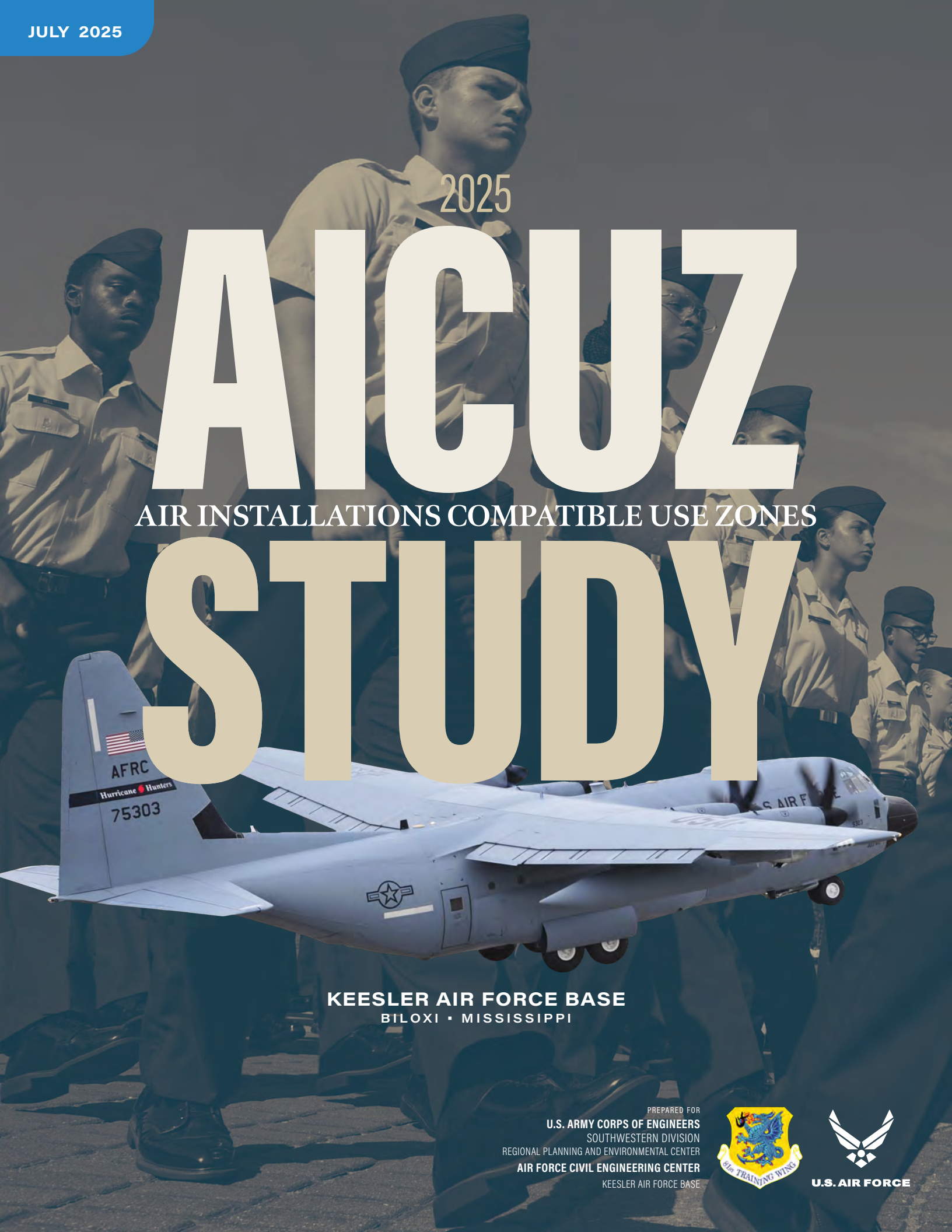
JULY 2025

2025

AICUZ STUDY

AIR INSTALLATIONS COMPATIBLE USE ZONES



KEESLER AIR FORCE BASE
BILOXI • MISSISSIPPI

PREPARED FOR
U.S. ARMY CORPS OF ENGINEERS
SOUTHWESTERN DIVISION
REGIONAL PLANNING AND ENVIRONMENTAL CENTER
AIR FORCE CIVIL ENGINEERING CENTER
KEESLER AIR FORCE BASE

81st TRAINING WING

U.S. AIR FORCE

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 81ST TRAINING WING (AETC)

MEMORANDUM FOR AREA GOVERNMENTS

FROM 81 TRW/CC
720 Chappie James Ave
Keesler AFB MS 39534-2604

Subject: Air Installation Compatible Use Zones (AICUZ) Study

1. The 2025 AICUZ Study for Keesler Air Force Base (AFB) is an update of the installation's 2010 study. The Air Force initiated the update to include changes in local land uses and planning contours. It is a reevaluation of the installation's 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 Keesler 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 Keesler AFB has experienced with its neighbors over the years. As a partner in the process, the installation has attempted to limit noise disturbances by restricting runups at certain locations while deliberately avoiding flights over heavily populated areas and noise-sensitive land uses such as hospitals and farms. 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.

5. If you have any questions, please feel free to contact our Community Planner, Ms. Teresa Shelton at 228-377-5829, or teresa.shelton.1.ctr@us.af.mil.

CHRISTOPHER J. ROBINSON, Colonel, USAF
Commander

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Abbreviations and Acronyms

AAFES	The Army & Air Force Exchange Service
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zones
ADNL	A-Weighted DNL
AFCEC	Air Force Civil Engineering Center
AGL	Above Ground Level
APZ	Accident Potential Zone
ATARS	Air Traffic Activity Reporting System Annual Report
ATC	Air Traffic Control
BASH	Bird/Wildlife Aircraft Strike Hazard
CB	Community Business
CFR	Code of Federal Regulations
CY	Calendar Year
CZ	Clear Zone
DAFH	Department of the Air Force Handbook
DAFI	Department of the Air Force Instruction
dB	Decibel
DCDC	Defense Communities Development Council
DECA	Defense Commissary Agency
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DODI	Department of Defense Instruction
EMI	Electromagnetic Interference
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
GOMA	Governor's Office of Military Affairs
GRPC	Gulf Regional Planning Commission
HAFZ	Hazards to Flight Zone
Hz	Hertz
ICC	Installation Commanders Council
JLUS	Joint Land Use Study
MDI	Mississippi Defense Initiative
MPO	Metropolitan Planning Organization
MSL	Mean Sea Level
NAF	Non-Appropriated Fund
NVGs	Night Vision Goggles
OLDCC	Office of Local Defense Community Cooperation
PA	Public Affairs
SFO	Simulated Flame-Out
SLUCM	Standard Land Use Coding Manual
SMPDD	Southern Mississippi Planning and Development District
T&G	Touch and Go
TRW	Training Wing
UAS	Unmanned Aircraft System
VFR	Visual Flight Rules


City Of
BILOXI


BILO
ONLY

1. INTRODUCTION

The 2025 Keesler 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 2010. It reaffirms the United States Air Force's policy of promoting public health, safety, and general welfare in areas surrounding Keesler AFB, while seeking development that is compatible with the defense mission. This study presents changes in flight operations since the previous study and provides current 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 Clear Zone begins at the end of the runway and is the area of highest accident potential. Accident Potential Zone (APZ) I lies beyond the Clear Zone and has a lower level of accident potential, while still considerable. Accident Potential Zone (APZ) II is beyond APZ I and possesses less accident potential, but still warrants land use restriction recommendations.

The Hazards to Aircraft Flight Zone (HAFZ) is defined as the area within the Imaginary Surfaces that are described in the UFC 3-260-01, *Airfield and Heliport Planning and Design,* 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 Keesler 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

- *Keesler AFB Air Installation Compatible Use Zone Study, 2010*
- *Keesler AFB Joint Land Use Study, 2017*
- *Keesler AFB Noise Study, 2020*

1.4 CHANGES THAT REQUIRE AN AICUZ STUDY UPDATE

This 2025 Keesler AFB AICUZ Study replaces the 2010 version. It provides the installation's flight tracks, CZs, APZs, and noise contour information, presenting the most accurate representation of future military activities. With this information, the AICUZ Program allows 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 Keesler AFB AICUZ Study include:

- **Changes to planning noise contours:** The 2020 noise study provided an updated set of noise contours that are referenced by this AICUZ Study. Operational changes, including number of operations, night operations, and runway utilization have resulted in changes to the contours.
- **Changes in modeling software:** The noise study modeling software has been updated to better capture and reflect current noise patterns. This 2025 AICUZ study reflects the noise contours created from the latest noise modeling software.
- **Changes in AICUZ AFI:** AFI 32-1015, *Integrated Installation Planning,* and AFH 32-7084, *AICUZ Program Manager's Guide,* were published after the 2010 Keesler AFB AICUZ Study was released.
- **Changes in off-installation land use and/or projected land use:** In the years since the 2010 AICUZ Study was prepared for Keesler AFB, the region has seen increased demand for residential and commercial development. Specifically, there has been significant development following Hurricane Katrina and the 2008 recession. Land use, zoning regulations, and comprehensive planning processes in the surrounding municipalities have evolved. An updated AICUZ Study will enhance understanding of where growth is occurring and identify any current land use compatibility issues and concerns related to more current aircraft operations at Keesler AFB.

2. KEESLER AFB, MISSISSIPPI

2.1 LOCATION

Keesler AFB is located in Biloxi, Mississippi, a city in the Gulf Coast region of the state. The city of Biloxi, which had a population of approximately 50,000 at the 2020 Census, is a strong economic center in southern Mississippi and is known for its tourism, gaming, and seafood processing industries. The region experienced significant destruction caused by Hurricane Katrina in 2005, but has since seen the rebuilding of commercial uses along the waterfront and significant residential growth inland on the north side of Biloxi and in the City of D'Iberville. Keesler AFB has an area of approximately 3,500 acres and is located on the Mississippi Sound, an inlet of the Gulf of Mexico.

Location of Keesler AFB within Mississippi

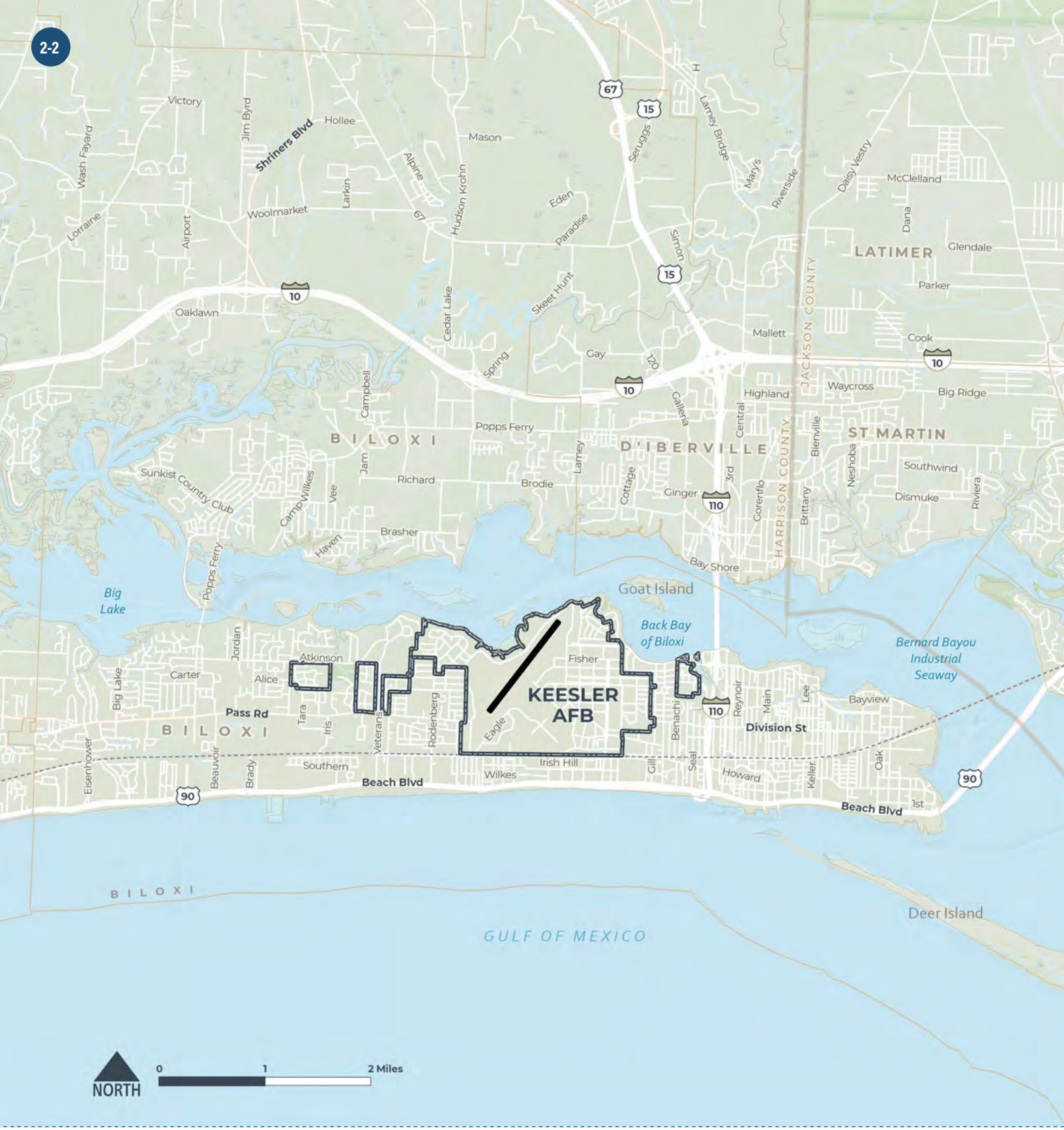
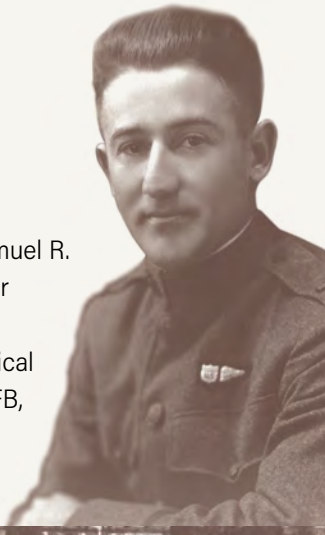


FIGURE 2-1
Keesler AFB Regional Setting

2.2 HISTORY

In January 1941, the City of Biloxi reached out to the U.S. Army, inviting them to build a base in the city to support the World War II buildup. It was activated that summer and named after Second Lieutenant Samuel R. Keesler, a Mississippi native killed in action in World War I. Its original purpose was to train personnel for World War II as a technical training center, which it served throughout the course of the war. The base's mission evolved as the needs of the U.S. military evolved, causing Keesler AFB to begin providing technical and mechanical training to its students. Notably, the famed Tuskegee Airmen were trained at Keesler AFB, with over 7,000 Tuskegee Airmen stationed at Keesler AFB in 1943.



Second Lieutenant Samuel R. Keesler lost his life in battle during World War I.

With the establishment of Keesler AFB, Biloxi's population and economy grew considerably, from over 17,000 residents in 1940 to over 37,000 in 1950.

After World War II, Keesler AFB was home to the two largest military technical schools in the United States. Keesler AFB officially became an Air Force base in 1948, following the Air Force becoming an independent branch of the military. Focusing on training Airmen, Keesler AFB was known as the "Electronics Training Center of the Air Force." For the next several decades, the flying missions at Keesler AFB decreased in prominence, and the base continued to evolve its training program, providing training to thousands of Airmen from across the country.

In 1973, the 53rd Weather Reconnaissance Squadron was moved to Keesler AFB, where it has stayed since. In that same year, the 815th Airlift Squadron was activated at Keesler AFB. Known as the "Flying Jennies," the squadron has performed weather reconnaissance and tactical airlifts from Keesler AFB.

The 403rd Wing of the Air Force Reserve was assigned to Keesler AFB in 1983. In 1993, the Second Air Force and 81st Training Wing (TRW) were stationed at Keesler AFB; the 81st TRW has since been the host wing. Since 2012, there have been plans for the 815th Airlift Squadron and its aircraft to be moved from Keesler AFB or deactivated entirely. The local community, Biloxi city officials, Mississippi Congressional representatives, and the Governor successfully advocated for keeping the squadron at Keesler, citing the vital role the flying unit has in the local and regional economy. Currently, Keesler AFB houses the headquarters of the Second Air Force and continues its mission of training Air Force personnel in critical technical fields.

