



Homestead Air Reserve Base, Florida

AIR INSTALLATIONS COMPATIBLE USE ZONES (AICUZ) STUDY

FINAL • DECEMBER 2020



Headquarters Air Force Reserve Command
Office of the Civil Engineer (AFRC/A4C)
Robins Air Force Base, Georgia

This page left intentionally blank.

Homestead Air Reserve Base, Florida

Air Installations Compatible Use Zones (AICUZ) Study

FINAL
December 2020



Prepared for
Headquarters Air Force Reserve Command
Office of the Civil Engineer (AFRC/A4C)
Robins Air Force Base, Georgia
AFRC Contract No. FA6643-18-D-0004

This page left intentionally blank.



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND

14 December 2020

MEMORANDUM FOR AREA GOVERNMENTS

FROM: 482d Fighter Wing
Homestead Air Reserve Base
29050 Coral Sea Boulevard
Homestead ARB, FL 33039

SUBJECT: Air Installations Compatible Use Zones (AICUZ) Study

1. The 2020 AICUZ Study for Homestead Air Reserve Base (ARB) is an update of the AICUZ Study dated 2007. The Air Force Reserve Command initiated the update to include operational changes and planning for the potential addition of new aircraft. This Study is a reevaluation of aircraft noise and accident potential related to United States Air Force flying operations. The Air Force provides this AICUZ study to aid in the development of local planning mechanisms that will protect the public safety and health, as well as preserve the operational capabilities of Homestead ARB.
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), and noise contours, and provides recommendations for development that is compatible with military flight operations. It is our recommendation that local governments incorporate these recommendations into community plans, zoning ordinances, subdivision regulations, building codes, and other related documents.
3. This update provides noise contours based upon the Day-Night Average Sound Level (DNL) metric and utilizes a planning noise contour. Long-range planning by local land use authorities involves strategies to influence present and future uses of land. Due to the long-range nature of planning, the Air Force provides planning contours—noise contours based on reasonable projections of future missions and operations. AICUZ studies using planning contours provide a description of the future noise environment for projected aircraft operations that is more consistent with the planning horizon used by state, regional, and local planning bodies.
4. We greatly value the positive relationship Homestead ARB has experienced with its neighbors over the years. As a partner in the process, we have attempted to minimize noise disturbances through such actions as minimizing night flying and avoiding flights over heavily populated areas as much as possible. The Air Force appreciates and values the cooperation of all community stakeholders in the collaborative implementation of the recommendations and guidelines presented in this AICUZ Study update.

CASTANEDA.DAVI
D.M.1159162750
DAVID M. CASTANEDA, Col, USAF
Commander

Digitally signed by
CASTANEDA.DAVID.M.1159162750
Date: 2020.12.17 15:55:15 -05'00'

This page left intentionally blank.



Table of Contents

Section

- List of Figuresiii
- List of Tablesiv
- Abbreviations and Acronyms.....v
- 1.0 Introduction 1**
 - 1.1 AICUZ Program 1
 - 1.2 Scope and Authority 2
 - 1.2.1 Scope 2
 - 1.2.2 Authority..... 2
 - 1.3 Previous AICUZ Efforts and Related Studies..... 3
 - 1.4 Changes that Require an AICUZ Study Update..... 3
- 2.0 Homestead Air Reserve Base, Florida..... 5**
 - 2.1 Location 5
 - 2.2 History 5
 - 2.3 Mission 9
 - 2.4 Host and Tenant Organizations 9
 - 2.4.1 482nd Fighter Wing 9
 - 2.4.2 Special Operations Command South 9
 - 2.4.3 Florida Air National Guard 10
 - 2.4.4 U.S. Customs and Border Protection 10
 - 2.4.5 U.S. Army “Golden Knights” 10
 - 2.4.6 Florida Army National Guard, 50th Regional Support Group 10
 - 2.4.7 U.S. Coast Guard Maritime Safety and Security Team Miami 11
 - 2.5 Airfield Environment 11
 - 2.6 Explosive Ordnance Disposal Range..... 11
 - 2.7 Local Economic Impacts 13
- 3.0 Aircraft Operations..... 15**
 - 3.1 Aircraft Types 15
 - 3.1.1 Based Aircraft 15
 - 3.1.2 Planned Aircraft..... 17
 - 3.1.3 Transient Aircraft..... 17
 - 3.2 Maintenance Operations..... 18
 - 3.3 Flight Operations 20
 - 3.4 Annual Aircraft Operations 21
 - 3.4.1 Projected Annual Operations 22
 - 3.5 Runway Utilization, Flight Tracks, and Airspace..... 23
 - 3.5.1 Runway Utilization..... 23
 - 3.5.2 Flight Tracks 24
 - 3.5.3 Airspace 28
- 4.0 Aircraft Noise 31**
 - 4.1 What is Sound/Noise? 31
 - 4.2 The Day-Night Average Sound Level 33



4.3 Noise Contours 33
 4.3.1 Planning Contours 34
4.4 Noise Abatement..... 40
4.5 Noise Complaints..... 40

5.0 Community and Aircraft Safety..... 43
5.1 Clear Zones and Accident Potential Zones 43
5.2 Imaginary Surfaces 47
5.3 Hazards to Aircraft Flight Zone..... 50

6.0 Land Use Compatibility Analysis 53
6.1 Land Use Compatibility Guidelines and Classifications 55
 6.1.1 Suggested Land Use Compatibility for Noise..... 55
 6.1.2 Suggested Land Use Compatibility for Accident Potential Zones..... 55
6.2 Planning Authorities, Stakeholders, and Policies 55
 6.2.1 State of Florida 56
 6.2.2 South Florida Regional Planning Council 58
 6.2.3 Regional Mid-Air Collision Avoidance Program 58
 6.2.4 Miami-Dade County..... 59
 6.2.5 City of Homestead 62
6.3 Land Use and Proposed Development 63
 6.3.1 Existing Land Uses..... 65
 6.3.2 Zoning 68
 6.3.3 Future Land Use..... 70
6.4 Compatibility Concerns 72
 6.4.1 Land Use Analysis 72
 6.4.2 Existing Land Use Compatibility Concerns..... 75
 6.4.3 Future Land Use Compatibility Concerns 81

7.0 Implementation 87
7.1 Military Role 87
7.2 State Roles..... 88
7.3 Regional and Local Government Role 88
7.4 Community Role 90

8.0 References 93

Appendix A. Land Use Compatibility Tables 95
Appendix B. Enlarged Figures107



Figures

Figure 2-1. Regional Setting 8

Figure 2-2. Homestead ARB Airfield Diagram 12

Figure 3-1. Engine Runup Locations..... 19

Figure 3-2. Summary of Flight Operations for Calendar Years 2015 – 2019 22

Figure 3-3. Runway 06 Flight Tracks 25

Figure 3-4. Runway 24 Flight Tracks 26

Figure 3-5. Helicopter Flight Tracks 27

Figure 3-6. General Airspace Classifications 28

Figure 4-1. Typical A-weighted Sound Levels of Common Sounds 32

Figure 4-2. 2007 Noise Contours 35

Figure 4-3. 2020 AICUZ Planning Noise Contours with Gradient Shading 37

Figure 4-4. Comparison of the 2020 AICUZ and 2007 AICUZ Noise Contours 39

Figure 5-1. Runway Clear Zones and Accident Potential Zones for Class B Runways..... 44

Figure 5-2. 2020 AICUZ Clear Zones and Accident Potential Zones..... 46

Figure 5-3. Imaginary Surfaces and Transition Planes for Class B Fixed-Wing Runways 47

Figure 5-4. Runway Airspace Imaginary Surfaces and Transition Planes 49

Figure 6-1. 2020 Composite AICUZ Footprint 54

Figure 6-2. Existing Land Use and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential
Zones 67

Figure 6-3. Zoning and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential Zones 69

Figure 6-4. Future Land Use and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential
Zones 71

Figure 6-5. Incompatible Existing Land Use within Noise Contours 77

Figure 6-6. Incompatible Existing Land Use within Clear Zones and Accident Potential Zones 80

Figure 6-7. Incompatible Future Land Use within Noise Contours..... 83

Figure 6-8. Incompatible Future Land Use within Clear Zones and Accident Potential Zones..... 86

Figure B-1. Runway Airspace Imaginary Surfaces, Transition Planes, and Hazards to Aircraft Flight
Zone (HAFZ) Consultation Zone..... 109

Figure B-2. Urban Development Boundary (UDB) and 2030 Urban Expansion Area (UEA) 110

Figure B-3. Air Force Base Unmanned Aircraft System Facilities Map 111



Tables

Table 2-1. Military Economic Impact for Southeast Florida Region – Miami-Dade County 13

Table 3-1. Homestead ARB Projected Annual Aircraft Flight Operations for 2020 AICUZ Noise
Contours (Planning Contours CY 2024) 23

Table 3-2. Current Runway Usage and Flight Routing 24

Table 4-1. Subjective Response to Changes in Sound Level 33

Table 4-2. Off-installation Land Area and Estimated Population within Noise Zones for the 2020
AICUZ Noise Contours at Homestead ARB 36

Table 4-3. Comparison of land area impacted within the Noise Zones (In Acres) 38

Table 5-1. Off-installation Land Area and Estimated Population within the 2020 AICUZ Clear Zones
and Accident Potential Zones 45

Table 5-2. Descriptions of Imaginary Surfaces for Military Airfields with Class B Runways 48

Table 6-1. Generalized Land Use Categories and Noise/Safety Compatibility 73

Table 6-2. Off-installation Existing Land Use Acreage Compatibility within AICUZ Noise Zones 76

Table 6-3. Off-installation Existing Land Use Acreage Compatibility within Clear Zones/Accident
Potential Zones 79

Table 6-4. Off-installation Future Land Use Acreage Compatibility within AICUZ Noise Zones 82

Table 6-5. Off-installation Future Land Use Acreage Compatibility within Clear Zones/Accident
Potential Zones 85

Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones 95

Table A-2. Recommended Land Use Compatibility for Noise Zones 103



Abbreviations and Acronyms

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFH	Air Force Handbook
AFI	Air Force Instruction
AFRPA	Air Force Real Property Agency
AICUZ	Air Installations Compatible Use Zones
Air Force	U.S. Air Force
APZ	Accident Potential Zone
ARB	Air Reserve Base
ATC	air traffic control
BASH	bird/wildlife aircraft strike hazard
CHHA	coastal high hazard areas
CDMP	Comprehensive Development Master Plan
CY	calendar year
CZ	Clear Zone
dB	decibel
dba	A-weighted decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DoDI	Department of Defense Instruction
EOD	explosive ordnance disposal
EMI	electromagnetic interference
FAA	Federal Aviation Administration
FAR	Floor Area Ratio (also Federal Aviation Regulation)
FHWA	Federal Highway Administration
FW	Fighter Wing
FY	fiscal year
HAAF	Homestead Army Air Field
HAFB	Homestead Air Force Base
HAFZ	Hazards to Aircraft Flight Zone
HARS	Homestead Air Reserve Station
Hz	hertz
IFR	Instrument Flight Rules
ILS	instrument landing system
MOA	Military Operations Area
MSL	mean sea level
MSST	U.S. Coast Guard Maritime Safety and Security Team
NEPA	National Environmental Policy Act
NLR	noise level reduction
NORAD	North American Aerospace Defense Command
NVGs	night vision goggles
PA	Public Affairs
PAR	precision approach radar



PUD	planned unit development
SFO	Simulated Flame-Out
SFRPC	South Florida Regional Planning Council
SLUCM	Standard Land Use Coding Manual
SOCSOUTH	Special Operations Command South
SRPP	Strategic Regional Policy Plan
SUA	Special Use Airspace
T&G	Touch-and-Go
TFW	Tactical Fighter Wing
UDB	Urban Development Boundary
UEA	Urban Expansion Area
USCBP	U.S. Customs and Border Protection
VFR	Visual Flight Rules



1.0 Introduction

The 2020 Homestead Air Reserve Base (ARB) Air Installations Compatible Use Zones (AICUZ) Study focuses on the flying missions at the airfield. This update presents and documents changes since the previous study released in 2007. This document also incorporates the F-35A aircraft in the noise modeling for planning purposes. It should be noted that the F-35A is not currently based at Homestead ARB. That decision is going through environmental review as part of a separate Proposed Action by the U.S. Air Force Reserve Command (AFRC).



