoning regulations, and comprehensive planning processes in the surrounding municipalities have continued to evolve. An updated AICUZ Study will enhance understanding of where growth is occurring and identify any current land use compatibility issues and concerns related to aircraft operations at Eielson AFB.
- **Changes in local population.** Although the U.S. Census Bureau data shows the population of Fairbanks North Star Borough as being generally steady, the areas around Eielson, specifically the corridor from the North Pole area to Salcha is among the fastest growing area in terms of population within the State of Alaska. This has driven significant growth in residential development in the region, along with the amenities and other developments that often follow population growth.


UNITED STATES AIR FORCE
Eielson Air Force Base

2. EIELSON AFB • AK

2.1 LOCATION

Eielson AFB is located in the Fairbanks North Star Borough (FNSB) of Alaska, just southeast of the City of Fairbanks. The installation comprises almost 20,000 acres of land. There is a major north-south transportation route, known as Richardson Highway, that connects the installation to the surrounding communities of Moose Creek, North Pole, and ultimately Fairbanks. To the west of Eielson AFB is the Tanana River. Technically a tributary of the Yukon River, the Tanana spans almost 600 miles, running parallel to the highway from the installation to Fairbanks.

To the immediate east of the installation, as well as across the Tanana River to the west, is United States Army land controlled by Fort Wainwright **(see Figure 2-1).** Included in this U.S. Army installation is the Yukon Weapons Range, bordering Eielson AFB to the northeast. In addition to Fort Wainwright, energy infrastructure is also present to the west of the installation by way of the Trans-Alaska Pipeline.

The airfield at Eielson AFB contains one runway on the western portion of the installation. It is considered the second longest runway in North America, at over 14,500 feet. There are several run-up locations, concentrated primarily at the southern end of the installation. The closest off-installation major aviation center is Fairbanks International Airport, located approximately 28 miles from Eielson AFB to the northwest.

Eielson AFB Main Gate
AdobeStock.com

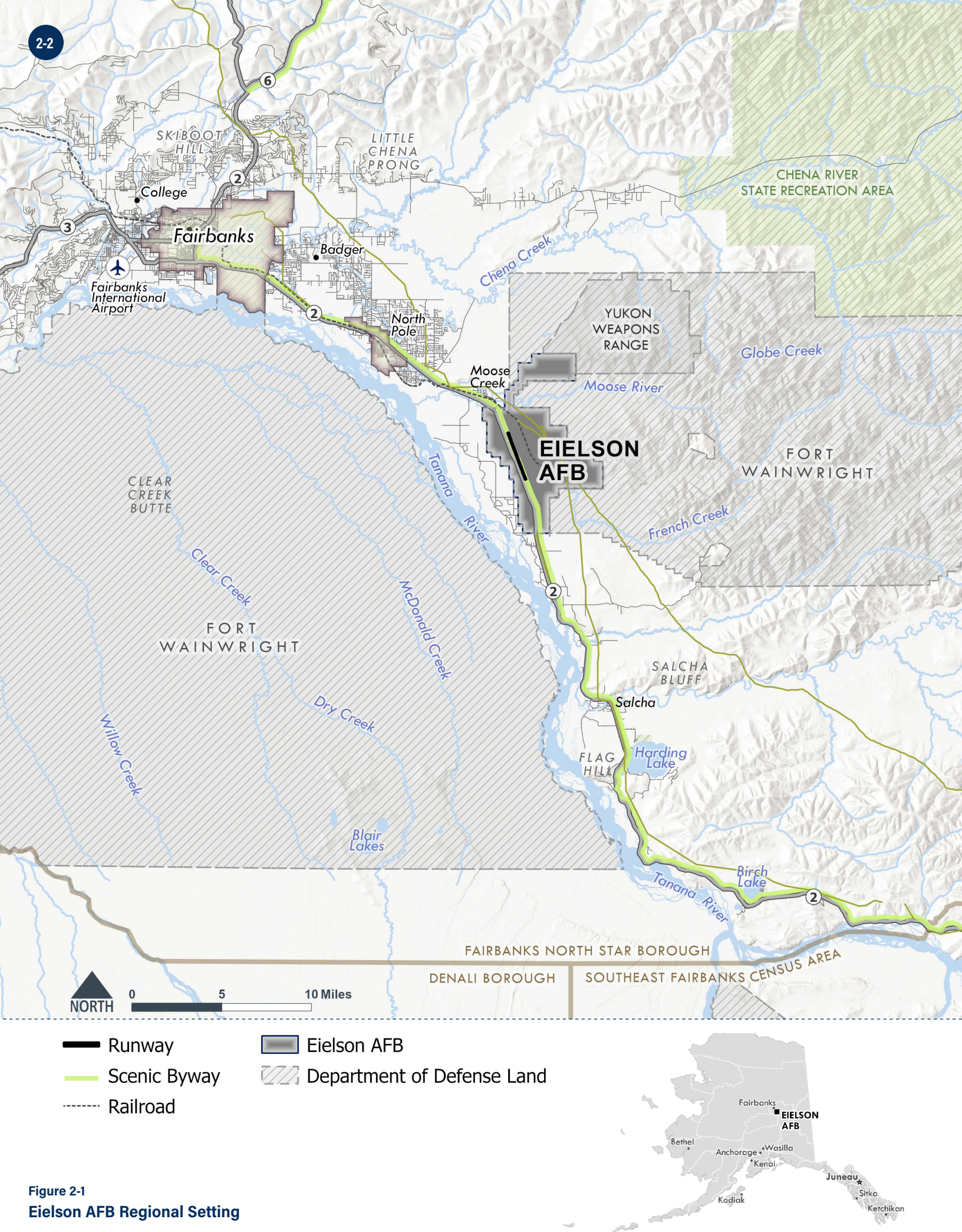


Figure 2-1
Eielson AFB Regional Setting

2.2 HISTORY

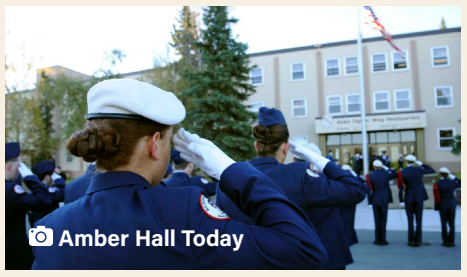
The origins of Eielson AFB trace back to the Second World War, initially constructed as an auxiliary airstrip to nearby Ladd Field (now Fort Wainwright) in Fairbanks in 1943/1944. For the duration of the war, it served primarily as a holding facility for Ladd Field to house aircraft en-route to Soviet Russia as part of the Lend-Lease policy. During this time, the airstrip was merely referred to as "Mile 26 Post" due to its proximity to a U.S. Army Signal Corps telegraph station and mile marker on the nearby Richardson highway.

Following the war, the base was briefly shuttered, but in 1946 was again reopened as a satellite of Ladd Field. It was then that the first unit was assigned to the base: the 57th Fighter Group. A year later in 1947, it became an independent base with the Alaskan Air Command. In 1948, it was renamed Eielson AFB after the famed arctic aviator Carl Ben Eielson.

Ben Eielson
Eielson AFB is the namesake of Carl "Ben" Eielson (1897-1929).

26 Mile Post, Circa 1945

Also in 1948, the Eielson AFB Bomb Wing, the first host unit, was formed. It was subsequently redesignated as the 5010th Wing in 1950. The 5010th Wing would go on to serve as Eielson AFB's host unit for the next three decades. This period of time at Eielson is marked by rapid expansion, with the construction of several structures still in use today, including Amber Hall, which now serves as the base headquarters.



Amber Hall Today

Building 3112
Eielson AFB.
Wikipedia.org

F-35As
Red Flag Alaska training missions taking place at Eielson AFB

In 1981, the 343d Composite Wing (CW) replaced the 5010th Wing as the installation's host unit. Over the next decade, several airframes became staples of Eielson, including the A-10 Thunderbolt II (Warthog) and the F-16 Fighting Falcon. Both aircraft flew with the 18th Fighter Squadron (now the 18th Fighter Interceptor Squadron), which is still stationed at Eielson.

The 343d CW was replaced by the 354th Fighter Wing (FW) as host unit in 1993. During this time, Cope Thunder, the multinational air combat training exercise which operated since the 1970s in the Philippines, was reassigned to Eielson. These exercises were redesignated as Red Flag Alaska in 2006 and have occurred three to four times every year since then. Boasting more than 75,000 square miles of airspace within the JPARC, Eielson AFB has earned global renown for its training capabilities and is recognized as a premier training location.

In 2022, the 543th FW completed the stand up of two F-35A Lightning II squadrons, the 356th and 355th Fighter Squadrons. With the addition of the F-35s, Alaska now has the highest concentration of fifth-generation fighters of any state, underscoring the tactical importance of the state. Fighters from Eielson can reach anywhere in the northern hemisphere in one sortie.

Assigned to the 11th Air Force, out of Elmendorf AFB near Anchorage, the 354th FW is part of the PACAF. Colonel Paul S. Townsend serves as the current wing commander. Airmen on Eielson are known as the "Icemen" and the wing's motto is, "Ready to go at fifty below!"

Red Flag Board
Celebrating the 50-Year History of Red Flag, Eielson AFB.

2.3 MISSION

Eielson AFB is the home of the 354th FW and the 168th Wing of the Alaska Air National Guard (ANG), among many other tenants. These two units represent the majority of the flying mission at Eielson AFB; however, other units, squadrons and detachments are listed below.

In addition to the based tenants and missions, Eielson AFB hosts many training exercises throughout the year and therefore is an integral part of ensuring the Air Force and its partners are best prepared to execute their individual missions in a coordinated and efficient manner.

2.4 HOST AND TENANT ORGANIZATIONS

354th Fighter Wing

The 354th FW is the host unit of Eielson AFB and is part of the 11th Air Force, headquartered at Elmendorf AFB near Anchorage. The 354th FW is the northern-most fighter wing, serving as the host unit at Eielson AFB since 1993. The 354th Fighter Wing's primary mission is to provide combat-ready forces for the U.S. Air Force, particularly in the areas of air superiority and precision strike. The 354th FW is known for its critical role in air defense and training, especially in cold-weather operations. The 354th FW is made up of four different groups: the 354th Operations Group, 354th Maintenance Group, 354th Mission Support Group, and 354th Medical Group. These separate groups have a variety of responsibilities, including wartime operational support, aircraft and munitions maintenance, infrastructure support, healthcare, and many more.

168th Wing, Alaska Air National Guard

The 168th Wing is part of the Alaska ANG and is an associate unit with the 354th FW at Eielson AFB. Its mission is to serve as guardians of the Last Frontier providing air refueling, missile warning, and space surveillance for the state and nation. The 168th Wing transfers more fuel than any other ANG tanker wing, because nearly all receivers are active-duty aircraft, many of which are on operational missions. The 168th Wing has both federal and state responsibilities, including combat readiness and humanitarian aid from a federal perspective, as well as protection and public safety for the state of Alaska. Specifically, the 168th Wing trains and equips KC-135R Stratotanker crews undertaking refueling tasks. For more information on the KC-135R Stratotanker, **see Section 3.1.**

1st Air Support Operations Group

The 1st Air Support Operations Group (ASOG) was administratively assigned to Eielson AFB in 2012. Stationed at Joint Base Lewis-McChord in Washington, the 1st ASOG directs four squadrons operating from 11 locations in Washington, Alaska, Hawaii, and Japan. The group provides an Air Support Operations Center, Tactical Air Control Parties and Battlefield Weather Teams to Army combat units at multiple echelons including United States Army Pacific, I Corps, and nine aviation, airborne, infantry, and Stryker brigade combat teams of the 2nd and 25th Infantry Divisions. The 1st Weather Squadron provides operational and staff weather services for Army combat units across the Pacific Command area of responsibility. In addition, they train and maintain combat readiness for worldwide battlefield weather deployments.

Detachment 1, 210th Rescue Squadron, Air National Guard

This detachment provides maintenance and operations support for up to two HH-60G Pave Hawk rescue helicopters deployed to Eielson AFB from Kulis ANG Base in Anchorage. These aircraft provide alert rescue coverage for Eielson AFB aircraft and logistics support for interior Alaska military ranges. The detachment is also assigned by 11th Air Force to provide search-and-rescue for both military and civil aviators north of the Alaska Range.

Detachment 25, 372nd Training Squadron

This detachment provides expert aircraft maintenance training to America's warriors in support of global operations.

Detachment 1, 66th Training Squadron, Arctic Survival Training

Eielson AFB, because of its geographic location, is a premier site for inclement weather training. Detachment 1, 66th Training Squadron assists members of each U.S. Military branch, as well as allied military forces, to train in such environments. These harsher conditions can include freezing temperatures, limited daylight, and heavy amounts of snow.

Detachment 460, Air Force Technical Applications Center

The Air Force Technical Applications Center's (AFTAC) Detachment 460, located at Eielson AFB, conducts nuclear treaty monitoring through seismic and atmospheric data collection. It is the largest and most varied detachment of its type of AFTAC's numerous worldwide detachments.

Detachment 632, Air Force Office of Special Investigations

The Air Force Office of Special Investigations (AFOSI) Detachment 632 reports directly to the 6th Field Investigations Region based at HQ PACAF at Hickam AFB, Hawaii. Detachment 632 is responsible for Eielson AFB, Clear Space Force Station (SFS), and all other Air Force concerns in interior and northern Alaska. The detachment investigates a wide variety of serious offenses and any illegal activity that undermines the mission of the Air Force or the DoD.

2.5 AIRFIELD ENVIRONMENT

The airfield at Eielson AFB is located in the central portion of the installation parallel to the Richardson Highway **(see Figure 2-2)**. The single runway (Runway 14/32) at the installation is over 14,500 feet long and 150 feet wide. It runs southeast to northwest and is considered the second largest runway in North America. The 2025 Noise Study that is the basis for the noise contrours being utilized in this AICUZ Study update modeled 47,223 annual operations at the airfield. The airfield elevation is 547 feet above mean seal level (MSL). **Figure 2-2** also depicts where maintenance run-up locations are throughout the Eielson AFB airfield are discussed further in **Section 3.2.**

Eielson AFB Air Traffic Control (ATC) provides radar vectoring, sequencing, and separation for aircraft using instrument flight rules (IFR) and visual flight rules (VFR) within Eielson AFB's Class D airspace. The Fairbanks Terminal Radar Approach Control provides ATC approach and departure services for the Fairbanks International Airport as well as for military aircraft operating out of Eielson AFB and Fort Wainwright.

RUNWAYS

A runway is typically used in both directions and counted as two separate runways, depending on the direction of the departure. Each direction is labeled as a separate runway and numbered based on its magnetic heading, divided by 10 and rounded to a whole number.

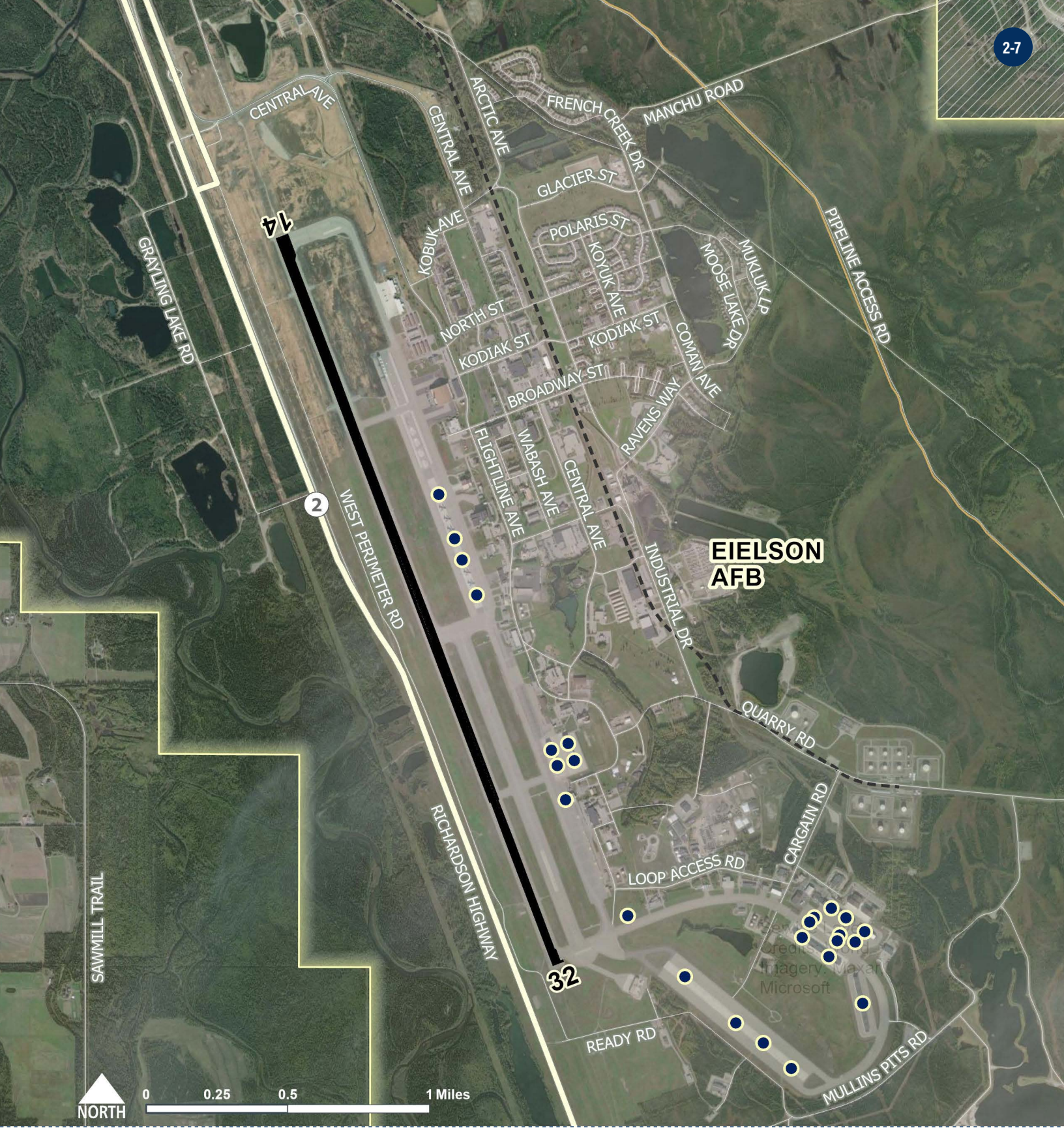


Figure 2-2
Eielson AFB Airfield Diagram

2.6 LOCAL ECONOMIC IMPACTS

Eielson AFB boasts an annual federal payroll of over $456 million and annual expenditures of $165 million. Eielson AFB annually generates approximately $116 million in indirect job creation, with over $737 million in total annual economic impact. That makes the base's economic footprint enormously important for both the region and state.

The military provides direct, indirect, and induced economic benefits to local communities through jobs and wages. The economic impact of a military installation is based on annual payroll (jobs and salaries), annual expenditures, and the estimated annual dollar value of the jobs created. Based on the fiscal year (FY) 2023 Economic Impact Statement from Eielson AFB, there are 4,630 total personnel within Eielson AFB, including over 3,098 military personnel, 728 personnel in the Air Traffic Control (ATC)/Reserve, and approximately 804 civilians. There are also nearly 3,000 military family members that live within the community.

Tables 2-1 through 2-3 provide summaries of personnel for Eielson AFB; the economic impact of the installation; military and civilian payroll; and construction, contract, and expenditures for materials, equipment, and supplies.

Table 2-1
Total Military Personnel and Payroll by Classification

CLASSIFICATION	TOTAL PERSONNEL	PAYROLL ($K)
Military Active Duty	3,098[1]	$293,969.30
ANG/Reserve (Includes Non-Extended Active Duty)	728	$97,222.70
Total	**3,826**	**$391,191.90**

1. There are an estimated 2,934 military family members associated with the Active Duty Military at Eielson AFB.

Note: Totals may not sum exactly due to rounding.
Source: Eielson AFB Economic Impact Statement, FY23.

Table 2-2
Total Civilian Personnel and Payroll by Appropriated and Non-Appropriated Funds and Indirect Jobs and Pay

CIVILIAN PERSONNEL	TOTAL PERSONNEL	PAYROLL ($K)
Civil Service	500	$56,716.1
Non-Appropriated Funds	270	$5,772.9
Base Exchange	34	$2,400.0
Total	**804**	**$64,889.0**
Indirect Impacts		
Secondary/Indirect Local Jobs Created	1,828	$63.5[1]
Total	**1,828**	**$116,004.9**

1. Average Pay

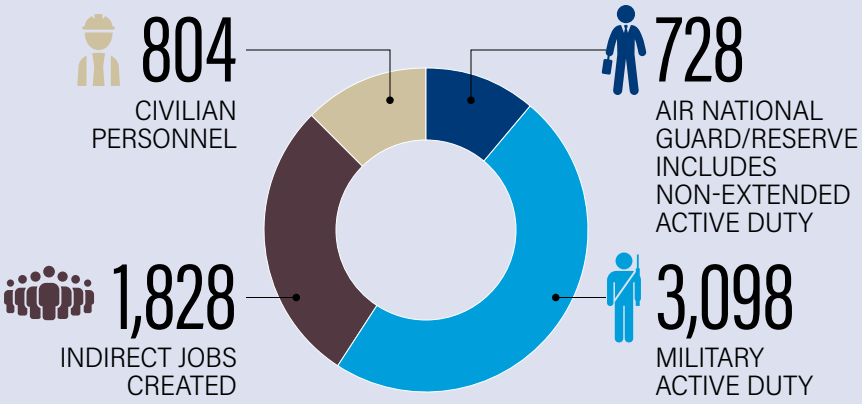
Note: Totals may not sum exactly due to rounding.
Source: Eielson AFB Economic Impact Statement, FY23.

Table 2-3
Direct Impact Expenditures

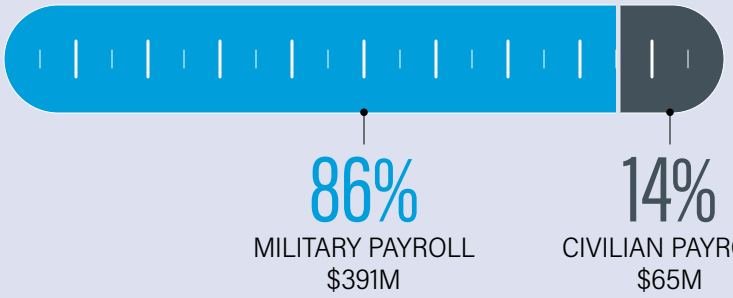
EXPENDITURE	TOTAL ($K)
Military Construction Program	**$57,013.0**
Service (Contracts/GPC)	**$97,189.6**
Health/Tricare	**$5,127.9**
Commissary	**$358.4**
Base Exchange	**$446.8**
Education (Impact Aid/Tuition)	**$1,774.9**
Other Materials, Equipment and Supplies (Not Included Elsewhere)	**$3,383.5**
Total Expenditures	**$165,415.4**

Note: Totals may not sum exactly due to rounding.
Source: Eielson AFB Economic Impact Statement, FY23.

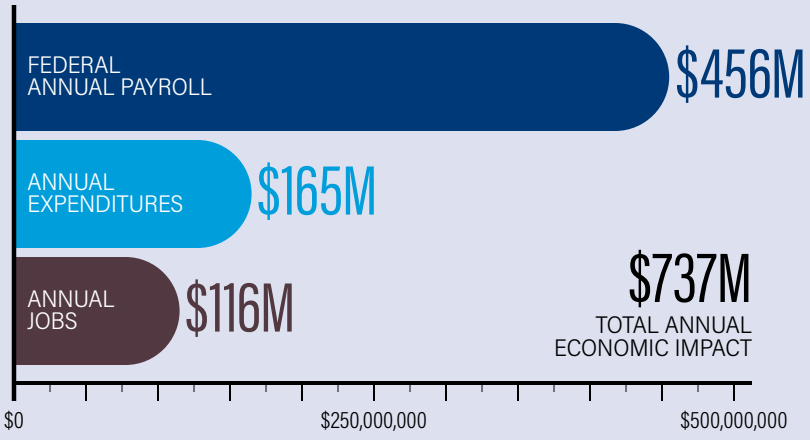
6,458 TOTAL DIRECT AND INDIRECT JOBS
PLUS 2,934 MILITARY DEPENDENTS



DIRECT AND INDIRECT JOBS
EIELSON AFB



MILITARY vs. CIVILIAN PAYROLL
EIELSON AFB



ECONOMIC IMPACT
EIELSON AFB

DIRECT AND INDIRECT JOBS CREATED
6,458
Eielson AFB Economic Impact Statement, FY23

ANNUAL ECONOMIC IMPACT
$737,000,000+
EIELSON AFB
Eielson AFB Economic Impact Statement, FY23

MILITARY CONSTRUCTION
$57,000,000+
DIRECT IMPACT EXPENDITURE
Eielson AFB Economic Impact Statement, FY23

OPEN

3. AIRCRAFT OPERATIONS

Aircraft operations are the primary source of noise associated with a military air installation. The level of noise exposure is related to a number of variables, including the aircraft type, engine power setting and afterburner use, altitude flown, direction of the aircraft, flight track, temperature, relative humidity, frequency, and time of operation (day/night). This chapter discusses the aircraft based at or transient to Eielson AFB, the types and number of operations conducted at the airfields, and the runways and flight tracks used to conduct these operations.

3.1 AIRCRAFT TYPES

There are four primary aircraft types operating at Eielson AFB—the F-35, F-16, and KC-135 fixed-wing aircraft, as well as the HH-60 helicopter. Although these aircraft represent and account for the most common flight operations conducted at the installation, Eielson AFB also hosts several training exercises with visiting aircraft.

Therefore, there are many other aircraft types that may utilize Eielson AFB and be seen operating in the vicinity. Aircraft that are not permanently assigned to the installation but conduct operations from the installation on an occasional basis are referred to as "transient." Below are brief descriptions of aircraft at Eielson AFB

3.1.1 Permanently Assigned Aircraft

F-35 Lightning

The F-35 Lightning II is the U.S. Air Force's latest fifth-generation fighter. With its aerodynamic performance and advanced integrated avionics, the F-35A will provide next-generation stealth, enhanced situational awareness, and reduced vulnerability for the United States and allied nations.

The F-35 is permanently assigned to Eielson AFB, but many F-35s also operate at the installation as transient aircraft from other visiting units.

F-16 Fighting Falcon

The F-16 Fighting Falcon is a compact, multi-role fighter aircraft. It is highly maneuverable and has proven itself in air-to-air combat and air-to-surface attack. It provides a relatively low-cost, high-performance weapon system for the United States and allied nations. The F-16 fighter aircraft are employed in conventional and anti-radiation suppression of enemy air defenses, strategic attack, counter air, air interdiction, joint maritime operations, and combat search and rescue missions.

KC-135 Stratotanker

The KC-135 Stratotanker provides the core aerial refueling capability for the Air Force. Air refueling operations enhance the Air Force's capability to accomplish its primary mission of global reach. It also provides aerial refueling support to other U.S. military and allied nation aircraft. Additionally, the KC-135 can perform medical evacuations. The KC-135R/T, an updated model of the original KC-135A, features four turbofan engines and can carry up to 83,000 lbs. of cargo while being 96 percent quieter than the original airframe.