2.3 MISSION

Keesler AFB is the host site for the 81st TRW and home to the headquarters of the Second Air Force. The mission of Keesler AFB is to train and develop warfighters. Focusing on training and education, Keesler AFB is home to the second largest training wing in the United States.

2.4 HOST AND TENANT ORGANIZATIONS AND OTHER MISSION PARTNERS

81st TRW

As the host organization for Keesler AFB, the 81st TRW is part of the Second Air Force and is one of the largest training wings in the U.S. Air Force. The 81st TRW is responsible for training personnel in fields such as communications, electronics, cyber operations, and weather forecasting, ensuring that Airmen possess the skills necessary to support global military operations. The 81st TRW also instructs personnel in other branches of the military, including Army, Navy, Marine Corps, and Coast Guard. The 81st TRW provides over 160 courses and trains over 30,000 students per year. Although they do not engage in flight operations like an air base wing, the 81st TRW operates in a similar manner.

403rd Wing

The 403rd Wing is an Air Force Reserve unit at Keesler AFB. It is composed of two squadrons that fly regularly: the 53rd Weather Reconnaissance Squadron and the 815th Airlift Squadron. The 403rd Wing falls under the 22nd Air Force at Dobbins Air Reserve Base. The mission of the 403rd Wing is to support tactical airlift missions.

53rd Weather Reconnaissance Squadron

The 53rd Weather Reconnaissance Squadron, also known as the "Hurricane Hunters," is located at Keesler AFB and falls under the 403rd Wing. It is the only unit in the world that regularly flies weather reconnaissance. The mission of the squadron is to organize weather reconnaissance flights and train personnel to perform them. Using technology on the aircraft, the flights collect data about hurricanes as well as tropical and winter storms. The squadron has 10 WC-130 aircraft.

815th Airlift Squadron

The 815th Airlift Squadron, also known as the "Flying Jennies," falls under the 403rd Wing and flies regularly at Keesler AFB. The squadron is assigned 10 C-130s. The squadron's mission includes providing logistical support and ground forces around the world during peacetime, and supporting resupply, evacuation, and airlift forces during wartime.

2.5 AIRFIELD ENVIRONMENT

The runway is located on the northeast area of the installation. There is one Class B runway, and no auxiliary or outlying airfields. The runway is oriented 04/22 and is 7,630 feet long and 150 feet wide. Runways 22 and 04 have a tactical air navigation system and a category one instrument landing system. There are six taxiways on the airfield, ranging from 75 to 205 feet wide. The airfield elevation is 33 feet mean sea level (MSL).

Instead of overruns, the runway has displaced thresholds on both ends. "Displaced threshold" refers to the end of the usable part of a runway, even when the runway itself extends beyond that point. Keesler AFB has displaced thresholds due to the presence of vertical obstructions on the south and north ends of the runway (utility poles and potential ship heights, respectively), which require aircraft to take off before the end of the runway to avoid collisions.

Tall trees, power lines, and a railroad spur create a 1,600 foot encroachment on the southern end of the runway. A similar encroachment exists for the north end of the runway that was determined by analyzing the glide slopes for approaching and departing aircraft if a large ship were in the Back Bay channel. These encroachments shrink the usable area of the runway and affect aircraft operations, particularly transient aircraft that are not designed for short runways.

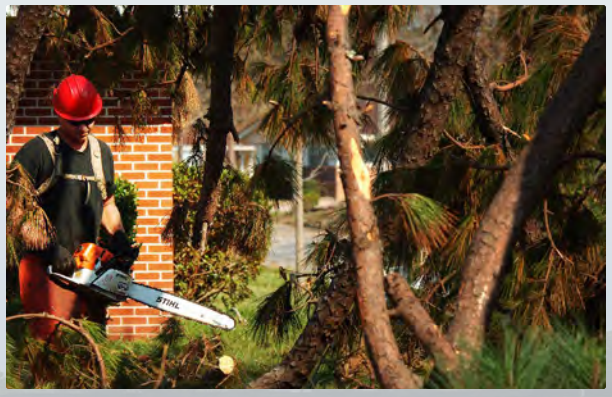


FIGURE 2-2
Keesler AFB
Airfield Diagram

2.6 LOCAL ECONOMIC IMPACTS

Keesler AFB boasts an annual federal payroll of $472 million and a total adjusted economic impact of $1.1 billion. This 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 2021 Economic Impact Statement from Keesler AFB, there are 23,331 total personnel within Keesler AFB, including over 2,100 civilian employees and over 1,200 military dependents.

Tables 2-1 through 2-3 provide summaries of personnel for Keesler 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 and Civilian Personnel (Total Persons)

MILITARY PERSONNEL	TOTAL
Workforce	7,798
Distance Learning Students	6,670
Sub-Total	**14,468**
Appropriated Fund Civilians	Total
(Air Force) General Schedule	1,439
(Air Force) Federal Wage Board	196
Other Civilians	12
Sub-Total	**1,647**
NON-APPROPRIATED FUND AF CIVILIANS	**TOTAL**
Non-Appropriated Fund (NAF) Activity	301
Army & Air Force Exchange Service (AAFES)	168
Defense Commissary Agency (DECA)	77
Sub-Total	**546**
Total	**16,661**

Source: Keesler AFB Economic Impact Statement FY2023

TABLE 2-2

Total Military and Civilian Payroll (Millions of Dollars)

PAYROLL CATEGORY	AMOUNT
Military Personnel	$294.65
Civil Service	$178.24
Appropriated Fund Civilians	$155.51
Non-Appropriated Fund AF Civilians	$22.73
Total	**$651.13**

Source: Keesler AFB Economic Impact Statement FY2023

TABLE 2-3

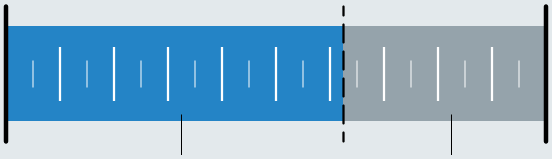
Summary of Purchasing (Millions of Dollars)

EXPENSE CATEGORY	AMOUNT
Construction	$52.81
Utilities	$10.47
Food and Beverage	$9.14
Educational Services	$3.83
Other Services	$2.82
Other Local Expenditures	$22.45
Local Travel Spending	$85.53
Total	**$187.05**

Source: Keesler AFB Economic Impact Statement FY2023

MILITARY VS. CIVILIAN PAYROLL

KEESLER AIR FORCE BASE

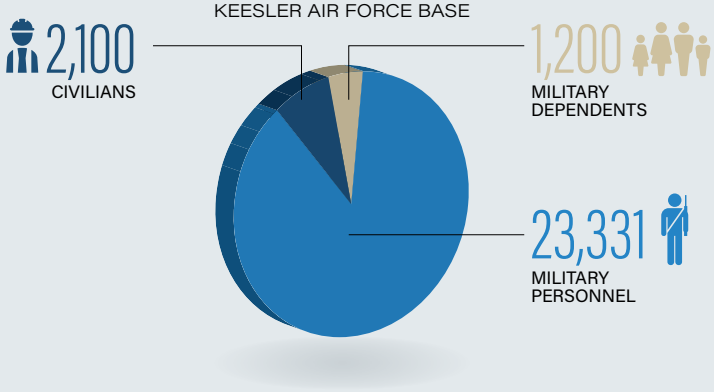


$294,650,000
Military Payroll

$178,240,000
Civilian Payroll

POPULATION

KEESLER AIR FORCE BASE



ECONOMIC BENEFITS

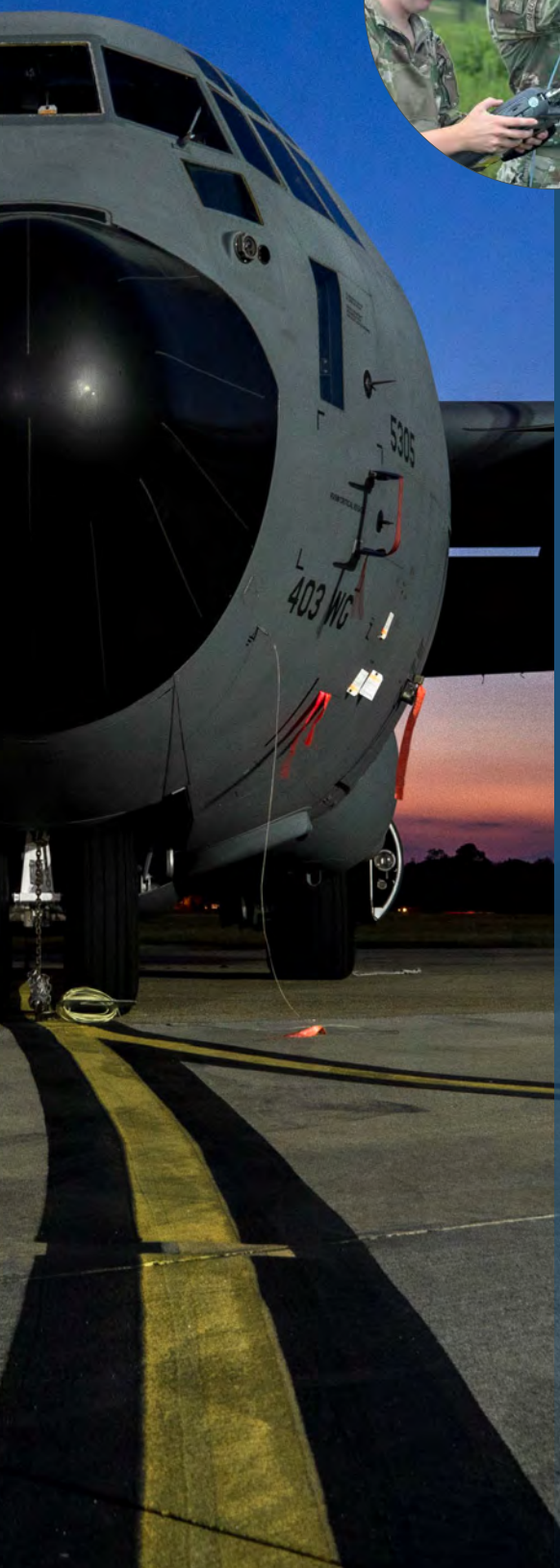
KEESLER AIR FORCE BASE

$472,000,000
ANNUAL FEDERAL PAYROLL

$187,000,000
TOTAL SUMMARY OF PURCHASING

$1,100,000,000
TOTAL ADJUSTED ECONOMIC IMPACT


3



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 Keesler AFB, the types and number of operations conducted at the airfield, and the runways and flight tracks used to conduct these operations.

3.1 AIRCRAFT TYPES

There are two primary types of aircraft operating at Keesler AFB: fixed-wing and rotary-wing (helicopters). Aircraft permanently based at Keesler AFB most commonly conduct flight operations at the installation. 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 Keesler AFB.

3.1.1 Permanently Assigned Aircraft

C-130

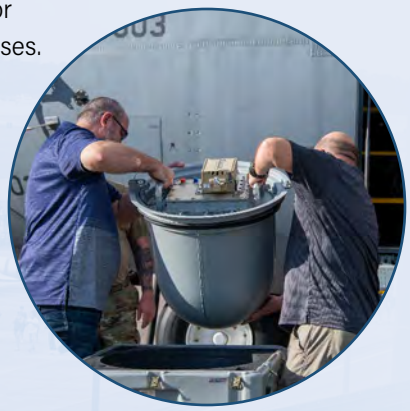
The C-130 is an aircraft designed to perform tactical airlift missions. This aircraft can take off and land on incomplete runways. Its primary function involves dropping off equipment to troops but is often involved in other tasks such as aeromedical evacuations, aerial spray operations, and firefighting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

BASED | WC-130

BASED | C-130

WC-130

The WC-130 is an advanced aircraft equipped with weather monitoring technology. The WC-130 is designed to be versatile and resilient during adverse weather conditions. Its primary purpose is flying into storms to gather crucial data for forecasting and tracking purposes. During storm seasons, the frequency of WC-130 flights increases significantly.



3.1.2 Transient Aircraft

Additional common transient aircraft include fighters, bombers, transport, refueling aircraft, and other Unmanned Aircraft Systems (UAS). While not an exhaustive list, some of the most prevalent transient aircraft present at Keesler AFB are listed below.


TRANSIENT | C-12

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.


TRANSIENT | C-21A

C-21A

The C-21 Learjet is a small, agile aircraft that completes various specialized transportation missions. Some of these missions include passenger transport, cargo transport, and medical evacuations.

TRANSIENT | T-6

T-6

The T-6 is an aircraft used to train Navy and Air Force pilots. There are two seats in the cockpit: one for an instructor and one for a student. Due to its acrobatic capabilities, this aircraft is often showcased in air shows and displays.


TRANSIENT | UH-60

UH-60

The UH-60 is a helicopter designed to carry combat troops, with a maximum capacity of 14 soldiers. Since its design in 1979, it has become one of the most widely used helicopters in the military.


TRANSIENT | A-10

A-10

The A-10 was designed to support close ground operations, like delivering weapons, as it can move quickly and efficiently at low altitudes. Because of its endurance, it can last significant amounts of time in battle and is hardened to survive hits and explosions.

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 safely meet their flying requirements. Two key tasks in maintaining aircraft are low- and high-powered engine maintenance runs. Keesler 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 (see **Figure 2-2** for the run-up locations).

Aircraft maintainers conduct engine maintenance runs at power settings ranging from idle to maximum power and typically conduct low- to mid-range-powered runs on aircraft parking ramps or just outside of maintenance hangars. High-powered runs are usually conducted in test cells (for out-of-frame engine testing) and in acoustical enclosures, commonly referred to as "hush houses" (i.e., buildings specifically designed to muffle engine noise during in-frame testing). Noise associated with these operations is included in the noise analysis for the Keesler AFB noise contours.

Keesler AFB usually conducts engine runs during airfield operating hours (8:00 AM – 11:00 PM) but will occasionally conduct engine runs outside of airfield opening hours.

3.3 FLIGHT OPERATIONS

Flight activities, including where aircraft fly, how high they fly, the 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 Keesler AFB.

Each time an aircraft crosses over a runway threshold (the beginning or ending of a runway's usable surface) to either take off, 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.

This AICUZ Study considers flight operations conducted at Keesler AFB, including both based and transient military aircraft associated with the base. 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

When a pilot positions an aircraft on the runway, the engine power is set to facilitate movement and eventual flight. Aircraft follow specific ground tracks and altitude restrictions as they depart the airfield's immediate airspace.

Arrival

An aircraft performing an arrival aligns with the runway extended centerline and begins a gradual descent for landing. Arriving aircraft also follow specific ground tracks and altitudes as they transition through air traffic control airspace to the runway.

Patterns

When an aircraft conducts successive takeoffs and landings without exiting the traffic pattern.

- **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.
- **VFR Arrival to Initial:** A VFR Arrival to Initial is an expeditious arrival using visual flight rules (VFR). The aircraft arrives over the airfield on the runway centerline at a specified point and altitude and then performs a 180-degree "break turn" away from the runway to enter the landing pattern. Once established, the pilot lowers the landing gear and flaps and then performs a second 180-degree descending turn toward the runway centerline to land.
- **Closed Pattern:** The Closed Pattern refers to traffic pattern training where the pilot performs takeoffs and landings in quick succession by taking off, flying the pattern, and then landing. A closed pattern consists of two portions: a takeoff/departure and an approach/landing. A complete closed pattern is counted as two operations because the aircraft crosses over a runway threshold twice, once on departure and once on arrival. The closed pattern is normally conducted within 5 miles of the runway. Traffic pattern training is demanding and utilizes all the basic flying maneuvers a pilot learns—takeoffs, climbs, turns, climbing turns, descents, descending turns, and straight and level landings.
- **Simulated Flame-Out (SFO):** This is a visual flight maneuver used to simulate a landing recovery from a complete loss of engine thrust. To execute the maneuver, a pilot must establish the aircraft on a specified flight profile (altitude, airspeed, position over the airfield) that would allow the aircraft to glide safely across the runway threshold in a position to land. If properly executed, the maneuver should not require the use of additional engine power until after the maneuver is complete.