F-16 under canopy at Homestead ARB

This AICUZ Study reaffirms the U.S. Air Force (Air Force) policy of promoting public health, safety, and general welfare in areas surrounding an air installation while seeking development that is compatible with the defense mission. This study presents changes in flight operations since the previous study and provides planning noise contours and recommendations for compatible land use.

1.1 AICUZ Program

Military installations attract development—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 relief 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. The goal of the program is 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.

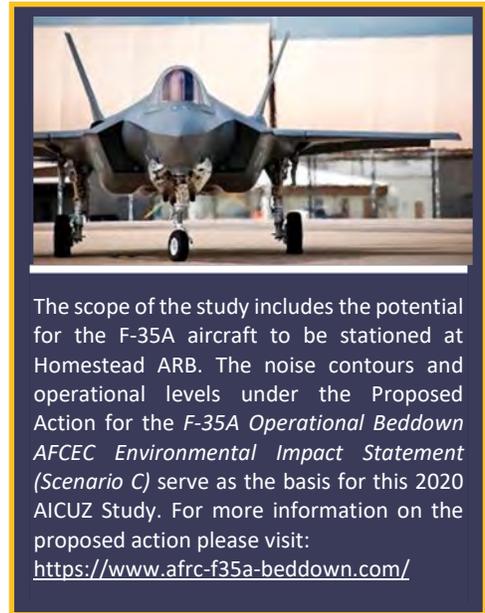
The AICUZ Program recommends that local land use agencies incorporate noise zones, Clear Zones (CZs), Accident Potential Zones (APZs), and Hazards to Aircraft Flight Zones (HAFZs) associated with military operations into local community planning programs to maintain the airfield’s operational requirements while minimizing the impact to residents in the surrounding community. Cooperation between military airfield planners and community-based counterparts serves to increase public awareness of the importance of air installations and the need to address mission requirements and associated noise and risk factors in the public planning process. As the communities that surround 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 uses projected air operations. Homestead ARB does not expect changes to the current mission. The amount of flight operations is projected to be consistent over the next five to ten years. However, for planning purposes, this study factors in the potential addition of the F-35A aircraft with the same level of operations. The Air Force provides Homestead ARB'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.



1.2.2 Authority

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

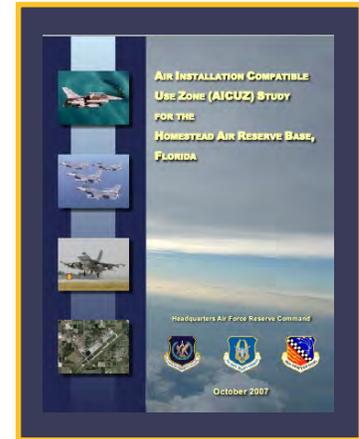
- Air Force Instruction (AFI) 32-1015, *Integrated Installation Planning*, implements Department of Defense Instruction (DoDI) 4165.57, *Air Installations Compatible Use Zones*, and applies to all Air Force installations with active runways located in the United States and its territories (DoD 2015). This AFI establishes the program objectives and responsibilities.
- Air Force Handbook (AFH) 32-7084, *AICUZ Program Manager's Guide*, provides installation AICUZ Program Managers with specific guidance concerning the organizational tasks and procedures necessary to implement the AICUZ Program. It is written in a "how to" format and includes the land use compatibility tables used in AICUZ studies.



1.3 Previous AICUZ Efforts and Related Studies

Previous studies relevant to this AICUZ Study include:

- AICUZ Study for the 482nd Fighter Wing, 2004;
- AICUZ Study for the Homestead Air Reserve Base, Florida, 2007; and
- Draft F-35A Operational Beddown – Air Force Reserve Command Environmental Impact Statement (hereafter referred to as the F-35A EIS), 2020.



1.4 Changes that Require an AICUZ Study Update

This 2020 Homestead ARB AICUZ Study replaces the 2007 AICUZ Study. It provides the installation's flight tracks, CZs, APZs, and noise contour information, presenting the most accurate representation of military activities as projected to calendar year (CY) 2024, factoring in the potential addition of the F-35A. 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 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 Homestead ARB AICUZ Study that necessitate this update include:

- Planning noise contours due to potential mission change;
- Potential introduction of one new F-35A aircraft squadron, as detailed in the F-35A EIS;
- Changes in AICUZ AFI (AFI 32-1015, Integrated Installation Planning, and AFH 32-7084, *AICUZ Program Manager's Guide*, were published since the previous 2007 AICUZ Study); and
- Changes in off-installation land use and development trends since the 2007 AICUZ Study (13 years ago).



This page left intentionally blank.



2.0 Homestead Air Reserve Base, Florida

2.1 Location

Homestead ARB is located in Miami-Dade County in south Florida, directly east of Homestead, Florida. Miami is located approximately 23 miles north of Homestead ARB and the Florida Keys are approximately 20 miles south of the airfield. The base covers an area of approximately 1,950 acres. Areas north and west of the airfield are primarily developed and urban, while areas south and east are predominantly agricultural or undeveloped.



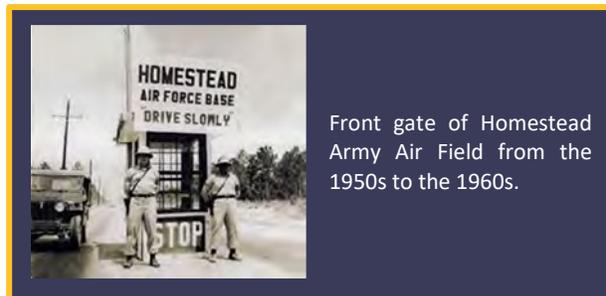
F-16 in front of Homestead ARB's air traffic control tower

2.2 History

As a result of the Japanese attack on Pearl Harbor, Army Air Corps officials activated Homestead Army Air Field (HAAF) in September of 1942. Originally, HAAF was utilized as a maintenance stopover point on the frequently traveled air route from the northeastern United States to the Caribbean and North Africa. In early 1943, the base gained a new tenant with the activation of the 2nd Operational Training Unit. The mission of the unit was to provide advanced training for aircrew members who would go on to pilot aircraft such as the C-54, C-87, and C-46. As the need for additional pilots grew as a result of World War II, military officials decided to enlarge the training at HAAF. Management of the airbase was transferred to the Air Transport Command's Ferry Division and, by the end of 1943, the 2nd Operational Training Unit's only mission was to train C-54 air crews.

On September 15, 1945, a hurricane now known as the 1945 Homestead Hurricane, directly impacted HAAF. Many buildings on the airbase were either damaged or destroyed including housing facilities, the nurses' dormitory, and the base exchange. As a result, officials decided to shut down HAAF by December of 1945.

In the early 1950s, as the Korean War was coming to an end, defense officials began looking at HAAF as a key part of the country's defense. After cleanup from the hurricane finally occurred in mid-1954, the Air Force reactivated the airfield on February 8, 1955, as Homestead Air Force Base (HAFB). Soon after, HAFB became home to the 823rd Air Division, an umbrella organization encompassing the 379th and 19th Bomber Wings. By the end of the decade, HAFB had grown to more than 6,000 permanently assigned members.



Front gate of Homestead Army Air Field from the 1950s to the 1960s.



In 1962, the 31st Tactical Fighter Wing (TFW) was moved to HAFB from George Air Force Base in California. Then, the mission and importance of HAFB intensified rapidly in October of 1962, as it was discovered that the Soviet Union was placing medium-range missiles on the island of Cuba. Troops and aircraft were immediately sent to HAFB, increasing its population by tens of thousands. However, after several weeks of standoff with the United States, the Soviet Union relented and removed the missiles from Cuba. After this, HAFB maintained a dual mission to stand ready for air missions around the globe, and to maintain an operationally ready tactical Air Force.

In October of 1985, the F-16 aircraft arrived at HAFB and were integrated into the 31st TFW. During this period, the largest tenant unit on HAFB was the 482nd Fighter Wing (FW) of the Air Force Reserve Command.

On August 24, 1992, Hurricane Andrew made landfall at HAFB. The hurricane, which was later re-classified as a Category 5 storm, practically destroyed the airbase. For the initial rebuilding efforts, the DoD spent more than \$100 million in reconstruction of facilities and infrastructure improvements. A few years after Hurricane Andrew, the



base had either constructed or was in the process of constructing new facilities, such as the wing headquarters, vehicle maintenance, communications, medical, and security facility buildings. As a result of the destruction, in 1993, the U.S. Department of Defense Base Realignment and Closure Commission (BRAC) recommended the closure of HAFB. The Air Combat Command departed the base in 1994 and approximately 850 acres of the base property (one-third) was transferred to AFRC and the remaining portions were transferred to the Air Force Real Property Agency (AFRPA) and Miami-Dade County. In 1994, the 482nd FW returned to the airfield from its Hurricane Andrew relocation at MacDill Air Force Base and became the host unit. The 31st TFW was deactivated at HAFB and the base was restructured as the Homestead Air Reserve Station (HARS).

Through 2001, HARS units and personnel continued to fulfill the primary mission of training reservists and supporting other DoD and international training units. In June 2003, an additional 1,091 acres (including the runway and main taxiways) were transferred from the AFRPA to the AFRC and, on December 17, 2003, HARS was officially re-designated and renamed to the Homestead ARB.



Through the late 2000s and early 2010s operations at the Homestead ARB remained fairly unchanged, providing support for staging relief efforts in the southern hemisphere and providing assistance in numerous natural disasters including the Haiti relief efforts after the 2010 earthquake. In April of 2016, the Air Force announced that Homestead ARB was a candidate for the F-35A Lightning II, amongst four other reserve locations.