HH-60 Pave Hawk

The HH-60 Pave Hawk is a twin-engine medium-lift helicopter. It is a highly modified version of the Army Black Hawk helicopter, featuring upgraded communication and navigation capabilities. Its primary mission is to conduct personnel recovery operations in hostile environments during wartime. It also is tasked with civil search and rescue, medical evacuation, disaster response, humanitarian assistance, and several other peacetime roles. The HH-60 Pave Hawk has been frequently active, conducting search and rescue missions in Operation Desert Storm and Operation Allied Force, as well as humanitarian support following the Mozambique Flood in 2000 and Hurricane Katrina in 2005. This aircraft is equipped with an over-the-horizon tactical data receiver that is capable of receiving near real-time mission update information.

3.1.2 Transient Aircraft

C-12

With a capacity of 19 passengers or 3,500 pounds, the C-12's primary purpose is the transportation of cargo and passengers. It is used for other various missions, such as medical evacuation and humanitarian rescue.

C-130

The C-130 is an aircraft designed to perform tactical airlift missions. This aircraft can take off and land on incomplete runways. Its primary function involves dropping off equipment to troops but is often involved in other tasks such as aeromedical evacuations, aerial spray operations, and firefighting missions.

C-17 Globemaster

The C-17 Globemaster is a large transport aircraft that performs tactical and strategic airlifts of troops and cargo, as well as medical evacuations and paratrooper airdrop missions. Eight countries plus the European Union use the C-17. The highly versatile aircraft has seen extensive use worldwide in combat during Operation Enduring Freedom and Operation Iraqi Freedom and providing humanitarian aid after natural disasters. The aircraft is designed to use runways as short as 3,500 feet. A high payload capacity of over 170,000 lbs and extended range configurations enable the aircraft's global reach. Four turbofan engines power the C-17.

C-21 Learjet

With a capacity of 19 passengers or 3,500 pounds, the C-12's primary purpose is the transportation of cargo and passengers. It is used for other various missions, such as medical evacuation and humanitarian rescue.

3.2 MAINTENANCE OPERATIONS

Maintenance is an integral part of any flying operation and requires a dedicated team of professionals to ensure that units can meet their flying requirements. Two key tasks in maintaining aircraft are low– and high-powered engine maintenance runs. Eielson AFB may conduct low-power engine maintenance runs on aprons, ramps, or in hangers to functionally check the operation of engines or other aircraft systems. **Figure 2-2** generally depicts the run-up locations, which are done along Tanker Row, in front of hangers, as well as on the South Ramp.

The Eielson AFB hush house is utilized primarily by the F-16s for run-ups and occasionally F-18s; however, the F-35s and KC-135s do their run-ups outside. F-35s only perform Low Power runs. They do not do High Power ground runs. In addition to the hush house, the F-16s also use a Trim Pad for High Power runs. Noise associated with these run-up operations is included in the noise analysis for the Eielson AFB noise contours.

3.3 FLIGHT OPERATIONS

Flight activities, including where aircraft fly, how high they fly, number of times they fly over a given area, and the time of day they operate, must be fully evaluated to understand the relationship between flight operations and land use. This chapter discusses typical flight operations for aircraft based at or visiting Eielson AFB.

Each time an aircraft crosses over a runway threshold (the beginning or ending of a runway's usable surface) to either takeoff, practice an approach, or land, it is counted as a single flight operation. For example, a departure counts as a single operation, as does an arrival. As another example, when an aircraft conducts a pattern (a departure followed by an immediate return), it counts as two operations because the aircraft crosses both the approach and departure ends of the runway during the pattern.

The following list highlights typical operations utilized during normal or increased flight operations. Each flight track is designed to maximize flight operations and, when possible, minimize the effects of noise on surrounding communities.

Takeoff/Departure

Takeoff is the phase of flight in which an aircraft leaves the ground and becomes airborne (also known as liftoff). Departure is the act of leaving the airfield.

Landing/Arrival

Landing is the process of bringing an aircraft to the ground (also known as touchdown). An arrival is the act of coming to an airfield.

Patterns

Pattern operations are when an aircraft conducts a successive takeoff and landing. This is commonly done to practice VFR landings and can be visualized as a racetrack pattern which stays withing the immediate airfield environment. It is also commonly done to practice IFR arrivals when pilots use aircraft instruments to maintain runway alignment and adherence to altitude restrictions until the pilot can acquire visual sight with the runway environment.

- **Low Approach.** A low approach is an approach to a runway that does not result in a landing, but rather a descent towards the runway (usually below 500 feet above ground level [AGL]) followed by a climb-out away from the airfield. Pilots perform low approaches for a few reasons, including practicing to avoid potential ground obstructions (e.g., vehicles, debris, stray animals).
- **Touch-and-Go (T&G).** A T&G landing pattern is a training maneuver that involves landing on a runway and taking off again without coming to a full stop. Usually, the pilot then circles the airfield in a defined pattern and repeats the maneuver.

3.4 ANNUAL AIRCRAFT OPERATIONS

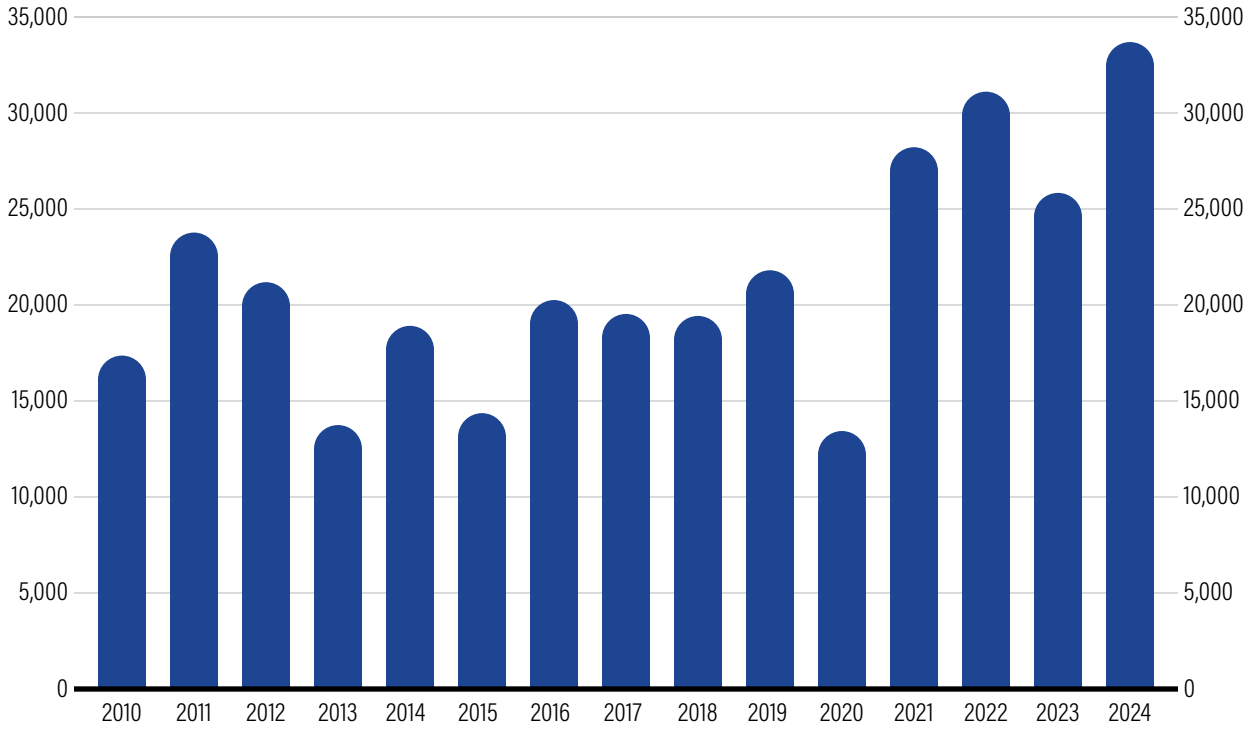
Total annual operations account for each departure and arrival, including those conducted as part of a pattern operation. **Figure 3-1** provides the number of aircraft operations that have occurred at Eielson AFB over a 15-year period, including based and transient aircraft.

Operations at Eielson AFB have remained relatively steady over the past 15 years, but have had certain years that fluctuate slightly for various reasons. Generally speaking, the annual operations range 15,000 to 25,000 operations per year. However, recent trends over the past four years show annual operations increasing the 25,000 to 35,000 range. This is highly dependent on large scale exercises that are conducted at Eielson AFB with many visiting units and aircraft.

The 2025 Noise Study that is the basis for the noise contours being utilized in this AICUZ Study update assumed an annual operations level of 47,223 **(see Table 4-2).** Compared to the 5-year average of 24,085, the number of operations used in the Noise Study reflects the maximum amount of base-assigned aircraft activity (e.g., both F-35A squadrons executing their weekly flying schedule). It should be noted that throughout the year, Eielson AFB expects its F-35A units to deploy or support temporary duty (TDY) for weeks to months at a time. This explains why the average is approximately half of what is modeled. Therefore, utilizing 47,223 annual operations for the Noise Study and this AICUZ Study, as a conservative measure, represents the maximum noise impact possible at Eielson AFB.

Over the past five years, most operations at Eielson AFB have taken place during acoustical daytime (defined as taking place from 7:00 a.m. to 10:00 p.m.); only a small percent occur during acoustical nighttime (defined as taking place from 10:00 p.m. to 7:00 a.m.). 98 and 95 percent of departures and pattern operations take place during daytime hours, respectively. The vast majority of arrivals also take place during daytime hours, with only 4 percent of arrivals occurring during nighttime hours **(see Figure 3-2).**

Figure 3-1
Summary of Eielson AFB Flight Operations for Calendar Years 2010-2024



Source: Air Force Civil Engineer Center (AFCEC), Air Force Flight Standards Agency (AFFSA) Air Traffic Reporting System Annual Report

Figure 3-2
Time of Day for Arrivals, Departures, and Pattern Operations

3.5 RUNWAY UTILIZATION AND FLIGHT TRACKS

3.5.1 Runway Utilization

The frequency with which aircraft utilize a runway involves a variety of factors including, but not limited to:

- Airfield environment (layout, lights, runway length),
- Direction of prevailing winds,
- Location of natural terrain features (rivers, lakes, mountains, and other features),
- Wildlife activity,
- Number of aircraft in the pattern, and/or,
- Preference of a runway for the purpose of safety and noise abatement.

Eielson AFB ATC personnel establish the runway in use and adjust pattern procedures accordingly to maximize air traffic flow efficiency. **Table 3-1** lists how frequently each runway at Eielson AFB is used.

3.5.2 Flight Tracks

Each runway has designated flight tracks that provide for the safety, consistency, and control of an airfield. Flight tracks depict where aircraft fly in relation to an airfield. They are for departures, arrivals, and pattern procedures, and are designated for each runway to facilitate operational safety, noise abatement, aircrew consistency, and the efficient flow of air traffic within ATC airspace. Aircraft flight tracks are not set "highways in the sky." While we show flight tracks as lines on the map, they are more like bands. Aircraft deconfliction, configuration, pilot technique, takeoff weight, and wind all affect the actual path taken on any given flight. **Figure 3-3** presents the departure flight tracks, **Figure 3-4** presents the arrival flight tracks, and **Figure 3-5** presents the pattern flight tracks for Eielson AFB.

Table 3-1
Runway Utilization

RUNWAY DIRECTION		USAGE
Runway 14	Arriving from the North and/or Departing to the South	10%
Runway 32	Arriving from the South and/or Departing to the North	88%
Taxiway Bravo Helipad		2%

Source: Eielson AFB 2025 Airfield Noise Study.

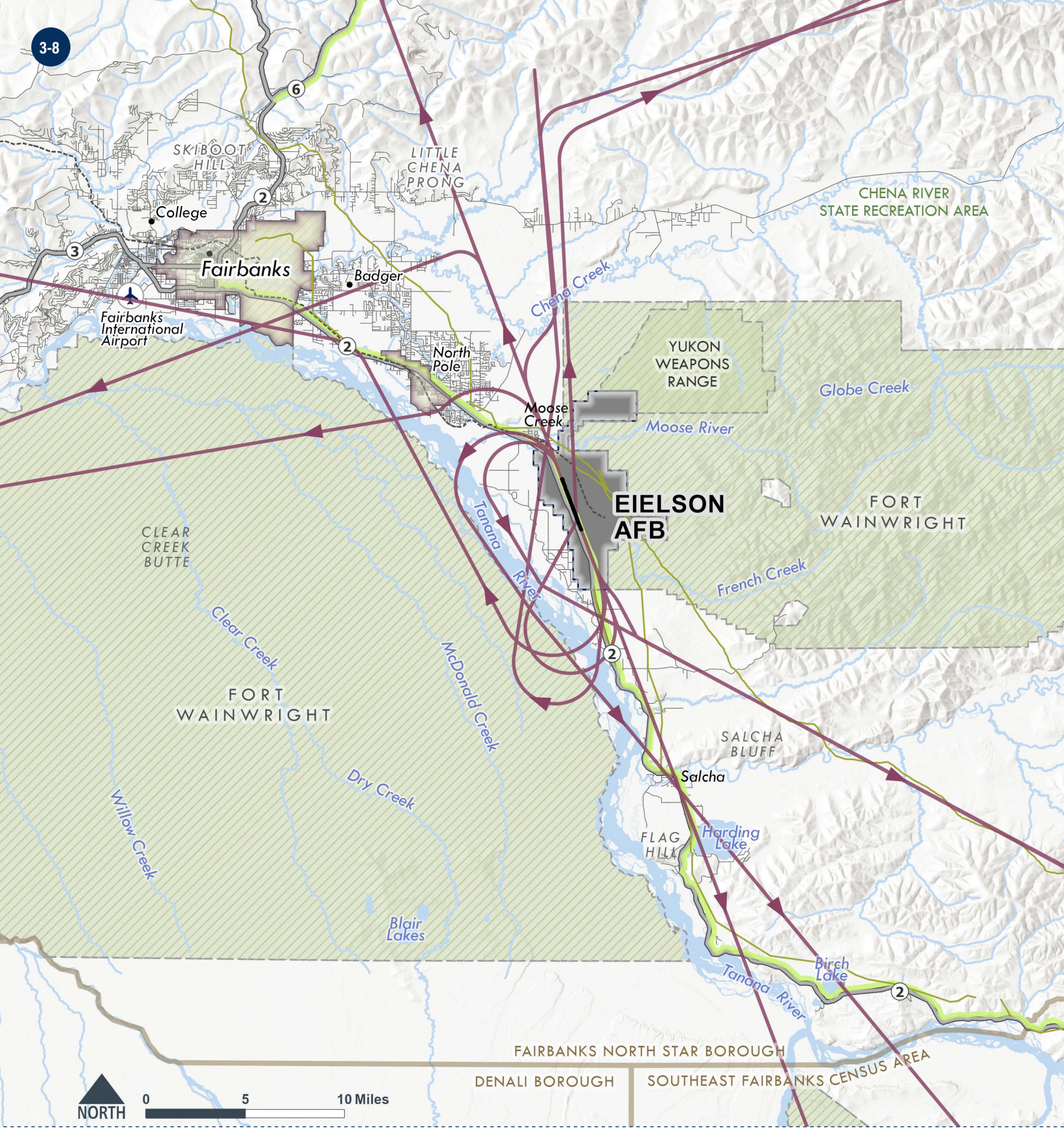


Figure 3-3
Eielson AFB Departure Flight Tracks

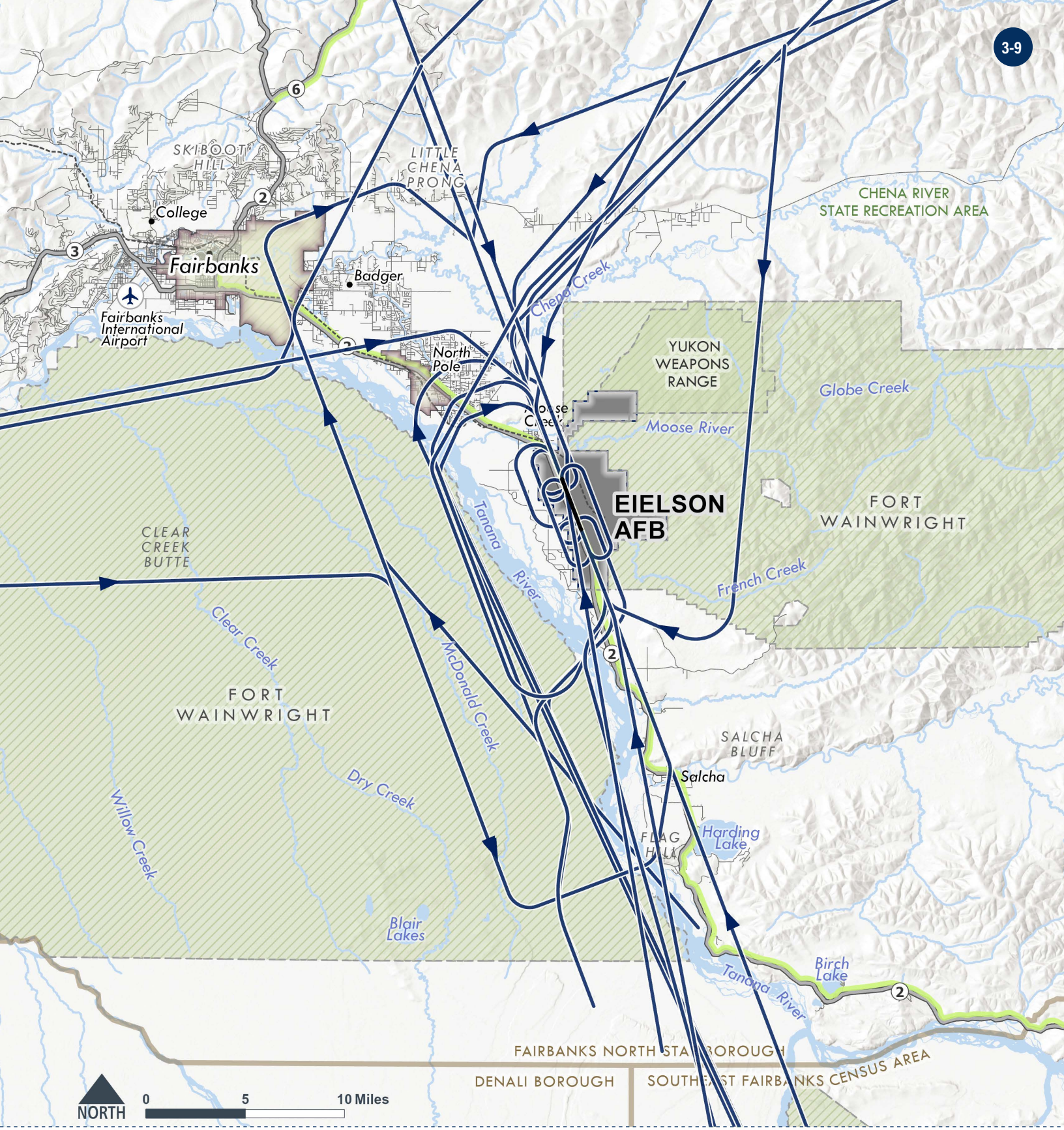


Figure 3-4
Eielson AFB Arrival Flight Tracks

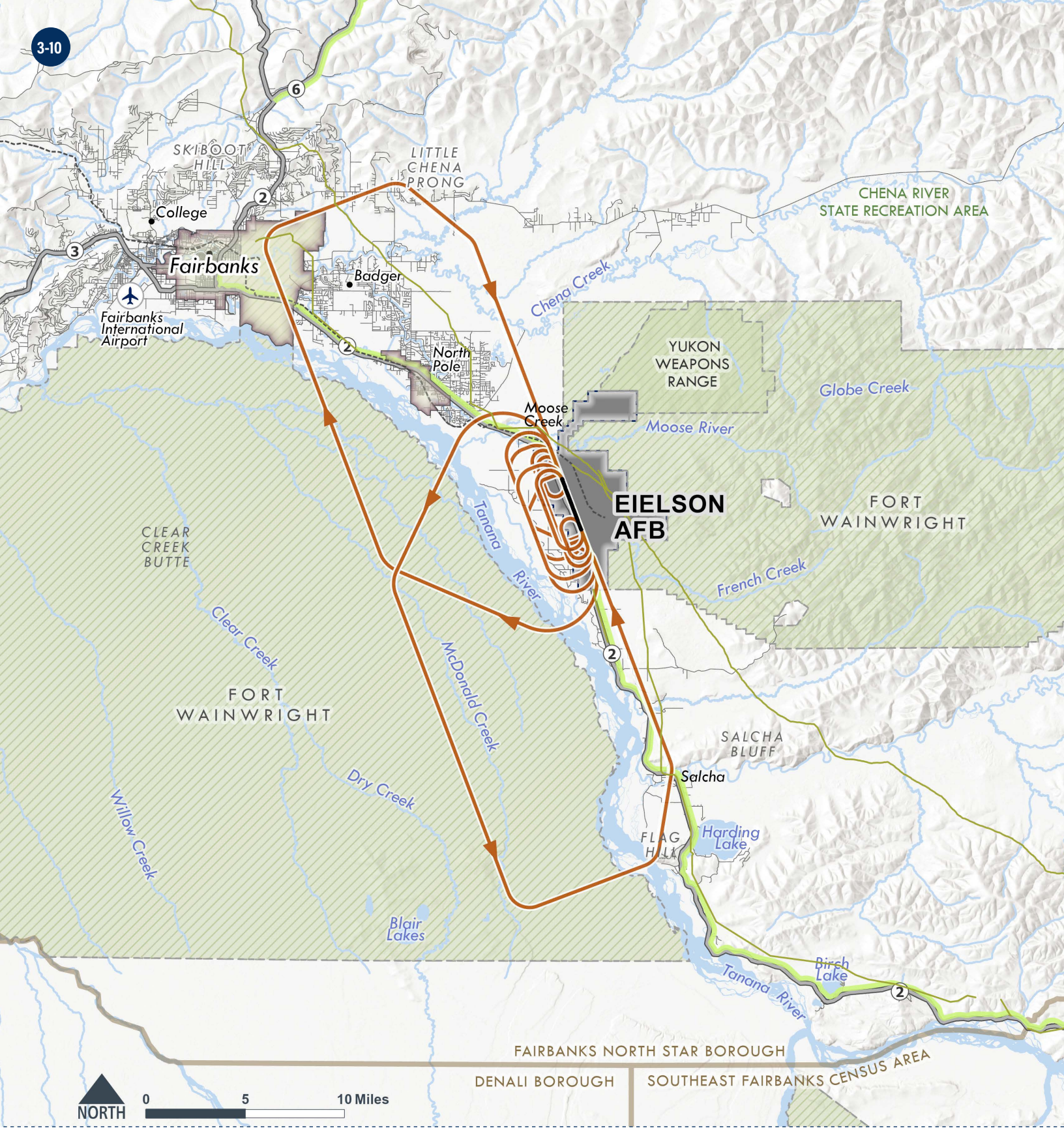


Figure 3-5
Eielson AFB Pattern Flight Tracks


AK
18 AGRS
AF
86 301

4. MILITARY OPERATIONAL NOISE

How an installation manages operational noise can play a key role in shaping its relationship with neighboring communities. Ideally, aircraft and range noise, as well as its management should be key factors in local land use planning. To mitigate impact on the communities, the Air Force has defined noise zones using the guidance provided in DAFH 32-7084, *AICUZ Program Management.*

For this reason, noise contours for Eielson AFB have been developed in accordance with the *AICUZ Program Management Handbook* to graphically depict how sound, or noise, propagates from the aircraft operating around the airfield and out towards surrounding communities. The following sections will define and discuss sound/noise and how it is perceived and will then conclude with a graphic of the 2026 Eielson AFB planning noise contours. Refer to **Section 4.3.2** for a comprehensive definition of Planning Noise Contours.

4.1 WHAT IS SOUND/ NOISE?

Sound consists of vibrations in the air called "compression waves." A multitude of sources can generate these vibrations, including roadway traffic, barking dogs, radios, or aircraft operations. Just as a pebble dropped into a pond generates ripples, the compression waves—formed of air molecules pressed together—radiate outward, decreasing with distance. If these vibrations reach your eardrum at a certain rate and intensity, you perceive it as sound. When the sound is unwanted, we refer to it as "noise." Generally, sound becomes noise to a listener when it interferes with normal activities. Sound has three components: intensity, frequency, and duration.

- **Intensity or loudness** relates to sound pressure change. As the vibrations oscillate back and forth, they create a change in pressure on the eardrum. The greater the sound pressure change, the louder it seems.
- **Frequency** determines how we perceive the pitch of the sound. We hear low frequency sounds as rumbles or roars, while sirens or screeches typify high-frequency sounds. We measure sound frequency in cycles per second, or hertz (Hz). While the range of human hearing goes from 20 to 20,000 Hz, humans hear best in the range of 1,000 to 4,000 Hz.
- **Duration** is the length of time one can detect the sound.

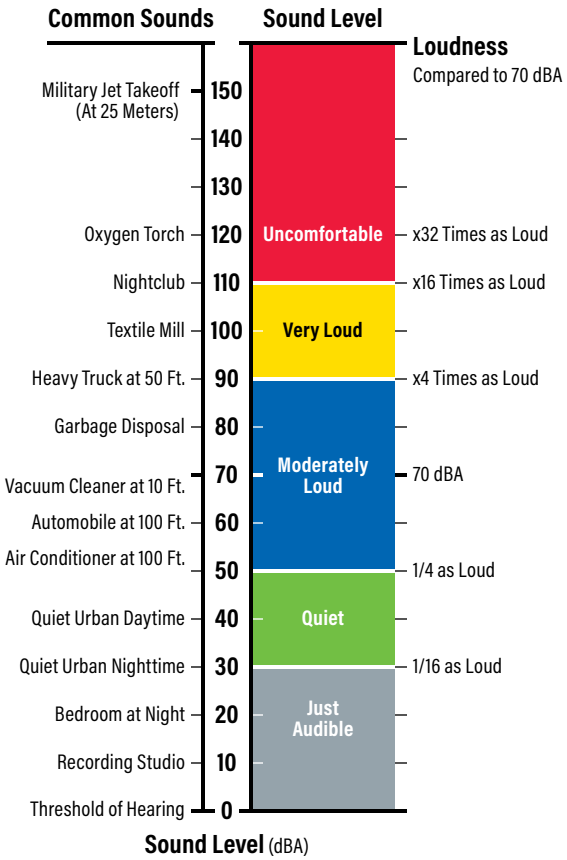
4.2 HOW SOUND IS PERCEIVED

The loudest sounds that the human ear can comfortably hear are a billion times higher in intensity than those of sounds we barely hear. Because such large numbers are cumbersome to use, a logarithmic scale is used to measure decibels, the unit of measurement for noise.

Figure 4-1 shows the A-weighted sound levels emitted through common sources measured in decibel (dBA) values. A-weighted decibels give greater weighting to frequencies in the middle of the human hearing range, and less weighting to frequencies at the lower and higher ends. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. While normal speech has a sound level of approximately 60 dB, sound levels above 120 dB can cause discomfort and those above 130 dB can be painful to the ear.

WEIGHTING FACTOR

This weighting factor removes lower frequencies to focus on the frequency range humans hear. Oftentimes, when discussing decibels with respect to human hearing range, the "A" is dropped and only noted as dB.



Source: U.S. Air Force
See also: https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm

Figure 4-1
Typical A-weighted Levels of Common Sounds

Table 4-1 shows the subjective responses to changes in (single event) sound levels. While noise energy doubles or halves with every 3 dB change, we do not perceive all this noise energy. It takes a 10 dB increase or decrease for our ears to perceive a doubling or halving of loudness. Please note: these metrics are based on a single event and cannot be compared to the Day-Night Average Sound Level (DNL) examples, which are based on a cumulative metric.