Circling Approaches

- Used in certain situations when there is a non-standard runway or adverse weather and terrain conditions, this approach includes pilots using a circling maneuver to align with the intended landing area.

Tactical Beam Approaches

- A tactical beam approach is a procedure used by aircraft to land in unfavorable weather conditions where other navigations aids may be limited. Tactical beam approaches use radar to project a beam onto an approach path, guiding the aircraft until it lands safely.

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 Keesler AFB over the past 20 years, including based and transient aircraft.

According to Air Traffic Activity Reporting System (ATARS) data from the Air Force Civil Engineering Center (AFCEC), over 7,500 air operations were conducted at Keesler AFB in 2023. This number is a decrease, but comparable, to operations levels since 2011. Weather patterns and the shifting geopolitical climate impact the level of activity at Keesler AFB.

Currently, there are no anticipated increases or decreases in flying missions for the base.

FIGURE 3-1

Summary of Flight Operations for Calendar Years (CYs) 2019-2023

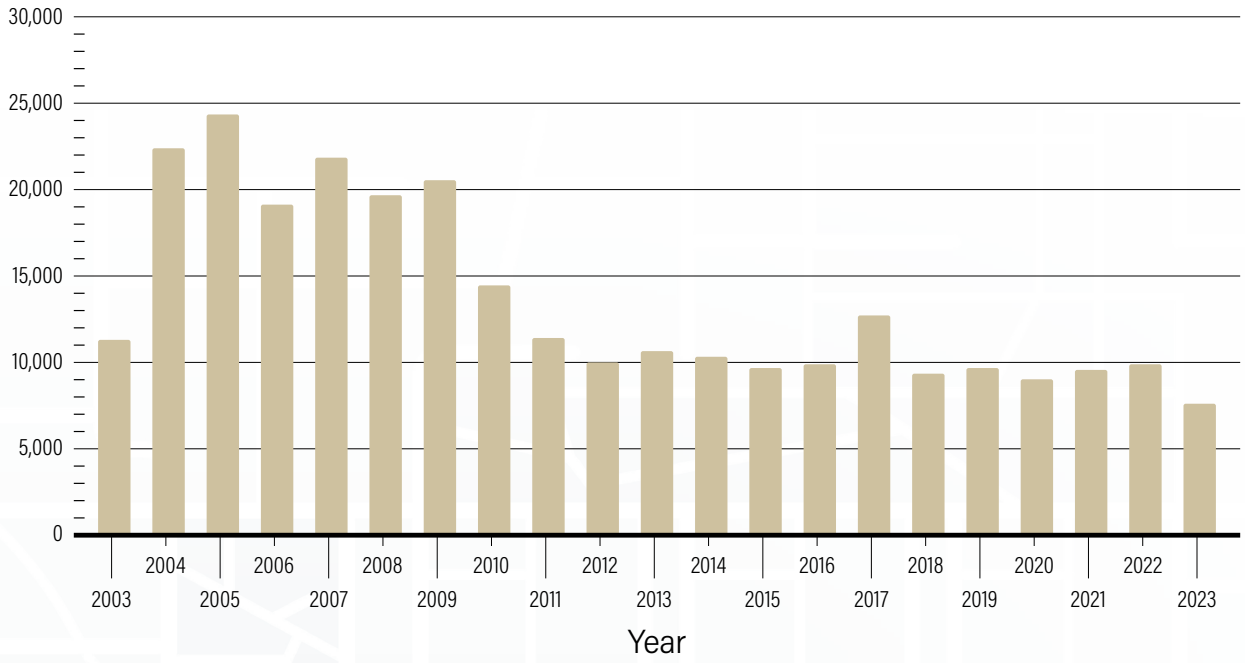
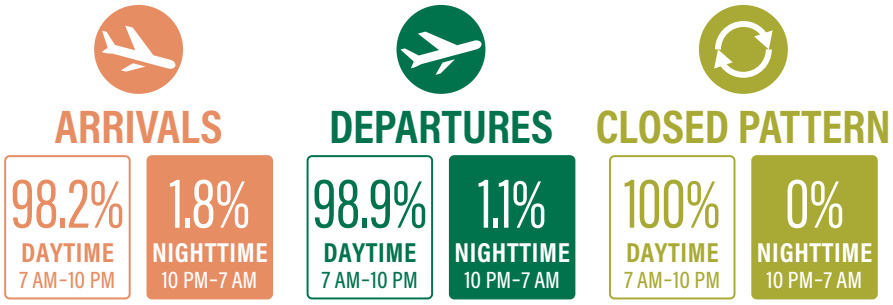


FIGURE 3-2
Time of Day for Arrivals, Departures, and Pattern Operations



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.

Air Traffic Control (ATC) personnel establish the runway in use and adjust pattern procedures accordingly to maximize air traffic flow efficiency. **Table 3-2** lists how frequently each runway at Keesler AFB is used.

TABLE 3-1
Runway Utilization

RUNWAY DIRECTION	RUNWAY UTILIZATION
Runway 22	75%
Runway 04	25%

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 Keesler AFB.

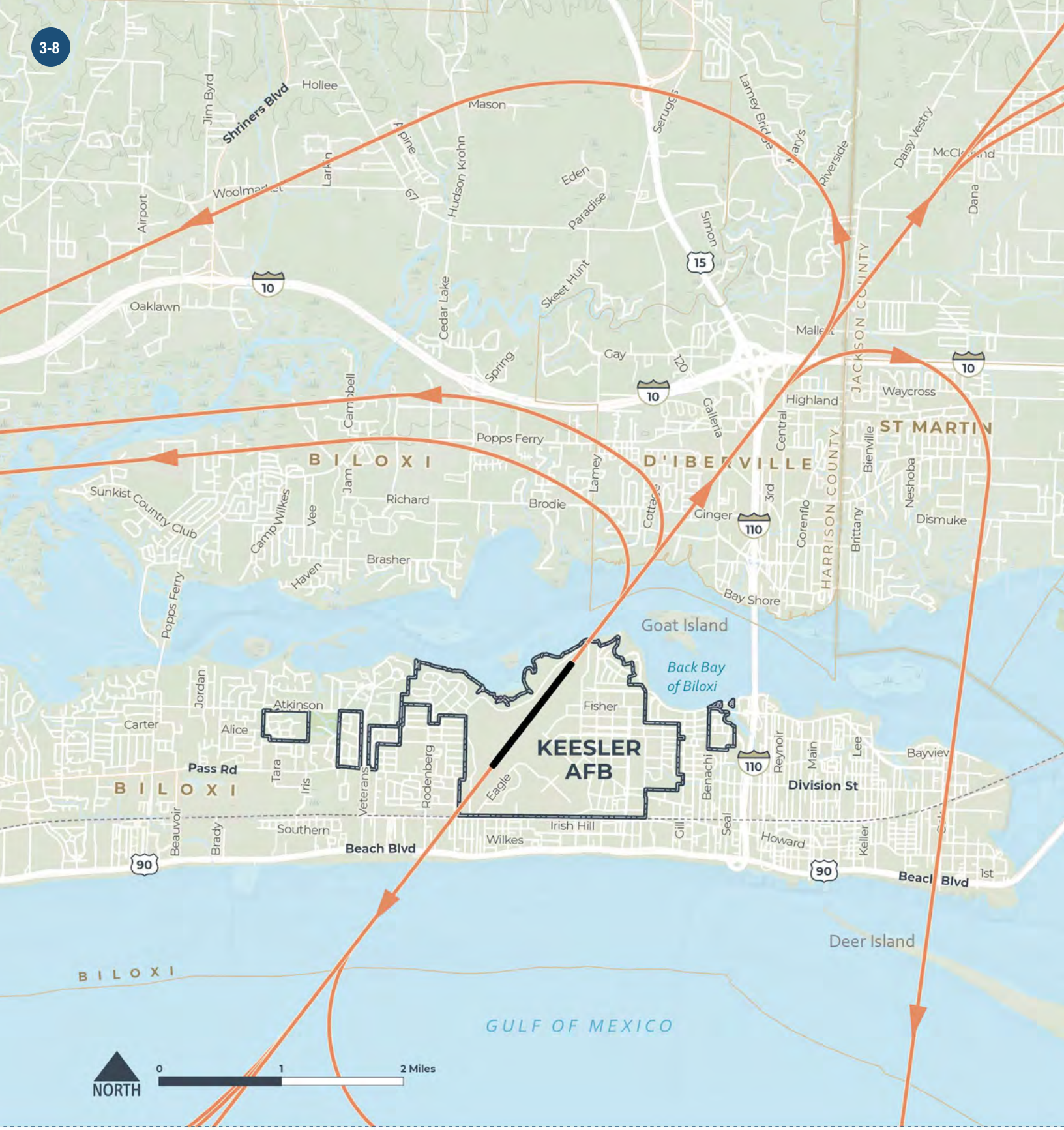


FIGURE 3-3
Keesler AFB Departure Flight Tracks

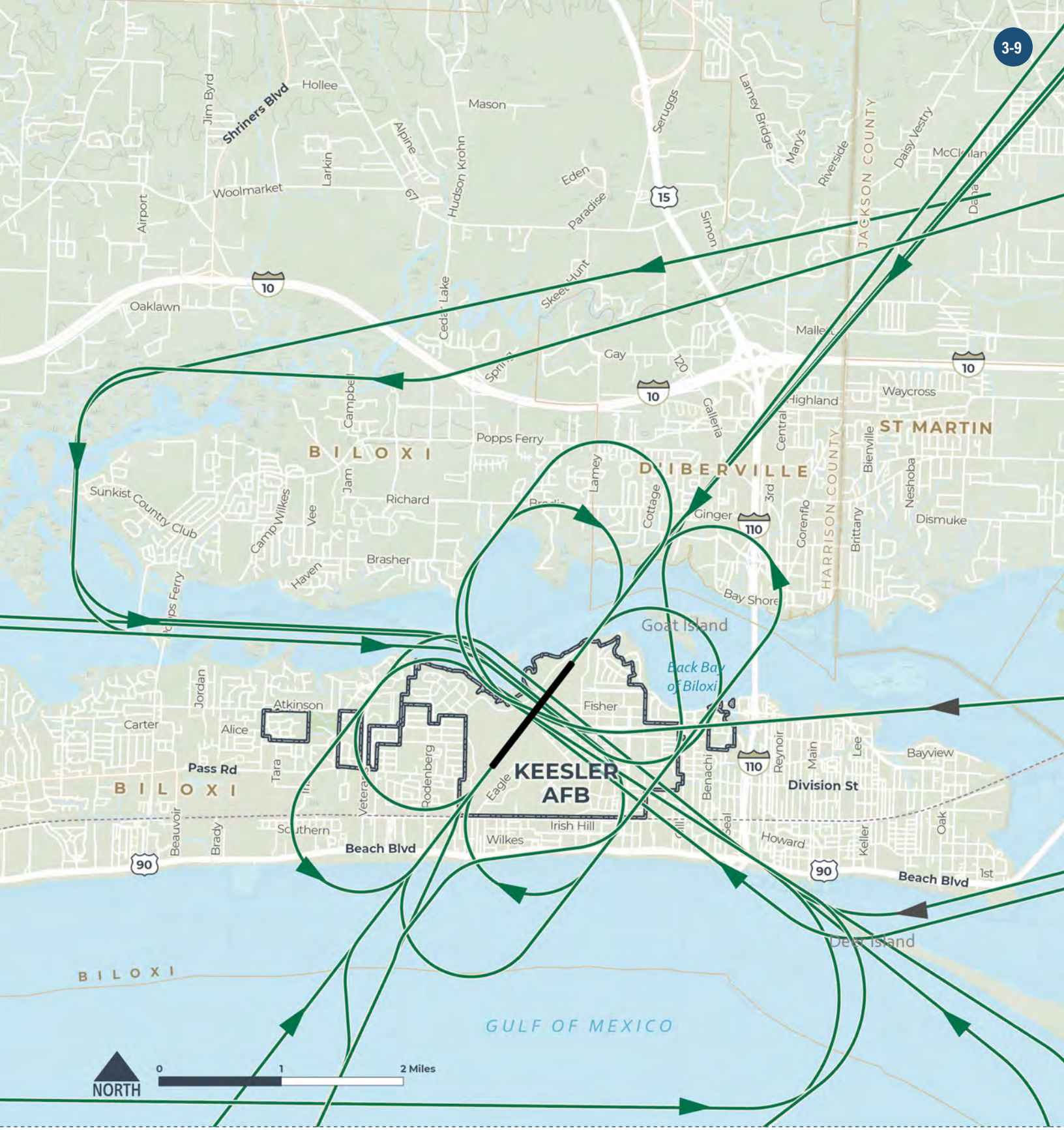


FIGURE 3-4
Keesler AFB Arrival Flight Tracks

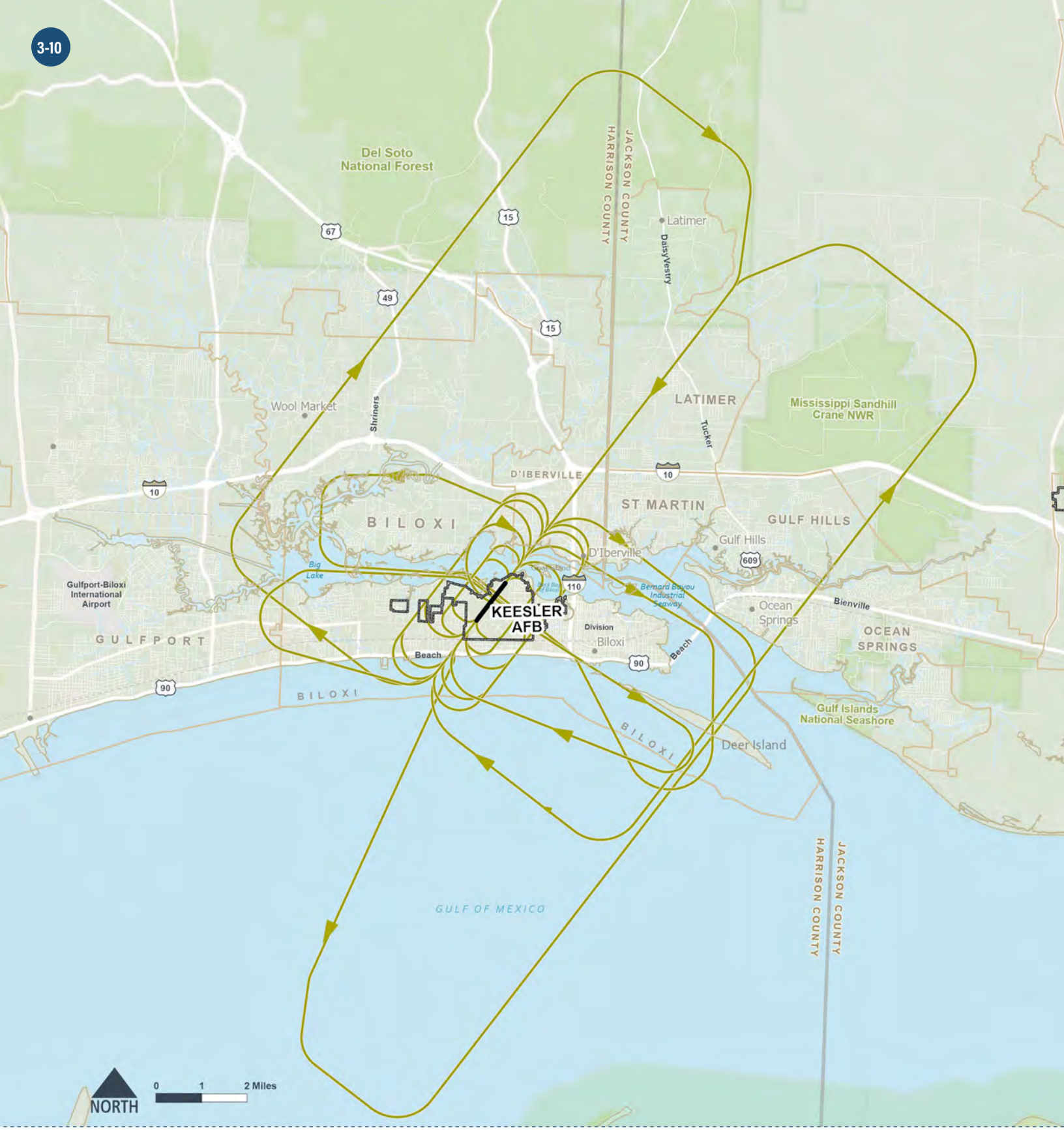


FIGURE 3-5

Keesler AFB Pattern Flight Tracks


4
BOSE
HURRICANE HUNTERS

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 impacts 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 Keesler 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 Keesler AFB 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—comprised 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 (dB) 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.