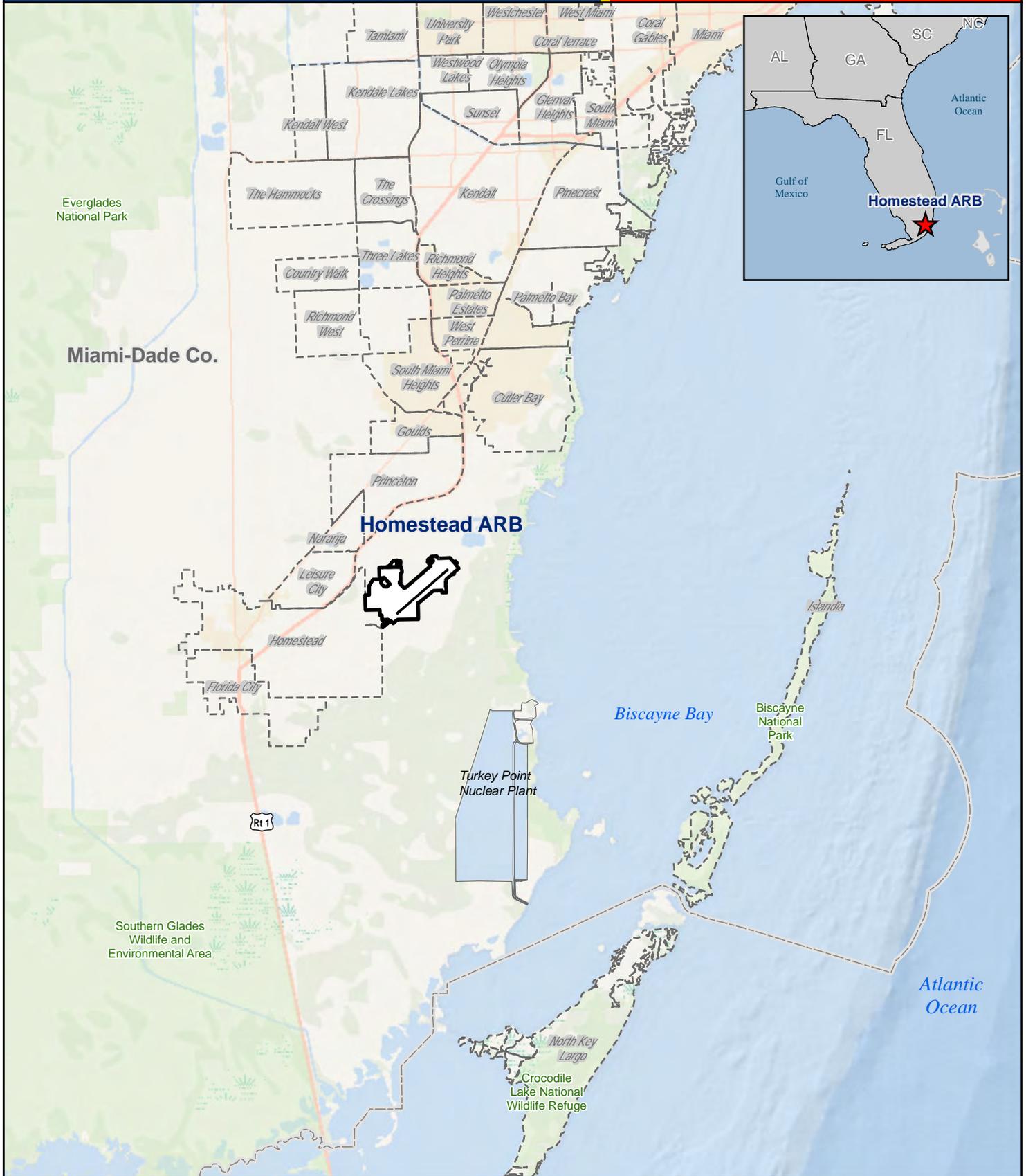


Today, the 482nd FW continues to support contingency and training operations of the U.S. Southern Command and a number of tenant units, including Headquarters Special Operations Command South (SOC SOUTH), the U.S. Coast Guard Maritime Safety and Security Team (MSST), and an air and maritime unit of the U.S. Customs and Border Protection (USCBP). Homestead ARB is also home to the most active North American Aerospace Defense Command (NORAD) alert site in the continental United States. The NORAD site at Homestead ARB is operated by a detachment of F-15 fighter interceptors from the 125th FW of the Florida Air National Guard.

Figure 2-1

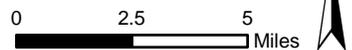
Homestead Air Reserve Base
Air Installations Compatible Use Zones

Regional Setting



Legend

- Airfield Runway
- County Boundary
- Park/Recreation Area
- City/Town Boundary
- Installation Boundary





2.3 Mission

The primary mission of Homestead ARB is to recruit, organize, and train reservists to be prepared for active duty in time of war or national emergency, and to support national security objectives. The host unit of Homestead ARB is the 482nd FW of the Air Force Reserve Command's Tenth Air Force. The 482nd FW's mission is to deploy combat ready airmen to combatant commanders.

2.4 Host and Tenant Organizations

2.4.1 482nd Fighter Wing



The 482nd FW is a fully combat-ready flying unit operating the F-16 aircraft. The FW provides mission-ready pilots and support personnel for worldwide deployment on short notice. The FW is comprised of more than 2,600 members, including more than 1,700 reservists. During hurricane season, the 482nd FW routinely supports forward deployment of the Air Force Reserve's "Hurricane Hunters" weather reconnaissance mission, and joint relief operations with the Federal Emergency Management Agency. The 482nd FW includes the 93rd Fighter Squadron, the "Makos," which fly and maintain the F-16 aircraft.



2.4.2 Special Operations Command South



SOCSOUTH, located at Homestead ARB, is a sub-unified command operationally assigned to the U.S. Southern Command. SOCSOUTH is a joint Special Operations headquarters that plans and executes special operations in Central and South American and the Caribbean.

SOCSOUTH has five assigned, or attached subordinate commands including the 7th Special Forces Group, the 160th Special Operations Aviation Regiment, Naval Special Warfare Unit FOUR, the 112th Signal Detachment SOCSOUTH, and the Joint Special Operations Air Component-South.



2.4.3 Florida Air National Guard



The Florida Air National Guard, 125th FW, contains over 1,600 airmen assigned to 23 units, operating across five separate geographic locations. The Wing provides air superiority, space superiority, and agile combat support to commanders worldwide. The 125th FW operates a NORAD alert facility at Homestead ARB. The detachment provides F-15 aircraft capable of intercepting, identifying and, if necessary, destroying unknown aircraft that penetrate U.S. airspace.

2.4.4 U.S. Customs and Border Protection



Homestead ARB hosts the USCBP, Miami Air and Marine Branch, on the installation. The branch of the USCBP provides rapid air and marine response capabilities to address imposing threats to the southeastern United States. The Miami Air and Marine Branch contains a variety of capabilities including detection, disruption, and deterrence of illegal immigration, illicit drug trafficking, weapons trade, and terrorist activity.

2.4.5 U.S. Army "Golden Knights"



The U.S. Army Parachute Team, known as the Golden Knights, are the U.S. Army's premier demonstration and competition parachute team. The Golden Knights are one of only three DoD-sanctioned aerial demonstration teams, along with the U.S. Navy Blue Angels and the Air Force Thunderbirds. The Golden Knights team is composed of approximately 95 men and women, which includes four parachute units, an aviation unit and a headquarters. The team has conducted more than 16,000 shows in all 50 states and 48 countries around the world. The Golden Knights are headquartered at Fort Bragg in North Carolina; however, in the winter, they train at Homestead ARB.

2.4.6 Florida Army National Guard, 50th Regional Support Group



The 50th Regional Support Group was established in 1946. The Group, and its subordinate units, participate in training and exercises focused on providing mission command, logistical support, and sustainment at home during emergency management operations, as well as overseas as part of base camp management operations.



2.4.7 U.S. Coast Guard Maritime Safety and Security Team Miami



The U.S. Coast Guard MSST Miami was commissioned in January of 2005. MSST Miami is a deployable Specialized Force operating under Coast Guard Atlantic Area. They are trained, equipped, and frequently employed to conduct operations locally, support maritime security missions worldwide, and rapidly deploy in response to emergent threats or the needs of the country.

2.5 Airfield Environment

Homestead ARB includes one runway, taxiways, aircraft parking ramps, aircraft hangars for maintenance and storage, and support facilities (Figure 2-2). Runway 06/24 is 11,202 feet long and 300 feet wide and is oriented in northeast/southwest direction. Air traffic control (ATC) is provided by the Air Force via a control tower on the airfield.

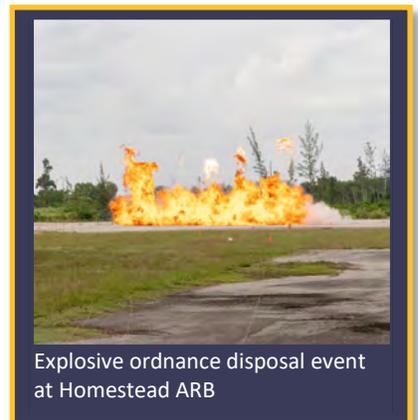
A runway is typically used in both directions and counted as two separate runways, depending on the direction of the departure. Each direction is labeled as a separate runway and numbered, based on its magnetic heading, divided by 10 and rounded to a whole number.

As of September 2020, the airfield is open from 7:00 a.m. through 11:00 p.m. on weekdays and on Unit Training Assembly weekends. After-dark training operations may occur after 10:00 p.m. At Homestead ARB, most aircraft complete their operations and arrive before the airfield closes. Hours could be extended based on mission needs, though this does not happen often. The airfield is typically closed on holidays.

Operational, airspace safety, and environmental constraints, as well as a variety of other factors, determine runway utilization, which this report addresses in Section 3.5, Runway Utilization, Flight Tracks, and Airspace. For example, the Air Force has to comply with the Federal Aviation Administration’s (FAA) opposite direction operations policy that applies to the use of one runway for two-directional traffic.

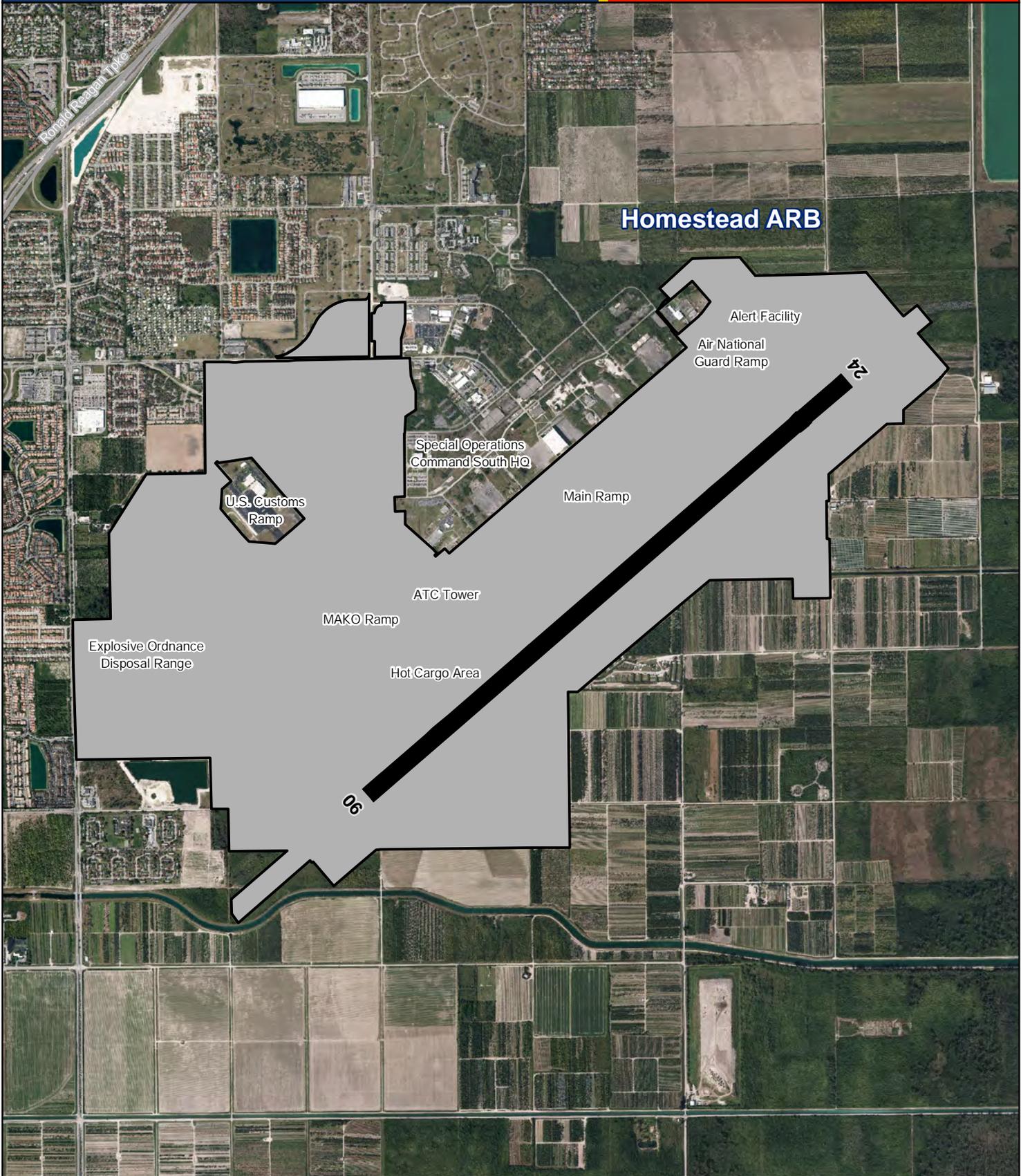
2.6 Explosive Ordnance Disposal Range

The 482nd Civil Engineering Squadron Explosive Ordnance Disposal Flight group operates at Homestead ARB. The mission of the squadron is to protect personnel and property from any and all explosive hazards at home and overseas. An explosive ordnance disposal (EOD) range is located on the west side of Homestead ARB (Figure 2-2). The EOD range is also used by local law enforcement and bomb units for unexploded ordnance disposal which provides a safety benefit to the community.