Table 4-1
Subjective Response to Changes in Sound Level

CHANGE IN SOUND LEVEL	CHANGE IN LOUDNESS
10 dB	Twice or half as Loud
5 dB	Quite Noticeable
3 dB	Barely Perceptible
1 dB	No Noticeable Change

4.3 THE DAY-NIGHT AVERAGE SOUND LEVEL

When people hear an aircraft fly overhead, they may ask, "How loud was that?" While we may often find ourselves concerned over the perceived loudness of a sound, there are other dimensions to the sound event that draw our interest. For instance, does one overflight draw the same interest as two separate overflights—or 20? Does the 30-second run-up of engines prior to takeoff draw the same interest as a 30-minute maintenance run? Additionally, is an overflight more noticeable at 2:00 p.m. or at 2:00 a.m., when the ambient noise is low, and most people are sleeping?

The length and number of events—the total noise energy—combined with the time of day that a noise event takes place, have key roles in our perception of noise. To reflect these concerns, the Air Force uses a metric called the "Day-Night Average Sound Level" (DNL). The United States Environmental Protection Agency (EPA) created DNL for use throughout the United States to evaluate health and activity impacts as well as land use compatibility.

DNL, when used as a metric for aircraft noise, represents the accumulation of noise energy from all aircraft noise events in a 24-hour period. DNL is "A-weighted" (ADNL). This weighting factor removes lower frequencies to focus on the frequency range humans hear. Oftentimes, when discussing ADNL, the "A" is dropped because it is understood that "DNL" is referring to ADNL. Additionally, for all operations between 10:00 p.m. and 7:00 a.m., DNL adds a 10-dB adjustment to each event to account for the intrusiveness of nighttime operations that may disrupt sleep and the reduced ambient sounds that would otherwise mask the flight noise. As is implied in its name, the DNL represents the noise energy present in a daily period. However, because aircraft operations at military airfields fluctuate from day to day, the Air Force typically bases DNL on a year's worth of operations and represents the annual average daily aircraft events.

DNL is not a level heard at any given time but represents long-term exposure. Scientific studies have found a strong correlation between the number of people highly annoyed by sounds and the level of average sound exposure measured in DNL.

DNL NOISE METRIC

The DNL noise metric is used for both A-weighted and C-weighted noise events, depending on the noise source. In the context of this AICUZ Study, when DNL is used, it is assumed to be A-weighted associated with aircraft-related noise. When it is C-weighted noise related to large-caliber or other impulsive/explosive noise, the metric will be specifically identified as "CDNL."

4.3.1 Noise Contours

The DoD develops noise contours to assess the noise impacts of aircraft operations on surrounding land uses. The contours connect points of equal acoustic value, just as contours on topographic maps connect points of equal elevation. They graphically describe noise exposure on the ground. This AICUZ study presents the latest available noise contours that were modeled by AFCEC's Noise Group. The noise study and associated noise contours represent the most recent and accurate noise environment based on current operations at Eielson AFB, including assigned aircraft and training exercises. The noise contours, when overlaid on local land use maps, can help identify areas of incompatible land use, and assist communities in planning for future development around an air installation.

4.3.2 Planning Contours

Long-range planning by local land use authorities involves strategies that influence present and future uses of land. This work is implemented by comprehensive plans, zoning ordinances, and zoning maps. These documents are usually updated on 5- to 10-year cycles. Missions and training change to counter new threats, and those changes do not follow predictable timelines. To better align the efforts and offer more stability, the Air Force provides current operations and reasonable projections of potential future missions. AICUZ studies use such contours to describe the noise footprint for current and projected aircraft operations that are more consistent with the planning horizons used by state, Tribal, regional, and local planning bodies.

The Air Force develops planning contours on the best available, realistic, long-range projections of unclassified estimates of future mission requirements. This includes reasonable projections of future operations based on trends in operational tempo, retirement of legacy aircraft, new aircraft entering the inventory, and other factors.

These long-range projections are not commitments to future operations or basing decisions. Inclusion of the planning contours in the AICUZ study does not eliminate the need to conduct appropriate environmental analysis if an assumption used in the development of these contours becomes a proposed Air Force action. **Table 4-2** presents the projected operations for the Eielson AFB planning contours.

Included in the Eielson AFB planning contours:

- Accounts for operational changes over the past several years and incorporates an increased understanding of how F-35 pilots operate their aircraft while flying in the surrounding airfield at Eielson AFB.
- Captures the addition of KC-135 aircraft and the re-designation of the 18th Aggressor Squadron to the 18th Fighter Interceptor Squadron in 2024.
- Ensures visiting and transient aircraft that frequent Eielson AFB associated with regularly held, large scale exercises are incorporated.
- Maintains flexibility for increased operations and potential future aircraft basing needs.

4.4 EIELSON AFB NOISE CONTOURS

The 2026 Eielson AFB AICUZ noise contours are based on the Noise Study conducted by the AFCEC Noise Program in 2025. The operational data utilized for the noise contours associated with the airfield is presented in **Table 4-2** and **Figure 4-2** shows the noise contours at Eielson AFB plotted in 5-dB increments, ranging from 65 to 80 dBA DNL. The 65 dBA noise contour extends off the installation boundary, primarily to the north, with small areas extending to the west and slightly to the south. The noise contours follow the general direction of the runways and the flight paths of the aircraft where there is often a turn to the west after aircraft depart to the north. This results in a slight hook to the northwest. Higher noise zones, including the 70 dB DNL noise zone and to a much smaller extent, the 75 dB DNL noise zone, extend only to the north of Eielson AFB. The farthest the noise contour extends off installation property is approximately 5 miles to the north of the installation property, to the east of North Pole.

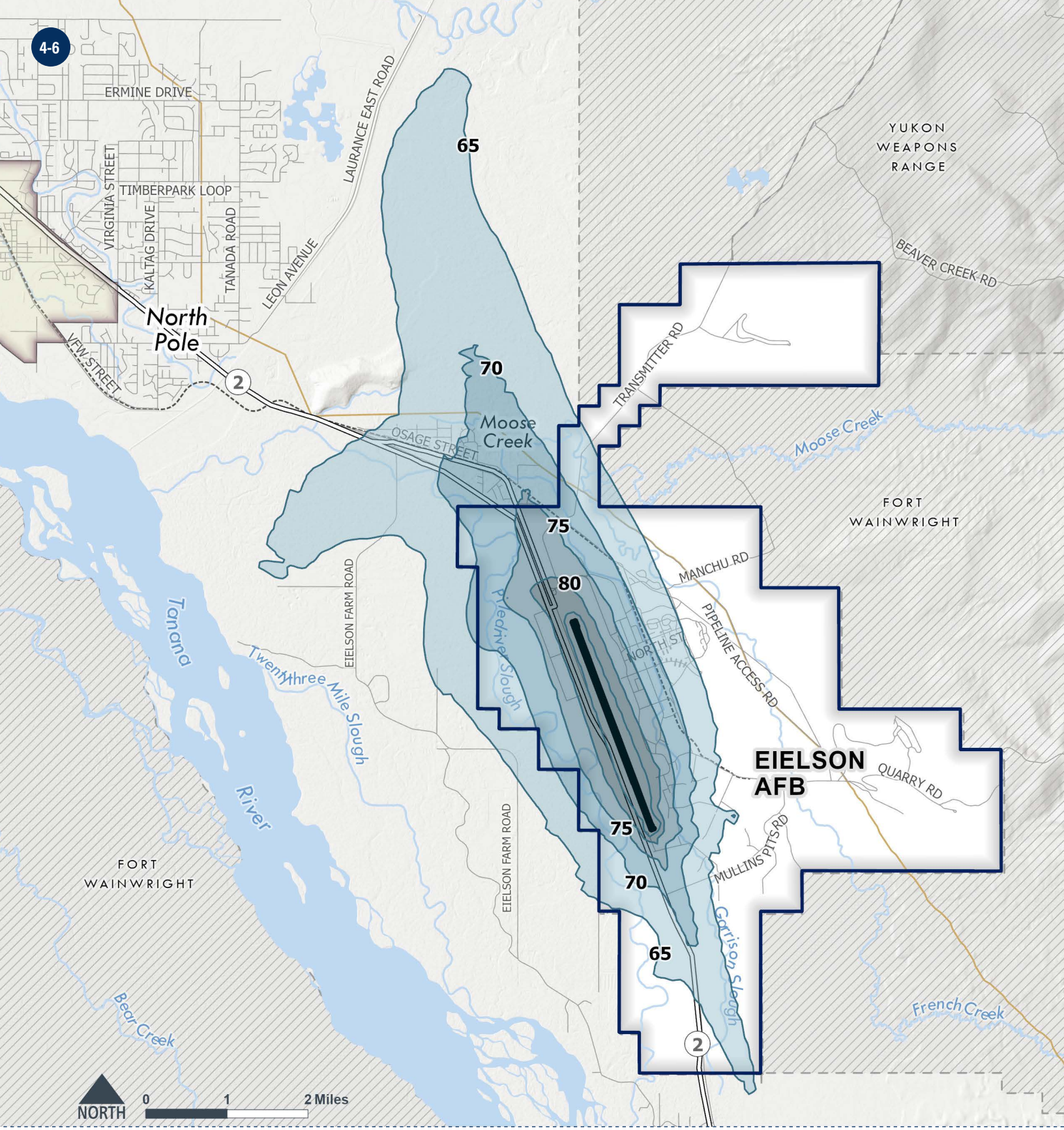
As these contours were developed in 2025, they take into account the most recent operational picture for aircraft at Eielson AFB. In addition, **Figure 4-3** shows a 50-80+ dB DNL noise gradient of the 2026 Eielson AFB AICUZ noise contours.

Table 4-2
Modeled Annual Aircraft Flight Operations for 2026 AICUZ Noise Contours

UNIT/AIRCRAFT	DEPARTURES	ARRIVALS	PATTERN[1]	TOTAL
Based Aircraft				
F-16C	3,129	3,047	3,460	**9,636**
KC-135R	466	582	2,690	**3,738**
HH-60	403	403	80	**886**
F-35A	8,576	6,274	17,151	**32,001**
Transient Aircraft				
C-12	18	18	0	**36**
C-130 H&N&P	51	51	0	**102**
C-17	295	295	0	**590**
C-21A	7	7	0	**14**
F-35A	110	110	0	**220**
Total	**13,055**	**10,787**	**23,381**	**47,223**

1. Each "pattern" consists of two total operations: one arrival and one departure.

Source: Eielson AFB 2025 Airfield Noise Study



2026 AICUZ Contour (dB)
- 65-69
- 70-74
- 75-79
- 80 and Greater

- Runway
- Eielson AFB

- Trans-Alaska Pipeline
- Railroad
- Department of Defense Land
- City Limit

Figure 4-2
2026 AICUZ Operational Noise Contours

Figure 4-4 shows a comparison of the 2018 AICUZ and the 2026 AICUZ noise contours. The contours are slightly larger and cover additional areas, primarily to the north of the installation, compared to the previous AICUZ noise contours. This is due to several reasons, including the higher number of operations used in the noise model for the 2025 Noise Study.

Table 4-3 presents the off-installation land acreage and estimated population within the planning contours. The 2026 AICUZ noise contours extend outside the installation boundary primarily to the north and west. Some of these areas are populated, such as the Moose Creek area. The largest land area is covered by the 65 to 69 dB noise zone, with an associated 195 estimated individuals. The 70 to 74 dB noise zone covers less area; however, due to the fact that it is located over the populated area of Moose Creek, it has a higher population associated with it at 318 estimated individuals.

Table 4-3
Off-Installation Land Area and Estimated Population within Noise Zones for the 2026 AICUZ Noise Contours at Eielson AFB

NOISE ZONE (dB DNL)	ACRES	ESTIMATED POPULATION
65-69	6,753.1	195
70-74	1,195.5	318
75-79	17.5	16
80+	0.0	0
Total (65+)	**7,966.1**	**529**

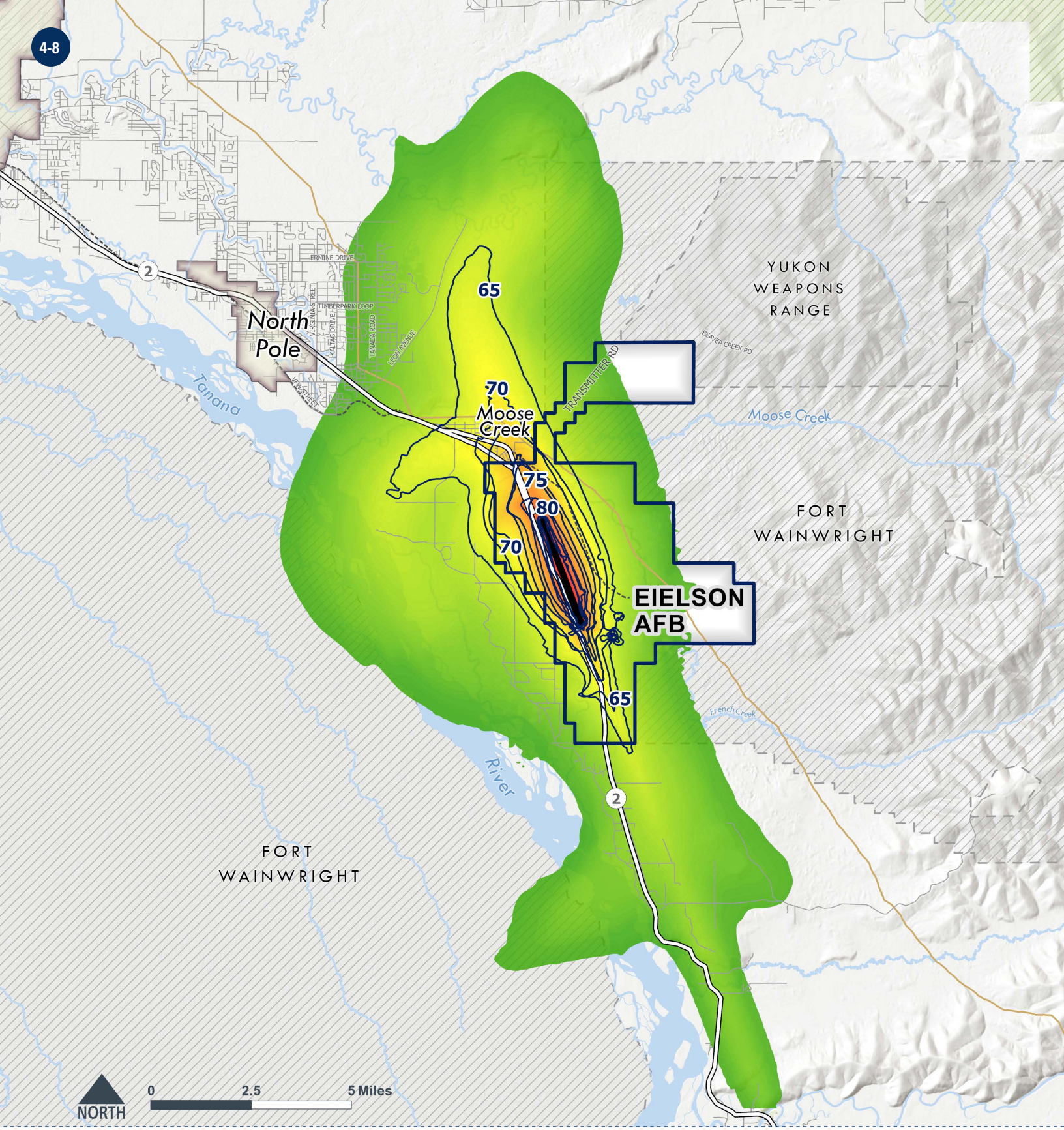
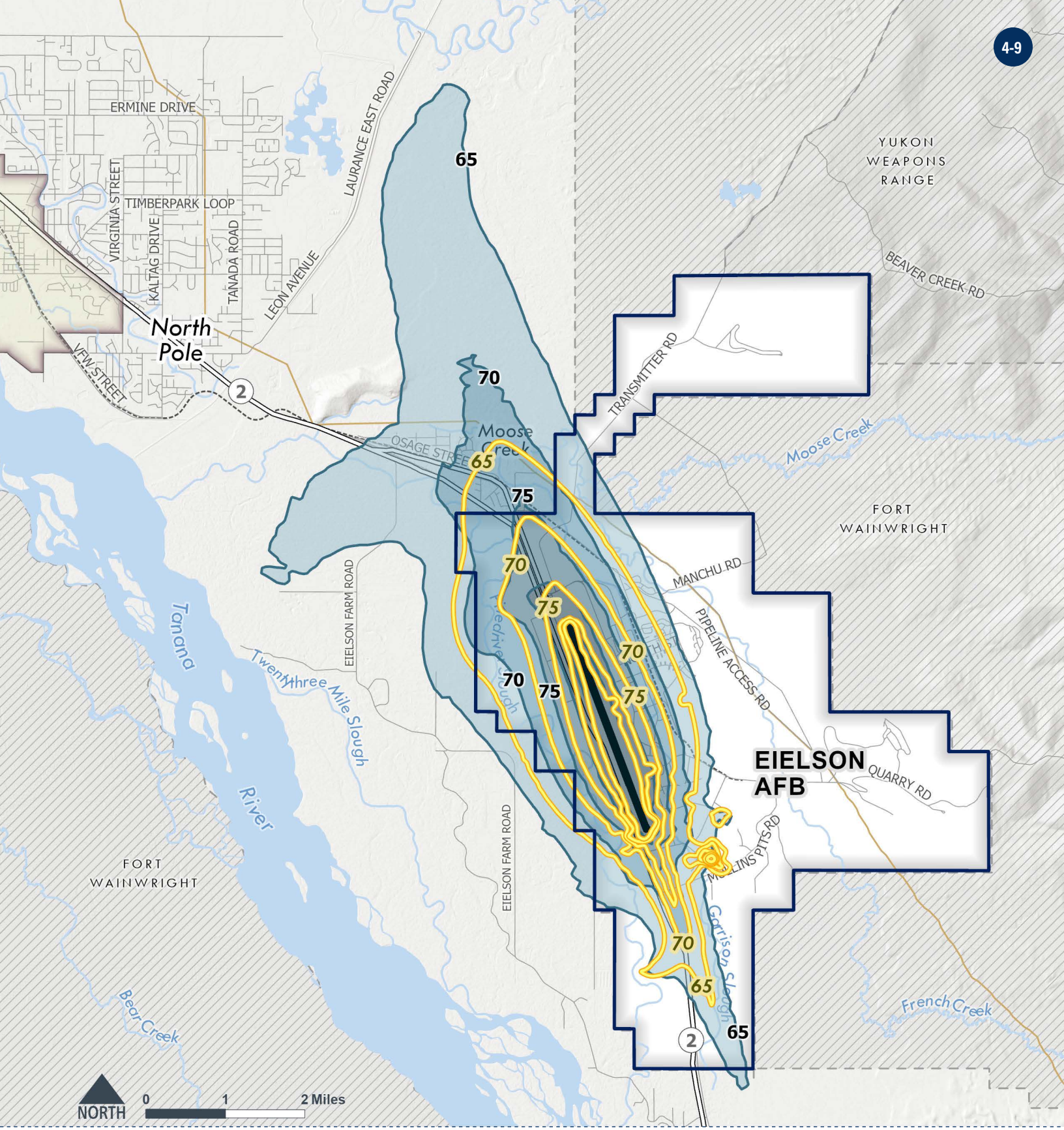


Figure 4-3
2026 AICUZ Operational Noise Footprint with Gradient Shading



2026 AICUZ Contour (dB)
- 65-69
- 70-74
- 75-79
- 80 and Greater

2018 AICUZ Contour (dB)
- Runway
- Eielson AFB

- Trans-Alaska Pipeline
- Railroad
- Department of Defense Land
- City Limit

Figure 4-4
Comparison of 2026 and 2018 AICUZ Noise Contours for Eielson AFB

4.5 NOISE ABATEMENT

The Air Force recognizes that sound from military operations may cause concern for people living near military installations. For this reason, the Air Force has established a Noise Program aimed at reducing and controlling the emission of noise and vibrations associated with the use of military aircraft, weapon systems, and munitions while maintaining operational requirements. The result is the implementation of various strategies, techniques, and procedures documented under the Eielson AFB Airfield Operations Instruction and Local Flying Procedures. These implementations are aimed at protecting the installation's neighbors and structures from the harmful effects of noise and vibrations.

Noise abatement procedures at Eielson AFB are intended to minimize the impacts of aircraft operations on the surrounding communities while maintaining operational capacity and flexibility. The Eielson AFB noise abatement procedures include quiet hours from 10 p.m. to 6 a.m., as well as no engine runs or engine monitoring by maintenance personnel during those same quiet hours. In addition, aircraft should avoid overflight of base housing below 3,500 feet MSL, with an exception of "pipeline" aircraft and helicopters.

Installation leadership periodically reviews flight operations and their potential impact on surrounding communities. This requirement facilitates the planning, designation, and establishment of flight tracks over sparsely populated areas and/or waterways as often as practicable to balance operational safety and reduce noise exposure levels in surrounding communities.

4.6 NOISE COMPLAINTS

At times, military operations may generate noise complaints. The Air Force evaluates all noise complaints to ensure future operations, when possible, do not generate unacceptable noise. Concerned citizens are encouraged to contact the Eielson AFB Public Affairs (PA) Office with any noise complaints. This can be done via either email at Eielson AFB's 354th FW/PA org box using 354FW.pa.publicaffairs@us.af.mil or **via phone at 907-377-2116, Option 2.** The type of information collected includes the individual's name and contact information, date and time of the incident, type of complaint, location, what type of aircraft (if known), and other general information that may assist in understanding the source of the incident.

When someone files a noise complaint with the base, a noise complaint form is generated that is then coordinated throughout the base for internal review and tracking purposes to determine the most likely cause of the noise. Generally speaking, very few noise complaints are received and the community is very supportive of the installation and their flying mission.

Eielson AFB posts information about issues and upcoming events via the installation Facebook, Instagram, and X as well as press releases and the main installation website:

PHONE
+1 (907) 377-2116 ▪ OPTION 2
Eielson AFB Public Affairs (PA) Office

WEB
WWW.EIELSON.AF.MIL

EMAIL
354FW.PA.PUBLICAFFAIRS@US.AF.MIL

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5. COMMUNITY AND AIRCRAFT SAFETY

Community and aircraft safety is paramount to the Air Force and is a shared responsibility between Eielson AFB and surrounding communities, with each playing a vital role in its success. Cooperation between the Air Force and the community results in strategic and mutually beneficial land use planning and development. As such, the Air Force has established a flight safety program and has designated areas of accident potential around its air installations to assist in preserving the health, safety, and welfare of residents living near its airfields. This AICUZ study provides the information needed, in part, to reach this shared safety goal.

Identifying safety issues assists the community in encouraging land uses compatible with airfield operations. To this end, as part of the AICUZ Program, the Air Force defines areas of accident potential, imaginary surfaces, and hazards to aircraft flight.

Top Middle Photograph Inset | AdobeStock.com

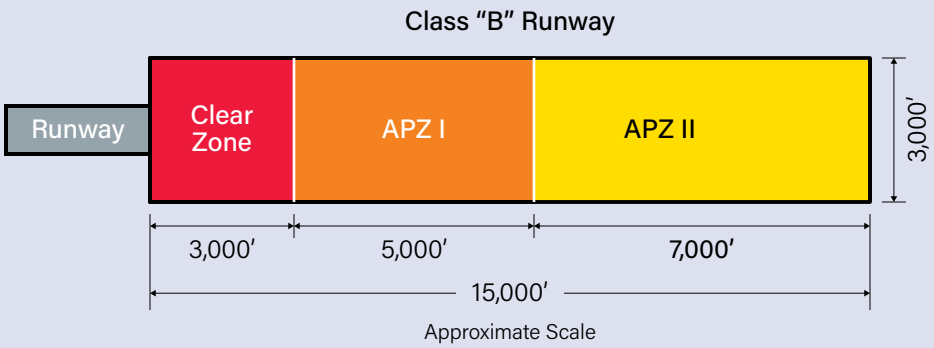
5.1 CLEAR ZONES AND ACCIDENT POTENTIAL ZONES

In the 1970s and 1980s, the military conducted studies of historical accidents and operations data throughout the military. The studies showed that most aircraft mishaps occur on or near the runway, diminishing in likelihood with distance from the runway. Based on these studies, the DoD identified Clear Zones (CZs) and Accident Potential Zones (APZs) as areas where an aircraft accident is most likely to occur if an accident were to take place; however, it should be noted that CZs and APZs are not predictors of accidents. The studies identified the following three areas for which planners should consider density and land use restrictions because of the increased potential for accidents: the CZ, APZ I, and APZ II.

The CZs and APZs for Class B runways are described below and are depicted on **Figure 5-1** based off DoDI 4165.57, Appendix 3A:

- **CZ.** At the end of all active DoD runways is an area known as the "Clear Zone." The CZ for Class B runways has an area of 3,000 feet square from the end of the runway along the extended runway centerline. All active runways have CZs and should be owned or controlled by the installation and remain undeveloped.
- **APZ I.** Beyond the CZ is APZ I. APZ I is 3,000 feet in width and 5,000 feet in length along the extended runway centerline.
- **APZ II.** APZ II is the rectangular area beyond APZ I. APZ II is 3,000 feet in width by 7,000 feet in length along the extended runway centerline.

Figure 5-1
Runway Clear Zones and Accident Potential Zones for 'Class B' Runways



Within the CZ, the only compatible land uses with military aircraft operations and defense missions are undeveloped lands and certain right-of-way and agricultural uses. For this reason, it is the Air Force's policy, where possible, to acquire real property interests in land within the CZ to ensure incompatible development does not occur. Installation control of land use in CZs is a consideration of the Strategic Basing Process when siting new missions. Within APZ I and APZ II, a variety of land uses are compatible; however, higher density uses (e.g., schools, apartments, churches) and more intense uses (e.g., office buildings, strip malls) should be limited and, if possible, prevented because of the greater safety risk in these areas. **Chapter 6** discusses land use and recommendations for promoting compatible growth and addressing incompatibility issues within APZs for each runway.

Eielson AFB has a Class B runway measuring over 14,500 feet long, with a width of 150 feet. It is designated with marking 14/32.

Figure 5-2 depicts the CZs and APZs for Runway 14/32 for Eielson AFB.

Table 5-1 presents the off-installation land acreage and estimated population within the CZs and APZs. The Air Force generates population estimates on 2020 census block-level data using a geometric proportion method to determine the estimated population within each safety zone. This method assigns population based on the portion of a census block that falls within each zone. The population across census blocks is assumed to be evenly distributed.

