Air Installations Compatible Use Zones Program

The Department of Defense's (DoD's) Air Installations Compatible Use Zones (AICUZ) Program balances the needs of military operations with community concerns by promoting compatible use of lands in the vicinity of military installations. This is done to protect public health, safety, and welfare without degrading operational safety and mission requirements. AICUZ studies analyze the effects of military operational noise, aircraft accident potential, and land development on present and future neighbors of United States military installations.

This brochure summarizes the Joint Base Elmendorf-Richardson (JBER) 2019 AICUZ Study. The 2019 AICUZ Study provides an update to the former Elmendorf Air Force Base 2006 AICUZ Study. The update documents changes to flight operations and operational noise contours and provides compatible land use guidelines for land areas surrounding JBER.

Land close to JBER is exposed to increased noise levels. Without compatible land use controls, development in the surrounding areas could result in incompatible uses that create conflicts between military range and flight operations and landowners.

Joint Base Elmendorf-Richardson History and Mission

JBER is one of 12 DoD joint bases and was created in 2010 as a result of the merging of Elmendorf Air Force Base and U.S. Army Fort Richardson, in accordance with the 2005 Base Realignment and Closure (BRAC) Commission recommendations. The decision listed the Air Force as the supporting agency implementing and providing the funding vehicle for support to the entire joint base. Prior to the joint basing, both the Air Force and Army have had a long history in the area. Today, JBER's host unit, the 673d Air Base Wing (ABW), supports and enables three Air Force total-force wings, two Army brigades, and 75 associate and tenant units. The 673 ABW is responsible for providing expeditionary combat support and the day-to-day operations for the installation, including: ensuring timely fire, medical, and emergency services; providing deployment and redeployment support for nearly 9,000 deployable Soldiers and Airmen; and planning, building, and sustaining $15 billion of infrastructure.

JBER is important to U.S. national security because of its strategic location and complementary mix of military capabilities, including its air/ground force combined with Alaska training facilities.

[1] *Maps of Joint Base Elmendorf-Richardson flight tracks are available in the AICUZ Study.*

[2] *Runways at Bryant Army Airfield are classified as Class A. Runways at Elmendorf Airfield are classified as Class B.*

[3] *Imaginary surfaces are described in Unified Facilities Code 3-260-01 and 14 Code of Federal Regulations Part 77.17.*

Economic Impact

The DoD provides direct, indirect, and induced economic benefits to local communities through jobs and wages. Benefits include employment opportunities, increases in local business revenue, and revenue from the sale and taxing of property. Based on JBER's Fiscal Year 2018 economic impact analysis, the installation employs 10,228 active duty personnel; 1,815 Air Force Reserve/Air National Guard personnel; and 304 Non-extended Active-duty Reserve/Air National Guard, for a total of 12,347 personnel. In addition, JBER employs about 3,414 civilians. For Fiscal Year 2018, JBER's economic benefit for the state of Alaska was approximately $1.8 billion.

Noise Zones and Noise Metric

Under the AICUZ Program, the DoD provides noise zones to define noise exposure. Noise exposure is measured using the Day-night Average Sound Level (DNL), which is the standard metric used by many government agencies (e.g., the U.S. Environmental Protection Agency, Federal Aviation Administration) to address aircraft noise. The DoD also provides noise zones associated with large caliber weapons and explosives and small arms at JBER's ranges.

The DNL metric is based on the number of daily aircraft operations averaged over a year. A 10-decibel (dB) adjustment, or penalty, is included in the DNL metric for aircraft noise occurring between 10:00 p.m. and 7:00 a.m. because people are more sensitive to noise at night.

Noise exposure contours are based on typical operations and flight tracks. Note that flight tracks are not roadways in the sky.[1] Weather conditions, pilot technique, and other air traffic can cause some lateral deviation within the traffic pattern around a runway.

Clear Zones and Accident Potential Zones

The DoD provides Clear Zones and Accident Potential Zones (APZs) for Class A and Class B Runways as planning tools for local agencies. Clear Zones and APZs define the areas where an aircraft accident is likely to occur, if one were to occur.[2] Class B Runway Clear Zones and APZs are described as:

- **Clear Zone:** a 3,000-foot square area centered on the end of the runway.
- **APZ I:** a 3,000-foot-wide by 5,000-foot-long area beyond the Clear Zone and along the extended runway centerline.
- **APZ II:** a 3,000-foot-wide by 7,000-foot-long area beyond APZ I and along the extended runway centerline.