Explosive ordnance disposal event at Homestead ARB

Figure 2-2



Legend

- Airfield Runway
- Installation Boundary





2.7 Local Economic Impacts

Homestead ARB is a major economic contributor for south Florida, generating hundreds of millions of dollars into the local economy. This includes millions in construction, services and material contracts that were awarded to mainly local businesses. As of July 2020, Homestead ARB employs over 3,400 employees which includes the various mission partners and 1,774 Air Force reservists who conduct monthly drills at the base. Homestead ARB’s total payroll in fiscal year (FY) 2018 was over \$99 million. (USAF 2019)



New \$41-million Special Operations Command South headquarters facility constructed at Homestead ARB.

The military provides direct, indirect, and induced economic benefits to local communities through jobs and wages. Benefits include employment opportunities and increases in local business revenue, property sales, and tax revenue. The annual economic impact of Florida’s military community state-wide was \$94.9 billion in FY 2018 (Enterprise Florida, Inc. 2020a). 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. The military further contributes to the economic development of communities through increased demand for local goods and services, and increased household spending by military and civilian employees. Tables 2-1 provides a summary of the total county economic impact from the military.

Table 2-1. Military Economic Impact for Southeast Florida Region – Miami-Dade County

Economic Impact	Millions of Dollars
County Economic Impact (Gross Regional Impact)	\$7,436.5
Percent of Economy	4.4%
Employment (# of Jobs)	66,315
Direct Defense Spending	
Procurement	\$518.0
Salaries	\$357.9
Pensions & Transfers	\$744.7
Total Defense Spending	\$1,620.6

Source: Enterprise Florida, Inc. 2020b

Note: Includes Impact from Homestead ARB, SOCSOUTH, and the 7th Coast Guard District HQ
Gross Regional Product is the sum of consumption, investment, government revenues, and exports less imports. It represents the total dollar value added of all goods and services produced as a result of defense spending.



This page left intentionally blank.



3.0 Aircraft Operations

Aircraft operations are the primary source of noise associated with a military air installation. The level of noise exposure relates 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 section discusses the aircraft based at or transient to Homestead ARB, the types and number of operations conducted at the airfields, and the runways and flight tracks used to conduct the operations.

3.1 Aircraft Types

There are two primary types of aircraft operating at Homestead ARB: fixed-wing and rotary-wing (helicopters). Aircraft based at Homestead ARB are the most common aircraft conducting flight operations at the installation. Aircraft that are not based at the installation, but conduct operations from the installation on an occasional basis, are referred to as “transient” aircraft. In addition, for planning purposes, this study factors in the potential addition of the F-35A aircraft. While the F-35A is not currently based at Homestead ARB, future operations are being assessed under the National Environmental Policy Act (NEPA) process. Below are brief descriptions of based aircraft, planned aircraft, and the most common transient aircraft at Homestead ARB.

3.1.1 Based Aircraft



F-16 Fighting Falcon

F-16 Fighting Falcon

The F-16 Fighting Falcon, commonly called the Viper, is a highly maneuverable multirole fighter proven in air-to-air combat, and air-to-surface attack. The F-16 comprises 50 percent of the Air Force’s fighter fleet and is among the most maneuverable fighters ever built. The 93rd Fighter Squadron, the “Makos,” fly the F-16 aircraft.

F-15 Eagle

The F-15 Eagle was the world’s dominant air superiority fighter for more than 30 years. The F-15 Eagle is a twin-engine, all-weather, extremely maneuverable, tactical fighter that is the backbone for the Air Force’s air superiority and homeland defense missions. The Florida Air National Guard 125th FW operates the F-15 Eagle as part of the NORAD alert facility.



F-15 Eagle



C-130 Hercules

C-130 Hercules

C-130 Hercules is the Air Force’s principal tactical cargo and personnel transport aircraft to conduct its airlift mission including supporting the Air Force SOCSOUTH mission. C-130 can accommodate a wide variety of oversized cargo, including everything from utility helicopters and six-wheeled armored vehicles to standard palletized cargo and military personnel.

DHC-6 Twin Otter

The DHC-6 Twin Otter aircraft is a fixed-winged, unpressurized twin engine turbine powered aircraft with fixed tricycle land gear. The aircraft is a 16-passenger aircraft that is heavily utilized by the commercial skydiving operations. In addition to the F-27 Friendship aircraft, the DHC-6 Twin Otter is also utilized by the U.S. Army Golden Knights parachuting team.



DHC-6 Twin Otter



DHC-8 Bombardier

DHC-8 Bombardier

The Bombardier DHC-8 is a fixed-wing, medium-range aircraft equipped with radar and electro-optical/infrared sensors that can detect and monitor maritime and surface targets. The USCBP’s Air and Marine Operations operates two models of the DHC-8, the Q200 and Q300. This aircraft can also be converted to a cargo configuration or into a passenger aircraft.

UH-60A Black Hawk

UH-60A Black Hawk helicopter is a twin-engine, medium-lift utility transport and air assault aircraft helicopter. USCBP’s Special Response Teams utilize the UH-60A Black Hawk in support of border security operations, providing the ability to rapidly respond to law enforcement emergencies with a tactical team.



UH-60A Black Hawk



3.1.2 Planned Aircraft

F-35A Lightning II

The F-35A Lightning II is the Air Force’s fifth-generation fighter. The F-35A was built to replace the aging fleet of F-16s and A-10s. The aircraft is an agile, versatile, high-performance, multirole fighter that combines stealth, sensor fusion, and unprecedented situational awareness. The F-35A Lightning II is not currently based at Homestead ARB; however, there are plans to potentially base the F-35A at the airfield in the future. Therefore, the aircraft was included in the AICUZ for planning purposes. The Air Force’s Proposed Action is currently going through environmental review as discussed in Section 1.2, Scope and Authority. For more information on the proposed action, please visit: <https://www.afrc-f35a-beddown.com>.



F-35A Lightning II

3.1.3 Transient Aircraft

F/A-18 Super Hornet



F/A-18 Super Hornet

The F/A-18 Super Hornet is a multi-role aircraft for the U.S. Navy designed to attack air, ground, and sea-based targets. It is proudly flown by the U.S. Navy Blue Angels Flight Demonstration Squadron. It is highly capable across the full mission spectrum: air superiority, fighter escort, reconnaissance, aerial refueling, close air support, air defense suppression, and day/night precision strike.

P-8 Poseidon

The Boeing P-8 Poseidon is a fixed-wing, jet-engine, multi-mission, maritime patrol aircraft, specializing in anti-submarine warfare; anti-surface water; intelligence, surveillance and reconnaissance and search and rescue. The P-8 is a modified Boeing 737-500 commercial aircraft.



P-8 Poseidon



H-65 Dolphin



H-65 Dolphin

The H-65 Dolphin is the short-range recovery helicopter primarily utilized by the U.S. Coast Guard. The H-65 is a highly capable helicopter with the ability to perform missions in the most severe climatic conditions, including high altitudes and hot weather. Search and rescue are the primary duties of the H-65 and it is used extensively in lifesaving operations. The aircraft was also heavily utilized in recovery efforts, particularly in

response to Hurricane Katrina and Hurricane Rita in 2005, and Hurricanes Harvey and Maria in 2017.

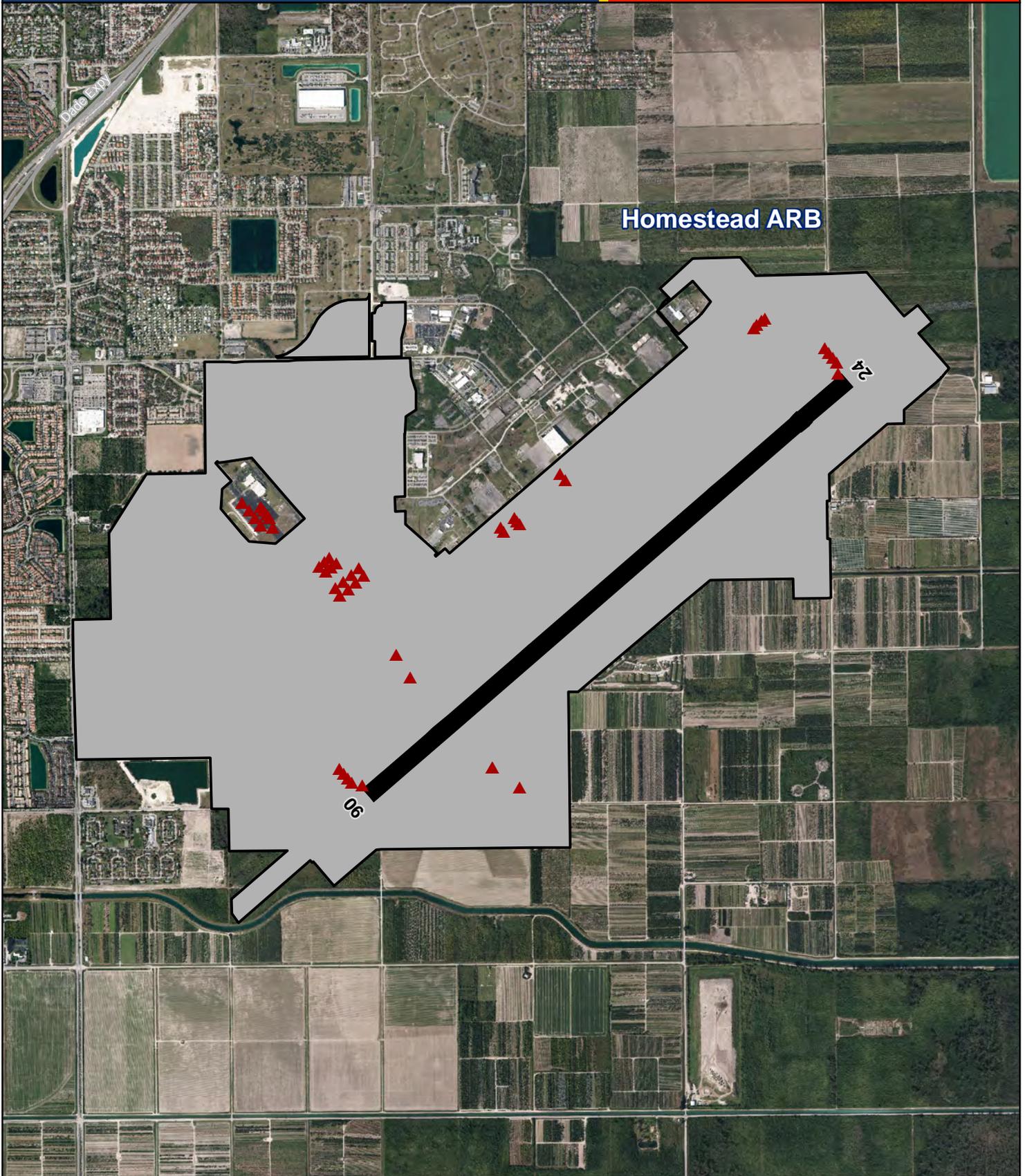
3.2 Maintenance Operations

Maintenance is an integral part of any flying operation and requires a dedicated team of professionals to ensure that units can meet their flying requirements. Two key tasks in maintaining aircraft are low- and high-powered engine maintenance runs. Figure 3.1 shows the engine runup locations. Homestead ARB may conduct low-power engine maintenance runs on aprons, ramps, or in hangars to functionally check the operation of engines or other aircraft systems.