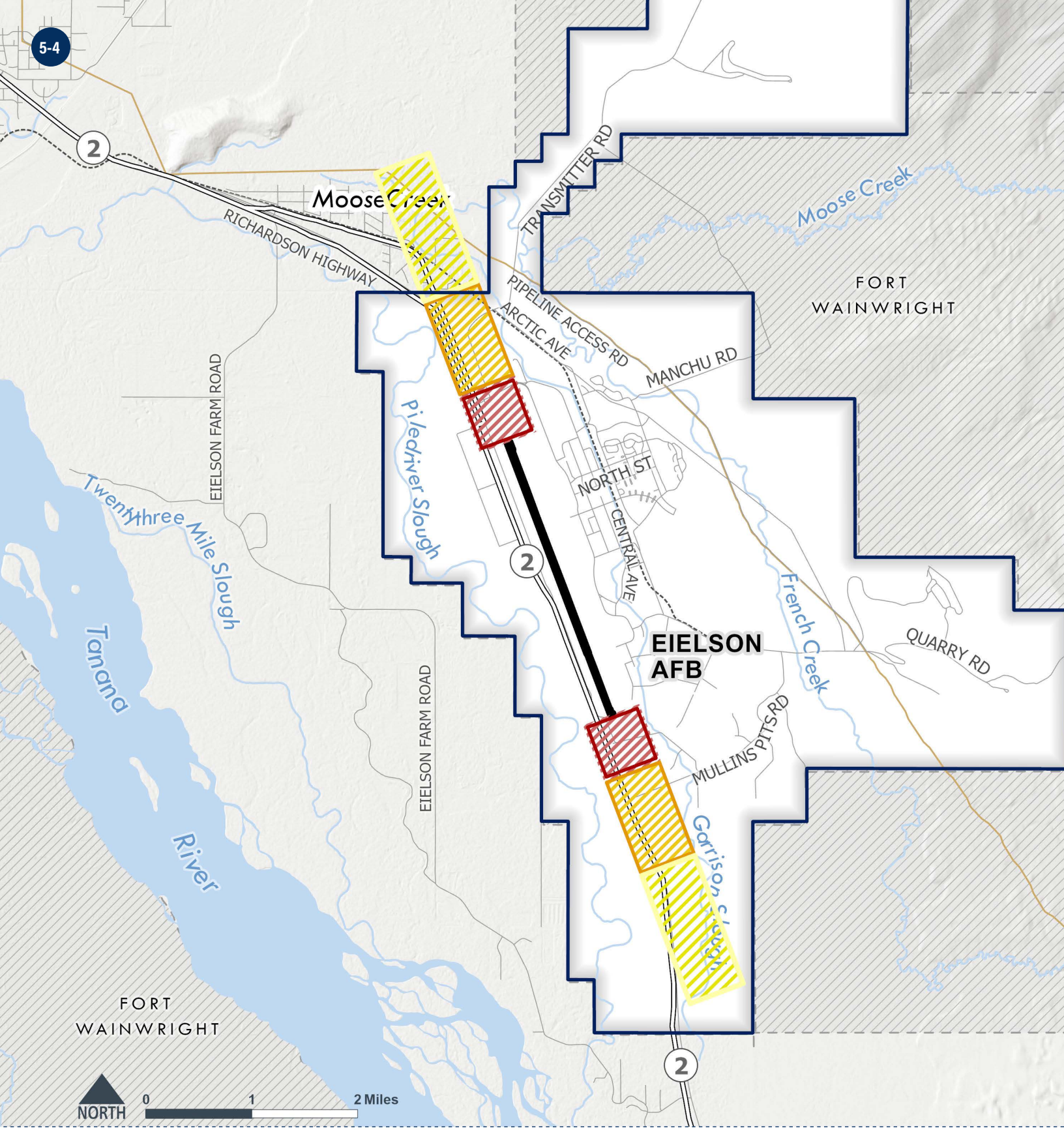
There are 9.5 acres in APZ I and 471.5 acres in APZ II that extend outside the Eielson AFB fence line; however, the CZs are entirely contained within the installation. According to 2020 U.S. Census data, no population lives within the off-installation areas of the CZ or APZ I; however, an estimated 137 people live within APZ II.

Table 5-1

Off-Installation Land Area and Estimated Population within the Clear Zones and Accident Potential Zones

ZONE	ACRES	POPULATION
CZ	0.0	0
APZ I	9.5	0
APZ II	471.5	137
Total	**481.0**	**137**

Source: 2020 U.S. Census.



Accident Potential Zone (APZ) Category
- Clear Zone (CZ)
- Accident Potential Zone I (APZ I)
- Accident Potential Zone II (APZ II)

- Runway
- Eielson AFB
- Trans-Alaska Pipeline
- Railroad
- Department of Defense Land

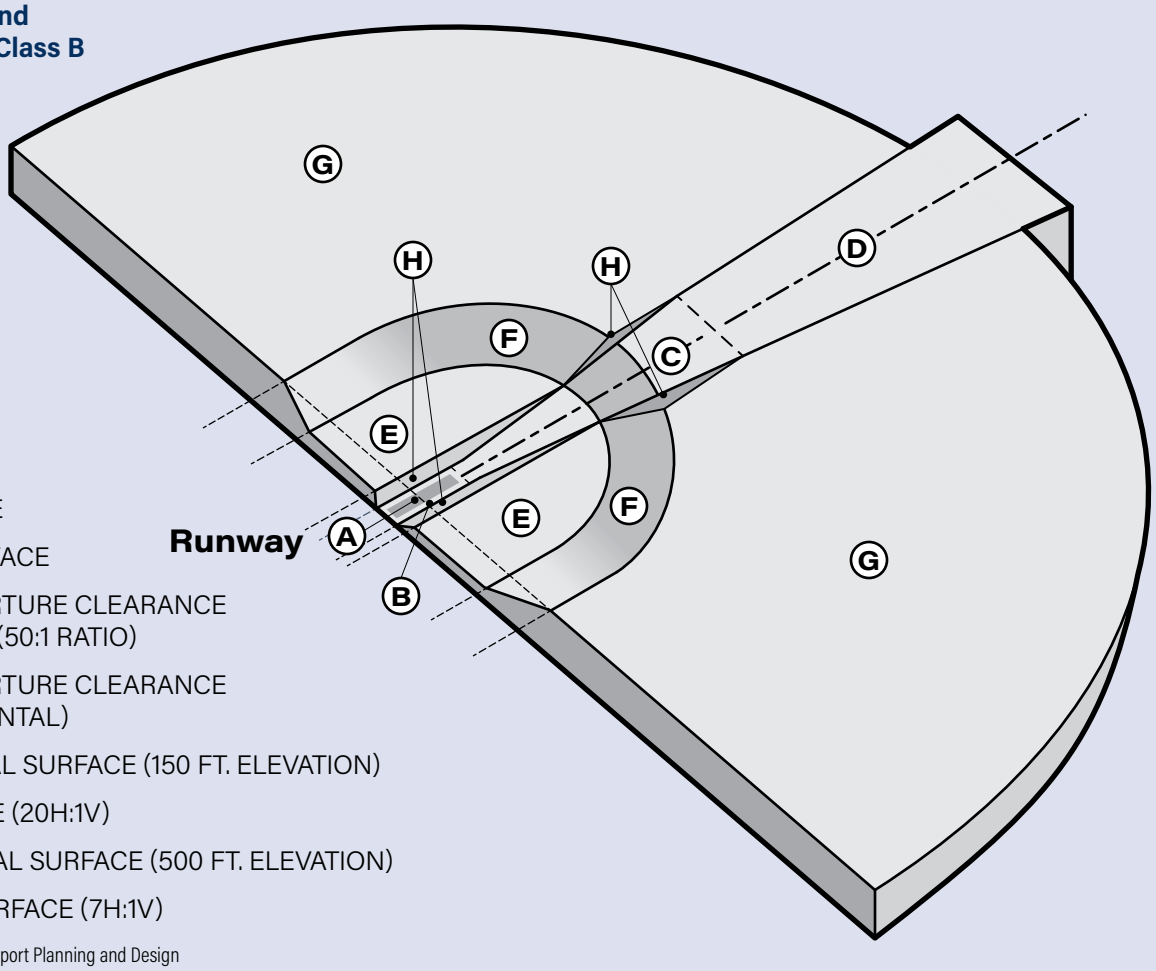
Figure 5-2
2026 AICUZ Clear Zones and Accident Potential Zones for Eielson AFB

5.2 IMAGINARY SURFACES

The DoD and Federal Aviation Administration (FAA) identify a complex series of imaginary planes and transition surfaces that together define the airspace needed to remain free of obstructions around an airfield. Imaginary surfaces collectively form a "bowl" around the airfield to ensure safe flight approaches, departures, and pattern operations. Potential obstructions could include natural terrain and man-made features such as buildings, towers, poles, wind turbines, cell towers, and other vertical obstructions that could impair airspace navigation.

There are different imaginary surfaces for fixed-wing runways (depending on the types of aircraft supported by the runway) and rotary-wing runways/helipads. **Figure 5-3** depicts the imaginary surfaces for typical Class B fixed-wing runways like those at Eielson AFB. **Table 5-2** provides brief descriptions of each of these surfaces. **Figure 5-4** depicts the actual runway airspace imaginary surfaces specific to Eielson AFB's Class B runways. In general, the Air Force does not permit aboveground structures on the primary surface (located on base), and height restrictions apply to transitional surfaces and approach and departure surfaces. Height restrictions are more stringent for areas closer to the runway and flight paths.

Figure 5-3
Imaginary Surfaces and Transition Planes for Class B Fixed-Wing Runways



A. PRIMARY SURFACE
B. CLEAR ZONE SURFACE
C. APPROACH-DEPARTURE CLEARANCE SURFACE (SLOPE) (50:1 RATIO)
D. APPROACH-DEPARTURE CLEARANCE SURFACE (HORIZONTAL)
E. INNER HORIZONTAL SURFACE (150 FT. ELEVATION)
F. CONICAL SURFACE (20H:1V)
G. OUTER HORIZONTAL SURFACE (500 FT. ELEVATION)
H. TRANSITIONAL SURFACE (7H:1V)

Source: UFC 3-260-01 Airfield and Heliport Planning and Design

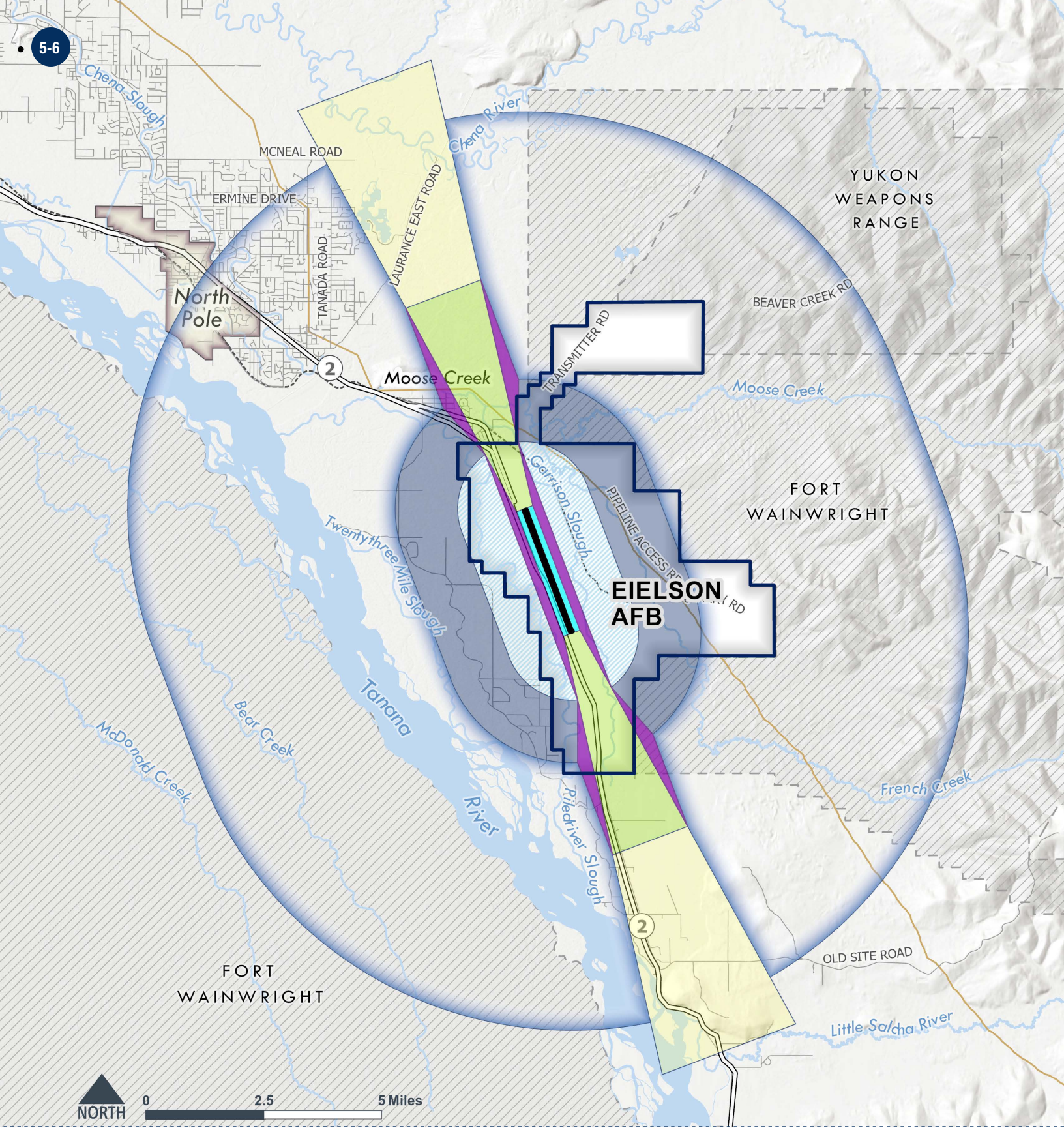


Figure 5-4

Imaginary Surfaces and Transition Planes for Eielson AFB

Table 5-2
Descriptions of Imaginary Surfaces for Military Airfields with Class B Runways

Primary Surface	An imaginary surface symmetrically centered on the runway, extending 200 feet beyond each runway end that defines the limits of the obstruction clearance requirements near the landing area. The width of the primary surface is 2,000 feet, or 1,000 feet on each side of the runway centerline.
Approach-Departure Clearance Surface	An imaginary surface symmetrically centered on the extended runway centerline, beginning as an inclined plane (glide angle) at the end of the primary surface (200 feet beyond each end of the runway), and extending for 50,000 feet. The slope of the approach-departure clearance surface is 50:1 until it reaches an elevation of 500 feet above the established airfield elevation. It then continues horizontally at this elevation to a point 50,000 feet from the starting point. The width of this surface at the runway end is 2,000 feet, flaring uniformly to a width of 16,000 feet at the end.
Inner Horizontal Surface	This imaginary surface is an oval plane at a height of 150 feet above the established airfield elevation. The inner boundary intersects with the approach-departure clearance surface and the transitional surface. The outer boundary is formed by scribing arcs with a radius of 7,500 feet from the centerline of each runway end and interconnecting these arcs with tangents.
Conical Surface	An inclined imaginary surface extending outward and upward from the outer periphery of the inner horizontal surface for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation. The slope of the conical surface is 20:1. The conical surface connects the inner and outer horizontal surfaces.
Outer Horizontal Surface	An imaginary surface that is located 500 feet above the established airfield elevation and extends outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.
Transitional Surface	An imaginary surface that extends outward and upward at an angle to the runway centerline and extended runway centerline at a slope of 7:1. The transitional surface connects the primary and the approach-departure clearance surfaces to the inner horizontal, the conical, and the outer horizontal surfaces.

Source: UFC 3-260-01 Airfield and Heliport Planning and Design.

5.3 HAZARDS TO AIRCRAFT FLIGHT ZONE

Certain land uses and activities pose potential hazards to flight. To ensure land uses and activities do not threaten pilot and citizen safety, the Air Force has identified a HAFZ. The HAFZ boundary may change with the encroachment issue at hand, but at a minimum, the HAFZ encompasses the imaginary surfaces. For instance, issues related to bird/wildlife aircraft strike hazards may follow natural boundaries, encompass local bodies of water, and extend along flight paths. Unlike noise zones and safety zones, the HAFZ does not have recommended land use compatibility guidelines. Instead, it is a consultation zone recommending that project applicants and local planning bodies consult with the Air Force to ensure the project concept is compatible with Air Force operations. These land use and activity compatibility considerations include:

Height

Tall objects can pose significant hazards to flight operations or interfere with navigational equipment (including radar). City/county agencies involved with approvals of permits for construction should require developers to submit calculations showing that projects meet the height restriction criteria of 14 Code of Federal Regulations (CFR) 77.17 for the specific airfield described in the AICUZ study. City and county agencies may also consider requiring a "Determination of No Hazard" issued by the FAA for any tall objects within this zone.

Wind turbines, cell towers, power lines, or other tall structures have not caused operational impacts at Eielson AFB. Vertical developments are coordinated closely with base officials to ensure there are no obstructions that violate Air Force regulations.

Visual Interference

Industrial or agricultural sources of smoke, dust, and steam in the airfield vicinity can obstruct a pilot's vision during takeoff, landing, or other periods of low-altitude flight. Close coordination between the installation and landowners can often mitigate these concerns. For example, irrigating before plowing can greatly reduce dust dispersal. There have been no instances of visual interference around Eielson AFB.

Light Emissions

Bright lights, either direct or reflected, in the airfield vicinity can impair a pilot's vision, especially at night. A sudden flash from a bright light causes a spot or "halo" to remain at the center of the visual field for a few seconds or more, rendering a person virtually blind to all other visual input. This is particularly dangerous for pilots at night when the flash can diminish the eye's adaptation to darkness. The eyes partially recover from this adaptation in a matter of minutes, but full adaptation typically requires 40 to 45 minutes. Specific examples of light emissions that can interfere with the safety of nearby aviation operations include:

- **Lasers that emit in the visible spectrum,** which can be potentially harmful to a pilot's vision during both day and night.

- **The increasing use of energy-efficient light-emitting diode (LED) lighting,** which poses potential conflicts in areas where pilots use night vision goggles (NVGs). NVGs can exaggerate the brightness of these lights, interfering with pilot vision.
- **The use of red LED lights to mark obstructions,** which can produce an unintended safety consequence because red LED lights are not visible on most NVG models, rendering them invisible to NVG users in the area.

There have been no instances of glint or glare interference with operations around Eielson AFB.

Bird/Wildlife Aircraft Strike Hazard (BASH)

Wildlife represents a significant hazard to flight operations. Birds are drawn to different habitat types found in the airfield environment, including hedges, grass, brush, forest, water, and even the warm pavement of the runways. Due to the high aircraft speeds, collisions with wildlife can happen with considerable force. Although most bird and animal strikes do not result in crashes, they cause structural and mechanical damage to aircraft as well as loss of flight time.

Most aircraft collisions occur below 2,000 feet AGL. To reduce the potential of a BASH incident, the Air Force recommends that land uses that attract birds not be located near installations with active air operations. These land uses include:

- Waste disposal operations
- Wastewater treatment facilities
- Transfer stations
- Landfills
- Golf courses
- Wetlands
- Stormwater ponds
- Dredge disposal sites

Birds, in search of food or rodents, will flock to landfills, increasing the probability of BASH occurrences near these facilities. Landfill operators can use design modifications to reduce the attractiveness of these types of land uses to birds and other wildlife.

In general, Eielson AFB's BASH Program is able to manage bird and animal presence in the vicinity of the airfield to keep interactions to a minimum. Due to the seasonality of this area of Alaska, as well as the proximity to natural areas and a large river to the west, there are many challenges both with respect to birds as well as mammals. However, with United States Department of Agriculture (USDA) Wildlife Services and base personnel, certain animals can be relocated and other BASH management techniques can be implemented.

During migration periods, flight timing may be adjusted to further separate aircraft flights from high activity periods for birds. Standing water on- and off-installation and the large water flood control channel to the north of the installation attract birds and are a focus of the BASH staff at Eielson AFB.

Radio Frequency/ Electromagnetic Interference

The American National Standards Institute defines electromagnetic interference (EMI) as any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics/electrical equipment. EMI can be induced intentionally, as in forms of electronic warfare, or unintentionally, because of spurious emissions and responses, such as high-tension line leakage and industrial machinery. In addition, EMI may be caused by atmospheric phenomena, such as lightning or precipitation static.

New generations of military aircraft are highly dependent on complex electronic systems for navigation and critical flight and mission-related functions. Consequently, communities should use care when siting any activities that create EMI. Many sources are low-level emitters of EMI but, when combined, have a compounded effect. EMI also affects consumer devices such as cell phones, FM radios, television reception, and garage door openers. In some cases, the source of interference occurs when consumer electronics use frequencies set aside for military use.

There have been no recent reported issues with EMI at Eielson AFB.

Drones/Unmanned Aircraft Systems (UAS)

The use of drones near military airfields poses a serious flight safety hazard due to the potential for a mid-air collision between military aircraft and small- to medium-sized drones. The FAA maintains specific guidance about where operators can fly drones. Currently, non-DoD drone operations are not permitted within certain zones surrounding military bases. Additional restrictions are in place around airports, sports stadiums, and security sensitive areas. For more information on drone use in and around DoD airfields, visit the FAA's website at: www.faa.gov/uas.

In 2015, the FAA created a new statutory requirement that applies to all privately owned, unmanned aircraft that weigh more than 55 pounds. The FAA's goal is to allow the "opportunity to educate new aircraft users before they fly, so that they know the airspace rules and understand that they are ultimately accountable" for incidents that may occur due to their aircraft.

Presently, users are required to register aircraft meeting the requirements in a national database. The registration is web-based, and registrants will be required to provide a nominal fee of $5 per application. This registration will be valid for a period not to exceed three years.

The FAA distinguishes between recreational UAS flyers and commercial operators and has a process for operation of these aircraft. Due to the ever-changing environment, drone operators should visit the FAA website (provided above) to ensure they have the most up-to-date guidance on how to operate legally and safely.

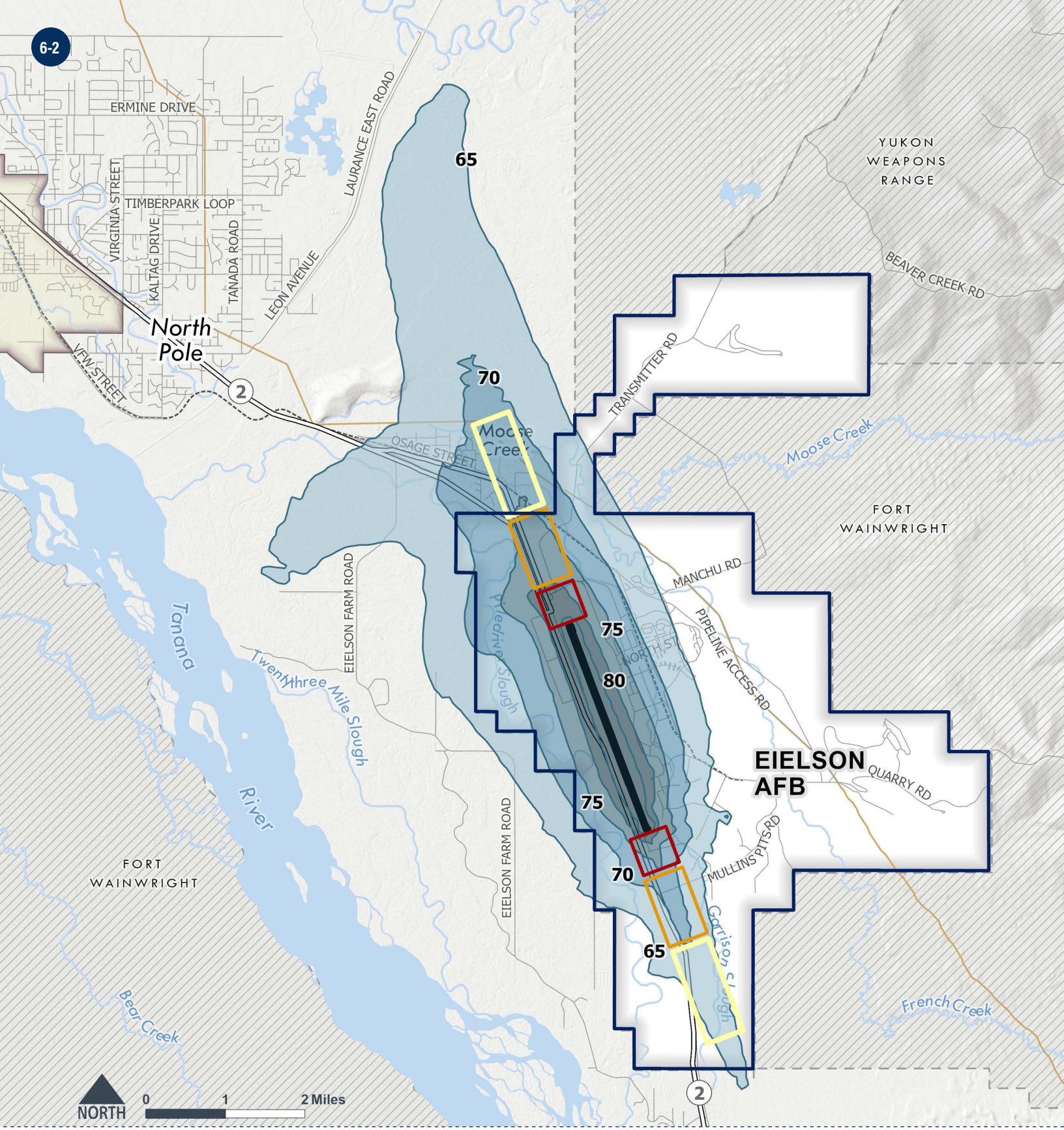
Eielson AFB is a "no drone zone," and drones are considered a low-level threat at Eielson AFB with minimal incidents being reported. The FAA website outlines the limits for flying drones (five miles from runway) and drone users must follow FAA rules.

Midair Collision Avoidance (MACA)

Eielson AFB conducts MACA briefings approximately twice per year. Attendees come to Eielson AFB from throughout the region to talk about local procedures and discuss the local airfield environment. A MACA pamphlet is also produced and distributed.

6. LAND USE COMPATIBILITY ANALYSIS

CZs, APZs, and noise zones shown in **Figure 6-1**, make up the AICUZ footprint for an air installation. The HAFZ is also part of the AICUZ footprint and is shown in **Figure 5-4** in the previous chapter. This footprint defines the minimum recommended area where land use controls are needed and requested to enhance the health, safety, and welfare of those living or working near a military airfield while preserving the flying mission, as well as other activities at the installation. The AICUZ footprint, combined with the guidance and recommendations set forth in the AICUZ study, are the fundamental tools necessary for the planning process to achieve overall land use compatibility. The Air Force recommends that local and regional governments adopt land use controls described in this chapter for areas within the AICUZ noise zones, CZs, APZs, and HAFZ into planning studies, regulations, and processes to promote compatible development around installations (i.e., overlay zones, land use controls, etc.).



2026 AICUZ Contour (dB)
- 65-69
- 70-74
- 75-79
- 80 and Greater

Accident Potential Zone (APZ) Category
- Clear Zone (CZ)
- Accident Potential Zone I (APZ I)
- Accident Potential Zone II (APZ II)

- Runway
- Eielson AFB
- Trans-Alaska Pipeline
- Railroad
- Department of Defense Land
- City Limit

Figure 6-1
2026 Eielson AFB Composite AICUZ Footprint

6.1 LAND USE COMPATIBILITY GUIDELINES AND CLASSIFICATIONS

To establish long-term compatibility for lands within the vicinity of military air installations, the DoD has created land use compatibility recommendations based on the Federal Highway Administration's (FHWA) *Standard Land Use Coding Manual (SLUCM)* and the Federal Interagency Committee on Urban Noise's "Guidelines for Considering Noise in Land Use Planning and Control." These guidelines are used by DoD personnel for on-installation planning and for engaging with the local community to foster compatible land use development off the installation. **Table A-1** of **Appendix A** shows the suggested land use compatibility guidelines within the CZs and APZs. Table **A-2 of Appendix A** provides land use compatibility recommendations within aircraft noise zones. **Section 6.4** presents the compatibility analysis and concerns within noise zones, CZs, and APZs associated with Eielson AFB.