Hazards to Aircraft Flight Zone

Certain land uses and activities can pose potential hazards to flight. These land uses and activities may include:

- Uses that would attract birds, especially waterfowl;
- Towers, structures, and vegetation that penetrate navigable airspace or are to be constructed near the airfield;
- Lighting (direct or reflected) that would impair pilot vision;
- Uses that would generate smoke, steam, or dust; and
- Electromagnetic interference with aircraft communication, navigation, or other electrical systems.

The Air Force and Army have identified a Hazards to Aircraft Flight Zone (HAFZ) within the imaginary surfaces of the runways to address these concerns.[3] Unlike noise zones, Clear Zones, and APZs, the HAFZ does not have recommended land use compatibility (see the Compatible Development section). Instead, the HAFZ is a consultation zone within which the DoD requests that project applicants and local planning bodies consult with the DoD to ensure the project is compatible with installation operations.

Compatible Development

The AICUZ Program includes guidelines for land use within noise zones, Clear Zones, and APZs (see Tables 1-3). In general, these guidelines recommend that noise-sensitive land uses be placed outside of high noise zones and that people-intensive uses not be placed within APZs. Certain land uses are considered incompatible, while other land uses may be considered compatible, compatible with restrictions, or incompatible with exceptions.

At JBER, the range and aircraft noise zones, Clear Zones, and APZs are located mostly over installation property. Off-base, the existing land use within these areas is generally compatible, with some areas that are compatible with restrictions, incompatible with exceptions, and incompatible. The map on the opposite side of this brochure shows JBER's range and aircraft noise zones, Clear Zones, and APZs, as well as existing land use around the installation.

Land development should be compatible with noise zones, Clear Zones, and APZs around a military airfield. Although the military can serve in an advisory capacity, local and tribal governments, as well as private citizens control development beyond the boundaries of JBER.

The maps on the opposite side of this brochure reflect range and aircraft noise zones, Clear Zones, and APZs for JBER.

Table 1: Generalized Land Use Classification and Compatibility Guidelines for Aircraft Noise and Safety

GENERALIZED LAND USE CATEGORY	LAND USE COMPATIBILITY WITH NOISE ZONE (dB DNL)						CLEAR ZONE	APZ I	APZ II
	<65	65-69	70-74	75-79	80-84	85+			
Residential	Yes	No[1]	No[1]	No	No	No	No	No	No[1]
Commercial	Yes	Yes	Yes[2]	Yes[2]	No	No	No	Yes[2]	Yes[2]
Industrial	Yes	Yes	Yes	Yes	Yes[2]	No	No	Yes[2]	Yes[2]
Public/Quasi-Public	Yes	Yes[2]	Yes[2]	Yes[2]	No	No	No	No	Yes[2]
Recreation	Yes	Yes[2]	Yes[2]	No	No	No	No	Yes[2]	Yes[2]
Open/Agriculture/Low Density	Yes	Yes[2]	Yes[2]	Yes[2]	Yes[2]	Yes[2]	No	Yes[2]	Yes[2]
Undesignated	Yes	No	No	No	No	No	No	No	No

Key: Yes Compatible; No[1] Incompatible with exceptions; No Incompatible; Yes[2] Compatible with restrictions

Source: Adapted from AFI 32-1015.
Notes: This generalized land use table provides an overview of recommended land use. To determine specific land use compatibility, see Appendix A of the AICUZ Report.

Table 2: Generalized Land Use Classification and Compatibility Guidelines for Small Arms Noise

GENERALIZED LAND USE CATEGORY	Land Use Compatibility with Noise Zone dB Peak Pressure (dB PK15 (met))		
	NOISE ZONE I <87 dB PK15 (met)	NOISE ZONE II 87-104 dB PK15 (met)	NOISE ZONE II >104 dB PK15 (met)
Residential	Yes	No[1]	No
Commercial	Yes	Yes[2]	Yes[2]
Industrial	Yes	Yes[2]	Yes[2]
Public/Quasi-Public	Yes	Yes[2]	Yes[2]
Recreation	Yes	No	No
Open/Agriculture/Low Density	Yes	Yes[2]	Yes[2]
Undesignated	Yes	No	No

Source: Adapted from AFI 32-1015.
Notes: This generalized land use table provides an overview of recommended land use. To determine specific land use compatibility, see Appendix A of the AICUZ Report.