Aircraft maintainers may conduct engine maintenance runs at power settings ranging from idle to maximum power. Maintainers typically conduct low- to mid-range-powered engine maintenance runs on aircraft parking ramps or just outside of maintenance hangars. High-powered engine maintenance runs are typically conducted at trim pads and test cells (for out-of-frame engine testing). Noise associated with these operations is included in the noise analysis for the Homestead ARB noise contours.

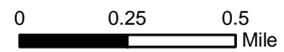
There are no official quiet hours at Homestead ARB for maintenance operations; however, night operations and maintenance are not common at the installation. Maintenance operations are allowed to be performed between 10:00 p.m. and 7:00 a.m.; however, no runups are allowed during that time.

Figure 3-1



Legend

- ▲ Run Up Location
- Airfield Runway
- Major Roads
- Installation Boundary





3.3 Flight Operations

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

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

This AICUZ Study considers operations from Homestead ARB. Operations include both based and transient military aircraft as well as potential future operations associated with the F-35A aircraft.

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

- **Takeoff:** When a pilot positions an aircraft on the runway and the engine power is set to facilitate movement and eventual flight.
- **Departure:** For the purpose of air traffic sequencing, separation, noise abatement, compliance with avoidance areas, and overall safety of flight, aircraft follow specific ground tracks and altitude restrictions as they depart the airfield's immediate airspace.
- **Straight-In Arrival:** An aircraft performing a straight-in arrival aligns with the runway extended centerline and begins a gradual descent for landing. This type of approach enables an aircraft to maintain a smooth, stable, and steady approach and requires no additional maneuvering.
- **Overhead Break Arrival:** 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.
- **Pattern Work:** Pattern work 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. Traffic pattern training is demanding and utilizes all of the



basic flying maneuvers a pilot learns—takeoffs, climbs, turns, climbing turns, descents, descending turns, and straight and level landings.

- **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 number of 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, known as a circuit, and repeats the maneuver.
- **Radar Approach:** Radar approaches are instrument approaches performed with active assistance from ATC during poor weather conditions. These include precision approach radar (PAR), instrument landing system (ILS), and the Tactical Air Navigation Aid (TACAN) system. ATC personnel direct the aircraft toward the runway centerline. Once established on the centerline, pilots use aircraft instruments to maintain runway alignment and adherence to altitude restrictions until the pilot is able to acquire visual sight with the runway environment. Pilots often practice this type of approach to maintain proficiency.
- **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.

3.4 Annual Aircraft Operations

Figure 3-2 provides the number of aircraft operations that have occurred at Homestead ARB over a five-year period, including based and transient aircraft. Between 2015 and 2019, annual flight operations have generally been consistent. Tower counts for 2015 through 2019 only included arrival and departure operations, and did not include pattern work.



Figure 3-2. Summary of Flight Operations for Calendar Years 2015 – 2019



In 2019, annual flight operations increased to 34,823 operations compared to the previous down year. Annual flight operations have remained mostly steady compared to the 36,427 operations presented in the 2007 AICUZ Study.

As noted in Section 2.5, Airfield Environment, the airfield is open from 7:00 a.m. through 11:00 p.m. Most operations at Homestead ARB take place during the daytime (daytime is defined as taking place from 7:00 a.m. to 10:00 p.m.) while a small percentage occur during the nighttime (nighttime is defined as taking place from 10:00 p.m. to 7:00 a.m.).

3.4.1 Projected Annual Operations

Table 3-1 presents the projected operations that were modeled for the Homestead ARB 2020 AICUZ noise contours. More detail regarding the noise contours at Homestead ARB can be found in Section 4.0, Aircraft Noise. The based and transient military and civil aircraft flight operations involve a variety of departure, arrival, and closed pattern procedures. The total number of modeled aircraft projected operations (including transient military and civil aircraft) at Homestead ARB for CY 2024 operations is 39,670 annual operations (which included arrivals, departures, and closed pattern operations). The projected operations include the potential for the F-35A aircraft to be stationed at Homestead ARB as presented under the Proposed Action for the F-35A Operational Beddown Air Force Civil Engineer Center (AFCEC) EIS (Scenario C), as previously discussed.

**Table 3-1. Homestead ARB Projected Annual Aircraft Flight Operations for 2020 AICUZ Noise Contours (Planning Contours CY 2024)**

Aircraft	Arrivals	Departures	Pattern Operations ^{1,2}	Total
Based/Projected Aircraft				
F-16C/F-35A (AFRC)	4,632	4,632	2,316	11,580
F-15C (FANG)	207	207	42	456
C-130H/C-146/C-27 (SOC SOUTH)	208	208	372	788
DHC-8/AS-350/UH-60 (USCBP)	2,190	2,190	3,242	7,622
F-27/DHC-6 (Golden Knights)	1,152	1,152	2,304	4,608
Subtotal	8,389	8,389	8,276	25,054
Transient and Civilian Aircraft				
C-12	242	242	0	484
P-3C	75	75	2,250	2,400
P-8	100	100	3,000	3,200
CN-35	50	50	2,000	2,100
H-65	51	51	2,040	2,142
C-172	700	700	1,400	2,800
Other Various Aircraft	444	444	602	1,490
Subtotal	1,662	1,662	11,292	14,616
Total	10,051	10,051	19,568	39,670

Source: Draft F-35A Operational Beddown AFCEC Environmental Impact Statement (Scenario C) noise contours and operational levels under the Proposed Action.

Notes:

For more information on the proposed action please visit: <https://www.afrc-f35a-beddown.com/>

F-35A aircraft are the primary contributor to 2020 AICUZ Noise contours

¹ Pattern include Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) operations.

² Each “closed pattern operation” consists of two total operations: one arrival and one departure.

3.5 Runway Utilization, Flight Tracks, and Airspace

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.



ATC personnel control the movement of air traffic, guiding pilots during departures and arrivals at the appropriate runway in use. Aviation planners adjust the pattern procedures accordingly to maximize air traffic flow efficiency. Table 3-2 lists how frequently each runway at Homestead ARB is used.

Table 3-2. Current Runway Usage and Flight Routing

Runway Direction	Arrival (%)	Departure (%)	Closed Patterns (%)
Runway 06 (arriving from the west and/or departing to the east)	95	95	95
Runway 24 (arriving from the east and/or departing to the west)	5	5	5

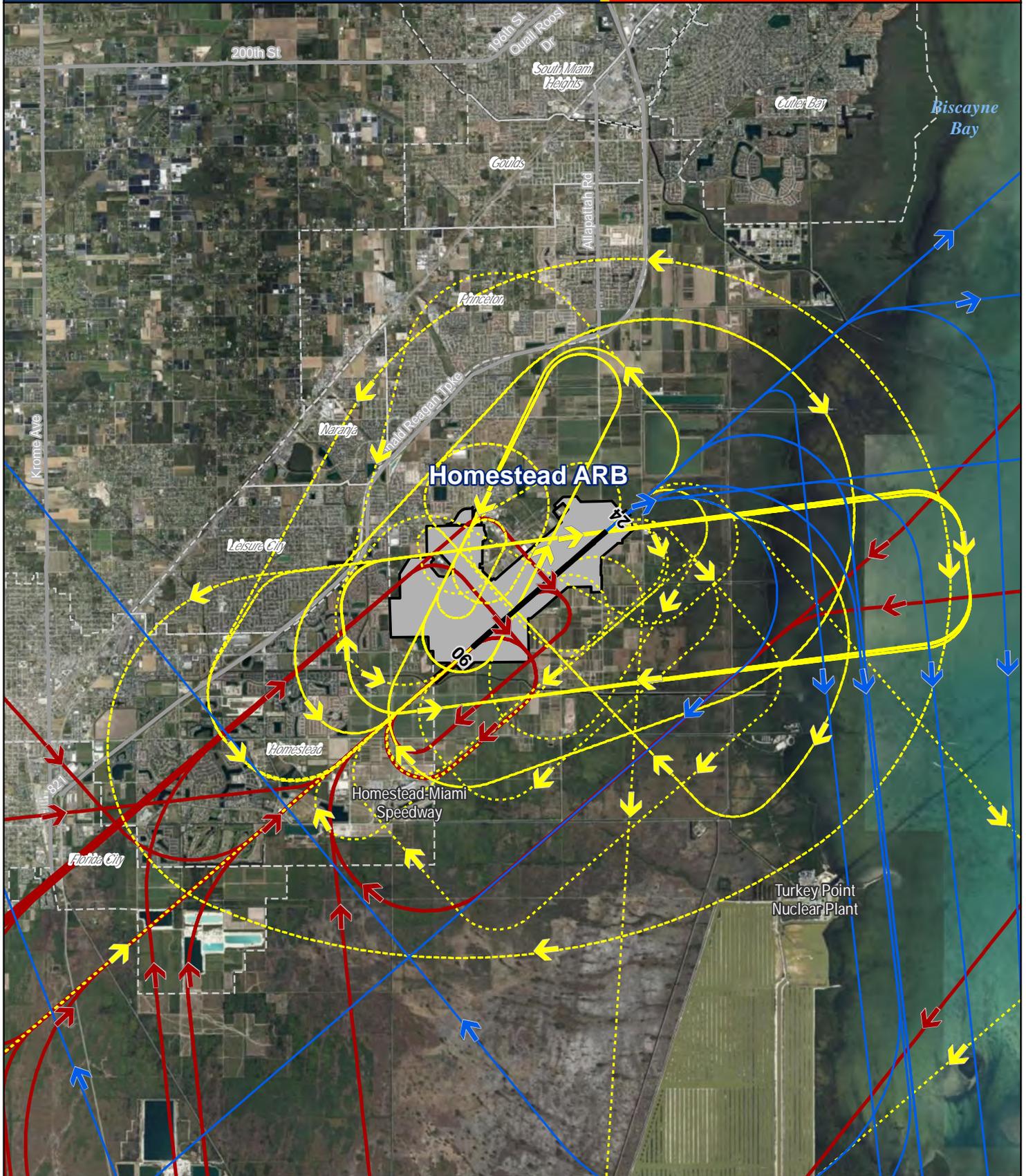
3.5.2 Flight Tracks

Each runway has designated flight tracks that provide for the safety, consistency, and control of an airfield. Flight tracks, which depict where aircraft fly in relation to an airfield are utilized for departures, arrivals, and pattern work procedures. Flight tracks are designated for each runway to facilitate operational safety, noise abatement, aircrew consistency, and the efficient flow of air traffic within the tower’s controlled airspace. Aircraft flight tracks are not set “highways in the sky.” While we show flight tracks as lines on the map, they are actually bands or corridors that represent the common path of the aircraft. Aircraft de-confliction, configuration, pilot technique, takeoff weight, and wind all affect the actual path taken on any given flight. Figures 3-3, 3-4, and 3-5 present the various flight tracks for Homestead ARB.