6.2 PLANNING AUTHORITIES, STAKEHOLDERS, AND POLICIES

This section presents information for each governing body that has land use jurisdictions near Eielson AFB, including descriptions of existing and future land uses, relevant stakeholder groups, and existing compatible planning policies and regulations. **Figure 6-2** shows the locations of jurisdictions within the vicinity of Eielson AFB, including North Pole, Fairbanks, and the Fairbanks North Star Borough.

State of Alaska Land Use Planning and Zoning

The State of Alaska has a land use and planning infrastructure that differs from most states. There are several reasons for this including the large allotment of public land and significant indigenous presence. Typically, planning authority is left to individual municipalities to determine, such as the North Star Borough. However, given the complex natural landscape, the Alaska Department of Natural Resources (DNR) does serve this role for communities without planning authorities.

In 2024, the Alaska State Legislature passed a law establishing the Alaska Military Affairs Commission (AMAC). This body is tasked with advising state entities, as well as making recommendations for economic and industrial development relating specifically to military installations.

Fairbanks North Star Borough (FNSB)

Because the State of Alaska is so reliant on individual regions for local governance, the Fairbanks North Star Borough serves as the primary planning authority for the areas surrounding Eielson AFB.

In 2018, the *Fairbanks North Star Borough Eielson AFB Regional Growth Plan* was released. This was driven by the announcement of the F-35 beddown at Eielson AFB, aiming to provide the community with information and recommendations regarding the potential impacts and benefits of the beddown. The FNSB Regional Growth Plan (RGP) centers around three different themes: a current inventory of infrastructure, services, and other resources, the anticipated gaps in those resources, and measures to improve the quality of life for both current and future residents. The RGP provides information regarding housing, transportation, utilities and infrastructure, planning and zoning, and several other areas of interest.

Additionally, FNSB has released planning guidelines by way of a Regional Comprehensive Plan, adopted in 2005 and a Comprehensive Economic Development Strategy Update, 2022-2027, adopted in 2022. Both are considered in the Regional Growth Plan. The Borough is in the process of updating the Regional Comprehensive Plan, which will be an opportunity to incorporate this 2026 AICUZ for Eielson AFB.

Other Planning Authorities

Alaska Department of Natural Resources and the Bureau of Land Management

These agencies have some planning authority over lands in the vicinity of Eielson AFB. However, those lands are primarily reserved for recreation and environmental uses, and therefore have been considered open space and generally compatible within the context of this analysis.

City of North Pole

The City of North Pole develops land use and zoning regulations in conjunction with FNSB guidelines. The City of North Pole Building Department is the local authority to oversee permit authorization for development, along with the City's Fire Marshal.

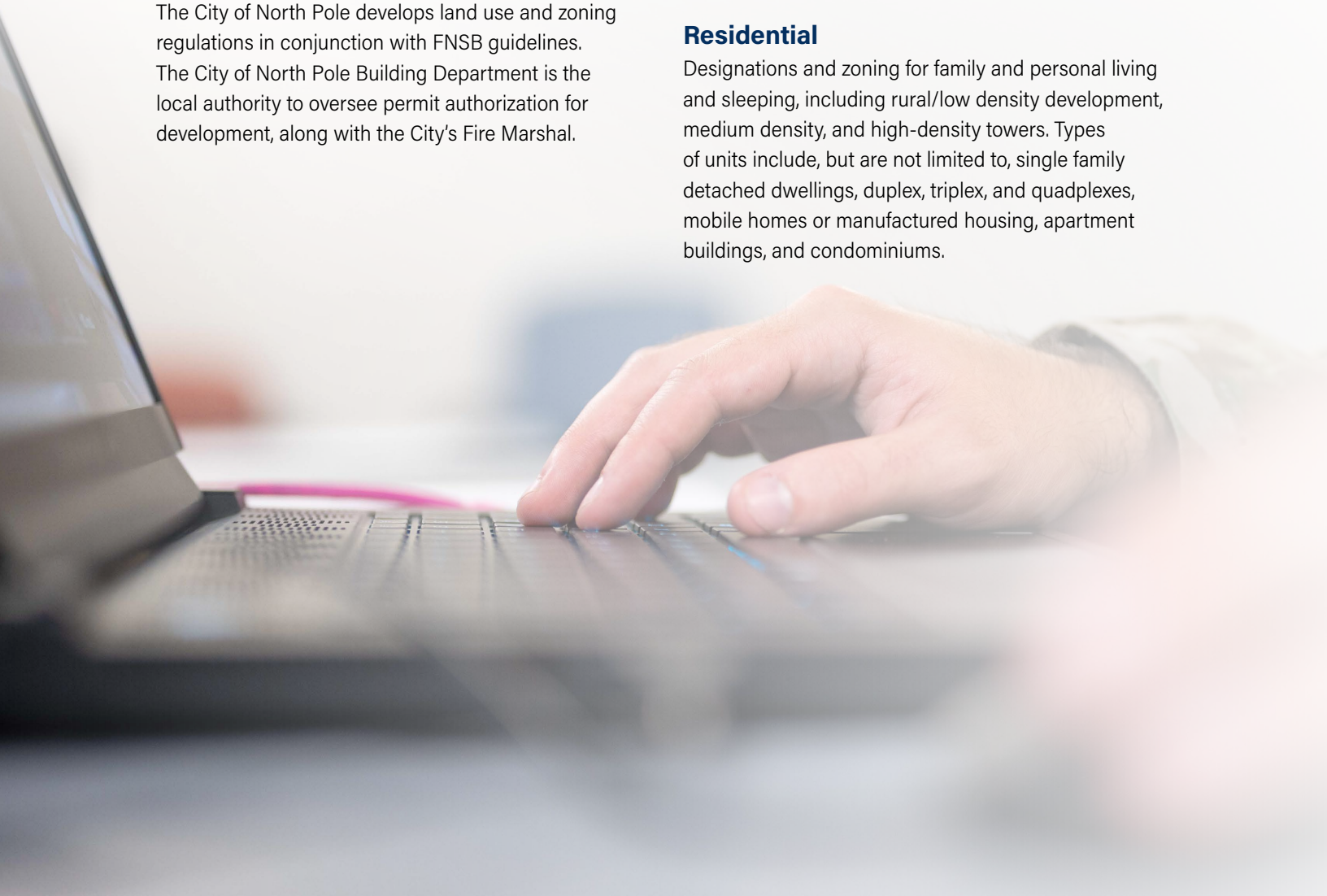
6.3 LAND USE AND PROPOSED DEVELOPMENT

The land use compatibility analysis presented in this study evaluates existing and future land uses and zoning near Eielson AFB to determine compatibility conditions. Existing land use is assessed to determine current land use activity, while future land use and zoning are used to project development and potential growth areas. Land use and zoning geographic information system (GIS) data utilized to inform the analysis were obtained from the FNSB Community Planning Department.

In order to analyze the compatibility of nearby land uses surrounding Eielson AFB, each parcel in the data was characterized into use categories defined by the SLUCM tables. While the specific categories used by each local government may vary, these generalized categories provide a starting point for each analysis:

Residential

Designations and zoning for family and personal living and sleeping, including rural/low density development, medium density, and high-density towers. Types of units include, but are not limited to, single family detached dwellings, duplex, triplex, and quadplexes, mobile homes or manufactured housing, apartment buildings, and condominiums.



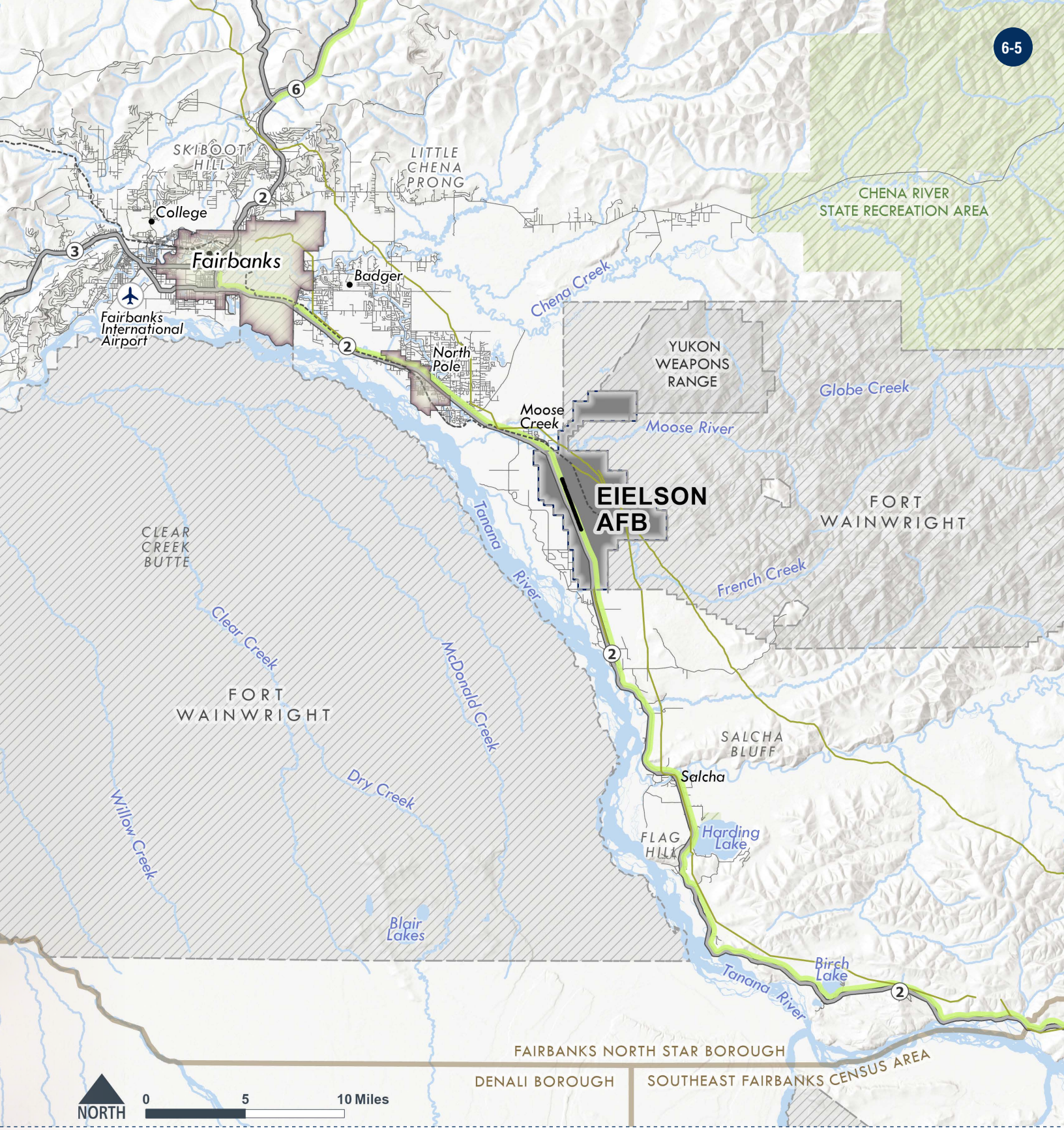


Figure 6-2
Local Jurisdiction Map in Vicinity of Eielson AFB

Manufacturing

Includes food, textile, apparel, household goods, and trades manufacturing (metals, stones, clays, glass, plastic, and rubber, etc.).

Transportation, Communication, and Utilities

Includes public and private transportation uses (road, rail, air, marine); parking infrastructure; communication uses (cell towers, relay towers, etc.); public, semi-public, and private utilities (power stations; power transmission lines, substations, wastewater treatment plants, solid waste disposal facilities, etc.).

Trade

Includes wholesale trade, retail trade (neighborhood, community, regional and super-regional: food, transportation, home furnishings, etc.), financial services, personal and professional services, medical services, government and educational services, and religious activities.

Cultural, Entertainment, and Recreational

Includes cultural activity uses, nature exhibits, public assembly, indoor auditoriums and outdoor amphitheaters, outdoor sports, amusements and recreational activities, parks, etc.

Resource Production and Extraction

Includes farm and livestock agriculture, forestry and fishing activities, resource mining, etc.

Other

Includes Undeveloped Land and Water Areas

Typically, municipal governments have land or zoning codes that differ slightly from the FHWA SLUCM categories. Local land and zoning codes commonly, but not always, categorize land use around the previously mentioned categories. It then falls upon the community (base) planner to rectify the discrepancies between the DoD's use of SLUCM standards and all the relevant local jurisdiction's land use typologies to provide a meaningful analysis. Please reference **Appendix C** for additional information.

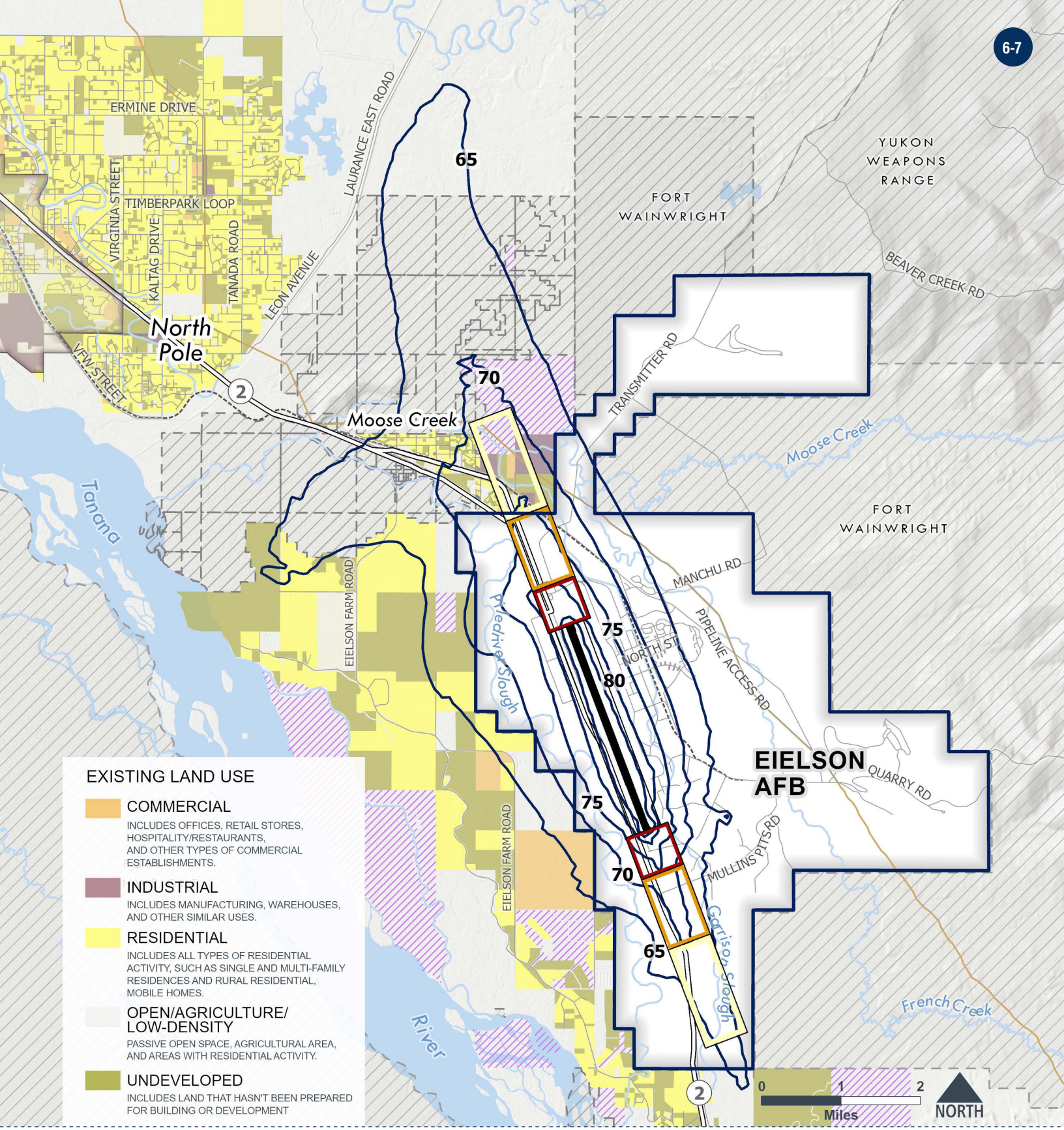
Appendix A, *Land Use Compatibility Tables,* provides further description on the SLUCM land use categories along with notes on general allowable uses for Eielson AFB surrounding jurisdictions.

The land use compatibility analysis performed as part of this AICUZ study identifies existing and future land uses near Eielson AFB. Existing land uses were assessed to determine current land use activity, while future land use plans were used to project potential development and growth areas. Existing land use and parcel data provided by local communities were evaluated to ensure an actual account of land use activity, regardless of conformity, to zoning classification or designated planning or permitted use. Additionally, local management plans, policies, ordinances, and zoning regulations were evaluated to determine the type and extent of land use allowed in specific areas.

6.3.1 Existing Land Uses

Existing land uses within the vicinity of Eielson AFB are illustrated on **Figure 6-3.** This existing land use data layer was created from utilizing the FNSB's parcel land assessment data to capture how the properties are being used currently (for details on how the generalized existing land use layer was created, see **Appendix C**). To provide additional context, gray hatching shows lands that are owned by other federal agencies, and purple hatching shows lands that are owned by the Alaska Department of Natural Resources. The high proportion of land owned by other government agencies around Eielson AFB helps protect the installation's operating capabilities and prevents future encroachment.

As shown on this figure, in the immediate vicinity of the installation, most land that is not government-owned is considered open/agriculture/low-density, residential, or commercial. To the north, the Moose Creek area is a mix of uses, with small-lot residential neighborhoods extending off Old Richardson Highway to the north. There are also pockets of industrial and commercial uses for businesses that operate in the area.



2026 AICUZ Contour (dB)
Clear Zone (CZ)
Accident Potential Zone I (APZ I)
Accident Potential Zone II (APZ II)
Runway
Eielson AFB
Federal Land
Alaska Department of Natural Resources Land
Trans-Alaska Pipeline
Railroad
City Limit

Figure 6-3
Existing Land Use and 2026 Eielson AFB AICUZ Study Noise Contours, CZs, and APZs

However, the majority of land to the north is considered open, as it is owned by the United States Army Corps of Engineers (USACE) as part of the Chena River Lands Flood Control Project, and the Moose Creek Dam, which includes the section of land between Eielson AFB and North Pole. This project, which was authorized by Congress after a devastating flood in 1967, includes Moose Creek Dam and associated features to reduce flooding to the City of Fairbanks and other populated areas, as well as providing local residents and visitors recreational opportunities on nearly 20,000 acres of public land.

All areas to the east of Eielson AFB are owned by Fort Wainwright, including the Yukon Weapons Range. These areas are open space and operated for other military purposes.

To the west of Eielson AFB, across Richardson Highway, are large parcels of privately owned lands use for various land uses. These include open space, low-density development and agriculture, and commercial uses. Although the AICUZ noise contours and APZs do not substantially extend off-installation to the south, the types of land uses found south of Eielson AFB are a similar mix to those to the west of the installation.

6.3.2 Current Zoning and Future Land Use

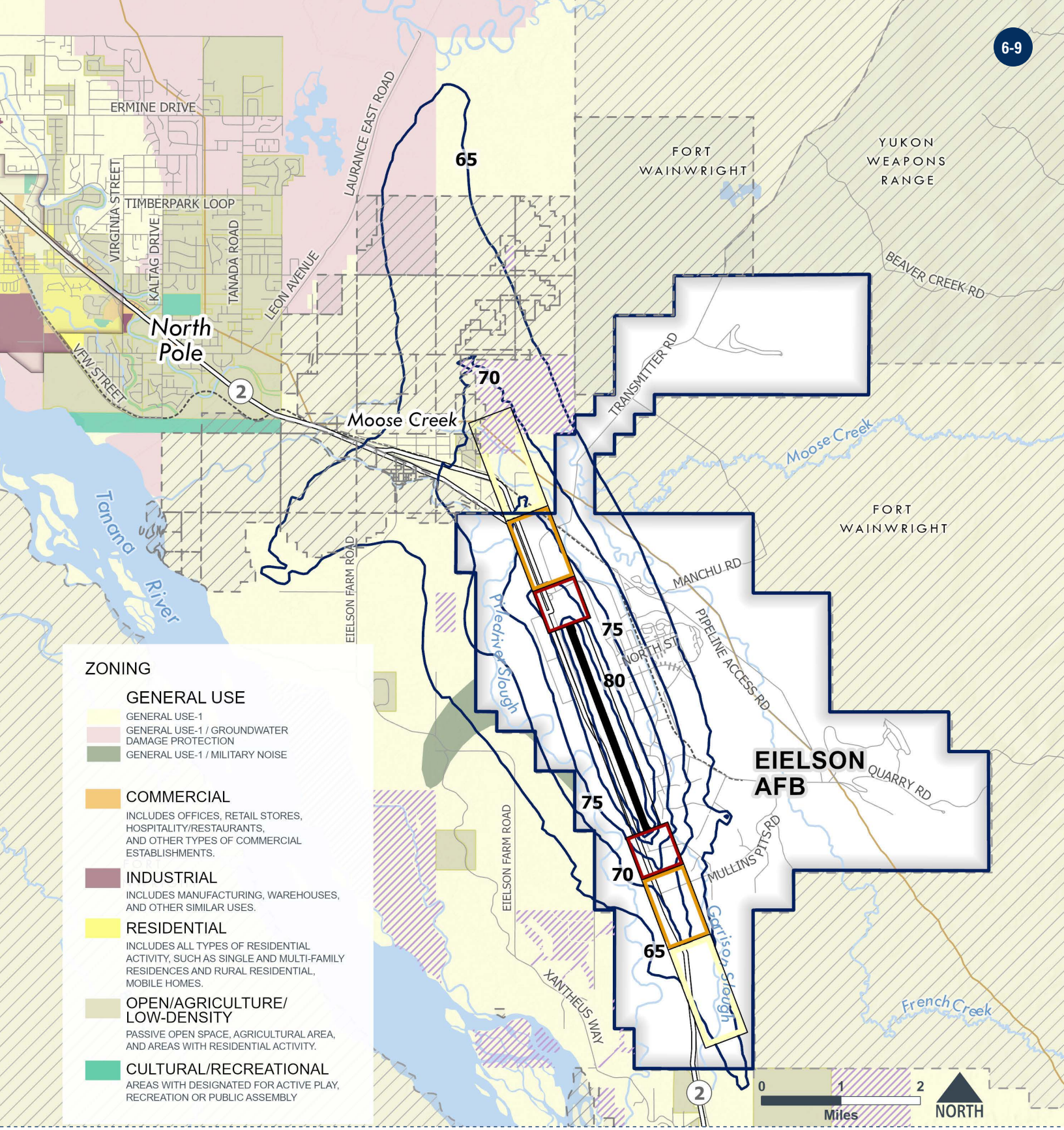
All land surrounding Eielson AFB is zoned. **Figure 6-4** overlays the 2026 Eielson AFB AICUZ Study noise contours, CZs, and APZs on top of current zoning data in the vicinity of Eielson AFB. Within FNSB, the majority of unincorporated lands are zoned "General Use-1" or various subcategories of General Use-1, as shown on **Figure 6-4.** Per the FNSB zoning code, this zoning category allows for a wide variety of uses to provide development flexibility. If an entity desires to develop in these General Use-1 areas, they provide FNSB with a building plan that is then evaluated. The main elements that are evaluated are floodplains, setbacks, and consistency with existing plans. Due to the fact that the zoning allows for such a wide range of uses, a compatibility analysis was not performed in this AICUZ for this zoning data.

However, future land use information from the FNSB Regional Comprehensive Plan and other supporting plans was determined to be the most appropriate for future looking development and scenarios.

Therefore, future land use data is presented within this section and in **Figure 6-5** (for details on how the generalized future land use layer was created, **see Appendix C).** FNSB's Salcha-Badger Road Area Plan (2021), which was then incorporated into the overall FNSB geodatabase, is the most relevant source of future land use for the area around Eielson AFB and it falls into a few main categories that are within the AICUZ footprint (note, there are others not listed that are located outside of the AICUZ footprint):

- Agricultural
- Public Multi-Use
- Rural/Suburban Residential
- Rural/Suburban Commercial
- Outlying Area
- Urban Adjacent
- Military Land

As noted previously, many areas to the north of Eielson AFB, as well as the area immediately to the east of the installation, are owned by other federal agencies, and it is not anticipated that any development would take place in the future. These were categorized as open/agriculture/low-density for purposes of the analysis. Other areas to the west and south within the noise contours include a mix of open/agriculture/low-density development, with some public/quasi-public and commercial.



ZONING

GENERAL USE
- GENERAL USE-1
- GENERAL USE-1 / GROUNDWATER DAMAGE PROTECTION
- GENERAL USE-1 / MILITARY NOISE

COMMERCIAL
INCLUDES OFFICES, RETAIL STORES, HOSPITALITY/RESTAURANTS, AND OTHER TYPES OF COMMERCIAL ESTABLISHMENTS.

INDUSTRIAL
INCLUDES MANUFACTURING, WAREHOUSES, AND OTHER SIMILAR USES.

RESIDENTIAL
INCLUDES ALL TYPES OF RESIDENTIAL ACTIVITY, SUCH AS SINGLE AND MULTI-FAMILY RESIDENCES AND RURAL RESIDENTIAL, MOBILE HOMES.

OPEN/AGRICULTURE/ LOW-DENSITY
PASSIVE OPEN SPACE, AGRICULTURAL AREA, AND AREAS WITH RESIDENTIAL ACTIVITY.