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.

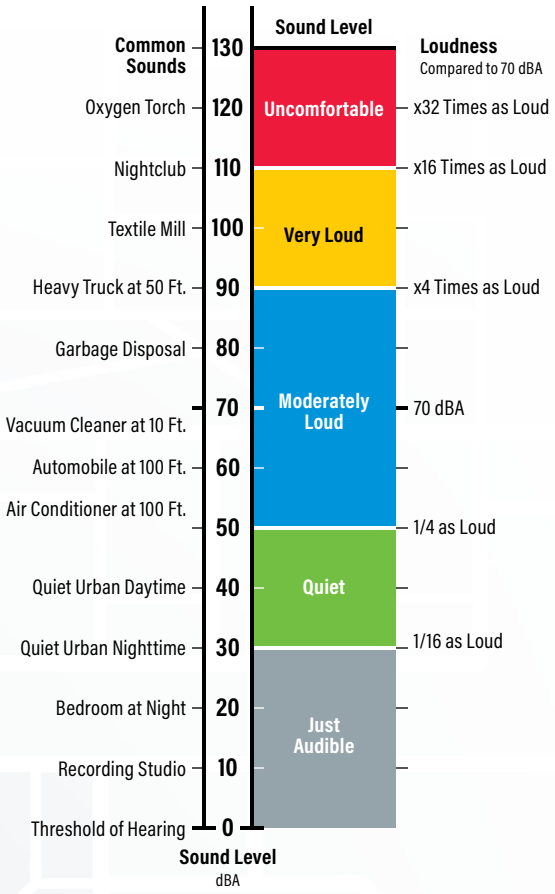


FIGURE 4-1
Typical A-weighted Levels of Common Sounds

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. The Air Force uses the DNL metric (Day-Night Average Sound Level), created by the United States Environmental Protection Agency (EPA) 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.

4.3.1 Aircraft 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 present-day planning noise contours developed in 2020. 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. This AICUZ study uses noise contours developed in 2020 for the Keesler AFB Noise Study. Operations at Keesler AFB have been consistent since 2020 and there are no plans to change operations in the near future. Therefore, these current contours can be used to approximate projected aircraft operations for the purpose of local long-range planning.

4.4 KEESLER AFB NOISE CONTOURS

The 2025 release of Keesler AFB AICUZ noise contours are based on current contours for the year 2020 **(Figure 4-2).** The operational data that informed the 2020 Noise Study was based on counts and estimates from flying units, rather than ATARS, and estimated annual operations of around 27,000, which is comparable to historical operations numbers from 2004-2009.

The discrepancy between the two statistics may be due to differences in how operations are counted. For example, the 815th Airlift Squadron conducts operations at the local use drop zone that require several passes over the airfield which may not be individually counted for ATARS reporting, but would factor into the Noise Study.

While ATARS data is an accurate depiction of operations at Keesler AFB, the 2020 Noise Study operations count is a more appropriate estimation to use for the purposes of noise modeling and land use compatibility planning. Planning around the higher operations tempo will ensure Keesler's future mission capacity is preserved.

The 65 dB DNL noise zone extends beyond the northern boundary of the installation approximately 0.6 miles to the northeast over the Back Bay of Biloxi and 0.25 miles to the southwest, within the city of Biloxi. It does not extend beyond the installation boundary to the east or west.

The 70 dB DNL noise zone extends beyond the installation boundary 0.25 miles to the northeast over the Back Bay of Biloxi. It does not extend beyond the installation boundary in any other direction, and the 75 dB noise zone does not extend beyond the installation boundary in any direction at all. Noise generated by C-130 aircraft is the main contributor to the 2020 AICUZ operational noise footprint.

Figure 4-4 shows a comparison of the 2025 and the 2010 AICUZ noise contours. In general, the 2025 planning contours extend farther to the north, south, east, and west than the 2010 AICUZ noise contours. Increases in transient aircraft operations have been the primary contributor to the noise levels around Keesler AFB.

TABLE 4-2

Modeled Annual Aircraft Flight Operations for 2025 AICUZ Noise Contours

	DEPARTURES	ARRIVALS	PATTERN EVENT[1]	TOTALS
C-130	853	853	11,089	**12,795**
WC-130	586	586	293	**1,465**
Transient	354	354	508	**1,216**
TOTAL	**1,793**	**1,793**	**11,890**	**15,476**

Note: EA for Combat Air Forces ADAIR, Keesler AFB (2025).

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

FIGURE 4-2
2025 AICUZ Operational Noise Footprint

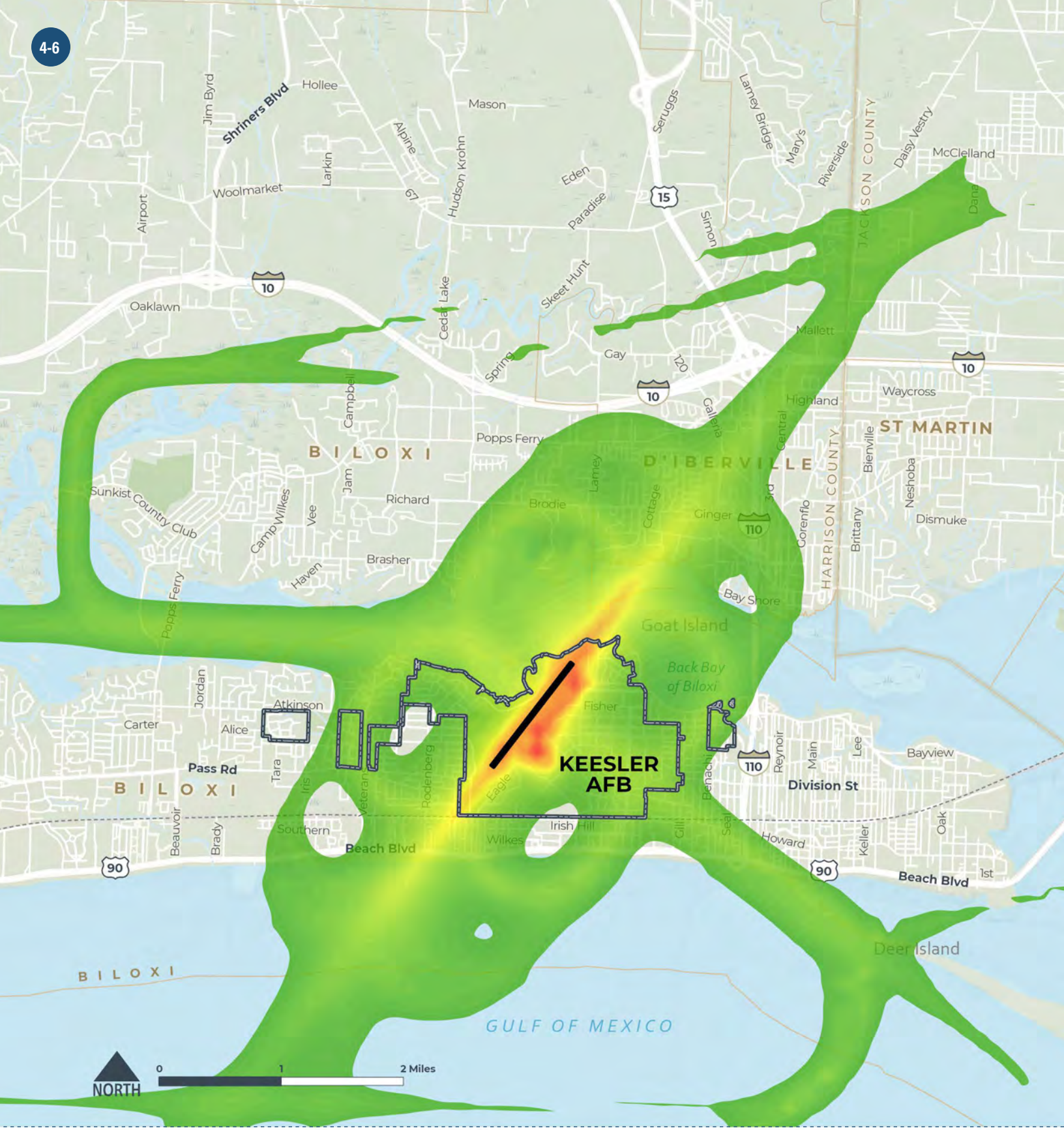


FIGURE 4-3

2025 AICUZ Operational Noise Footprint with Gradient Shading

FIGURE 4-4
Comparison of 2025 and 2010 AICUZ Noise Contours for Keesler AFB

Table 4-3 presents the off-installation land acreage and estimated population within the planning contours. The Air Force generates population estimates based on 2020 Census block-level data using a geometric proportion method to determine the estimated population within each noise zone; this method assigns population based on the portion of a census block that falls within the contour. The population across census blocks is assumed to be evenly distributed.

The operational noise exposes areas and residents to sound levels of 65 dB DNL and greater to approximately 128 acres and 36 people, all located within the 65-69 dB DNL noise zone. Approximately 14 acres of land with no known population are within the 70-74 dB DNL noise zone. No land area or population is located within the 75+ dB DNL.

The slight increase in size from the 2010 contours to the 2020 contours can be contributed to increases in transient operations at Keesler AFB, as well as changes in noise modeling methodology.

TABLE 4-3

Off-Installation Land Area and Estimated Population within Noise Zones for the 2025 AICUZ Noise Contours at Keesler AFB

NOISE ZONE (dB DNL)	ACRES	ESTIMATED POPULATION
65-69	113.9	36
70-74	13.7	0
75-79	0	0
80-84	0	0
85+	0	0
Total (65+)	**127.6**	**36**

4.5 NOISE ABATEMENT

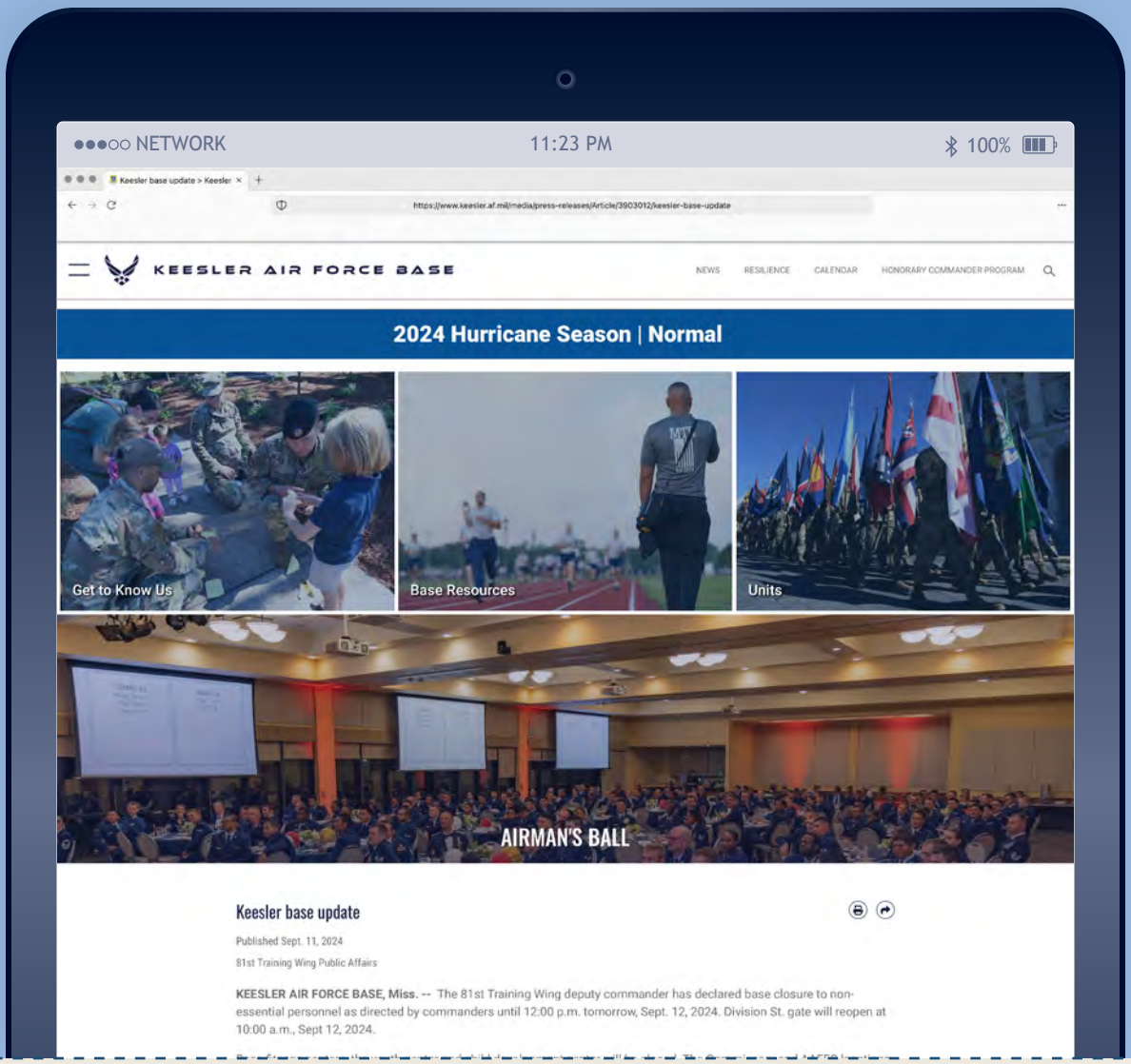
The Air Force recognizes that sound from military operations may cause concern for people living near military installations.

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 Keesler AFB Noise Abatement Program. These implementations are aimed at protecting the installation's neighbors and structures from the harmful effects of noise and vibrations.

Keesler AFB noise abatement procedures include the following:

- **Avoid flying over the USAF Medical Center** (located on the Back Bay approximately 1 mile east of the runway) and the VA Hospital (located 1 mile west of the runway) also on the Back Bay.
- **Restrictions on certain engine run-up locations** to prevent excessive noise generation.
- **Keesler AFB air operations are to avoid flying over densely populated areas** and poultry farms to the maximum extent possible.
- **Avoid flying over the Bayside Park and Seneca Hills** communities when possible.

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 Keesler AFB 81st TRW Public Affairs (PA) Office with any noise complaints.**

You can reach the PA Office at (228) 377-2733, 81trw.pamain@us.af.mil, and/or their website at https://www.keesler.af.mil/.

When someone files a noise complaint with the base, a Noise Complaint Worksheet is filled out for review and noise tracking purposes. This worksheet includes the caller's information, a description of the event and the aircraft involved, and comments from on-base reviewers, including PA and flying units. Keesler AFB also posts information on the installation website, including alerts about upcoming aircraft operations that can be shared publicly:

WWW.KEESLER.AF.MIL

/KEESLERAFB

5

5. COMMUNITY AND AIRCRAFT SAFETY

Community and aircraft safety is paramount to the Air Force and is a shared responsibility between Keesler 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.