Figure 3-3

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Runway 06 Flight Tracks



Legend

- | | |
|-------------------------|--------------------|
| — Major Roads | Flight Tracks |
| ■ Airfield Runway | — Arrival |
| □ City/Town Boundary | --- Closed Pattern |
| ■ Installation Boundary | — Departure |

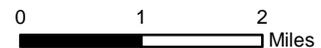
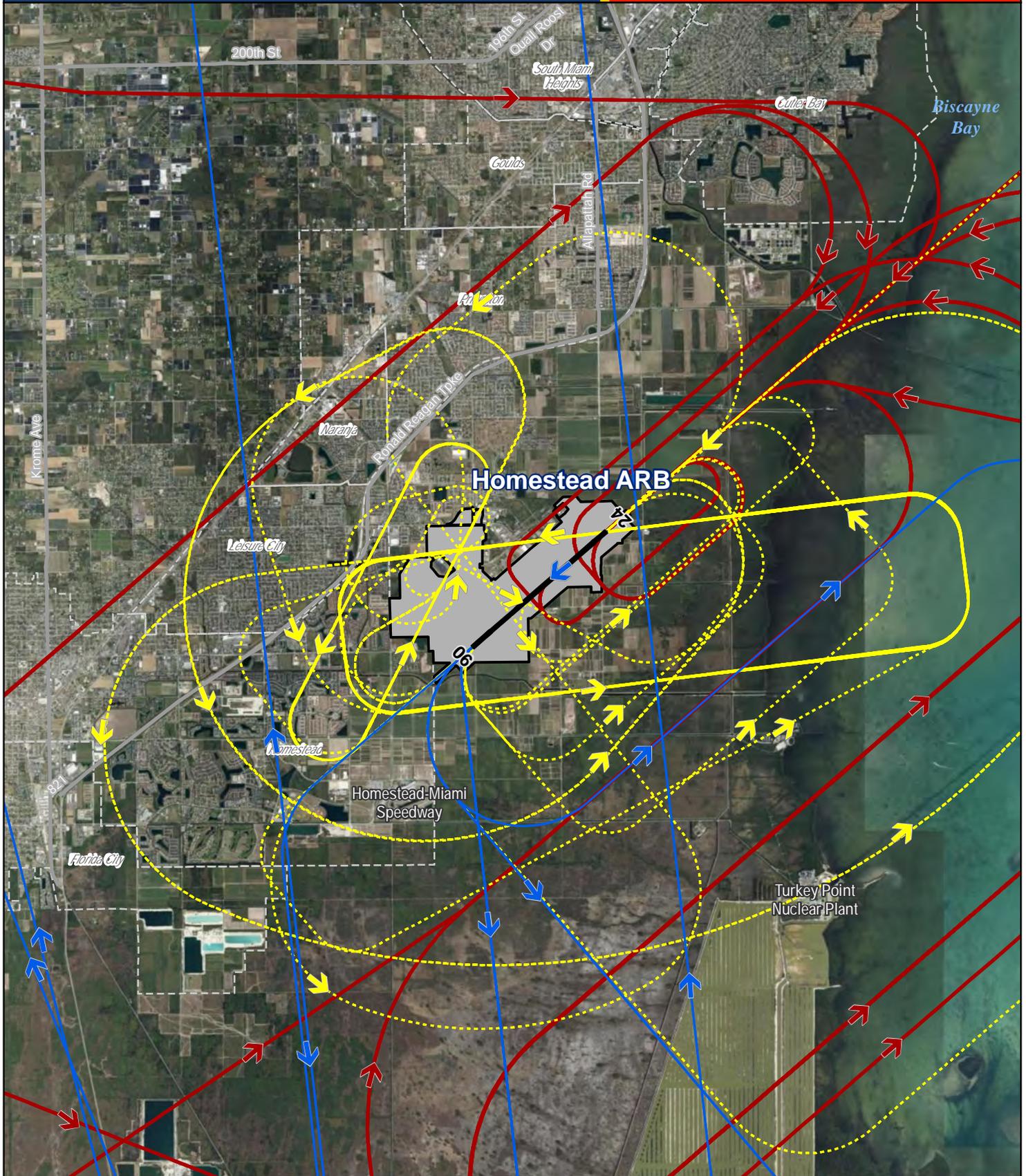


Figure 3-4

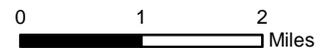
Homestead Air Reserve Base
Air Installations Compatible Use Zones

Runway 24 Flight Tracks



Legend

- | | |
|--------------------------|----------------------|
| — Major Roads | Flight Tracks |
| ■ Airfield Runway | — Arrival |
| - - - City/Town Boundary | - - - Closed Pattern |
| ▭ Installation Boundary | — Departure |

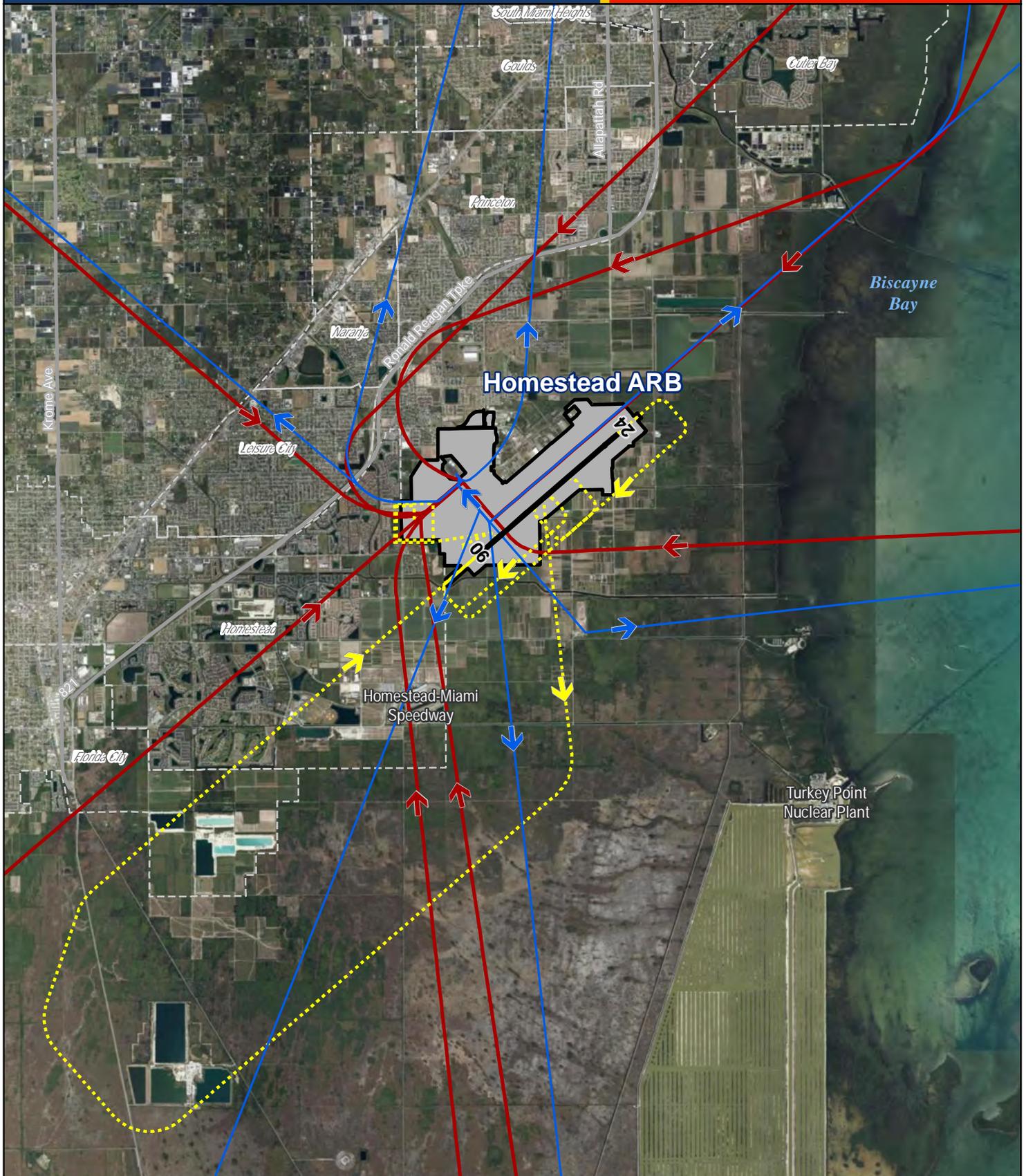


Source: AFCEC 2019; ESRI 2018; FHWA 2020; U.S. Census Bureau 2018

Figure 3-5

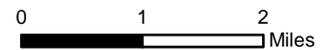
Homestead Air Reserve Base
Air Installations Compatible Use Zones

Helicopter Flight Tracks



Legend

- Airfield Runway
- City/Town Boundary
- Installation Boundary
- Flight Tracks
 - Arrival
 - Closed Pattern
 - Departure