CULTURAL/RECREATIONAL
AREAS WITH DESIGNATED FOR ACTIVE PLAY, RECREATION OR PUBLIC ASSEMBLY

- 2026 AICUZ Contour (dB)
- Clear Zone (CZ)
- Accident Potential Zone I (APZ I)
- Accident Potential Zone II (APZ II)
- Runway
- Eielson AFB
- Federal Land
- Alaska Department of Natural Resources Land
- Trans-Alaska Pipeline
- Railroad
- City Limit

Figure 6-4
Existing Zoning and 2026 Eielson AFB AICUZ Study Noise Contours, CZs, and APZs

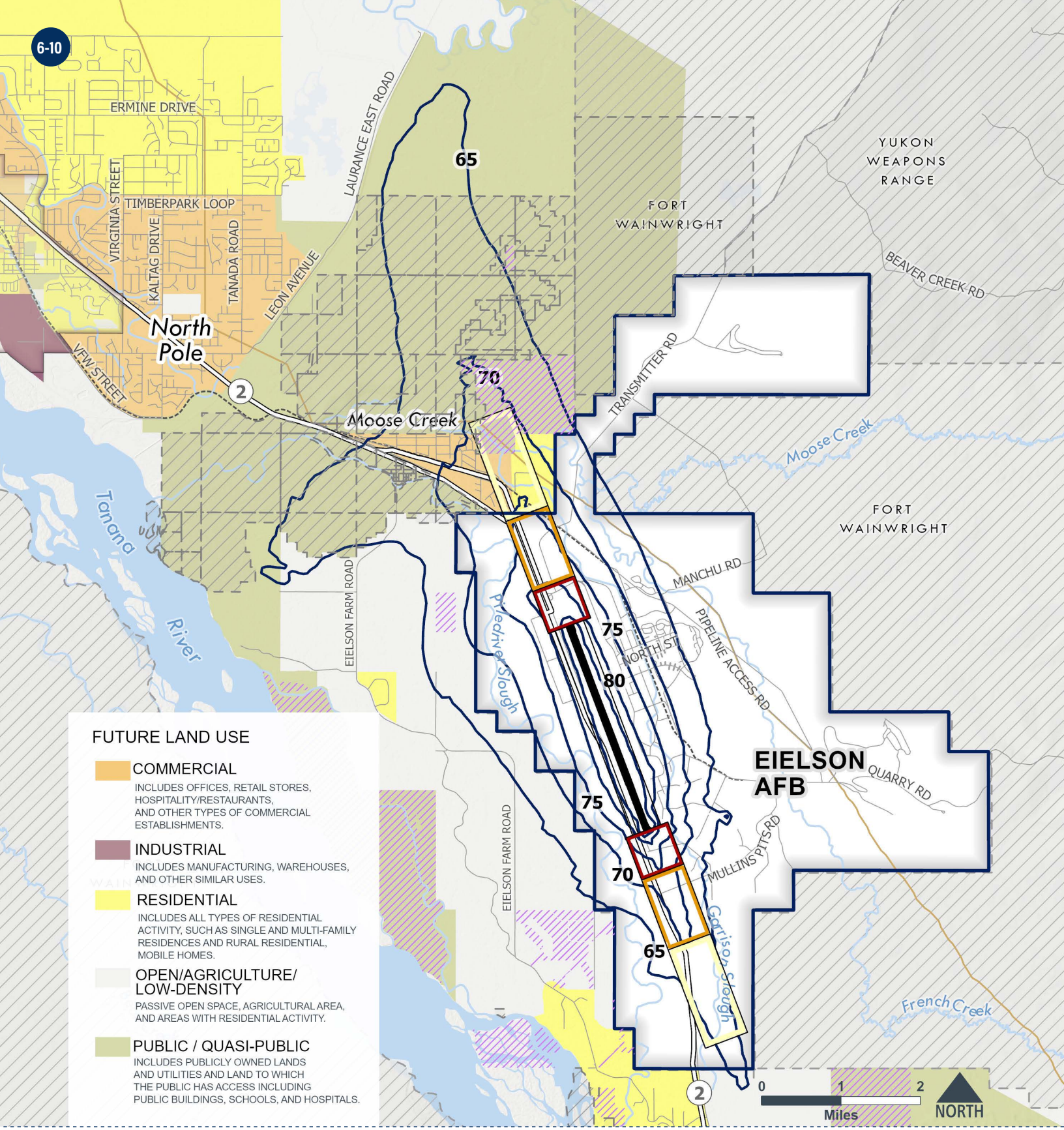


Figure 6-5

Future Land Use and 2026 Eielson AFB AICUZ Study Noise Contours, CZs, and APZs

6.4 COMPATIBILITY CONCERNS

6.4.1 Land Use Analysis

Land use describes the development and management of an area as characterized by its dominant function. To compare land use consistently across jurisdictions, this analysis uses generalized land use classifications (e.g., commercial, industrial, residential) rather than more specific categories (e.g., high-density residential, medium-density residential, low-density residential). These generalized land use categories, derived from the DoD AICUZ compatibility guidelines **(Tables A-1 and A-2 of Appendix A)** and shown in **Table 6-1,** are not exact representations of the local community's land use designations but combine similar land uses like those introduced in **Section 6.3, Land Use and Proposed Development.**

The land use compatibility analysis presented in this AICUZ Study evaluates existing and future land uses near Eielson AFB to determine land use compatibility conditions. Existing land use data is assessed to determine current land use activity, while future land use data is used to project development and potential growth areas. Land use and zoning GIS data utilized were obtained from local jurisdictions within the vicinity of Eielson AFB, specifically the FNSB Community Planning Department, who are the local planning authority for this area.

In order to analyze the compatibility of nearby land uses surrounding Eielson AFB, each parcel is characterized into broad land use categories. While the specific categories used by each local government may vary, the following generalized categories provide a starting point for each analysis.

- **Residential.** Includes all types of residential activity, such as single- and multi-family residences, transient lodging (e.g., resorts, hotels), and mobile homes.
- **Commercial.** Includes offices, retail stores, hospitality/restaurants, and commercial establishments.
- **Industrial.** Includes manufacturing, warehouses, and other similar uses.
- **Services.** Includes publicly owned lands and lands to which the public has access, including public buildings, schools, churches, cemeteries, and hospitals.
- **Recreation.** Includes parks, sports fields, cultural exhibits, assembly areas, raceways, and areas that host other recreational activities.
- **Open/Agriculture/Low Density.** Passive open spaces, agricultural areas, and areas with low density residential activity.
- **Transportation/Utilities.** Includes major and minor transportation systems and areas designated to support utilities.
- **Undeveloped.** Includes undeveloped or vacant parcels.

Table 6-1

Generalized Land Use Categories and Noise/Safety Compatibility

GENERALIZED LAND USE CATEGORY[1]	NOISE ZONE (dB DNL)						APZs		
	<65	65-70	70-75	75-80	80-85	85+	CZ	APZ I	APZ II
Residential	Yes	No[2]	No[2]	No	No	No	No	No	No[3]
Commercial	Yes	Yes	Yes[4]	Yes[4]	No	No	No	Yes[4]	Yes[4]
Industrial	Yes	Yes	Yes	Yes	Yes[4]	No	No	Yes[4]	Yes[4]
Services	Yes	Yes[4]	Yes[4]	Yes[4]	No	No	No	No	Yes[4]
Recreation	Yes	Yes[4]	Yes[4]	No	No	No	No	Yes[4]	Yes[4]
Open/Agriculture/Low Density	Yes	Yes[4]	Yes[4]	Yes[4]	Yes[4]	Yes[4]	No	Yes[4]	Yes[4]
Transportation/Utilities	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Undeveloped/Vacant	Yes	No	No	No	No	No	No	No	No

Key: COMPATIBLE | COMPATIBLE WITH RESTRICTIONS | INCOMPATIBLE | INCOMPATIBLE WITH EXCEPTIONS

1. This generalized table demonstrates the land compatibility guidelines. Refer to **Appendix A** for use in determining land use compatibility.
2. Residential land uses within the greater than 65 dB DNL noise zones are considered incompatible. However, if residential uses are considered essential, noise attenuation measures should be incorporated into the building structures.
3. Residential land uses in APZ II are considered incompatible, except when development is limited to less than two dwellings per acre.
4. Compatible with restrictions indicates that some mitigation measures are needed for these uses to ensure full compatibility with air operations see **Appendix A,** Land Use Compatibility Tables, for more information.

Source: Adapted from DoDI 4165.57.

Table 6-1 provides compatibility guidelines for the generalized land use categories specific to airfield generated noise and associated CZs and APZs. Land use compatibility falls into one of four categories:

1. Compatible;
2. Compatible with Restrictions;
3. Incompatible; and,
4. Incompatible with Exceptions.

Conditionally compatible land uses (i.e., compatible with restrictions and incompatible with exceptions) can be considered compatible if noise attenuation measures are incorporated into the design and construction of structures or density limitations are imposed.

This AICUZ Study analyzes both existing land use compatibility **(Section 6.4.2)** as well as future land use compatibility **(Section 6.4.3)** for aircraft noise contours as well as with CZs and APZs associated with the runways. In order to determine the compatibility of a specific area, the user must consider both the noise contours and the CZ and APZs that apply to that specific area. In addition, the Air Force recommends coordination between the land use jurisdictions and Eielson AFB for land areas within the AICUZ footprint and adjacent properties.

6.4.2 Existing Land Use Compatibility Concerns

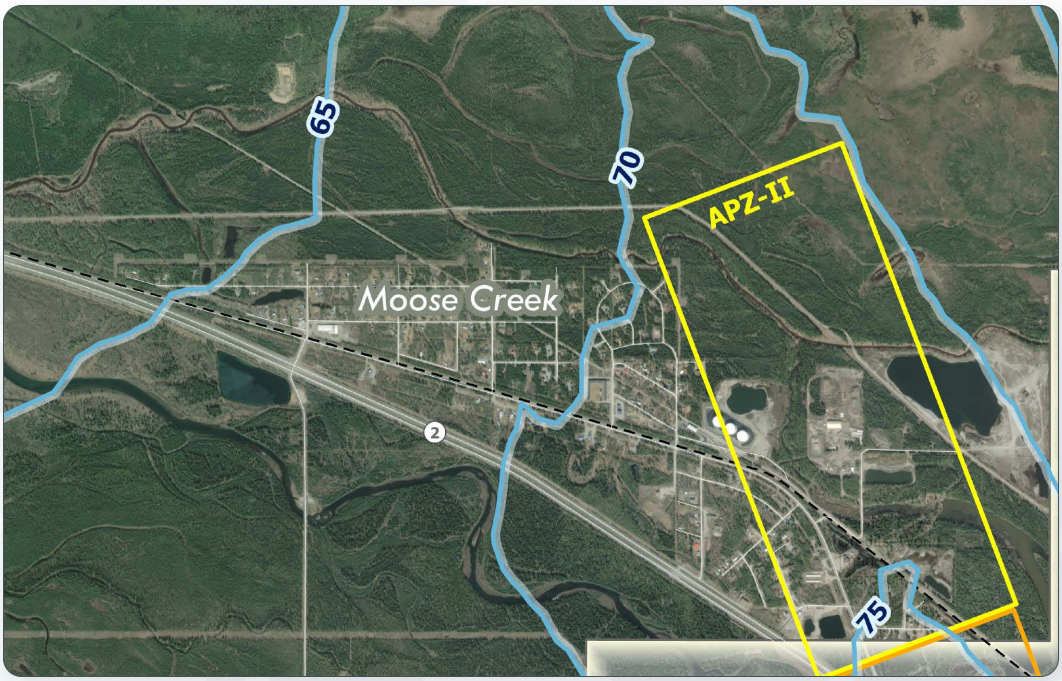
The 2026 Eielson AFB AICUZ noise contours and APZs extend off installation property, primarily to the north. Much of this AICUZ footprint is over the Moose Creek development, which consists of mostly single-family homes and some small businesses and commercial/restaurant uses. However, where they are situated in relation to both the noise zones and the APZs introduces some compatibility concerns. The screenshot below provides a closer view of the developed areas of Moose Creek relative to the noise contours and APZs.

Generally speaking, residential development is not considered compatible within the 65 dB DNL noise contour or above. Therefore, any residential uses in these areas are considered incompatible. Some of these homes (and businesses) may have been in this location for many years; however, efforts should be made by the local planning authorities to limit future development and growth in this area.

Outside of the Moose Creek area, the majority of the noise contours and APZs are over open land, which in many cases is owned by different agencies within the federal government. It would be expected that these areas, if continued to be owned by the federal government, would not be a risk for figures development concerns and therefore are considered compatible with the operations at Eielson AFB.

The CZ and the vast majority of APZ I are located on installation property; however, a small portion of APZ I and most of APZ II extends off installation property.

The other area where there are substantial areas covered by the noise contours outside of the Eielson AFB property is to the west of the installation. This includes primarily the 65 dB DNL noise contour, but also small portions of the 70 dB DNL noise contour. Much of this is over open lands, but there are scattered developments along Eielson Farm Road and other connecting roads in this area. These parcels are primarily made up of larger lots of varying acreage. In addition, this area is primarily privately owned land, with only a few parcels owned by the Alaska Department of Natural Resources or the Alaska Mental Health Trust.



Moose Creek area north of Eielson AFB

Although this area is more developable thanks to the water table being closer to the surface, it currently remains fairly open, with sparse development of homes and businesses in the area.

The CZ and APZs do not extend off the installation property to the west.

Figure 6-6 and **Table 6-2** show that the vast majority of existing land uses in the noise contours are over open/agriculture/low-density areas that are considered compatible or compatible with restrictions. Many of these are owned by other federal agencies, are not expected to be developed, and therefore are currently compatible and would be expected to be compatible into the future. There are nearly 780 acres of residential land use in the 65 dB DNL noise contours and above, which is considered incompatible, along with approximately 690 acres of undeveloped land that would be considered incompatible or incompatible with restrictions. For the residential areas, many of these homes have been located in this area north of Eielson AFB for many years. Noise level reduction measures incorporated into homes or building codes could help reduce the indoor sound levels, but would not result in these areas being considered compatible.

Similarly, as shown in **Figure 6-7** and **Table 6-3,** the existing land uses in the APZs off installation are mostly compatible or compatible with restrictions. The notable exceptions are approximately 28 acres of residential land use and approximately 123 acres of undeveloped land use, which are incompatible or incompatible with exceptions. The balance of acreage is over open/agriculture/low-density, commercial or industrial uses, which are considered compatible or compatible with restrictions.

Overall, for the 2026 AICUZ noise contours, 6,269.5 acres (or 81 percent) are considered compatible or compatible with restrictions with existing land uses, while 1,470.5 acres (or 19 percent) are considered incompatible or incompatible with exceptions. With

Noise Zones west of Eielson AFB over Eielson Farm Road

respect to the 2026 AICUZ APZs, 301.6 acres (or 67 percent) are considered compatible or compatible with restrictions with existing land uses, while 150.8 acres (or 33 percent) are considered incompatible or incompatible with exceptions. Therefore, although some incompatibility exists within the AICUZ footprint, the majority of existing land uses are considered compatible or compatible with restrictions.

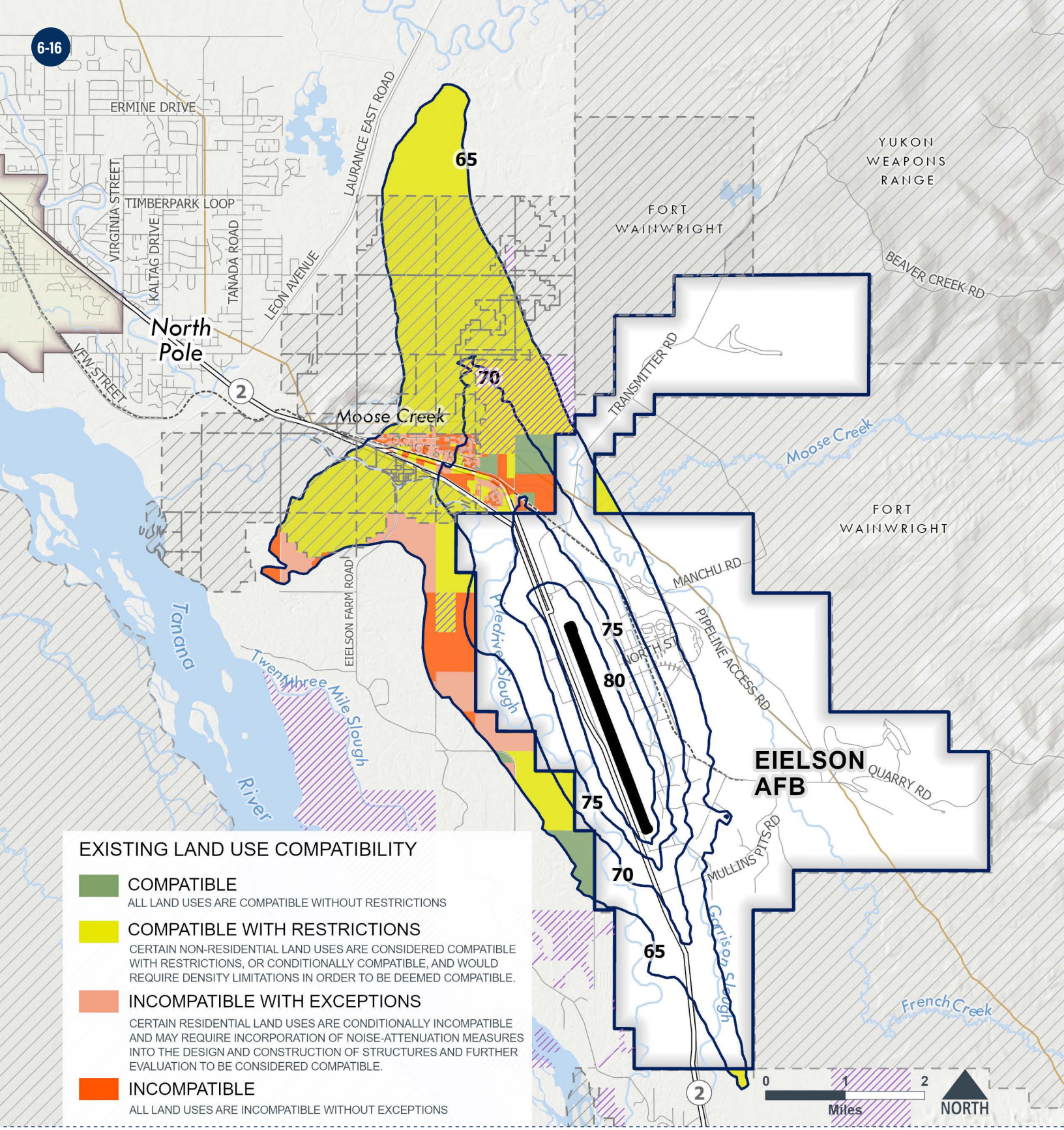
Table 6-2

Off-Installation Existing Land Use Acreage within Noise Contours

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	65-70 dB	70-75 dB	GREATER THAN 75 dB DNL	TOTAL
Incompatible or Incompatible with Exceptions	Residential	693.8	76.8	8.1	**778.7**
	Commercial	—	—	—	**—**
	Industrial	—	—	—	**—**
	Services	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	415.5	274.7	1.6	**691.8**
Compatible or Compatible with Restrictions	Residential	—	—	—	**—**
	Commercial	182.2	25.9	0.5	**208.6**
	Industrial	57.6	147.5	0.7	**205.8**
	Services	—	1.1	—	**1.1**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	5,265.8	586.1	2.1	**5,854.0**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Sub-total	**Incompatible**	**1,109.3**	**351.5**	**9.7**	**1,470.5**
	Compatible	**5,505.6**	**760.6**	**3.3**	**6,269.5**
Total		**6,614.9**	**1,112.1**	**13.0**	**7,740.0**

Note: Totals may not sum exactly due to rounding.

1. Refer to **Appendix A** for Details.



EXISTING LAND USE COMPATIBILITY

COMPATIBLE
ALL LAND USES ARE COMPATIBLE WITHOUT RESTRICTIONS

COMPATIBLE WITH RESTRICTIONS
CERTAIN NON-RESIDENTIAL LAND USES ARE CONSIDERED COMPATIBLE WITH RESTRICTIONS, OR CONDITIONALLY COMPATIBLE, AND WOULD REQUIRE DENSITY LIMITATIONS IN ORDER TO BE DEEMED COMPATIBLE.

INCOMPATIBLE WITH EXCEPTIONS
CERTAIN RESIDENTIAL LAND USES ARE CONDITIONALLY INCOMPATIBLE AND MAY REQUIRE INCORPORATION OF NOISE-ATTENUATION MEASURES INTO THE DESIGN AND CONSTRUCTION OF STRUCTURES AND FURTHER EVALUATION TO BE CONSIDERED COMPATIBLE.

INCOMPATIBLE
ALL LAND USES ARE INCOMPATIBLE WITHOUT EXCEPTIONS

- 2026 AICUZ Contour (dB)
- Runway
- Eielson AFB
- Federal Land
- Alaska Department of Natural Resources Land
- Trans-Alaska Pipeline
- Railroad
- City Limit

Figure 6-6
Incompatible Existing Land Use within Noise Contours

Table 6-3

Off-Installation Existing Land Use Acreage within Clear Zones and Accident Potential Zones

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	CZ	APZ I	APZ II	TOTAL
Incompatible or Incompatible with Exceptions	Residential	—	0.8	26.7	**27.5**
	Commercial	—	—	—	**—**
	Industrial	—	—	—	**—**
	Services	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	6.2	117.1	**123.3**
Compatible or Compatible with Restrictions	Residential	—	—	—	
	Commercial	—	—	23.2	**23.2**
	Industrial	—	—	91.3	**91.3**
	Services	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	0.1	187.0	**187.1**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Sub-total	**Incompatible**	**0.0**	**7.0**	**143.8**	**150.8**
	Compatible	**0.0**	**0.1**	**301.5**	**301.6**
Total		**0.0**	**7.1**	**445.3**	**452.4**

Note: Totals may not sum exactly due to rounding.

1. Refer to **Appendix A** for Details.

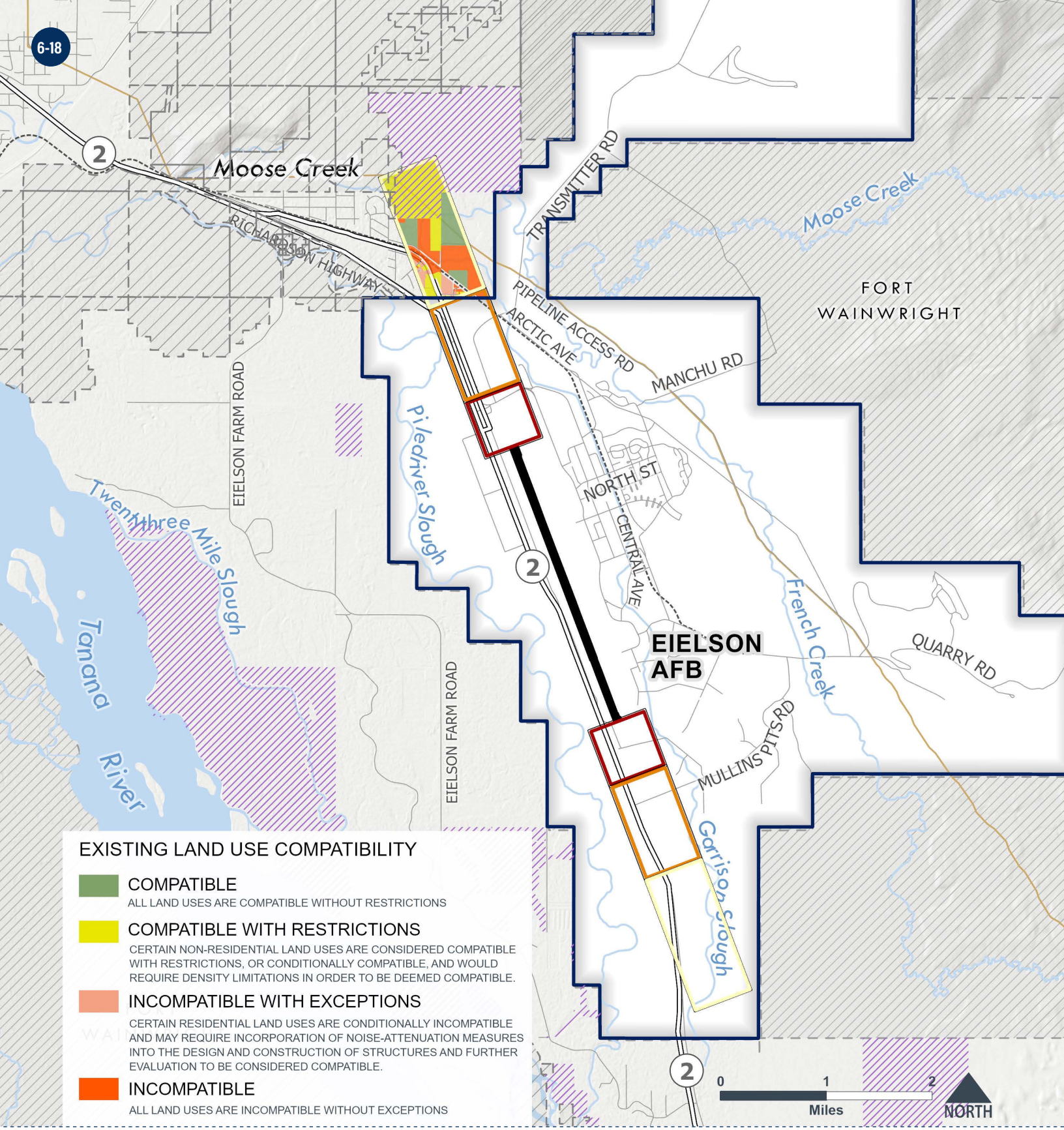


Figure 6-7

Incompatible Existing Land Use within CZs and APZs

6.4.3 Future Land Use Compatibility Concerns

As shown in **Figure 6-8** and **Table 6-4,** the vast majority of future land uses in the noise contours are compatible or compatible with restrictions. Those areas are over open lands that are primarily owned by other federal agencies. However, there are over 300 acres of residential land use in the 65 dB DNL noise contours and above. These are considered incompatible; however, if the structures are preexisting or considered essential, noise attenuation measures should be incorporated into the building structures.

As shown in **Figure 6-9** and **Table 6-5,** the future land uses in the APZs are primarily considered compatible or compatible with restrictions; however, much less land area overall is covered by the APZ when compared to the noise contours. In addition, the CZs are entirely contained on the installation, and only the northern APZ I and II leave installation property. In this area, there are approximately 185 acres of residential use, which would be considered incompatible or incompatible with exceptions. Residential uses are discouraged from being located in all safety zones but may be considered compatible if they are limited to less than two dwelling units per acre in APZ II. The remaining land uses in APZ II (of commercial, public/quasi-public, or open) are considered compatible or compatible with restrictions.

Overall, for the 2026 AICUZ noise contours, 7,629.1 acres (or 95.7 percent) are considered compatible or compatible with restrictions with existing land uses, while 338.9 acres (or 4.3 percent) are considered incompatible or incompatible with exceptions. With respect to the 2026 AICUZ APZs, 296.2 acres (or 62 percent) are considered compatible or compatible with restrictions with future land uses, while 184.9 acres (or 38 percent) are considered incompatible or incompatible with exceptions. Therefore, although some incompatibility exists within the AICUZ footprint, the majority of future land uses are considered compatible or compatible with restrictions.