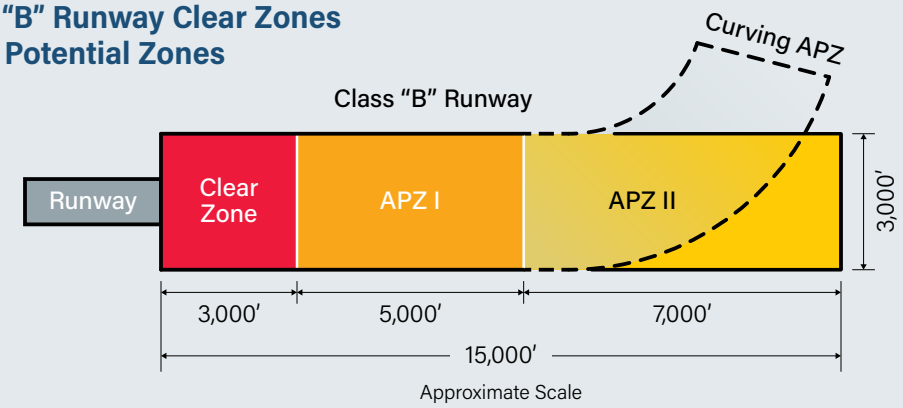
5.1 CLEAR ZONES AND ACCIDENT POTENTIAL ZONES

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, the APZ I, and the APZ II.

Keesler AFB contains one active Class B runway. 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
Typical Class "B" Runway Clear Zones and Accident Potential Zones



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 Clear Zones 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.

Figure 5-2 depicts the CZs and APZs for Runway 04/22 for Keesler AFB. The CZs at the north and south ends of the runway extend beyond the installation boundary and cover developed residential and commercial areas, which include single- and multi-family housing, restaurants, services, and retail establishments in the City of Biloxi. APZ I to the north extends into the City of D'Iberville and to the south into the City of Biloxi, including high intensity uses such as hotels and beachfront attractions, as well as neighborhoods and commercial areas. APZ II to the north covers highly developed areas of D'Iberville, including the I-110 corridor, while to the south, all of APZ II extends over the Gulf of Mexico.

Table 5-1 presents the off-installation land acreage and estimated population within the CZs and APZs. The two Keesler AFB CZs cover 199 acres of the City of Biloxi and portions of the Back Bay; an estimated 580 people live within the CZs. APZ I to the south covers a developed portion of the Biloxi beachfront. The northern APZ I covers the Back Bay of Biloxi and residential areas of the City of D'Iberville. Between the two cities, an estimated 922 people live within APZ I. APZ II to the south is entirely over the Gulf of Mexico. To the north, APZ II covers nearly 1,000 acres of D'Iberville, with an estimated population of 2,209 people in APZ II.

TABLE 5-1

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

ZONE	ACRES	POPULATION
CZ	199.0	580
APZ I	688.4	922
APZ II	964.3	2,209
Total	**1,851.7**	**3,711**

Source: ESRI Updated Demographics 2023; U.S. Census Bureau, 2016-2020 American Community Survey 5-year Estimates.

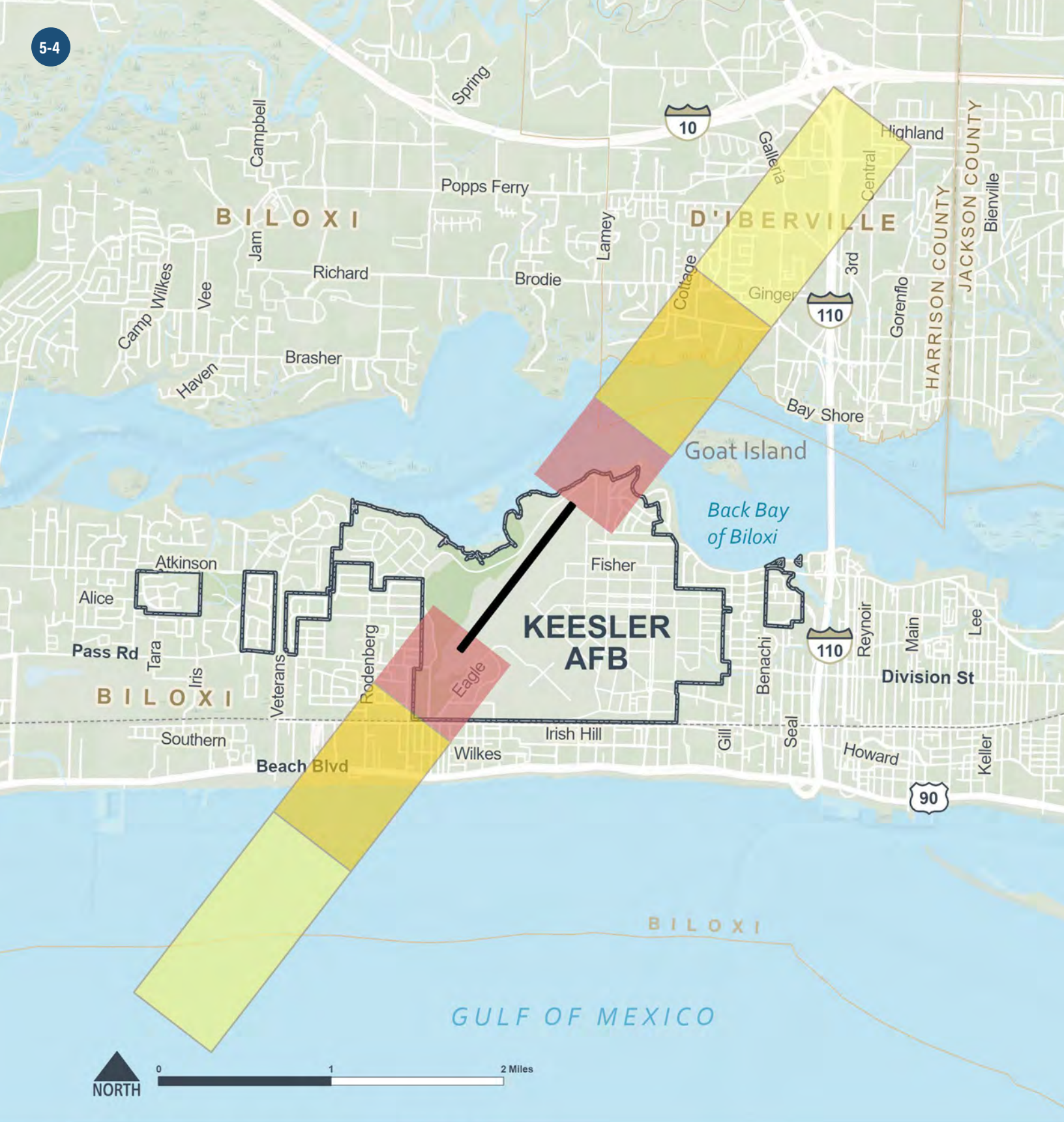


FIGURE 5-2

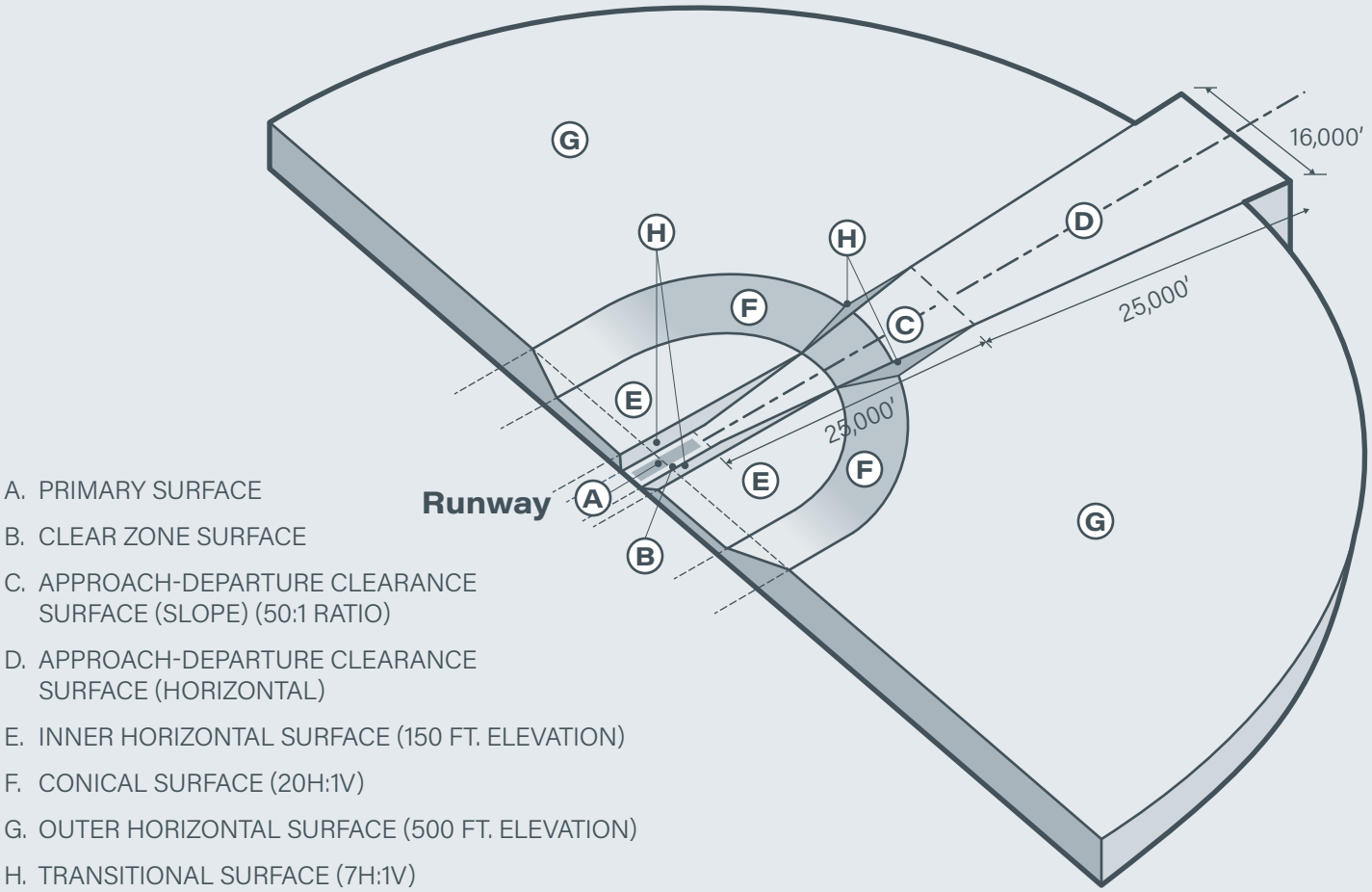
2025 AICUZ Clear Zones and Accident Potential Zones for Keesler AFB

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 Keesler AFB. **Table 5-2** provides brief descriptions of each of these surfaces. **Figure 5-4** depicts the actual runway airspace imaginary surfaces specific to Keesler AFB's Class B runway. 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)

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

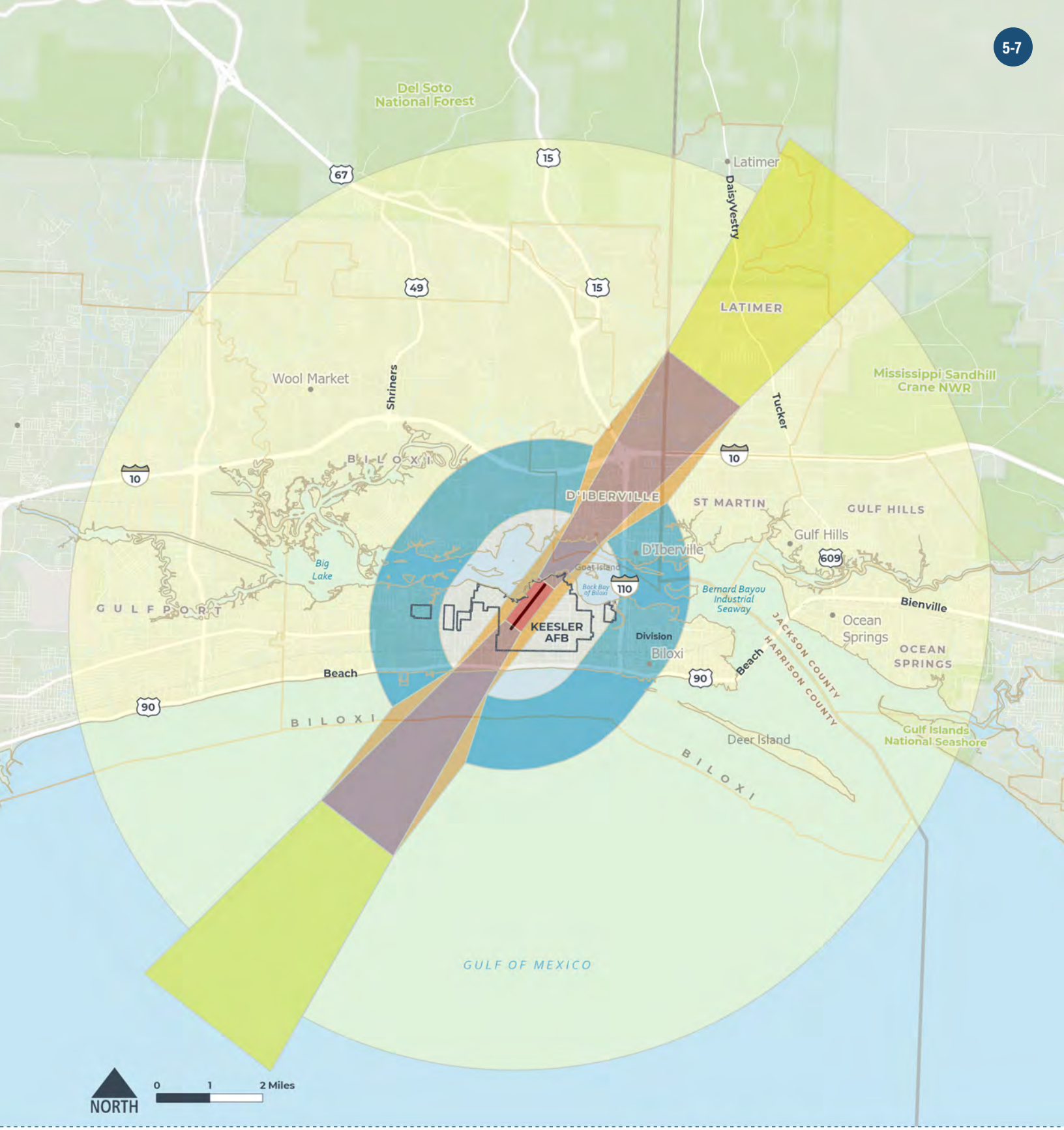
Primary Surface	An imaginary surface symmetrically centered on the runway, extending 200 feet beyond each runway end that defines the limits of the obstruction clearance requirements near the landing area. The width of the primary surface is 2,000 feet, or 1,000 feet on each side of the runway centerline.
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.

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 Hazards to Aircraft Flight Zone (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.



- Primary Surface
- Approach/Departure Clearance
- Transitional Surface (7:1)
- Approach/Departure Clearance Surface (50:1)
- Inner Horizontal Surface
- Conical Surface (20:1)
- Outer Horizontal Surface
- Runway
- Keesler AFB

FIGURE 5-4
Imaginary Surfaces and Transition Planes for Keesler AFB

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.

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 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.

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
- Storm water 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.

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.

Drones/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 (mentioned above) to ensure they have the most up-to-date guidance on how to operate legally and safely.

In addition to FAA guidance, the Keesler AFB Installation Commander has issued a drone policy governing their use in and around Keesler AFB. The intent of this policy is to offer maximum protection to aircrews, aircraft, and base populace. Highlights of the installation's policy include the following:

- **Drone operations are restricted** from flying over the Keesler AFB installation boundary.
- **Drone operations under the guidance of the FAA must be approved by the installation program manager** (81 OSF/OSA) to operate within Keesler AFB's Class D airspace.


6

6. LAND USE COMPATIBILITY ANALYSIS

CZs, APZs, and noise zones, shown in **Figure 6-1,** make up the AICUZ footprint for an air installation. 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. 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.).

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 and APZs associated with Keesler AFB.

6.2 PLANNING AUTHORITIES, STAKEHOLDERS, AND POLICIES

This section presents information for each governing body that has land use jurisdictions near Keesler 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 Keesler AFB.