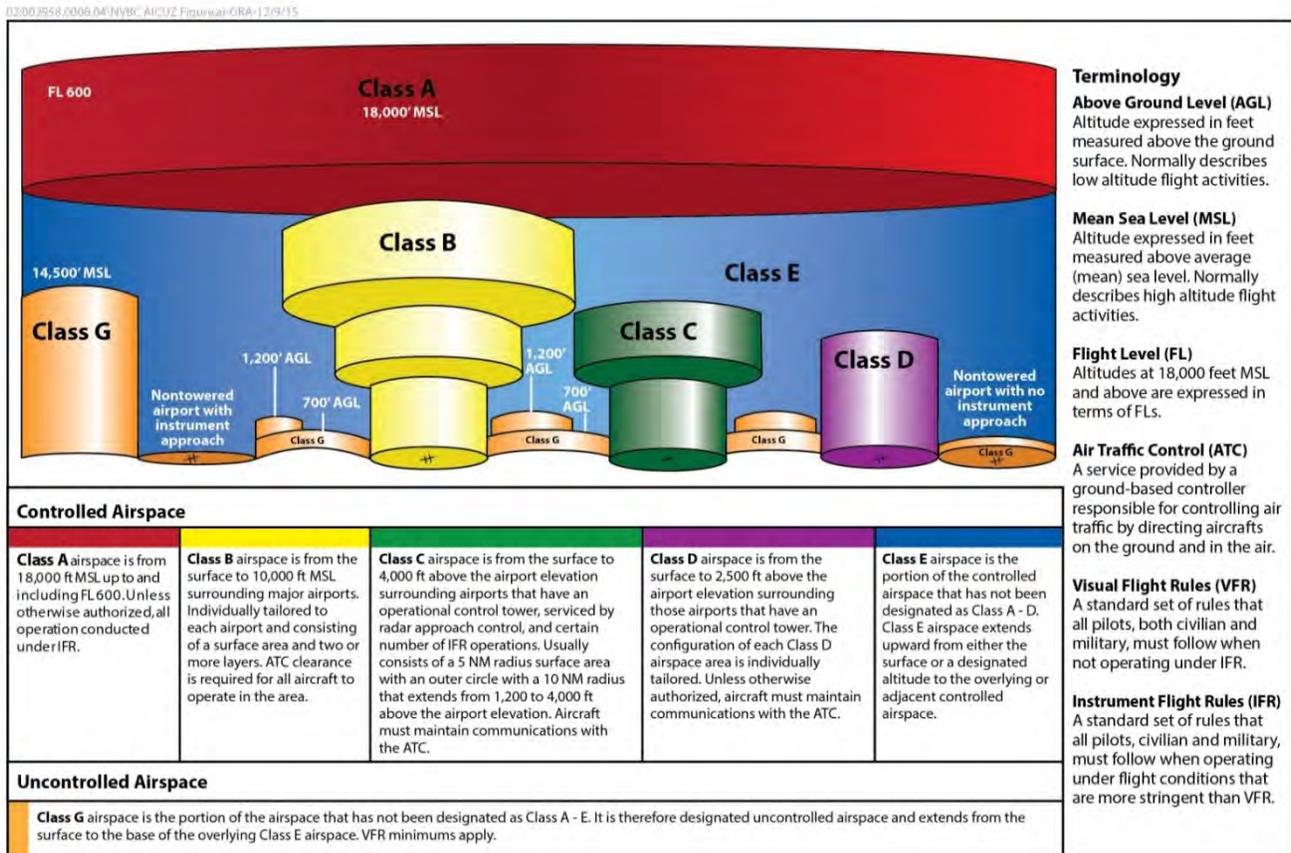




3.5.3 Airspace

The use of airspace over and around Homestead ARB is dictated by the FAA’s National Airspace System and seeks to ensure the safe, orderly, and efficient flow of commercial, private, and military aircraft. There are two categories of airspace: regulatory and non-regulatory. Within these two categories, there are four types of airspace: controlled, uncontrolled, special use, and other airspace. Controlled airspace, designated Class A through Class E, covers the airspace within which ATC clearance is required. Uncontrolled airspace is the portion of the airspace not designated as Class A through Class E within which ATC has no authority or responsibility to control air traffic (FAA 2014) (Figure 3-6).

Figure 3-6. General Airspace Classifications



Within designated airspace, many factors determine flight pattern altitudes, such as designation of flight corridors, distance between takeoff and landing locations, mission, and other air traffic. Other than during takeoff and landing, low-altitude flight is conducted only for specific training requirements in approved areas and on approved routes.

Special Use Airspace (SUA) is the designated airspace within which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. SUA dimensions are defined so that military activities can operate and have boundaries that limit access by non-participating aircraft. Airspace for special use



consists of areas used by military aircraft, but where no restrictions are placed on nonparticipating aircraft. They are designated as such for informational purposes for general aviation. Examples of airspace for special use are Military Training Routes, Slow Routes, and aerial refueling tracks. Restricted Areas are designated where operations are hazardous to non-participating aircraft and contain airspace within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. A Military Operations Area (MOA) is established to separate certain non-hazardous military activities from Instrument Flight Rules (IFR) aircraft traffic and to identify for VFR aircraft traffic where military activities are conducted. MOAs exist at altitudes up to, but not including, 18,000 feet above mean sea level (MSL). Civilian VFR traffic is allowed in MOAs, in which case both civilian and military aircraft use “see-and-avoid” procedures. Generally, civilian pilots avoid flying through MOAs because of the likelihood of encountering a fast-moving military jet. An operating area is a designated area offshore, including subsurface and surface training ranges and SUA, where military training exercises and system qualification tests are routinely conducted.

The local airspace around each military installation is unique. Class D airspace surrounds Homestead ARB out to 5.5 nautical miles and from the ground surface to 2,500 feet above MSL. Homestead ARB has its own ATC personnel to provide flight tracking and aircraft separation services for IFR and VFR aircraft in the vicinity of the airfield. The Miami Approach Control Area encompasses the airspace within 30 nautical miles of Miami International Airport at altitudes from the surface to 7,000 feet above MSL. The regional Miami Air Route Traffic Control Center delegates this approach area to the Terminal Radar Approach Control facility at Miami International Airport. They provide ATC services to air traffic operating within the area. The closest SUA near Homestead ARB is Alert Area A-291D, which is 12.5 nautical miles west of Homestead ARB, and extends from the surface to 3,900 feet above MSL. This airspace is identified as an alert area, which warns pilots of intensive student pilot training in the airspace.



This page left intentionally blank.



4.0 Aircraft Noise

The noise environment at Homestead ARB includes different types of noise sources that can either be classified as continuous or impulsive. Continuous noise refers to noise events that have a gradual onset, such as aircraft operations, and not necessarily noise that is occurring at all times. In contrast, impulsive noise refers to sudden noise events, such as EOD detonations at the demolition area. Because the noise generated by EOD range is impulsive and intermittent, this noise may be perceived as being more disruptive than aircraft noise, which can be somewhat anticipated. How an installation manages aircraft noise can play a key role in shaping its relationship with neighboring communities. Ideally, aircraft noise and its management should be key factors in local land use planning. Because noise from aircraft may affect areas around the installation, the Air Force has defined noise zones using the guidance provided in the AFH 32-7084, *AICUZ Program Manager’s Guide*.



Terrain features, weather phenomena, man-made structures, and daily life activity contribute to noise exposure.

While the level of noise produced by aircraft may have a direct effect on communities in proximity to military air installations, other factors also influence the noise impact. An airfield’s layout (its buildings, parking ramps, and runways), type of aircraft, natural terrain features, weather phenomena, and daily activities all influence the levels of noise that the community experiences.

4.1 What is Sound/Noise?



Sound becomes noise when it interferes with normal activities.

Sound consists of vibrations in the air. A multitude of sources can generate these vibrations, including roadway traffic, barking dogs, radios or aircraft operations. These vibrations are called compression waves. Just as a pebble dropped into a pond generates ripples, the compression waves formed of air molecules pressed together radiate out, 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, described as:

- **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. Low-frequency sounds are characterized as rumbles or roars, while sirens or screeches typify high-frequency sounds. We measure sound frequency in cycles per second or hertz (Hz). While human hearing ranges goes from 20 to 20,000 Hz, we hear best in the range of 1,000 to 4,000 Hz. For environmental noise, we use A-weighting, which focuses on this range, to best represent human hearing. While we may refer to A-weighted decibels as “dBA,” the “A” is generally dropped if it is the only weighting being discussed.
- **Duration** is the length of time one can detect the sound.

The loudest sounds that the human ear can comfortably hear are a trillion times higher in intensity than those of sounds we barely hear. Because such large numbers become awkward to use, we measure noise in decibels (dB), which uses a logarithmic scale.

Figure 4-1 is a chart of A-weighted sound levels from common sources. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above 120 dB can cause discomfort inside the ear, while sound levels above 130 dB we feel as pain.

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

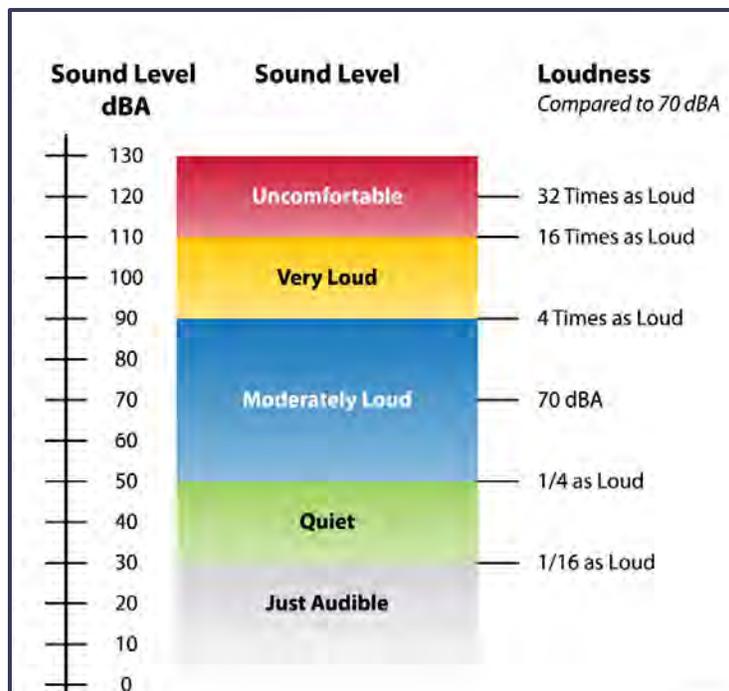




Table 4-1 shows the subjective responses with change in (single-event) sound level. While noise energy doubles or halves with every 3-dB change, we do not perceive all this noise energy. It takes a 10-dB increase or decrease for our ears to perceive a doubling or halving of loudness.

Table 4-1. Subjective Response to Changes in Sound Level

Change in Sound Level	Change in Loudness
10 dB	Twice as Loud
5 dB	Quite Noticeable
3 dB	Barely Perceptible
1 dB	No Noticeable Change

4.2 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 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? Also, does the 30-second runup 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 and the total noise energy combined with the time of day that a noise event takes place play key roles in our perception of noise. To reflect these concerns, the Air Force uses a metric called the “Day-Night Average Sound Level” (DNL). The U.S. Environmental Protection Agency (EPA) created DNL for use throughout the United States.

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. Additionally, for all operations between 10:00 p.m. and 7:00 a.m., DNL adds a 10-dB penalty to each event to account for the intrusiveness of nighttime operations. 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 correlation between the percentages of groups of people highly annoyed by sounds and the level of average noise exposure measured in DNL.

4.3 Noise Contours

The DoD develops noise contours to assess the compatibility of aircraft operations with surrounding land uses. Noise contours connect points of equal value, just as contours on topographic maps connect points of equal elevation. The noise contours in this AICUZ



Study are identified as either historic or planning. The historical contours are those that were modeled and presented in the 2007 AICUZ (Figure 4-2) with the F-16 aircraft being the main contributor. The planning noise contours represent the future year noise environment as projected for CY 2024 with the F-35A as the main aircraft modeled (Figure 4-3). The historic contours allow comparison to the future planning contours. The Air Force utilizes NOISEMAP, the DoD standard model for assessing noise exposure from military aircraft operations at air installations. Noise contours, when overlaid on local land use maps, can help to identify areas of incompatible land use and assist communities in planning for future development around an air installation.

4.3.1 Planning Contours

As previously mentioned, this AICUZ Study provides future-year planning noise contours. Long-range planning by local land use authorities involves strategies that influence present and future uses of land. Due to the long-range nature of this planning, the Air Force provides planning noise contours based on reasonable projections of future missions and operations. AICUZ studies using planning contours provide a description of the long-term aircraft noise environment for projected aircraft operations that is more consistent with the planning horizon used by state, regional, and local planning bodies.