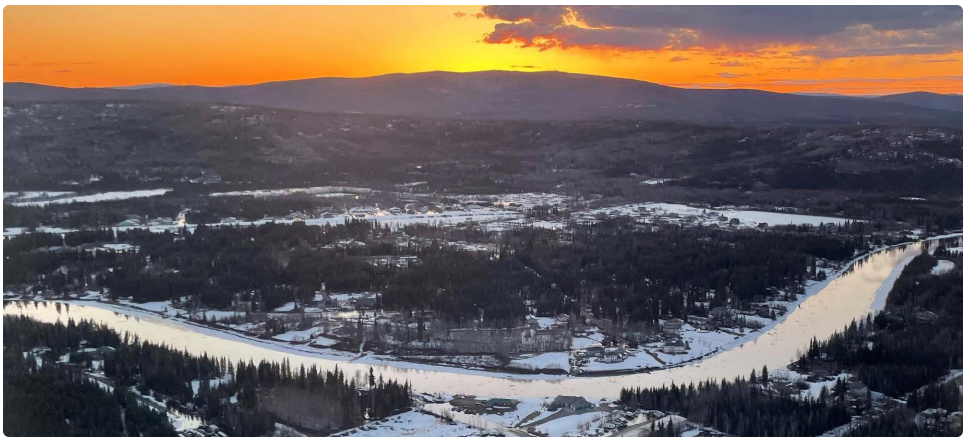


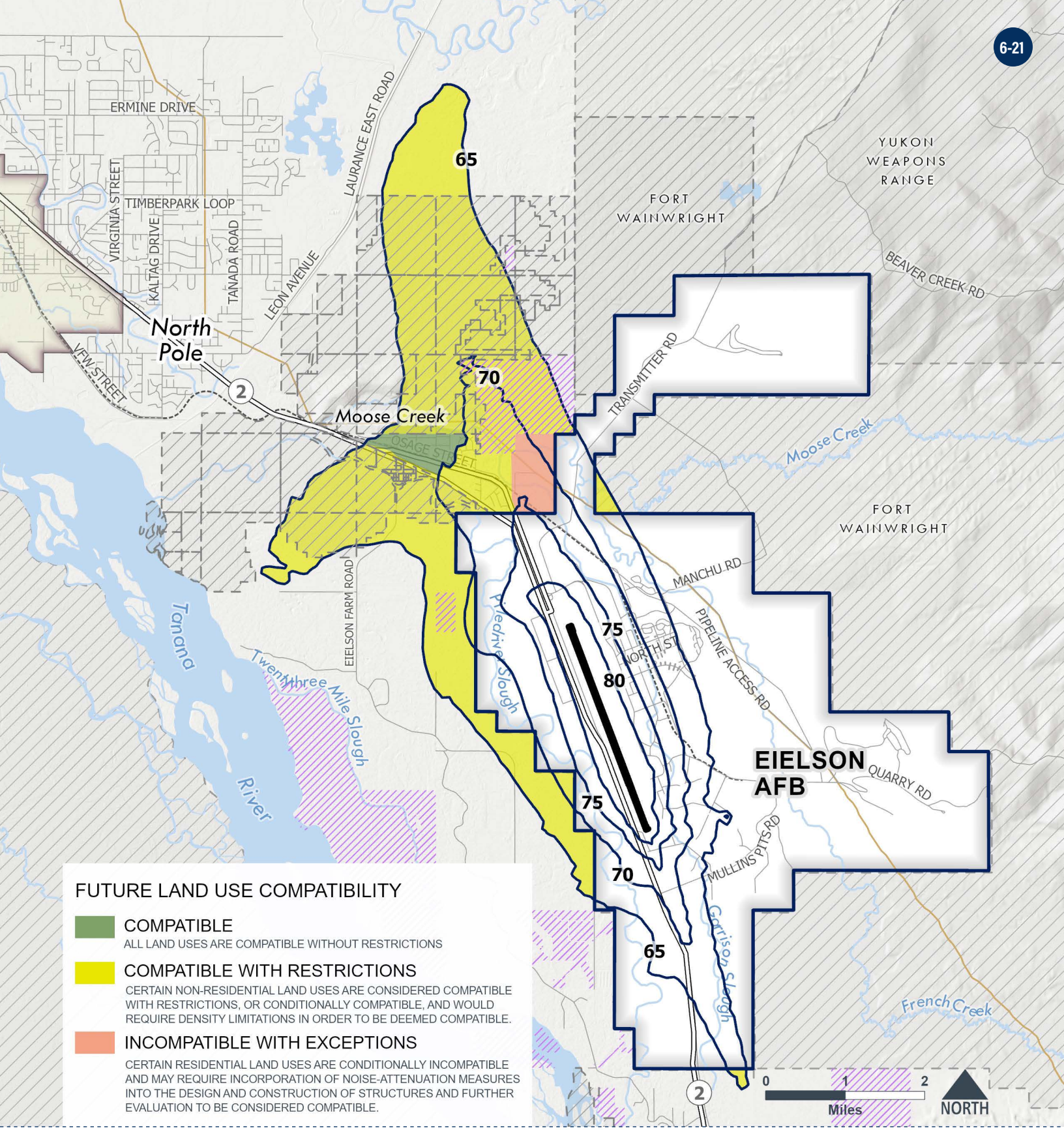
Table 6-4

Off-Installation Future Land Use Acreage within Noise Contours

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	65-70 dB DNL	70-75 dB DNL	GREATER THAN 75 dB DNL	TOTALS
Incompatible or Incompatible with Exceptions	Residential	59.2	263.0	16.7	**338.9**
	Commercial	—	—	—	**—**
	Industrial	—	—	—	**—**
	Services	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Compatible or Compatible with Restrictions	Residential	—	—	—	**—**
	Commercial	315.2	337.9	0.8	653.9
	Industrial	—	—	—	**—**
	Public/Quasi-Public	4,692.0	486.0	—	**5,178**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	1,687.8	109.4	—	**1,797.2**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Sub-total	**Incompatible**	**59.2**	**263.0**	**16.7**	**338.9**
	Compatible	**6,695.0**	**933.3**	**0.8**	**7,629.1**
Total		**6,754.2**	**1,196.3**	**17.5**	**7,968.0**

Note: Totals may not sum exactly due to rounding.

1. Refer to **Appendix A** for Details.



FUTURE LAND USE COMPATIBILITY

COMPATIBLE
ALL LAND USES ARE COMPATIBLE WITHOUT RESTRICTIONS

COMPATIBLE WITH RESTRICTIONS
CERTAIN NON-RESIDENTIAL LAND USES ARE CONSIDERED COMPATIBLE WITH RESTRICTIONS, OR CONDITIONALLY COMPATIBLE, AND WOULD REQUIRE DENSITY LIMITATIONS IN ORDER TO BE DEEMED COMPATIBLE.

INCOMPATIBLE WITH EXCEPTIONS
CERTAIN RESIDENTIAL LAND USES ARE CONDITIONALLY INCOMPATIBLE AND MAY REQUIRE INCORPORATION OF NOISE-ATTENUATION MEASURES INTO THE DESIGN AND CONSTRUCTION OF STRUCTURES AND FURTHER EVALUATION TO BE CONSIDERED COMPATIBLE.

- 2026 AICUZ Contour (dB)
- Runway
- Eielson AFB
- Alaska Department of Natural Resources Land
- Federal Land
- Trans-Alaska Pipeline
- Railroad
- City Limit

Figure 6-8
Incompatible Future Land Use within Noise Contours

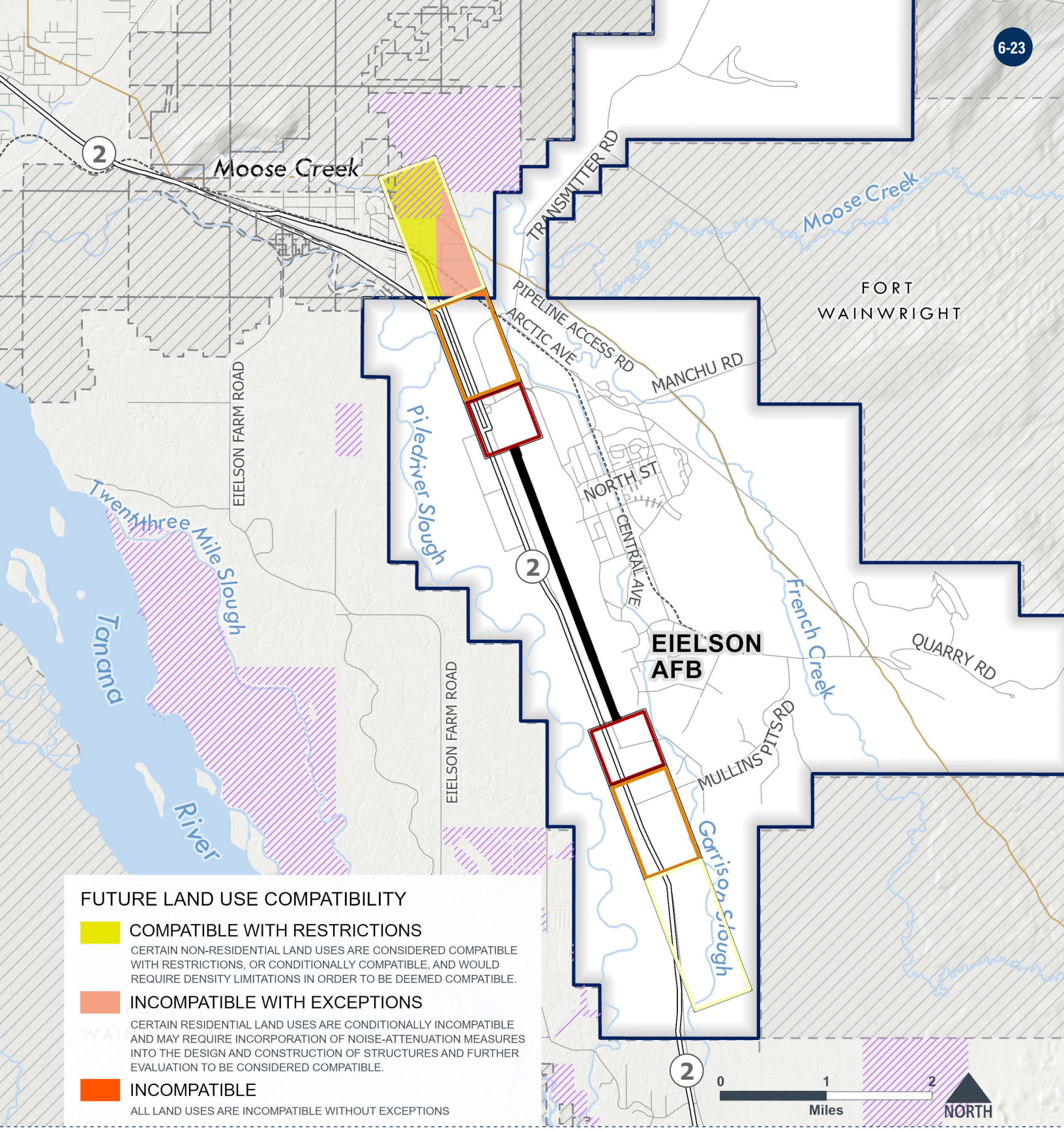
Table 6-5

Off-Installation Future Land Use Acreage within Clear Zones and Accident Potential Zones

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	CZ	APZ I	APZ II	TOTALS
Incompatible or Incompatible with Exceptions	Residential	—	9.5	175.4	**184.9**
	Commercial	—	—	—	**—**
	Industrial	—	—	—	**—**
	Services	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Compatible or Compatible with Restrictions	Residential	—	—	—	**—**
	Commercial	—	—	127.7	**127.7**
	Industrial	—	—	—	**—**
	Public/Quasi-Public	—	—	168.5	**168.5**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Transportation/Utilities	—	—	—	**—**
	Undeveloped	—	—	—	**—**
Subtotals	**Incompatible**	**0.0**	**9.5**	**175.4**	**184.9**
	Compatible	**0.0**	**0.0**	**296.2**	**296.2**
Totals		**0.0**	**9.5**	**471.6**	**481.1**

Note: Totals may not sum exactly due to rounding.

1. Refer to **Appendix A** for Details.



FUTURE LAND USE COMPATIBILITY

COMPATIBLE WITH RESTRICTIONS

CERTAIN NON-RESIDENTIAL LAND USES ARE CONSIDERED COMPATIBLE WITH RESTRICTIONS, OR CONDITIONALLY COMPATIBLE, AND WOULD REQUIRE DENSITY LIMITATIONS IN ORDER TO BE DEEMED COMPATIBLE.

INCOMPATIBLE WITH EXCEPTIONS

CERTAIN RESIDENTIAL LAND USES ARE CONDITIONALLY INCOMPATIBLE AND MAY REQUIRE INCORPORATION OF NOISE-ATTENUATION MEASURES INTO THE DESIGN AND CONSTRUCTION OF STRUCTURES AND FURTHER EVALUATION TO BE CONSIDERED COMPATIBLE.

INCOMPATIBLE

ALL LAND USES ARE INCOMPATIBLE WITHOUT EXCEPTIONS

- Clear Zone (CZ)
- Accident Potential Zone I (APZ I)
- Accident Potential Zone II (APZ II)
- Runway
- Eielson AFB
- Federal Land
- Alaska Department of Natural Resources Land
- Trans-Alaska Pipeline
- Railroad

Figure 6-9
Incompatible Future Land Use within CZs and APZs

6.4.3 Future Land Use Compatibility Concerns

Areas that are near an air installation but fall outside the formally designated AICUZ footprint and where AICUZ-focused land use planning recommendations and guidelines are not formally applied are sometimes referred to as "white spaces." These areas exist in all regions where land development rules vary, regulatory authority is broad, and long-term development strategies do not necessarily consider AICUZ concepts—but their potential impact on mission is real.

Future projects—both in the white spaces and within the designated AICUZ—in the region of influence surrounding Eielson AFB that are, or were at one time, planned and that warrant attention from a land use compatibility standpoint include the following (these projects are also shown on **Figure 6-11**). Generally speaking, and as noted previously in this section, development and growth in the vicinity of Eielson AFB is occurring along the corridor between North Pole and Salcha in unincorporated areas of the Borough.

1. **Improvements (access and parking) to the Chena Lake Recreation Area.** The Chena Lake Recreation area is a significant resource for the community and is popular with both residents and tourists. It is on USACE land and operated by FNSB. There is a significant investment in capital improvements and access to the Recreation Area in the coming years, including a new entrance via Plack Road as well as parking and some paved trails. This will allow for better access and usage of this resource.

2. **Residential Development to east of North Pole.** Most residential development occurring within the general vicinity of Eielson AFB has been to the east of the city limits of North Pole, which is unincorporated FNSB. This network of streets and homes are primarily single-family homes, and this area represents the fastest growing area of the Borough.

3. **Potential Multi-Family Housing Development.** A parcel just south of North Pole is being considered for development, which could include multi-family housing.

4. **Infill Development in Moose Creek.** The area of Moose Creek is mostly built out; however, there are a few vacant parcels that have been recently developed or could be developed in the future. Given the proximity and location of Moose Creek to Eielson AFB, these parcels are likely in a noise zone or APZ.

5. **Large Lot Development along Eielson Farm Road.** Along Eielson Farm Road, which runs generally north-south to the west of Eielson AFB and Rickardson Highway, there are large developable parcels. Over time, these have been developed for various uses, including some residential homes. This is an area on the edge of the noise contours and would also experience overflight from aircraft transiting south to operating areas.

6. **Potential Land Sales and Development along Johnson Road.** The State of Alaska offers land auctions to get publicly held lands into private ownership. There have been lots identified for auction along Johnson Road, which could be potentially developed in the future.

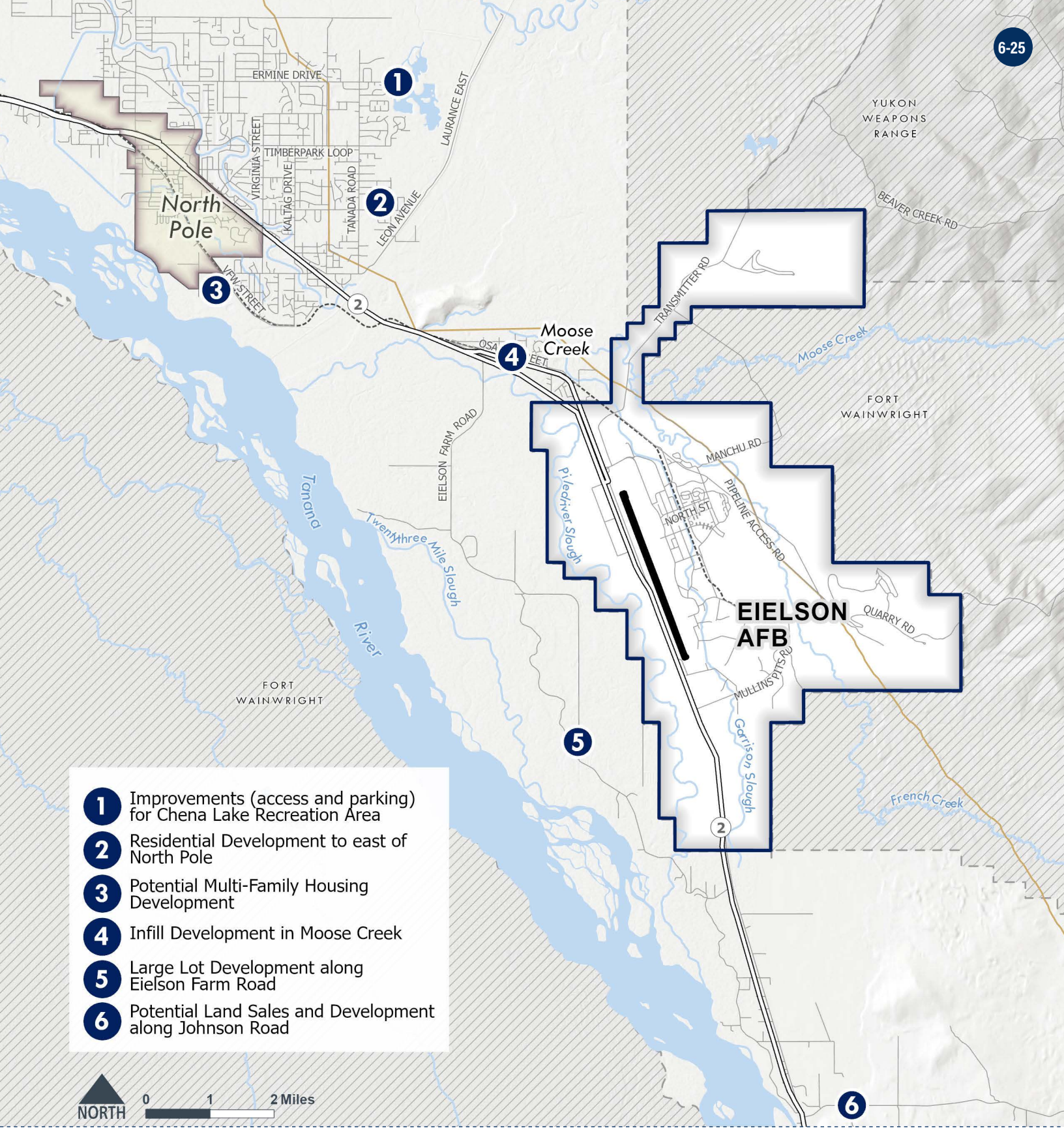


Figure 6-10
Future Development Projects around Eielson AFB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7. IMPLEMENTATION

Implementation of the AICUZ study must be a joint effort between Eielson AFB and surrounding communities. This AICUZ study provides the best source of information to ensure land use planning decisions made by local municipalities are compatible with a future installation presence. This chapter discusses the roles of all partners in the collaborative planning efforts.

Left and Right Inset Images: AdobeStock.com

7.1 MILITARY ROLE

The goal of the AICUZ Program is to assist local, regional, state, and federal officials in protecting the public health, safety, and welfare by promoting long-term land use compatible with military operations, and to protect Air Force operational capability from the effects of incompatible land use. This program helps mitigate noise and safety impacts on surrounding communities and advises these communities about supporting flight operations and the safety, welfare, and quality of life of their citizens.

Eielson AFB is responsible for flight safety, noise abatement, and participation in existing local jurisdictional land use planning processes as part of its AICUZ Program responsibilities. Air Force policy and guidance requires that installation leadership periodically review existing practices for flight operations and evaluate these factors in relationship to populated areas and other local situations. The installation may serve in an advisory, non-voting capacity on planning boards and commissions.

Eielson AFB will:

- Ensure that, wherever possible, air operations planners route flights over sparsely populated areas to reduce the exposure of lives and property to a potential accident.
- Periodically review existing traffic patterns, instrument approaches, weather conditions, and operating practices and evaluate these factors in relationship to populated areas and other local conditions. The purpose of this review is to limit, reduce, and control the impact of noise from flying operations on surrounding communities.
- Consider the establishment of a community forum between the installation and surrounding stakeholders to discuss land use and other issues of concern; the installation anticipates holding these meetings on an annual basis.
- Schedule land use planning meetings to provide a forum for agencies to meet and discuss future development and to address issues that may surface because of new proposals.
- Provide copies of the AICUZ study to local, county, Tribal, and regional planning departments, and zoning administrators to aid in the planning process and provide copies of the AICUZ study to appropriate state and federal agencies.

Preparation and presentation of this Eielson AFB AICUZ Study is one phase of continued Air Force participation in the local planning process. The Air Force recognizes that, as the local community updates its land use plans, Eielson AFB must be ready to provide additional input, as needed.

DoD Office of Local Defense Community Cooperation (OLDCC)

The OLDCC supports the readiness and resiliency of military installations and surrounding communities across the country. It offers several grants and programs to strengthen relationships between the DoD and civilian communities, including funding for construction projects, infrastructure overhauls, studies and plans, and stakeholder engagement forums. For air installation communities, the OLDCC sponsors the Community Noise Mitigation program that offers grant funding for civilian noise mitigation projects in high-noise zones of military installations. The FAA publishes guidance on sound insulation for structures exposed to aircraft noise, available on the OLDCC Community Noise Mitigation website.

7.2 STATE/REGIONAL ROLES

In the State of Alaska, land use planning and zoning are delegated to municipal and county governments, which are empowered to create comprehensive land use plans and coordinate local land use plans. Recommendations for working with local governments to encourage compatible land use are discussed below, in **Section 7.3.**

State of Alaska

The State of Alaska has certain statutes in place to protect military installations by creating "military facility zones" and outline the criteria and purpose of these potential zones. The statue (AK Stat § 26.30.005 through 26.30.900) provides information on the benefits in the military facility zones as well as how it is managed, and the Department of Military and Veteran Affairs may establish military facility zones where it makes sense for the community.

The City of North Pole was the first and is currently the only designated Military Facility Zone in the State of Alaska with the stated purpose of supporting the defense of our nation, service members, and their families.

Fairbanks Economic Development Corporation

The Fairbanks Economic Development Corporation (FEDC) is a local non-profit corporation that works in the community's best interest to protect and promote a diverse and thriving economy for residents and businesses in the area. As part of that, they organize and sponsor the Alaska Defense Forum (ADF), which works towards addressing the key challenges facing military installations, military families, and the communities they call home. The ADF is held over the course of several days with community leaders, senior military officials, key members of government, and other interested parties to engage in productive conversations related to the military's presence in Alaska and how to guide its future.

Local Chambers of Commerce

There are two local chambers of commerce that are heavily involved with supporting the military in the area of Eielson AFB and the greater FNSB area. These are the Fairbanks Chamber of Commerce and the North Pole Chamber of Commerce, both of which support the military installations in the area, including Eielson AFB. The ways in which these chambers support the military and military personnel families are through advocating for federal policy change and working directly with local delegates when the need arises, creating a welcoming community for new residents, hosting events to bring together the military and the community, encouraging business development, and enhancing labor force development. Having a strong military presence brings additional business that creates a stronger local economy, and allows residents to find employment without leaving the area. Overall, both the Fairbanks Chamber of Commerce and the North Pole Chamber of Commerce play a significant role in supporting Eielson AFB and other installations in the region.

Readiness and Environmental Protection Integration

Eielson AFB could continue to pursue funding sources through existing federal government programs, such as the DoD's Readiness and Environmental Protection Integration (REPI) Program, for protection of mission-sensitive areas.

The REPI Program is a key tool used by DoD and its partners to protect the military's ability to train, test, and operate. The DoD created the REPI Program in response to the development of lands and loss of habitat in the vicinity of or affecting its installations, ranges, and airspace that can lead to restrictions or costly and inadequate training and testing alternatives. Through REPI, the DoD works with state and local governments, conservation organizations, and willing private landowners to address these challenges to the military mission and the viability of DoD installations and ranges. The REPI Program has enjoyed broad bipartisan support both in the U.S. Congress and among groups representing state and local officials.

Eielson AFB has utilized the REPI Program in the past and can continue to consider it as a tool when working with the community and its neighbors.

7.3 LOCAL GOVERNMENT ROLE

The role of the local government is to enact planning, zoning, and development principles and practices that are compatible with the installation and protect the installation's mission. The residents of the surrounding community have a long history of working with personnel from Eielson AFB. There have been several airport-related actions that pertain to Eielson AFB that have been adopted by the local municipalities over the years.

Specifically, the 2006 FNSB JLUS identified recommendations for the Army, Air Force, and the FNSB to implement. Below is a general summary of how some of the initiatives were implemented.

It should be noted that the 2006 FNSB JLUS included analysis and recommendations for both Fort Wainwright, which is operated by the United States Army, as well as Eielson AFB; therefore, not all recommendations are applicable to each installation.

Table 7-1
2006 JLUS Recommendations

Local Jurisdiction Recommendations	
Fully Implemented	Create a JLUS Natural Resources Working Group
	Continue meeting with community leaders for informal information sharing
	Increase military awareness of civilian land use issues around installations
Grant Focused	Amend Title 17 to require note on plat for subdivisions within the 65 DNL
	Incorporate military noise contours into the FNSB Regional Comprehensive Plan and Development Codes
	Adopt encroachment prevention measures
	Adopt zoning ordinances to limit the height of objects around military airports
	Enforce compatible use zoning
	Enforce mobile home and noise sensitive compatibility
	Maintain residential densities within existing and future noise sensitive areas
Consider for Future Implementation	Establish review procedures
	Strengthen construction codes
	Publicize established legal requirements for full disclosure in real estate transactions

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Military Recommendations	
Fully Implemented	Monitor and provide input on land use
	Coordinate training schedules
	Continue noise complaint management process and night time firing notification
	Strengthen public outreach efforts and communication of significant operational changes
	Develop an information and education program for natural resources management and continue to improve hunter awareness education
	Build informational kiosks
	Consider identification and acquisition of land that may be needed to protect military operations from encroachment
	Pursue funding for DoD conservation land purchases
	Augment noise management program
	Maintain up-to-date noise contours in GIS
	Avoid flying over residential areas to the extent practicable
	Study the potential to locate or relocate firing areas
	Continue ongoing convoy permitting
	Consider establishment of formal Memorandum of Understanding (MOU) with state and federal resource management agencies
	Access cards permit system for snow machiners
	Strengthen implementation of Integrated Natural Resources Management Plans (INRMPs) as a means of enforcing of JLUS recommendations
	Maintain / initiate two-year renewal duration
	Maintain USARTRAK automated phone check-in system
	Fund conservation officers
	Partner with Alaska Department of Fish and Game to create a one-stop permitting shop
Consider for Future Implementation	Post local military noise contour maps and related information on the web and public in local papers (which would be accomplished through the publication of this 2026 AICUZ for Eielson AFB)
	Study longer term lease agreements

These combined and focused efforts by the municipalities surrounding Eielson AFB have established a strong commitment to the long-term viability of the installation and its mission, along with being a partner in the encouragement of appropriate economic development and growth in the region. Continuing this cooperation in a concerted effort would only serve to improve the communication and success of all entities. To that end, where appropriate and not in conflict with existing or previous efforts identified above during the JLUS process and implementation, adopting the following recommendations during the revision of relevant land use planning or zoning regulations will strengthen this relationship, increase the health and safety of the public, and protect the integrity of the installation's flying mission:

- **Ensure local government land use plans and ordinances** reflect AICUZ recommendations for development located within safety and noise zones.
- **Continue to incorporate applicable recommendations from the 2006 JLUS** based on community and installation agreements. *As noted previously, many of the recommendations have been implemented; however, where additional improvements or agreements can be made to assist in preserving Eielson AFB's mission, they should be considered.*
- **Consult with Eielson AFB on planning and zoning actions** that have the potential to affect installation operations.
- **Invite the Air Force installation leadership to be ex officio members** on boards, commissions, and regional councils addressing long-range development and other planning policies.
- **Consider AICUZ policies and guidelines when developing or revising city comprehensive plans.** Use AICUZ overlay maps and Air Force Land Use Compatibility Guidelines **(see Appendix A)** to evaluate existing and future land use proposals.
- **Ensure that new development applications or properties that are applying for a change of use are submitted to Eielson AFB** so the base can assess those applications for potential impacts on defense missions. The Eielson AFB PA Office can provide a land use planning point of contact.
- **Adopt or modify zoning ordinances** to reflect the compatible land uses outlined in the AICUZ study, including the creation of military airport overlay zones, or modifying existing overlay zones as appropriate. This could be incorporated into the on-going Regional Comprehensive Plan update currently at FNSB.
- **Review capital improvement plans, infrastructure investments, and development policies** to ensure they do not encourage incompatible land use patterns near Eielson AFB, with particular emphasis on utility extension and transportation plans.
- **Implement height and obstruction restrictions in local ordinances** that reflect current Air Force and 14 CFR 77 requirements, presented in this study as HAFZs.
- **Enact fair disclosure ordinances** to require informing the public of AICUZ items that directly relate to military flying operations at Eielson AFB.
- **Require real estate disclosure for individuals purchasing or leasing property** within noise zones or CZs/APZs where allowed.
- **Enact or modify building/residential codes** to ensure that any new construction near Eielson AFB has the recommended noise level reduction (NLR) measures incorporated into the design and construction of structures.