State of Mississippi Land Use Planning and Zoning

In the State of Mississippi, land use planning and zoning are generally delegated to municipal and county governments. These governments can create comprehensive land use plans and may choose to create a joint planning commission to administer and coordinate their plans. Municipal planning must comply with applicable state legislation, the Code of Mississippi, and the Mississippi State Constitution. State legislation concerning land use planning requirements and procedures supersedes municipalities' legislation and can be found in Title 17 of the Code of Mississippi.

Gulf Regional District

The Gulf Regional District is a council of governments in the State of Mississippi that cities and counties may voluntarily join. It has broad authority to coordinate all activities for economic development of the region, develop lines of communication among local, regional, state, and federal levels of government, develop and update regional plans, provide planning assistance to any public planning agency in the district, and finance regional projects.

Gulf Regional Planning Commission (GRPC)

The GRPC is the regional planning body of the Gulf Regional District, responsible for Hancock County, Harrison County, Jackson County, the City of Biloxi, the City of D'Iberville, and 10 other cities. The GRPC closely coordinates planning efforts between the member municipalities, ensuring a unified regional approach to planning across housing, economic development, and military affairs, and plays an important role in regional transportation planning as the designated Metropolitan Planning Organization (MPO) for the area spanning from Diamondhead, MS to the west, to Pascaguola, MS to the east. GPRC administrated and submitted the 2017 JLUS for Keesler AFB. It currently publishes information online about each locality's Military Compatibility Area Overlay Districts, which are areas where military operations may impact local communities, and conversely, local activities may impact the military's ability to fulfill its mission.

Clear Zone (CZ)

Accident Potential Zone I (APZ I)

Accident Potential Zone II (APZ II)

2025 AICUZ Contour (dB)

Runway

Keesler AFB

FIGURE 6-1

2025 Keesler AFB Composite AICUZ Footprint

Southern Mississippi Planning and Development District (SMPDD)

The SMPDD is a nonprofit organization founded in 1967 to promote the economic development of southern Mississippi, including Harrison County and the Gulf Coast. Its programs play an important role in business development in the Gulf region. Currently, the SMPDD is in the process of creating updated coastal maps for southern Mississippi, which will allow coastal communities to more confidently forecast the potential for growth and development given climate change and sea level rise. These maps will influence development patterns around Keesler AFB, particularly near the waterfront.

Harrison County

Harrison County manages the land use and development for unincorporated areas of the county. The Office of Zoning is responsible for the administration and enforcement of the County's zoning ordinances, while permitting and subdivision of land is handled by the Department of Engineering. The current Harrison County Comprehensive Plan was adopted in 2008 with a 2030 planning horizon. Portions of Keesler AFB's HAFZ extend into Harrison County.

Harrison County has adopted a Keesler AFB Military Operations Surface Overlay District into its zoning code. This district covers the area within Harrison County that lies within Keesler AFB's HAFZ. In this district, new developments exceeding 150 feet in height are subject to joint development review with Keesler AFB, and developments are analyzed for whether they adversely affect Keesler AFB's mission and compatibility with the recommendations of the 2017 JLUS.

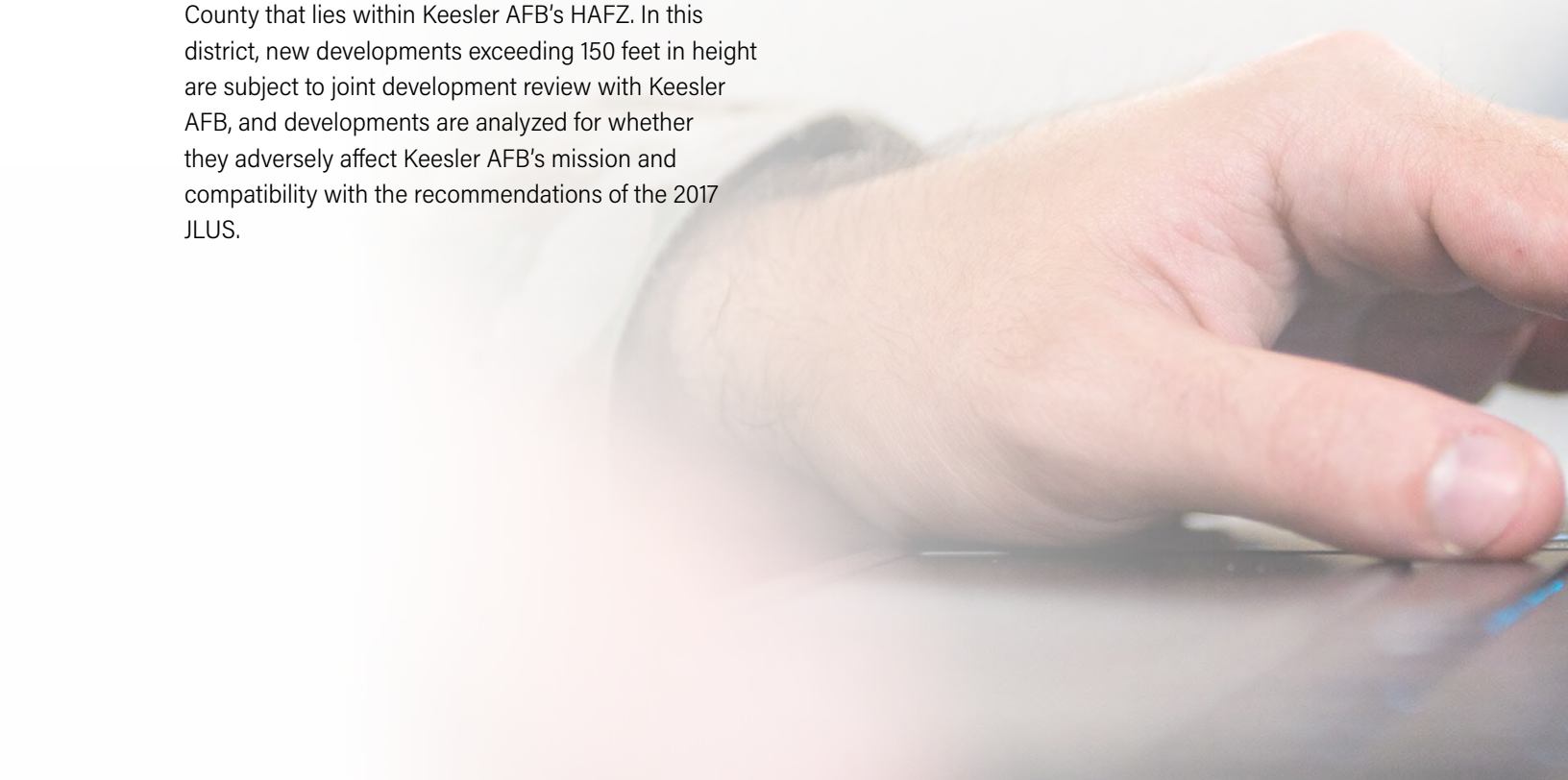
Jackson County

The Jackson County Planning Department handles a wide range of activities in the unincorporated areas of the county, from building permits to zoning administration and long-range planning. The current Jackson County Comprehensive Plan was adopted in 2022 and organizes the growth of Jackson County through the year 2040. Portions of Keesler AFB's HAFZ extend into Jackson County.

Jackson County does not have any overlay districts or zoning classifications related to Keesler AFB noise or safety zones.

City of Biloxi

The City of Biloxi independently plans and manages its land within surrounding Harrison County. The Biloxi Community Development Department oversees the planning functions for the City of Biloxi, including economic development, planning, zoning, building permits, inspections, and code enforcement. Biloxi has a long history of cooperation and coordination with Keesler AFB, including working closely together on the 2017 JLUS study. The Biloxi Comprehensive Plan was adopted in 2009 with a 2030 planning horizon. Portions of Keesler AFB's noise contours, APZs, and HAFZ cover the City of Biloxi.



Biloxi maintains an Airport Airspace Overlay District to regulate development and protect Keesler AFB from hazards to air operations. This zone limits land uses that include tall obstructions, produce glare or EMI, utilizes bright lights that hinder airfield identification, or otherwise poses a risk to air operations at Keesler AFB. Biloxi also has an Airport Noise Overlay District to inform the public of areas exposed to higher than average noise levels and risk of aircraft accidents associated with proximity to the airport at Keesler AFB. This zone requires new buildings to include sufficient noise attenuation measures, which standards are outlined in the zoning ordinance.

City of D'Iberville

The City of D'Iberville Planning and Zoning Department handles all planning issues for the City, including land use, permitting and site review, zoning, and long-range planning. D'Iberville's Comprehensive Plan was adopted in 2010 with a 2030 planning horizon. Keesler AFB and D'Iberville closely coordinate land use and encroachment issues, and the City was heavily involved in the 2017 JLUS study. Portions of Keesler AFB's noise contours, APZs, and HAFZ extend into the City of D'Iberville.

D'Iberville does not have any overlay districts or zoning classifications regarding noise or safety zones related to Keesler AFB. Its zoning code does include height restrictions to protect Keesler AFB flight tracks.

FIGURE 6-2

Geography of Jurisdiction in Relation to the AICUZ Noise and Safety Zones

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 Keesler 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 were obtained from the City of Biloxi, MS and the City of D'Iberville, MS.

In order to analyze the compatibility of nearby land uses surrounding Keesler AFB, each parcel is 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.

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

Trade

- Includes wholesale trade, retail trade (neighborhood, community, regional and super-regional (e.g., 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 Keesler AFB surrounding jurisdictions.

The land use compatibility analysis performed as part of this AICUZ study identifies existing and future land uses near Keesler AFB. Existing land use is assessed to determine current land use activity, while future land use plans are 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 Use

Existing land uses within the vicinity of Keesler AFB are illustrated on **Figure 6-3.** Keesler AFB is in a developed area in the City of Biloxi; land uses surrounding the base are predominantly residential, mostly consisting of single-family neighborhoods and apartment complexes. The Back Bay, which serves as the northern boundary of Keesler AFB, experiences frequent commercial barge, commercial and recreational fishing, and other boat traffic.

To the south, a few blocks of commercial, residential, and recreational development separate Keesler AFB from the Gulf of Mexico. Entertainment-oriented uses, such as restaurants and casinos, are clustered along the coastline east of I-110, and there is a significant concentration of government services and restaurants in the downtown area of Biloxi between Howard Avenue and the waterfront as well.

Across the Back Bay and to the north, the City of D'Iberville is characterized by a mix of commercial uses, residential uses, pockets of agricultural land, and significant open space along the waterfront. Commercial uses, including tall casino properties, are clustered around I-110, and there are several notable seafood processing facilities along the waterfront.

Primary transportation corridors around Keesler AFB include a railroad; I-110, which runs north/south to the east of Keesler AFB; and U.S. Highway 90, which runs along the Gulf of Mexico to the south of the installation.

There are a few parcels in the region categorized as "services" that include the Biloxi VA Medical Center (northwest of Keesler AFB), a cemetery (on the south side of Irish Hill Drive), and the Biloxi Natatorium, an Olympic size public indoor swimming pool (south of Keesler AFB).

The airfield's associated noise zones are largely contained within the installation boundary, with some noise contours extending north over open water. The airfield's associated CZs and APZs span across developed areas of the City of Biloxi and City of D'Iberville, including commercial, residential, and recreational/open space uses on the southwestern end of the runway, and open space, agricultural, residential, and commercial uses on the northeastern end. Areas of specific land use compatibility concerns within the Keesler AFB noise contours, CZs, and APZs are further evaluated in **Section 6.4, Compatibility Concerns.**

6.3.2 Future Land Use

All land surrounding Keesler AFB is zoned. **Figure 6-4** overlays the 2025 Keesler AFB AICUZ Study noise contours, CZs, and APZs with current generalized zoning in the vicinity of Keesler AFB **(For details on how the generalized zoning layer was created, see Appendix C.)**

Figure 6-4 shows the City of Biloxi has zoned land around Keesler AFB as commercial and residential, with a strip of recreational beach running along the Gulf of Mexico to protect the coastline and provide public access to the water. To the west of Rodenberg Avenue, there are commercial waterfront-related land uses, including commercial seafood and recreational fishing/water sports industries and uses that support those industries (markets and restaurants, shops, and entertainment). Across the Back Bay in D'Iberville, the city has zoned land within the APZs as residential and commercial, with lower density residential zoning available for the parcels closest to the waterfront. Agricultural land is zoned for commercial use, signaling an expectation for future commercial development.

FIGURE 6-3

Existing Land Use and 2025 Keesler AFB AICUZ Study Noise Contours, CZs, and APZs

FIGURE 6-4

Existing Zoning and 2025 Keesler AFB AICUZ Study Noise Contours, CZs, and APZs

Future land uses in the region are shown in F**igure 6-5.** At the southeast corner of the I-110 interchange in D'Iberville, commercially zoned land is slated for future residential development. The future land use map also shows an industrial area to the north and south of Brody Road, west of 7th Avenue that is slated for industrial development, but it is currently zoned commercial and residential. Near the gulf waterfront in the City of Biloxi, west of Rodenberg Road, residentially zoned land is slated for future commercial development. Federal Emergency Management Agency (FEMA) flood zones would limit development in this area. West and northwest of the base, more agricultural, open space, and low density development uses are present.

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 Keesler 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 Keesler AFB.

In order to analyze the compatibility of nearby land uses surrounding Keesler 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, casinos, and commercial establishments.
- **Industrial.** Includes manufacturing, warehouses, and other similar uses. Seafood processing facilities would fall in this category.
- **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, beaches, 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.[1]

1. Land classified as "vacant" was classified as "undeveloped," but "vacant residential" and "vacant commercial" uses was classified as residential and commercial, respectively, to align with their intended future uses. See Appendix C for additional information on how local land use and zoning categories were generalized to align with SLUCM land use categories.

FIGURE 6-5

Future Land Use and 2025 Keesler AFB AICUZ Study Noise Contours, CZs, and APZs

Table 6-1 provides compatibility guidelines for the generalized land use categories. Land use compatibility falls into one of four categories:

1. **Compatible;**
2. **Compatible with Restrictions;**
3. **Incompatible; or,**
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.

6.4.2 Existing Land Use Compatibility Concerns

The noise zones for Keesler AFB are largely contained within the installation. The exception is the 65-69 dB noise zone to the south of the runway, which extends into the City of Biloxi. As shown in **Figure 6-6** and **Table 6-2,** the 65-69 dB noise zone contains 14.07 acres of existing residential uses that are considered to be incompatible with restrictions. In this noise zone, if residential uses are considered essential, noise-attenuation measures should be incorporated into the building structures.

The 65-69 dB noise zone contains 3.08 acres of uses that are considered to be compatible or compatible with restrictions (commercial, public/quasi-public, recreation, and open/agricultural/low density).

TABLE 6-1

Generalized Land Use Categories and Noise/Safety Compatibility[1]

GENERALIZED LAND USE CATEGORY	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]
Public/Quasi-Public	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]
Undesignated	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 6-2

Off-Installation Existing Land Use Acreage within Noise Zones

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	65-69	70-74	75-79	80+	TOTAL
Incompatible or Incompatible with Exceptions	Commercial	–	–	–	–	–
	Industrial	–	–	–	–	–
	Public/Quasi-Public	–	–	–	–	–
	Recreation	–	–	–	–	–
	Open/Agriculture/Low Density	–	–	–	–	–
	Residential	14.07	–	–	–	**14.07**
	Undesignated	–	–	–	–	–
	Transportation/Utility	–	–	–	–	–
Compatible or Compatible with Restrictions	Commercial	0.75	–	–	–	**0.75**
	Industrial	–	–	–	–	–
	Public/Quasi-Public	1.35	–	–	–	**1.35**
	Recreation	0.25	–	–	–	**0.25**
	Open/Agriculture/Low Density	0.73	–	–	–	**0.73**
	Residential	–	–	–	–	–
	Transportation/Utility	–	–	–	–	–
Subtotals	**Incompatible**	**14.07**	**–**	**–**	**–**	14.07
	Compatible	**3.08**	**–**	**–**	**–**	3.08
Total		**17.15**	**–**	**–**	**–**	**17.15**

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

2025 AICUZ Contour (dB)

Runway

Keesler AFB

FIGURE 6-6

Incompatible Existing Land Use within Noise Contours

As shown in **Figure 6-7** and **Table 6-3,** the CZ contains 55.23 acres of existing commercial, public/quasi-public, recreation, open/agriculture/low density, residential, and transportation/utility uses that are considered incompatible or incompatible with exceptions; these are primarily located within the southwestern CZ. The only land use that is considered compatible in the CZ is undeveloped land; vertical obstructions in this safety zone should be prohibited.