Key: Yes Compatible; No[1] Incompatible with exceptions; No Incompatible; Yes[2] Compatible with restrictions

Table 3: Generalized Land Use Classification and Compatibility Guidelines for Artillery/Explosives Noise

GENERALIZED LAND USE CATEGORY	Land Use Compatibility with Noise Zone Day-night Average Sound Level (CDNL)		
	LUPZ 57-62 (CDNL)	NOISE ZONE II 62-70 (CDNL)	NOISE ZONE III >70 (CDNL)
Residential	Yes	No[1]	No
Commercial	Yes	Yes	No
Industrial	Yes	Yes[2]	Yes[2]
Public/Quasi-Public	Yes	No[1]	No
Recreation	Yes	No	No
Open/Agriculture/Low Density	Yes	Yes[2]	Yes[2]
Undesignated	Yes	No	No

Source: Adapted from AFI 32-1015 .
Notes: This generalized land use table provides an overview of recommended land use. To determine specific land use compatibility, see Appendix A of the AICUZ Report. LUPZ – Land Use Planning Zone is an area to implement controls to function as a buffer for Noise Zone II to prevent possibility of future noise conflicts.

Key: Yes Compatible; No[1] Incompatible with exceptions; No Incompatible; Yes[2] Compatible with restrictions

Based and Transient Aircraft Utilizing Joint Base Elmendorf-Richardson

The types of aircraft operating at JBER are primarily fixed-wing (airplanes and jets), with some rotary-wing (helicopters). Transient aircraft conduct flight operations at JBER.

Based Aircraft

F-22 Raptor: A fifth-generation, single-seat, twin-engine, all-weather stealth tactical fighter aircraft. The F-22 performs both air-to-air and air-to-ground missions and is a critical component of the Global Strike Task Force.

C-17 Globemaster III: A cargo aircraft capable of rapid, strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases in the deployment area. The maximum payload capacity of the C-17 is 170,900 pounds, and it has an approximate cruise speed of 450 knots. The aircraft is operated by a crew of three: a pilot, co-pilot, and loadmaster.

C-12F Huron: A twin turboprop aircraft that provides operational support airlift of passengers and cargo. The C-12 has a crew of two and can carry up to eight passengers. The aircraft has a cargo capacity of 56 cubic feet. The C-12 can also transport patients on medical evacuation litters.

HC-130J Combat King II: A version of the well-known C-130 Hercules tactical transport aircraft that has been specially modified and upgraded to perform combat search-and-rescue missions. The HC-130J supports missions in all-weather and geographic environments. It is also tasked for airdrop, helicopter air-to-air refueling, and forward-area ground refueling missions and can also support humanitarian aid operations, disaster response, security cooperation/aviation advisory, and evacuation operations.

E-3 Sentry: An airborne warning and control system, or AWACS, aircraft with an integrated command and control battle management, surveillance, target detection, and tracking platform. It is a modified Boeing 707/320 commercial airframe with a rotating radar dome.

UH/HH-60: The UH-60 Black Hawk is a twin-engine, medium-lift helicopter that provides air assault, general support, aero-medical evacuation, command and control, and special operations support to combat and stability operations. An 11-person, fully-equipped infantry squad can be lifted in a single Black Hawk. The Sikorsky MH060G Pave Hawk is a twin-turboshaft engine helicopter in service with the Air Force. It is a derivative of the UH-60 Black Hawk and incorporates the Air Force's PAVE electronic systems program.