- **Coordinate with the FAA on the height of tall structures,** such as wind turbines and communication towers, to ensure that new construction does not pose a hazard to navigable airspace around Eielson AFB.
- **Encourage the development of a working group** to include the borough, local cities, and Eielson AFB representatives to discuss land use concerns and major development proposals that could affect military operations.

7.4 COMMUNITY ROLE

Neighboring residents and installation personnel have a long-established history of working together for the mutual benefit of the Eielson AFB mission and local community. Adoption of the following recommendations will strengthen this relationship, protect the health and safety of the public, and help ensure the integrity of the installation's defense mission:

Real Estate Professionals and Brokers

- Know where noise and safety zones encumber land near the air installation and invite installation representatives to brokers' meetings to discuss the AICUZ Program with real estate professionals.
- Disclose noise impacts to all prospective buyers of properties within areas greater than 65 dB DNL or within the safety zones.
- Disclose accident potential to all prospective buyers of properties within the CZs/APZs.
- Incorporate noise and accident potential in estimates of property values.
- Require the Multiple Listing Service to disclose noise and safety zones for all listings.

Developers

- Know where the noise zones and CZs/APZs encumber land near the air installation. Consult with Eielson AFB on proposed developments within the AICUZ footprint.
- Participate in local discussions regarding existing and proposed zoning ordinances and subdivision regulations to support the compatible land uses outlined in this AICUZ Study.

Local Citizens

- Participate in local forums with the installation to learn more about the installation's missions.
- Become informed about the AICUZ Program and learn about the program's goals, objectives, and value in protecting the public's health, safety, and welfare.
- Ask local real estate professionals, city planners, and installation representatives about noise and accident potential when considering property purchases and values.

QUESTIONS?

While the installation and community are separated by a fence, Eielson AFB activities and operations could adversely affect the community. Likewise, community activities and development decisions can impair Eielson AFB's ability to complete its local hometown mission. Military and community goals can be mutually achieved through a combination of collaborative planning and partnerships, open communication, and close relationships. The AICUZ study provides a foundation for relevant communication that safeguards the community and its hometown military installation to continue to coexist for many years.

Questions about the AICUZ Program may be directed to the installation PA Office at

EMAIL

354FW.PA.PUBLICAFFAIRS@US.AF.MIL

8. REFERENCES

DoD. 1978. "Planning in the Noise Environment," Air Force Manual AFM 19-10.

DoD. 2019. Unified Facilities Criteria (UFC), Airfield and Heliport Planning and Design, UFC 3-260-01.

USAF. 2025. Department of the Air Force Handbook (DAFH) 32-7084, *AICUZ Program Management.*

USAF. 2025. Department of the Air Force Instruction (DAFI) 32-1015, Integrated Installation Planning.

USAF. 2025. Department of Defense Instruction 4165.57, Air Installations Compatible Use Zones, June 30.

USAF. 2025. Noise Study for Eielson Air Force Base, Eielson AFB, Alaska.

APPENDIX A. LAND USE COMPATIBILITY TABLES

Key To Table A-1 and A-2 Land Use Compatibility Tables

Land Use Recommendations

Y **Yes.** Land use and related structures compatible without restrictions.

N **No.** Land use and related structures are not compatible and should be prohibited.

Yx **Yes with Restrictions.** The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

Nx **No with Exceptions.** The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

Land Use Compatibility Recommendations in APZs and CZs

Table A-1 provides compatibility recommendations based on historic aircraft mishap locations on or near air installations. The primary land use objective is to discourage people from establishing occupied land uses in areas of high accident potential.

While the table is organized by the SLUCM categories, it varies from SLUCM by differentiating land use types by population density. Some uses warrant additional evaluation due to the variation of densities of people, intensity of use, or other characteristics that could impact safety of flight. Floor Area Ratio (FAR) recommendations are included within the table to guide suggested maximum density for non-residential uses. General notes and specific footnotes at the bottom of the table provide additional information and compatibility considerations.

These recommendations are intended to support compatible land use planning both on and off base; they do not constitute a federal determination that any use of land is acceptable or unacceptable under local zoning.

These tables are based on approximation of data from the FHWA SLUCM tables and may be transposed in the event of any possible data gaps. Intended to be estimates for the purpose of general development guidelines.

Table A-1

Land Use Compatibility Recommendations in APZs and CZs

SLUCM No./LAND USE NAME		CZ[1]	APZ I[1]	APZ II[1]	DENSITY[1] RECOMMENDATION
	10 Residential				
11	Household Units				
11.11	Single Units: Detached	N	N	Y[2]	Maximum Density of 2 Du/Ac
11.12	Single Units: Semi-Detached	N	N	N	
11.13	Single Units: Attached Row	N	N	N	
11.21	Two Units: Side-by-Side	N	N	N	
11.22	Two Units: One Above the Other	N	N	N	

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SLUCM No./LAND USE NAME		CZ[1]	APZ I[1]	APZ II[1]	DENSITY[1] RECOMMENDATION
11.31	Apartments: Walk-Up	N	N	N	
11.32	Apartment: Elevator	N	N	N	
12	Group Quarters	N	N	N	
13	Residential Hotels	N	N	N	
14	Mobile Home Parks or Courts	N	N	N	
15	Transient Lodgings	N	N	N	
16	Other Residential	N	N	N	
	20 Manufacturing[3]				
21	Food And Kindred Products; Manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
22	Textile Mill Products; Manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
23	Apparel and Other Finished Products; Products Made from Fabrics, Leather, and Similar Materials; Manufacturing	N	N	N	
24	Lumber and Wood Products (Except Furniture); Manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
25	Furniture and Fixtures; Manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
26	Paper and Allied Products; Manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
27	Printing, Publishing, and Allied industries	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
28	Chemicals and Allied Products; Manufacturing	N	N	N	
29	Petroleum Refining and Related industries	N	N	N	
	30 Manufacturing[3] (Continued)				
31	Rubber and Miscellaneous Plastic Products; Manufacturing	N	N	N	
32	Stone, Clay, and Glass Products; Manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
33	Primary Metal Products; Manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
34	Fabricated Metal Products; Manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
35	Professional, Scientific, and Controlling instruments; Photographic and Optical Goods; Watches and Clocks	N	N	N	

SLUCM No.	LAND USE NAME	CZ[1]	APZ I[1]	APZ II[1]	DENSITY[1] RECOMMENDATION
39	Miscellaneous Manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	Transportation, Communication, and Utilities[3,4]				
41	Railroad, Rapid Rail Transit, and Street Railway Transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
42	Motor Vehicle Transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
43	Aircraft Transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
44	Marine Craft Transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
45	Highway and Street Right-of-Way	Y[5]	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
46	Automobile Parking	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
47	Communication	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48	Utilities[7]	N	Y[6]	Y[6]	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48.5	Solid Waste Disposal (Landfills, Incinerators, etc.)	N	N	N	
49	Other Transportation, Communication, and Utilities	N	Y[6]	Y	See Note 6 Below
	50 Trade				
51	Wholesale Trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II
52	Retail Trade • Building Materials, Hardware, and Farm Equipment	N	Y	Y	See Note 8 Below
53	Retail Trade • Including, Discount Clubs, Home Improvement Stores, Electronics Superstores, etc.	N	N	Y	Maximum FAR of 0.16 in APZ II
53	Shopping Centers • Neighborhood, Community, Regional, Super-Regional[9]	N	N	N	
54	Retail Trade • Food	N	N	Y	Maximum FAR of 0.24 in APZ II
55	Retail Trade • Automotive, Marine Craft, Aircraft, and Accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail Trade • Apparel and Accessories	N	N	Y	Maximum FAR of 0.28 in APZ II
57	Retail Trade • Furniture, Home, Furnishings, and Equipment	N	N	Y	Maximum FAR of 0.28 in APZ II
58	Retail Trade • Eating and Drinking Establishments	N	N	N	
59	Other Retail Trade	N	N	Y	Maximum FAR of 0.16 in APZ II

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SLUCM No./LAND USE NAME		CZ[1]	APZ I[1]	APZ II[1]	DENSITY[1] RECOMMENDATION
	60 Services[10]				
61	Finance, insurance, and Real Estate Services	N	N	Y	Maximum FAR of 0.22 in APZ II
62	Personal Services	N	N	Y	Office Uses Only. Maximum FAR of 0.22 in APZ II.
62.4	Cemeteries	N	Y[11]	Y[11]	
63	Business Services (Credit Reporting; Mail, Stenographic, Reproduction; Advertising)	N	N	Y	Maximum FAR of 0.22 in APZ II
63.7	Warehousing and Storage Services[12]	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional Services	N	N	Y	Maximum FAR of 0.22 in APZ II
65.1	Hospitals, Nursing Homes	N	N	N	
65.1	Other Medical Facilities	N	N	N	
66	Contract Construction Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
68	Educational Services	N	N	N	
68.1	Childcare Services, Child Development Centers, and Nurseries	N	N	N	
69	Miscellaneous Services	N	N	Y	Maximum FAR of 0.22 in APZ II
69.1	Religious Activities (Including Places of Worship)	N	N	N	
	70 Cultural, Entertainment and Recreational				
71	Cultural Activities	N	N	N	
71.2	Nature Exhibits	N	Y[13]	Y[13]	
72	Public Assembly	N	N	N	
72.1	Auditoriums, Concert Halls	N	N	N	
72.11	Outdoor Music Shells, Amphitheaters	N	N	N	
72.2	Outdoor Sports Arenas, Spectator Sports	N	N	N	

SLUCM No.	LAND USE NAME	CZ[1]	APZ I[1]	APZ II[1]	DENSITY[1] RECOMMENDATION
73	Amusements • Fairgrounds, Miniature Golf, Driving Ranges; Amusement Parks, etc.	N	N	Y[20]	
74	Recreational Activities (including Golf Courses, Riding Stables, Water Recreation)	N	Y[13]	Y[13]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
75	Resorts and Group Camps	N	N	N	
76	Parks	N	Y[13]	Y[13]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
79	Other Cultural, Entertainment and Recreation	N	Y[11]	Y[11]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
	80 Resource Production and Extraction				
81	Agriculture (Except Live – Stock)	Y[4]	Y[14]	Y[14]	
81.5 81.7	Agriculture • Livestock Farming, Including Grazing and Feedlots	N	Y[14]	Y[14]	
82	Agriculture Related Activities	N	Y[15]	Y[15]	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
83	Forestry Activities[16]	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
84	Fishing Activities[17]	N[17]	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
85	Mining Activities[18]	N	Y[18]	Y[18]	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
89	Other Resource Production or Extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
	90 Other				
91	Undeveloped Land	Y	Y	Y	
93	Water Areas[19]	N[19]	N[19]	N[19]	

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Notes for Table A-1 Land Use Compatibility in APZs and CZs

1. A "Yes" or a "No" designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist air installations and local governments, general suggestions as to FARs are provided as a guide to density in some categories. In general, land use restrictions that limit occupants, including employees, of commercial, service, or industrial buildings or structures to 25 an acre in APZ I and 50 an acre in APZ II are low density. Outside events should normally be limited to assemblies of not more than 25 people an acre in APZ I, and maximum assemblies of 50 people an acre in APZ II. Recommended FARs are calculated using standard parking generation rates for various land uses, vehicle occupancy rates, and desired density in APZ I and II. For APZ I, the formula is FAR = 25 people an acre/ (Average Vehicle Occupancy x Average Parking Rate x (43,560/1000)). The formula for APZ II is FAR=50/(Average Vehicle Occupancy x Average Parking Rate x (43,560/1000)).
2. The suggested maximum density for detached single-family housing is two dwelling units/acre to encourage retention of farming and open space. In a planned unit development (PUD) of single-family detached units, where clustered housing development results in large open areas, this density could possibly be increased slightly provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leaves large open areas.
3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, steam, electronic interference with aircraft, height of structures, and potential lighting or glare to pilots.
4. No structures (except airfield lighting and navigational aids necessary for the safe operation of the airfield when there are no other siting options), buildings, or above-ground utility and communications lines should be in Clear Zone areas on or off the air installation. The Clear Zone is subject to the most severe restrictions.
5. Roads within the graded portion of the Clear Zone are prohibited. All roads within the Clear Zone are discouraged, but if required, they should not be wider than two lanes and the rights-of-way should be fenced (frangible) and not include sidewalks or bicycle trails. Nothing associated with these roads should violate obstacle clearance criteria. Nothing associated with these roads should violate obstacle clearance criteria.
6. Above-ground passenger terminals and above-ground power transmission or distribution lines are not recommended. Prohibited power lines include high-voltage transmission lines and distribution lines that provide power to cities, towns, or regional power for unincorporated areas.
7. Development of renewable energy resources, including solar and geothermal facilities and wind turbines, may impact military operations through hazards to flight or electromagnetic interference. Each new development should be analyzed for compatibility issues on a case-by-case basis that considers both the proposal and potentially affected mission.
8. Within SLUCM Code 52, maximum FARs for lumberyards (SLUCM Code 521) are 0.20 in APZ-I and 0.40 in APZ-11; the maximum FARs for hardware, paint, and farm equipment stores, (SLUCM Code 525), are 0.12 in APZ I and 0.24 in APZ II.
9. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, or managed as a unit. Shopping center types include strip, neighborhood, community, regional, and super-regional facilities anchored by small businesses, a supermarket or drug store, discount retailer, department store, or several department stores, respectively. The maximum recommended FAR should be applied to the gross leasable area of the shopping center.
10. Land uses in the APZs should be passive open space; ancillary uses such as meeting places, auditoriums, etc. are not recommended.
11. Chapels, houses of worship, and land uses of public gatherings are incompatible within APZ I or APZ II.
12. Big-box home improvement stores are not included as part of this category.
13. Low occupancy facilities are compatible with these uses; however, playgrounds and marinas are not recommended.
14. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.
15. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
16. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zone lands owned in fee will be disposed of in accordance with applicable DoD guidance.
17. Controlled hunting and fishing may be permitted for the purpose of wildlife management.
18. Surface mining operations that could create retention ponds that may attract waterfowl and present bird/wildlife aircraft strike hazards (BASH), or operations that produce dust or light emissions that could affect pilot vision are not compatible.
19. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are pre-existing, nonconforming land uses. Actions to expand naturally occurring water features or construction of new water features should not be encouraged. If construction of new features is necessary for storm water retention, they should be designed not to attract waterfowl. Water features that attract waterfowl present a potential BASH.
20. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations of people greater than 50 per acre at any given time, including employees and visitors, are incompatible in APZ II. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

Recommended Land Use Compatibility for Noise Zones

Table A-2 provides compatibility recommendations based on yearly A-weighted Day-Night Average Sound Level (ADNL) [the 'A' is implied in DNL when discussing aircraft operations] or Community Noise Equivalent Level (CNEL) on and around installations. The primary land use objective is to discourage noise-sensitive land uses in areas of higher noise exposure.

While the table is organized by the SLUCM categories, it varies from SLUCM by differentiating land use types by noise sensitivity. Some uses warrant additional evaluation due to potential for annoyance and activity interference. General notes and specific footnotes at the bottom of the table provide additional information and considerations for compatibility determinations.

These recommendations are intended to support compatible land use planning both on and off-base; they do not constitute a federal determination that any use of land is acceptable or unacceptable under local zoning.

Table A-2

Recommended Land Use Compatibility for Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
		DNL OR CNEL				
SLUCM No./LAND USE NAME		65-69 dB	70-74 dB	75-79 dB	80-84 dB	85+ dB
10 Residential						
11	Household Units	N[1]	N[1]	N	N	N
11.11	Single Units: Detached	N[1]	N[1]	N	N	N
11.12	Single Units: Semidetached	N1	N[1]	N	N	N
11.13	Single Units: Attached Row	N[1]	N[1]	N	N	N
11.21	Two Units: Side-by-Side	N[1]	N[1]	N	N	N
11.22	Two Units: One Above the Other	N[1]	N[1]	N	N	N
11.31	Apartments • Walk-Up	N[1]	N[1]	N	N	N
11.32	Apartment • Elevator	N[1]	N[1]	N	N	N
12	Group Quarters	N[1]	N[1]	N	N	N
13	Residential Hotels	N[1]	N[1]	N	N	N
14	Mobile Home Parks or Courts	N	N	N	N	N
15	Transient Lodgings	N[1]	N[1]	N[1]	N	N
16	Other Residential	N[1]	N[1]	N	N	N

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LAND USE		SUGGESTED LAND USE COMPATIBILITY				
		DNL OR CNEL				
SLUCM No./LAND USE NAME		65-69 dB	70-74 dB	75-79 dB	80-84 dB	85+ dB
20 Manufacturing						
21	Food And Kindred Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
22	Textile Mill Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
23	Apparel And Other Finished Products; Products Made from Fabrics, Leather, and Similar Materials; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
24	Lumber And Wood Products (Except Furniture); Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
25	Furniture and Fixtures; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
26	Paper and Allied Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
27	Printing, Publishing, and Allied Industries	Y	Y[2]	Y[3]	Y[4]	N
28	Chemicals and Allied Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
29	Petroleum Refining and Related Industries	Y	Y[2]	Y[3]	Y[4]	N
30 Manufacturing (Continued)						
31	Rubber and Misc. Plastic Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
32	Stone, Clay, and Glass Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
33	Primary Metal Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
34	Fabricated Metal Products; Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
35	Professional Scientific, and Controlling Instruments; Photographic and Optical Goods; Watches and Clocks	Y	25	30	N	N
39	Miscellaneous Manufacturing	Y	Y[2]	Y[3]	Y[4]	N
40 Transportation, Communication, and Utilities						
41	Railroad, Rapid Rail Transit, and Street Railway Transportation	Y	Y[2]	Y[3]	Y[4]	N
42	Motor Vehicle Transportation	Y	Y[2]	Y[3]	Y[4]	N
43	Aircraft Transportation	Y	Y[2]	Y[3]	Y[4]	N

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
		DNL OR CNEL				
SLUCM No./LAND USE NAME		65-69 dB	70-74 dB	75-79 dB	80-84 dB	85+ dB
44	Marine Craft Transportation	Y	Y[2]	Y[3]	Y[4]	N
45	Highway and Street Right-of-Way	Y	Y	Y	Y	N
46	Automobile Parking	Y	Y	Y	Y	N
47	Communication	Y	255	305	N	N
48	Utilities	Y	Y[2]	Y[3]	Y[4]	N
49	Other Transportation, Communication, and Utilities	Y	255	305	N	N
	50 Trade					
51	Wholesale Trade	Y	Y[2]	Y[3]	Y[4]	N
52	Retail Trade • Building Materials, Hardware, and Farm Equipment	Y	25	30	Y[4]	N
53	Retail Trade • Including Shopping Centers, Discount Clubs, Home Improvement Stores, Electronics Superstores, etc.	Y	25	30	N	N
54	Retail Trade • Food	Y	25	30	N	N
55	Retail Trade • Automotive, Marine Craft, Aircraft, and Accessories	Y	25	30	N	N
56	Retail Trade • Apparel and Accessories	Y	25	30	N	N
57	Retail Trade • Furniture, Home, Furnishings, and Equipment	Y	25	30	N	N
58	Retail Trade • Eating and Drinking Establishments	Y	25	30	N	N
59	Other Retail Trade	Y	25	30	N	N
	60 Services					
61	Finance, Insurance, and Real Estate Services	Y	25	30	N	N
62	Personal Services	Y	25	30	N	N
62.4	Cemeteries	Y	Y[2]	Y[3]	Y[4,11]	Y[6,11]
63	Business Services	Y	25	30	N	N

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LAND USE		SUGGESTED LAND USE COMPATIBILITY				
		DNL OR CNEL				
SLUCM No./LAND USE NAME		65-69 dB	70-74 dB	75-79 dB	80-84 dB	85+ dB
63.7	Warehousing and Storage	Y	Y[2]	Y[3]	Y[4]	N
64	Repair Services	Y	Y[2]	Y[3]	Y[4]	N
65	Professional Services	Y	25	30	N	N
65.1	Hospitals, Other Medical Facilities	25	30	N	N	N
65.16	Nursing Homes	N[1]	N[1]	N	N	N
66	Contract Construction Services	Y	25	30	N	N
67	Government Services	Y[1]	25	30	N	N
68	Educational Services	25	30	N	N	N
68.1	Childcare Services, Child Development Centers, and Nurseries	25	30	N	N	N
69	Miscellaneous Services	Y	25	30	N	N
69.1	Religious Activities (Including Places of Worship)	Y	25	30	N	N
	70 Cultural, Entertainment and Recreational					
71	Cultural Activities	25	30	N	N	N
71.2	Nature Exhibits	Y1	N	N	N	N
72	Public Assembly	Y	N	N	N	N
72.1	Auditoriums, Concert Halls	25	30	N	N	N
72.11	Outdoor Music Shells, Amphitheaters	N	N	N	N	N
72.2	Outdoor Sports Arenas, Spectator Sports	Y[7]	Y[7]	N	N	N
73	Amusements	Y	Y	N	N	N
74	Recreational Activities (Including Golf Courses, Riding Stables, Water Recreation)	Y	25	30	N	N
75	Resorts and Group Camps	Y	25	N	N	N

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
		DNL OR CNEL				
SLUCM No./LAND USE NAME		65-69 dB	70-74 dB	75-79 dB	80-84 dB	85+ dB
76	Parks	Y	25	N	N	N
79	Other Cultural, Entertainment and Recreation	Y	25	N	N	N
	80 Resource Production and Extraction					
81	Agriculture (Except Live-Stock)	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
81.5, 81.7	Agriculture • Livestock Farming Including Grazing and Feedlots	Y[8]	Y[9]	N	N	N
82	Agriculture Related Activities	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
83	Forestry Activities	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
84	Fishing Activities	Y	Y	Y	Y	Y
85	Mining Activities	Y	Y	Y	Y	Y
89	Other Resource Production or Extraction	Y	Y	Y	Y	Y

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Notes for Table A-2 Land Use Compatibility for Noise Zones

1. General
   - **a.** Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined, and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones. Existing residential development is considered as pre-existing, non-conforming land uses.
   - **b.** Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 decibels (dB) in DNL 65-69 and 30 dB in DNL 70-74 should be incorporated into building codes and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-79.
   - **c.** Normal permanent construction can be expected to provide an NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded sound transmission class ratings in windows and doors, and closed windows year-round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.
   - **d.** NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.
2. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
3. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
4. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
5. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
6. Buildings are not permitted.
7. Land use is compatible provided special sound reinforcement systems are installed.
8. Residential buildings require an NLR of 25.
9. Residential buildings require an NLR of 30.
10. Residential buildings are not permitted.
11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.

B. KEY TERMS

Day-Night Average Sound Level (DNL)

DNL (A-weighted when describing aircraft operational noise) is a composite noise metric accounting for the sound energy of all noise events in a 24-hour period. In order to account for increased human sensitivity to noise at night, DNL includes a 10-dB adjustment to events occurring during the acoustical nighttime period (10 p.m. through 7 a.m.). **See Section 4.3** for additional information.

Decibel (dB)

Decibel is the unit used to measure the intensity of a sound.

Flight Profiles

Flight profiles consist of aircraft conditions (i.e., altitude, speed, power setting, etc.) defined at various locations along each assigned flight track.

Flight Track

The flight track locations represent the various types of arrivals, departures, and closed patterns accomplished at air installations. The location for each track is representative for the specific track and may vary due to air traffic control, weather, and other reasons (e.g., one pilot may fly the on one side of the depicted track, while another pilot may fly slightly to the other side of the track).

Floor Area Ratio (FAR)

The relationship between a development's floor area and the size of the land parcel on which the development is situated is quantified by a floor area ratio.

Noise Level Reduction (NLR)

The amount of noise reduction in decibels between the outside and inside of a building. It is calculated by subtracting the A-weighted sound level outside a building from the A-weighted sound level inside a designated room.

Operation

An aircraft operation is defined as one takeoff or one landing. A complete closed pattern or circuit is counted as two operations because it has a takeoff component and a landing component. A sortie is a single military aircraft flight from the initial takeoff through the termination landing. The minimum number of aircraft operations for one sortie is two operations, one takeoff (departure) and one landing (approach).

C. LAND USE COMPARISON

Existing Land Use Generalizations

Appendix C contains the existing land use and future land use categories for the Fairbanks North Star Borough Community Planning Department, which is the planning authority for all areas surrounding Eielson AFB. These were the primary sources of the land use compatibility analysis presented in **Section 6.4.**

Table C-1
Existing Land Use Generalizations

EXISTING LAND USE CATEGORY	AICUZ LAND USE CATEGORY
Fairbanks North Star Borough • Existing Land Use based on Assessment Data	
Assembled	Open/Agriculture/Low Density
Commercial	Commercial
Exempt	Open/Agriculture/Low Density
Farm Use	Open/Agriculture/Low Density
Hotel	Commercial
Industrial	Industrial
Mobile Home	Residential
Multi-Family	Residential
Other (Misc.)	Open/Agriculture/Low Density
Parking Lot	Open/Agriculture/Low Density
Partially Exempt Taxable	Open/Agriculture/Low Density
Pipeline-State Assessed	Services
Recreational	Recreation
Residential Condominum	Residential
Residential	Residential
Specialty	Open/Agriculture/Low Density
Utility	Services
Vacant Land	Undeveloped
Recreational	Recreation

Table C-2

Future Land Use Generalizations

FUTURE LAND USE CATEGORY	AICUZ LAND USE CATEGORY
Fairbanks North Star Borough • Future Land Use based on Regional Comprehensive Plan Data	
Agriculture • SBR	Open/Agriculture/Low Density
Commercial • NP	Commercial
Education - NP	Public/Quasi-Public
Heavy Industrial Area	Industrial
High Density Residential • NP	Residential
Industrial • NP	Industrial
Industrial - SBR	Industrial
Low Density Residential • NP	Residential
Military Land	Open/Agriculture/Low Density
Mixed Commercial/Residential/Office • NP	Residential
Mixed Industrial/Commercial • NP	Commercial
Mixed Industrial/Commercial • SBR	Commercial
Open Space Natural Area	Open/Agriculture/Low Density
Open Space/Natural Area • SBR	Open/Agriculture/Low Density
Outlying Area • SBR	Open/Agriculture/Low Density
Outskirt Boundary	Open/Agriculture/Low Density
Parks/Open Space • NP	Open/Agriculture/Low Density
Preferred Agricultural Land	Open/Agriculture/Low Density
Public Multi-Use • SBR	Public/Quasi-Public
Reserve Area	Open/Agriculture/Low Density
Rural/Suburban Commercial • SBR	Commercial
Rural/Suburban Residential • SBR	Residential
Urban Adjacent • SBR	Commercial
Urban Area	Commercial
Urban Preferred Commercial Area	Commercial

Note: Categories from the Salcha Badger Road Land Use Plan are identified with "SBR" and categories from the North Pole Land Use Plan are identified with "NP."

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