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	Commercial	7.51	—	—	**7.51**
	Industrial	—	—	—	**—**
	Public/Quasi-Public	4.80	—	—	**4.80**
	Recreation	0.20	—	—	**0.20**
	Open/Agriculture/Low Density	5.28	—	—	**5.28**
	Residential	37.34	135.21	155.63	**328.18**
	Transportation/Utility	0.10	—	—	**0.10**
	Undeveloped	—	—	—	**—**
Compatible or Compatible with Restrictions	Commercial	—	31.20	—	**31.20**
	Industrial	—	6.22	91.98	**98.20**
	Public/Quasi-Public	—	9.93	25.25	**35.18**
	Recreation	—	13.03	8.79	**21.82**
	Open/Agriculture/Low Density	—	122.12	69.81	**191.93**
	Residential	—	—	—	**—**
	Transportation/Utility	—	1.32	17.90	**19.22**
	Undeveloped	—	—	—	**—**
Subtotals	**Incompatible**	**55.23**	**135.21**	**155.63**	**346.07**
	Compatible	**—**	**183.82**	**213.73**	**397.55**
Totals		**55.23**	**319.03**	**369.36**	**743.62**

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

FIGURE 6-7

Incompatible Existing Land Use within CZs and APZs

All land uses present within the APZ Is and IIs except residential (i.e., industrial, open/agriculture/low density, transportation/utilities, and undeveloped) are considered compatible or compatible with restrictions. These uses are considered compatible if no residential development is permitted within APZ I and residential development in APZ II is limited to less than two dwelling units per acre. Casino developments, which are popular in waterfront communities like Biloxi, have the potential to be incompatible due to the likelihood of taller building heights, concentration of people, and light pollution. Agricultural uses in APZs I and II should not attract birds or wildlife that could create BASH hazards. Landowners of agricultural parcels should notify Keesler AFB prior to conducting operations that generate steam or smoke to avoid impacts to pilot safety. Whether or not an industrial use is compatible depends on the type of specific use taking place **(see Table A-1 for more information),** but generally, industrial uses are compatible in APZs I and II if they do not attract birds and wildlife nor create dust or light emissions that could affect pilot vision, and if they are under the maximum floor area ratio (FAR) of 0.28 in APZ I and 0.56 in APZ II. Seafood processing facilities may attract birds, so those uses should be carefully sited to avoid BASH hazards.

There are 135.21 residential acres within APZ I that are considered incompatible or incompatible with exceptions. There are 155.63 residential acres within APZ II that are 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.

6.4.3 Future Land Use Compatibility Concerns

As shown in **Figure 6-8** and **Table 6-4,** the future land uses in the noise contours are almost entirely compatible or compatible with restrictions, with the exception of 11.57 acres of residential land use in the 65-69 dB noise contour. In this noise zone, if residential uses are 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 CZs (12.64 acres of commercial use and 42.59 acres of residential use) are considered incompatible or incompatible with exceptions. The residential land use in APZ I (214.91 acres) is incompatible. The remaining land uses in APZ I (commercial, industrial, and open/agriculture/low density) are compatible or compatible with restrictions. The residential land use in APZ II (175.49 acres) is incompatible. 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 (commercial, industrial, and recreation) are considered compatible or compatible with restrictions.

The commercial and recreational land uses in the APZ IIs are generally considered compatible if they do not attract concentrations of people greater than 50 per acre at any given time, including employees and visitors. There are also varying FAR recommendations dependent on the use; see **Table A-1** for more details. Whether or not an industrial use is compatible depends on the type of specific use taking place **(see Table A-1 for more information),** but generally, industrial uses are compatible in APZs I and II if they do not attract birds and wildlife nor create dust or light emissions that could affect pilot vision, and if they are under the maximum FAR of 0.28 in APZ I and 0.56 in APZ II.

2025 AICUZ Contour (dB)

Runway

Keesler AFB

FIGURE 6-8

Incompatible Future Land Use within Noise Contours

TABLE 6-4

Off-Installation Future Land Use Acreage within Noise Zones

DESIGNATION	GENERALIZED LAND USE CATEGORY[1]	65-69	70-74	75-79	80+	TOTAL
Incompatible or Incompatible with Exceptions	Commercial	—	—	—	—	—
	Industrial	—	—	—	—	—
	Public/Quasi-Public	—	—	—	—	—
	Recreation	—	—	—	—	—
	Open/Agriculture/Low Density	—	—	—	—	—
	Residential	11.57	—	—	—	**11.57**
	Undesignated	—	—	—	—	—
	Transportation/Utility	—	—	—	—	—
Compatible or Compatible with Restrictions	Commercial	3.43	—	—	—	**3.43**
	Industrial	—	—	—	—	—
	Public/Quasi-Public	—	—	—	—	—
	Recreation	—	—	—	—	—
	Open/Agriculture/Low Density	2.15	—	—	—	**2.15**
	Residential	—	—	—	—	—
	Transportation/Utility	—	—	—	—	—
Subtotals	**Incompatible**	**11.57**	**—**	**—**	**—**	**11.57**
	Compatible	**5.58**	**—**	**—**	**—**	**5.58**
Total		**17.15**	**—**	**—**	**—**	**17.15**

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

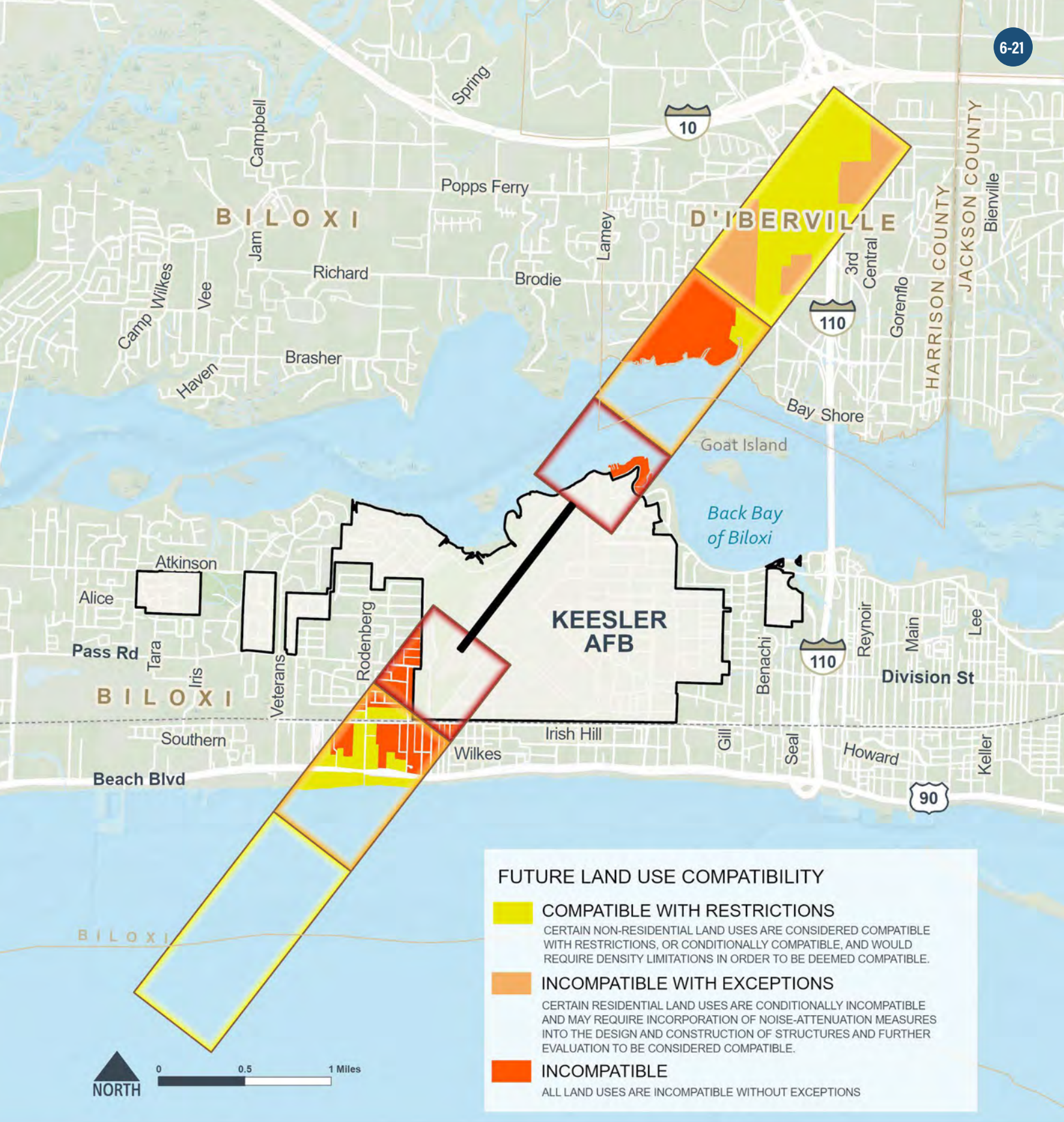


FIGURE 6-9

Incompatible Future Land Use within CZs and APZs

TABLE 6-5
Off-Installation Future Land Use Acreage within Clear Zones/Accident Potential Zones

DESIGNATION	GENERALIZED LAND USE CATEGORY[2]	CZ	APZ I	APZ II	TOTAL
Incompatible or Incompatible with Exceptions	Commercial	12.64	—	—	**12.64**
	Industrial	—	—	—	**—**
	Public/Quasi-Public	—	—	—	**—**
	Recreation	—	—	—	**—**
	Open/Agriculture/Low Density	—	—	—	**—**
	Residential	42.59	214.91	175.49	**432.99**
	Transportation/Utility	—	—	—	**—**
Compatible or Compatible with Restrictions	Commercial	—	69.01	296.34	**365.35**
	Industrial	—	19.95	0.72	**20.67**
	Public/Quasi-Public	—	—	—	**—**
	Recreation	—	—	9.62	**9.62**
	Open/Agriculture/Low Density	—	25.46	—	**25.46**
	Residential	—	—	—	**—**
	Transportation/Utility	—	—	—	**—**
Subtotals	**Incompatible**	**55.23**	**214.91**	**175.49**	**445.63**
	Compatible	**—**	**114.42**	**306.68**	**421.10**
Total		**55.23**	**329.33**	**482.17**	**866.73**

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

6.4.4 Future Growth Areas and Potential Development Projects Around Keesler AFB

Areas that are proximate to 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 missions are real.

Future projects–both in the white spaces and within the AICUZ footprint–in the region of influence surrounding Keesler AFB that warrant attention from a land use compatibility standpoint are shown on **Figure 6-10** and include the following:

1 Cedar Lakes Growth Area

Residential demand is high in northern Biloxi. The Cedar Lakes area, in northern Biloxi adjacent to I-10, is forecasted for future residential development. This area is not located under the AICUZ noise zones or APZs but is within the HAFZ of the installation and directly under Keesler AFB flight tracks. Current zoning designations found in Cedar Lakes are residential and commercial, which would support tall developments up to 80 feet in the commercial areas near the interstate. The comprehensive plan designates this area as a Regional Activity Center, which encourages development of additional regional medical, retail, service, and high-density residential uses in the area. Biloxi's planning department should ensure that any proposals in this area do not exceed height limitations using the JLUS height hazard mapping tool, and residential development should incorporate noise attenuation practices to minimize noise impacts.

2 I-10 North Growth Area

Parts of Harrison County north of I-10 have grown rapidly in recent years. The majority of the growth has been in D'Iberville; however, growth is occurring in Biloxi's northern area as well. This area is outside the Keesler AFB noise contours and APZs but is within the HAFZ and lies directly under Keesler AFB flight tracks. Additionally, with this growth, larger volumes of traffic have been traveling on I-10 and I-110 into D'Iberville and downtown Biloxi, and significant growth has occurred around these thoroughfares. APZ II covers portions of I-110, the interchange between I-10 and I-110, and large acreages adjacent to I-110. Keesler AFB should be kept informed of growth north of I-10, particularly high-density or tall developments. The secondary effects of this growth may have direct impacts on Keesler AFB operations or safety concerns.

3 Sports Illustrated Complex Development Area

D'Iberville has received a proposal for a new development spearheaded by Sports Illustrated in the southwest corner of the I-10 and I-110 interchange. This complex will include a restaurant, hotel, shopping center, waterpark, and possibly a concert venue. A corner of the site's parking lot may fall under APZ II, and the site lies directly under Keesler AFB arrival and departure flight tracks. The 2025 AICUZ noise contours do not impact the site. Due to proximity to Keesler AFB approach and departure tracks, building height will need to be coordinated with Keesler AFB. This complex may draw large crowds and should be carefully considered to prevent adverse impacts on flight operations or public safety risks.

4 Commercial Growth Area

D'Iberville anticipates large-scale retail growth at the southeast corner of the I-10 and I-110 interchange. These parcels are currently zoned Interstate Commercial, which would allow for building heights up to 50 feet, and are identified as commercial/retail in the D'Iberville Comprehensive Plan. This parcel lies in APZ II. Future growth here should be carefully considered to only permit uses recommended in APZ II and coordinated with Keesler AFB to prevent safety or operational impacts.

5 Mixed Use Growth Area

D'Iberville is considering developing a mixed-use district east of I-110 that would draw in local and tourist revenue. Currently, this area is a mix of commercial uses. This area lies directly under Keesler AFB flight tracks and may extend into portions of APZ II to the north depending on its size. Mixed use developments in this area should be coordinated with Keesler AFB on building heights and housing here may require noise attenuation practices to mitigate operational noise impacts.

FIGURE 6-10
Future Development Projects around Keesler AFB

6 Waterfront Growth Area

Nearly two decades after Hurricane Katrina, Biloxi's waterfront district has still not fully recovered. The city is seeking growth and economic development of its waterfront, including casinos, resorts, hotels, higher density commercial and residential development, and other uses that spur regional tourism. The Waterfront zoning designation allows building heights up to 175 feet. Portions of Biloxi's waterfront area fall under APZ I and are directly under Keesler AFB flight tracks. While not within the 65 dB noise contour, the waterfront areas near flight tracks and within APZ I may be impacted by noise.

7 Approved Casino Development

There is an approved casino site in this area. The zoning designations in this area are Neighborhood Business, Community Business, and Waterfront, with height limits of 50 feet, 60 feet, and 175 feet respectively. While outside the AICUZ noise and safety footprint, the exact site may lie directly under Keesler AFB flight tracks. As such, the location of the casino could present vertical obstruction and other safety challenges (e.g., use of bright lights or drones); coordination with Keesler AFB regarding this property is encouraged.

8 Broadwater Marina Redevelopment

The Broadwater Marina, formerly a resort, casino, and large marina, has been vacant since 2005. In 2020, a developer announced a $1.2 billion redevelopment of the resort and casino; however, no construction has yet occurred. As of 2022, the Broadwater Marina Restoration Project has received $5 million in grant funding to redevelop the marina, preparing it for future public use, tourism, and economic development. The Broadwater Marina site is not within the noise zones or APZs of Keesler AFB but is within the HAFZ and is near Keesler AFB flight tracks. The height of any future development should be coordinated with Keesler AFB to prevent operational impacts, and with the establishment of a large resort and casino, ongoing coordination is recommended with Keesler AFB in regard to light shows, drones, and large crowds.

9 Former Golf Course Development Area

North of the Broadwater Marina is a former golf course whose landowner is looking to redevelop. The 230-acre parcel is zoned Waterfront, Community Business (CB), and Residential (multi- and single family). No proposals have yet been submitted. The site is not within the AICUZ footprint but is within the HAFZ and is directly under Keesler AFB flight tracks. Depending on the use and intensity of redevelopment here, coordination with Keesler AFB may be necessary. The height of any future development should be limited to prevent operational impact and noise attenuation may be recommended depending on the types of development proposed.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7. IMPLEMENTATION

Implementation of the AICUZ study must be a joint effort between Keesler 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 these collaborative planning efforts.