Transient Aircraft

In addition to those aircraft assigned to JBER, the base hosts a variety of transient aircraft. These include fighters, bombers, transport and refueling aircraft, as well as aircraft that support contract airlift missions and military aircraft from many nations, fostering international partnerships. Some of these are:

C-21: A twin turbofan-engine aircraft used for passenger and cargo airlift. The aircraft can transport one litter or five ambulatory patients for aeromedical evacuation operations. It has a crew of two and can carry eight passengers and 42 cubic feet of cargo. The C-21 is the military version of the Learjet 35A business jet. (USAF 2019)

Boeing 737 (B-737): A short- to medium-range twin-engine jet that was developed and manufactured by Boeing Commercial Airplanes in the United States. The B-737 is a common commercial jetliner used worldwide, with several series in operation. These include the original, classic, next generation, business jet, and most recently, the MAX.

KC-135 Stratotanker: A military aerial refueling aircraft with a crew of three. It provides aerial refueling support to Air Force, Navy, Marine Corps and allied nation aircraft and is capable of transporting litter and ambulatory patients using patient support pallets during aeromedical evacuations.

Air Installations Compatible Use Zones (AICUZ) Brochure for Joint Base Elmendorf-Richardson Alaska

U.S. AIR FORCE

2019

For More Information:

Concerned citizens are encouraged to contact the following with any noise complaints:

Joint Base Elmendorf-Richardson Public Affairs Office at (907) 552-8151

Send an email to jber.pa@us.af.mil

Joint Base Elmendorf-Richardson posts information on the installation website, including alerts about upcoming aircraft and training operations that may be shared publicly:

Website: https://www.jber.jb.mil/

Facebook: https://www.facebook.com/JBERAK/

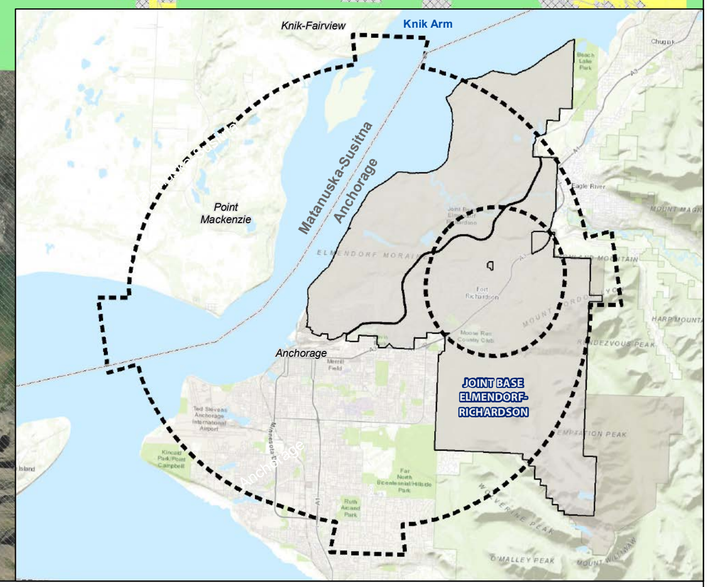
Joint Base Elmendorf-Richardson
Air Installations Compatible Use Zones

Composite AICUZ Footprint: 2019 AICUZ Noise Contours, Clear Zones, and Accident Potential Zones, JBER

Existing Land Use

- Commercial
- Communications
- Light Industrial
- Heavy Industrial
- Institutional
- Mixed Use
- Mobile Home
- Single-Family Residential
- Multi-Family Residential
- Parks and Open Space
- Transportation
- Undeveloped
- Utility
- Vacant
- Water
- No Data Available

Knik-Fairview
Knik Arm
Point MacKenzie
Matanuska-Susitna
Anchorage
ELMENDORF AIRFIELD
BRYANT army AIRFIELD
JOINT BASE ELMENDORF-RICHARDSON
Ted Stevens Anchorage Int'l Airport
Anchorage



Legend

- Major Highway
- Railroad
- Airfield Runway
- Runway 16 Extension
- Installation Boundary
- Municipal Boundary/ Census Designated Place
- Aircraft Noise Contour, dB DNL
- Large Caliber Weapons and Explosives Noise Contour, CDNL
- Small Arms Peak Noise Contour, dB PK15 (met)
- Clear Zone
- Accident Potential Zone I
- Accident Potential Zone II

Inset

- HAFZ Consultation Zone

N

0 1 2 Miles

Source: AFCEC 2018, 2019; Digital Globe 2017; ESRI 2017; NGA/DHS 2015; U.S. Census Bureau 2018.

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