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.

Keesler 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.

Keesler 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 Keesler 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, Keesler AFB must be ready to provide additional input, as needed.

7.2 STATE/REGIONAL ROLES

As noted in **Section 6.2,** in the State of Mississippi, 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 in **Section 7.3.**

DoD Office of Local Defense Community Cooperation (OLDCC)

The OLDCC supports the readiness and resiliency of military installations and surrounding communities across the county. 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. Particular to Air Force 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.

Mississippi Governor's Office of Military Affairs (GOMA)

The State of Mississippi founded the Governor's Office of Military Affairs in 2021 to support military missions and improve defense communities across the state. GOMA publishes the Mississippi Defense Economy Strategic Plan, updated in 2022, and offers a seven-module course on economic development for military installation communities on their website.

GOMA has two key programs for military installations and communities, the Mississippi Installation Commanders Council (ICC) and the Defense Communities Development Council (DCDC).

The ICC is composed of military installation commanders in Mississippi. The council meets quarterly to discuss issues common to installations across the state. It provides a forum for installation commanders to advocate for their mission and any concerns, as well as learn from other installation commanders on how to address certain issues. It also allows direct access to state resources for installation commanders.

The DCDC was established in 2022 to advocate for military and defense entities in Mississippi. It provides information and opportunities to strengthen military installations in their communities and helps communities understand the benefits of defense missions. The aim of the DCDC is to advocate for the mutual benefits of defense missions and surrounding communities, leading them to become engaged local supporters of each other.

GOMA, the ICC, and the DCDC all provide resources and forums for collaboration for Keesler AFB and the surrounding communities to enhance their relationship and the positive impacts each entity brings to the Gulf Coast.

Mississippi Defense Initiative (MDI)

Keesler AFB plays a vital role in the local and regional economy, and the defense industry as a whole represents nearly $5.7 billion, or 4.1 percent, of Mississippi's GDP as of FY2022. Recognizing defense's impact on Mississippi's economy, the OLDCC partnered with the University of Southern Mississippi to establish the MDI, a program that aims to strengthen Mississippi's defense and national security assets as an economic driver for the state. The program works closely with military installations, local military communities, local and regional economic development agencies, and Mississippi government entities to promote the DoD presence and defense industry in the state.

MDI offers several courses that may offer mutual benefits to Keesler AFB and its surrounding communities, enhancing Keesler AFB's economic impact while protecting its mission. Two of such MDI courses are "Economic Development for Military Communities" and "Developing Solutions for Defense." MDI also facilitates events to strengthen collaboration between defense partners, hosting over 120 events to date. There are other resources MDI has published to aid defense communities, such as the 2019 Strategic Plan. At the state level, MDI works closely with the ICC and GOMA on new initiatives, legislative issues, quality of life, and expansion and upgrade of facilities for defense communities.

Gulf Regional Planning Commission (GRPC)

As the regional planning entity for the Gulf Coast, the GRPC is poised to be one of the primary facilitators and sources of information regarding compatible land use around Keesler AFB. It hosts the 2017 JLUS on its website and can host this AICUZ Study alongside it. Keesler AFB, Biloxi, D'Iberville and other municipalities will rely on and benefit from the GRPC's efforts to foster positive relationships and communication between the entities.

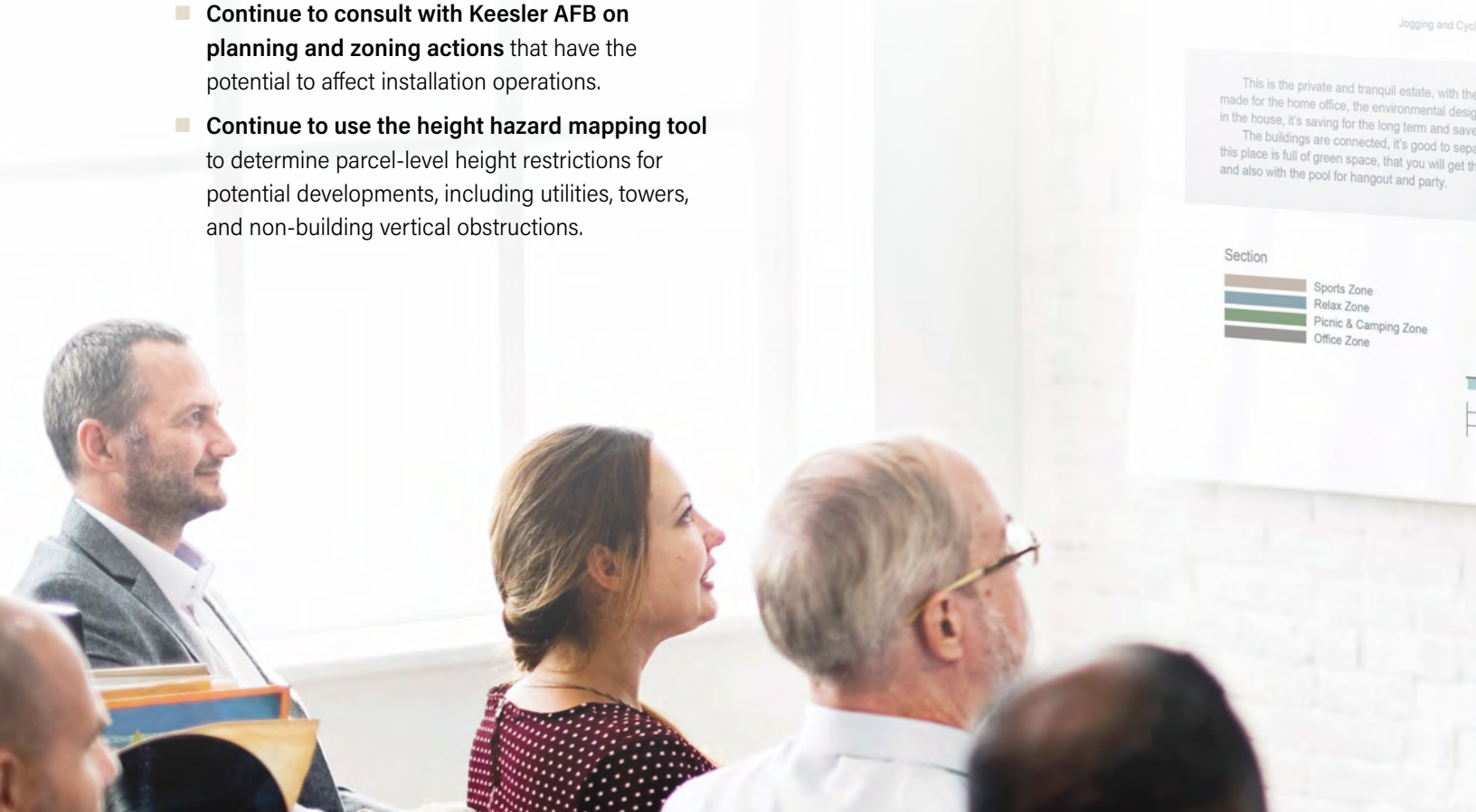
7.3 LOCAL GOVERNMENT ROLE

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 Keesler AFB.

Biloxi and GRPC planners have a standing quarterly meeting to coordinate development issues around Keesler AFB. Keesler AFB holds a non-voting position on both the Biloxi Development Review Committee and the Biloxi Planning Commission, enabling awareness of future developments that may impact the mission at an early stage. Biloxi also has a Mission Support Group that meets quarterly to discuss interactions between the installation and City.

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 in CZs/APZs and noise zones.
- **Continue to consult with Keesler AFB on planning and zoning actions** that have the potential to affect installation operations.
- **Continue to use the height hazard mapping tool** to determine parcel-level height restrictions for potential developments, including utilities, towers, and non-building vertical obstructions.
- **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.
  - Consider directing future growth, especially residential development, towards areas that are outside of the Keesler AFB AICUZ noise and safety zones.
- **Ensure that new development applications or properties that are applying for a change of use are submitted to Keesler AFB** so the base can assess those applications for potential impacts on defense missions. The Keesler AFB PA Office can provide a land use planning point of contact.
- A**dopt or modify zoning ordinances** to reflect the compatible land uses outlined in the AICUZ study, including the creation of military airport overlay zones.



- **Review capital improvement plans, infrastructure investments, and development policies** to ensure they do not encourage incompatible land use patterns near Keesler 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 Keesler 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 Keesler AFB has the recommended noise level reduction 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 Keesler AFB.
- **Encourage the development of a working group** to include the city, county, and Keesler 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 Keesler 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

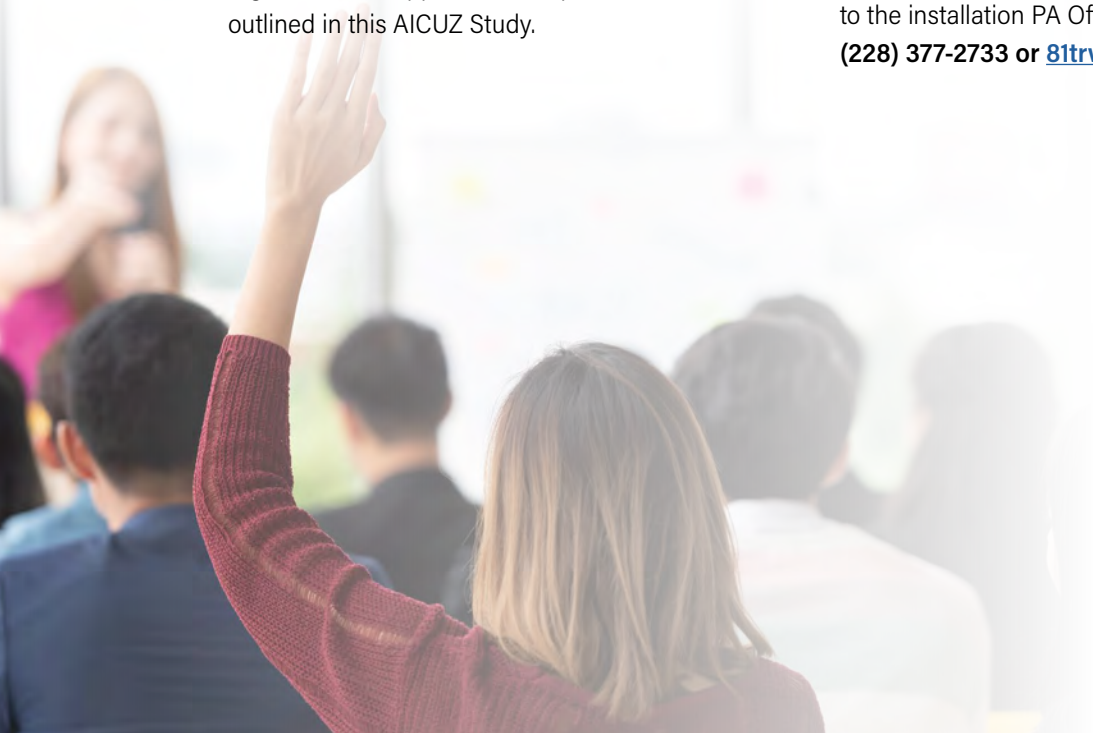
- **Know where the noise zones and CZs/APZs encumber land near the air installation.** Consult with Keesler AFB on proposed developments within the AICUZ footprint.
- **Participate in local discussions regarding existing zoning ordinances** and subdivision regulations to support the compatible land uses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

While the installation and community are separated by a fence, Keesler AFB activities and operations could affect the community. Likewise, community activities and development decisions can affect Keesler 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 **(228) 377-2733 or 81trw.pamain@us.af.mil.**

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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.

FAA. 2024. FAA Order JO 7610.14W, Sensitive Procedures and Requirements for Special Operations.

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.*

APPENDICES
A. LAND USE COMPATIBILITY TABLES

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 Standard Land Use Coding Manual (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 flight safety. 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 Federal Highway Administration SLUCM tables and may be transposed in the event of any possible data gaps. The data provided in **Table A-1** are 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	
11.31	Apartments: Walk-Up	N	N	N	
11.32	Apartment: Elevator	N	N	N	

SLUCM No.	LAND USE NAME	CZ[1]	APZ-I[1]	APZ-II[1]	DENSITY[1] RECOMMENDATION
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

SLUCM No.	LAND USE NAME	CZ[1]	APZ-I[1]	APZ-II[1]	DENSITY[1] RECOMMENDATION
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	
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

SLUCM No.	LAND USE NAME	CZ[1]	APZ-I[1]	APZ-II[1]	DENSITY[1] RECOMMENDATION
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
	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	

SLUCM No.	LAND USE NAME	CZ[1]	APZ-I[1]	APZ-II[1]	DENSITY[1] RECOMMENDATION
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	
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

SLUCM No./LAND USE NAME		CZ[1]	APZ-I[1]	APZ-II[1]	DENSITY[1] RECOMMENDATION
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]	

Key To Table A-1, A-2, And A-3 Land Use Compatibility

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.

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.

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 Standard Land Use Coding Manual (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	N[1]	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

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
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
	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

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
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
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	25[5]	30[5]	N	N
48	Utilities	Y	Y[2]	Y[3]	Y4	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
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

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	Y[1]	N	N	N	N
72	Public Assembly	Y	N	N	N	N
72.1	Auditoriums, Concert Halls	25	30	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
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
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

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.

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 AND ZONING COMPARISON

This section shows how local land use and zoning categories were standardized to the SLUCM categories and contains the existing land use, zoning, and future land use categories for the Cities of Biloxi and D'Iberville. These were the primary sources of the land use compatibility analysis.

TABLE C-1
Zoning Generalizations

EXISTING LAND USE CATEGORY	AICUZ LAND USE CATEGORY
D'IBERVILLE	
General Commercial District	Commercial
General Residential District	Residential
Interstate Commercial District B	Commercial
Interstate Commercial District C	Commercial
Multifamily Residential District	Residential
Neighborhood Commercial District	Commercial
Single-family Residential District	Residential
Waterfront District	Residential
BILOXI	
Community Business	Commercial
Limited Business	Commercial
Neighborhood Business	Commercial
Regional Business	Commercial
Multifamily Residential, High Density	Residential
Residential Manufactured/ Mobile Home	Residential
Single-Family Residential, High Density	Residential
Single-Family Residential, Medium Density	Residential
Sand Beach	Cultural/Recreational
Waterfront	Residential

TABLE C-2

Existing Land Use Generalizations

EXISTING LAND USE CATEGORY	AICUZ LAND USE CATEGORY
D'IBERVILLE	
Commercial	Commercial
Industrial	Residential
Institutional	Cultural/Recreational
Multifamily Residential	Residential
Mobile Home Residential	Residential
Single-Family Residential	Residential
Power Easement	Transportation
Public/Semi-Public	Services
Vacant Land	Open/Agricultural/Low Density
BILOXI	
Casino Hotel	Commercial
Commercial	Commercial
Industrial	Industrial
Institution	Services
Institutional	Services
Multifamily Residential	Residential
Single-Family Residential	Residential
Office and Services	Residential
Parks and Recreation	Cultural/Recreational
Retail	Commercial
Transportation and Utility	Transportation
Vacant Commercial	Commercial
Vacant Residential	Residential
Vacant Lot	Open/Agricultural/Low Density

TABLE C-3

Future Land Use Generalizations

EXISTING LAND USE CATEGORY	AICUZ LAND USE CATEGORY
D'IBERVILLE	
Commercial/Retail	Commercial
Industrial	Industrial
High Density Residential	Residential
Medium Density Residential	Residential
Opportunity Area #2	Residential
Park	Cultural/Recreational
BILOXI	
Medium to High Density Residential	Residential
Low Density Residential	Residential
Regional Business	Commercial
Neighborhood/Community Business	Residential
Waterfront/Commercial Seafood Industry	Commercial
Regional Activity Center	Commercial
Neighborhood Center	Residential
Mixed-Use Corridor	Residential
Governmental	Services
Parks, Recreation, and Environmental Open Space	Recreational/Cultural

U.S. AIR FORCE

Keesler AFB also posts information on the installation website, including alerts about upcoming aircraft operations that can be shared publicly:

WWW.KEESLER.AF.MIL

/KeeslerAFB