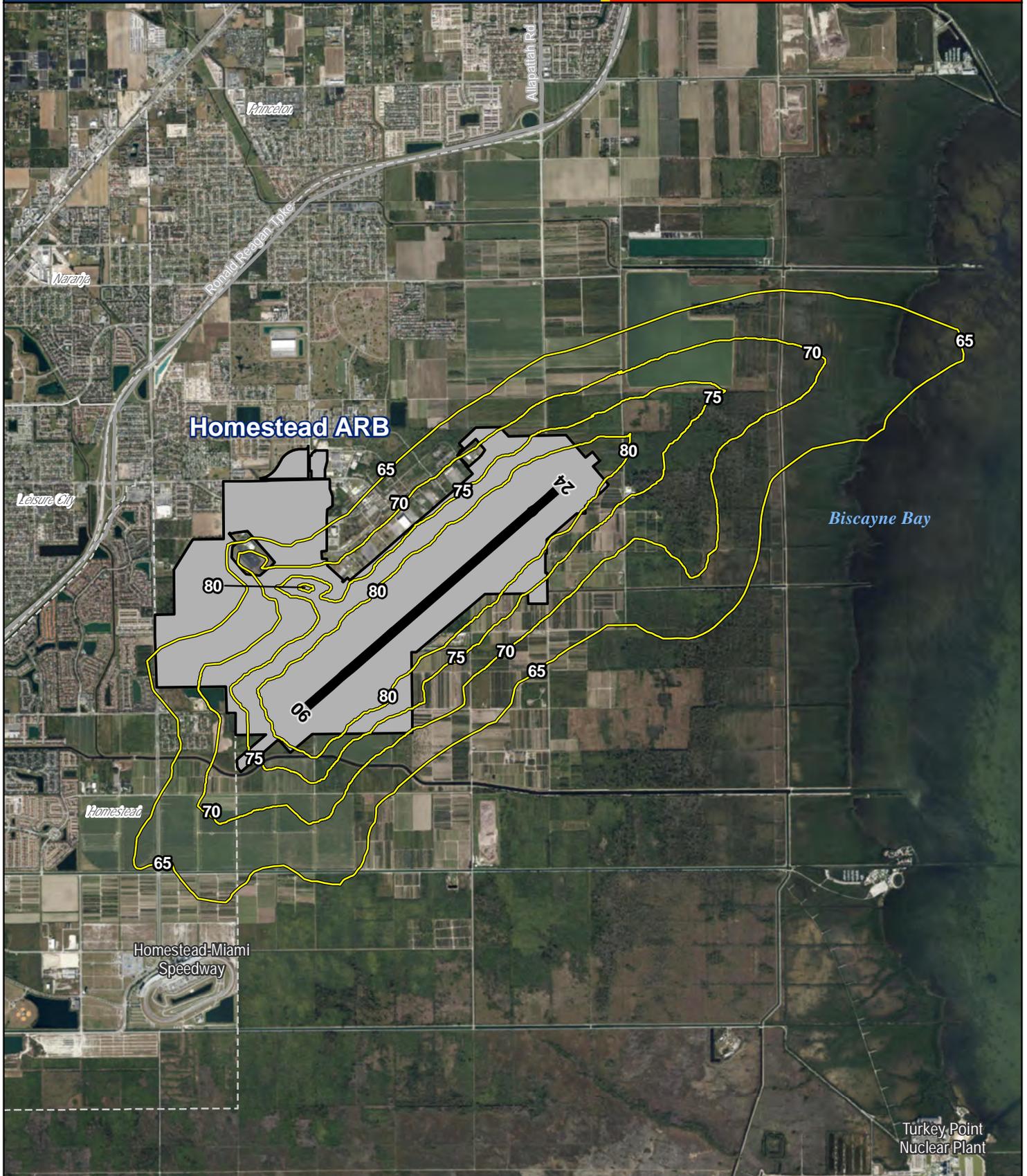
The Air Force develops planning contours on the best available, realistic, long-range projections of unclassified estimates of future mission requirements. This includes reasonable projections of future operations based on trends in operational tempo, retirement of legacy aircraft, new aircraft entering the inventory, and other factors. These long-range projections are not commitments of future operations. Inclusion of planning contours in the AICUZ Study does not eliminate the need to conduct appropriate environmental analysis if an assumption used in the development of the planning contours becomes a proposed Air Force action.

Assumptions included in the Homestead ARB planning contours include:

- The potential beddown of the F-35A aircraft at Homestead ARB, which is currently under environmental review;
- The flight operations and engine power setting modeled for the 95 percent afterburner (Scenario C) in the F-35A EIS were utilized; and
- The transient aircraft from the transient aircraft flight logs were combined into categories of similar aircraft types for noise modeling.

The airfield's operational tempo over time and the projected operations utilized in the noise modeling to develop the planning noise contours are presented in Section 3.0, Aircraft Operations, and detailed in Table 3-1.

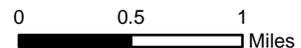
Figure 4-2



Legend

- Major Roads
- Noise Contour
- Airfield Runway
- City/Town Boundary
- Installation Boundary
- State Boundaries

Note: The historical contours are those that were modeled and presented in the 2007 AICUZ with the F-16 aircraft being the main contributor.





Homestead ARB Noise Contours

The 2020 Homestead ARB AICUZ noise contours are based on planning contours for the year 2024 (Figure 4-3) with the proposed F-35A aircraft being the main contributor. The sound associated with aircraft operations extends beyond the modeled DNL contours outside the 65-dB DNL noise contour. The AICUZ Program does not recommend land use controls in these areas (below 65-dB DNL). The area within the 55-dB DNL represents an approximate location where dominant noise exposure sources may shift from aircraft to non-aircraft sources and the natural ambient noise levels. The Homestead ARB noise contours align with Runway 06/24 headings. The contours follow Runway 24 departures toward the northeast and Runway 06 arrivals from the southwest. The 65-dB DNL contour extends beyond the northern boundary of the installation, approximately 2.5 miles to the northwest towards Biscayne Bay and approximately 1.5 miles to the southwest toward the City of Homestead.

The 65-dB DNL contour also stretches out approximately 1 mile southwest of the southwestern boundary of the installation. The 75-dB DNL contour extends beyond the installation boundary 1.4 miles to the northeast, 1.2 miles to the northwest, and 1.9 miles to the west. The higher noise contours, greater than 75 dB DNL, are mostly contained within the base boundary. However, the 75 to 80-dB DNL contours extend slightly beyond the installation boundary on the north and south side adjacent to the flight line. The area impacted to the north is associated with other DoD and military lands not directly within Homestead ARB’s boundary, and the area impacted to the south mostly consists of agricultural lands and open areas.

Table 4-2 presents the off-installation land acreage and estimated population within the 2020 AICUZ planning contours. The total off-installation area within the noise contours is 4,981 acres. The Air Force generates population estimates on 2018 Census block-level data, using a geometric proportion method to determine the estimated population within the contour bands. 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 exposure to a minimum of 65 dB DNL would be approximately 90 people. The area within the 65 to 69-dB DNL and 70 to 74-dB DNL noise zones accounts for approximately 90 percent of the total area of noise contours over off-installation area.

Section 6.0, Land Use Compatibility Analysis, presents land use within the off-station acres and the compatibility analysis.

Table 4-2. Off-installation Land Area and Estimated Population within Noise Zones for the 2020 AICUZ Noise Contours at Homestead ARB

Noise Zone (dB DNL)	Acres	Estimated Population
65-69	2,974	53
70-74	1,432	29
75-79	503	8
80+	71	0
Total (65+)	4,981	90

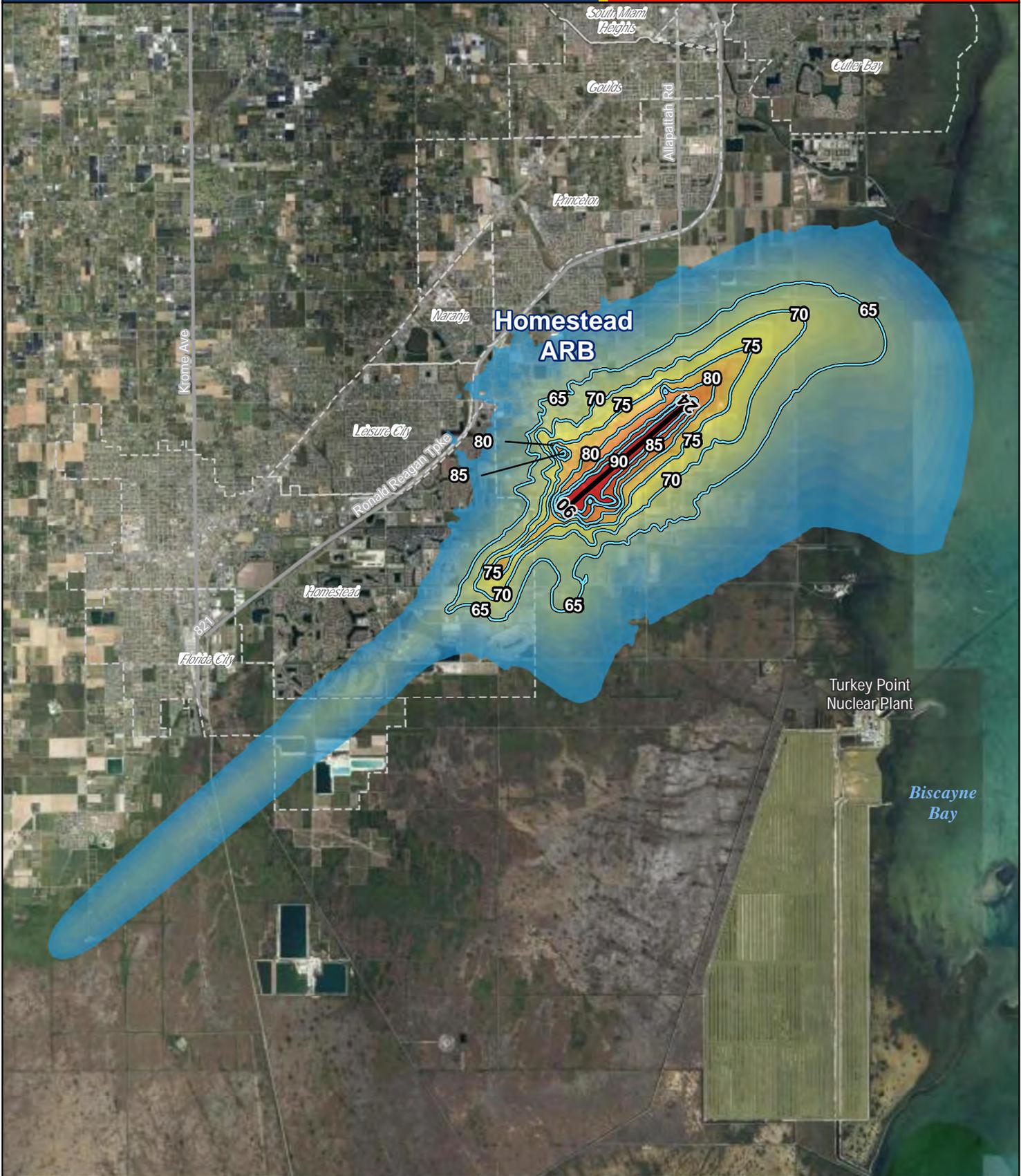
Source: U.S. Census Bureau Block Group 2018 ACS Five-year Estimates

Note: Acreage total was rounded to the nearest whole number.

Figure 4-3

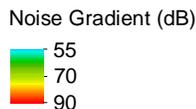
Homestead Air Reserve Base
Air Installations Compatible Use Zones

**2020 AICUZ Planning Noise Contours
with Gradient Shading**



Legend

- Major Roads
- Airfield Runway
- Noise Contour
- City/Town Boundary



Note: The 2020 noise contours are based on planning contours for the year 2024 with the proposed F-35A aircraft being the main contributor.

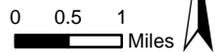




Figure 4-4 shows a comparison of the 2020 AICUZ and the 2007 AICUZ noise contours. Table 4-3 presents a comparison of the off-installation land acreage impacted within the noise zones for each of the contour data sets. In general, the planning contours extend farther to the northeast and southwest than the 2007 AICUZ noise contours. The 2020 AICUZ planning contours are approximately 22 percent larger than the 2007 AICUZ noise contours.

Table 4-3. Comparison of land area impacted within the Noise Zones (In Acres)

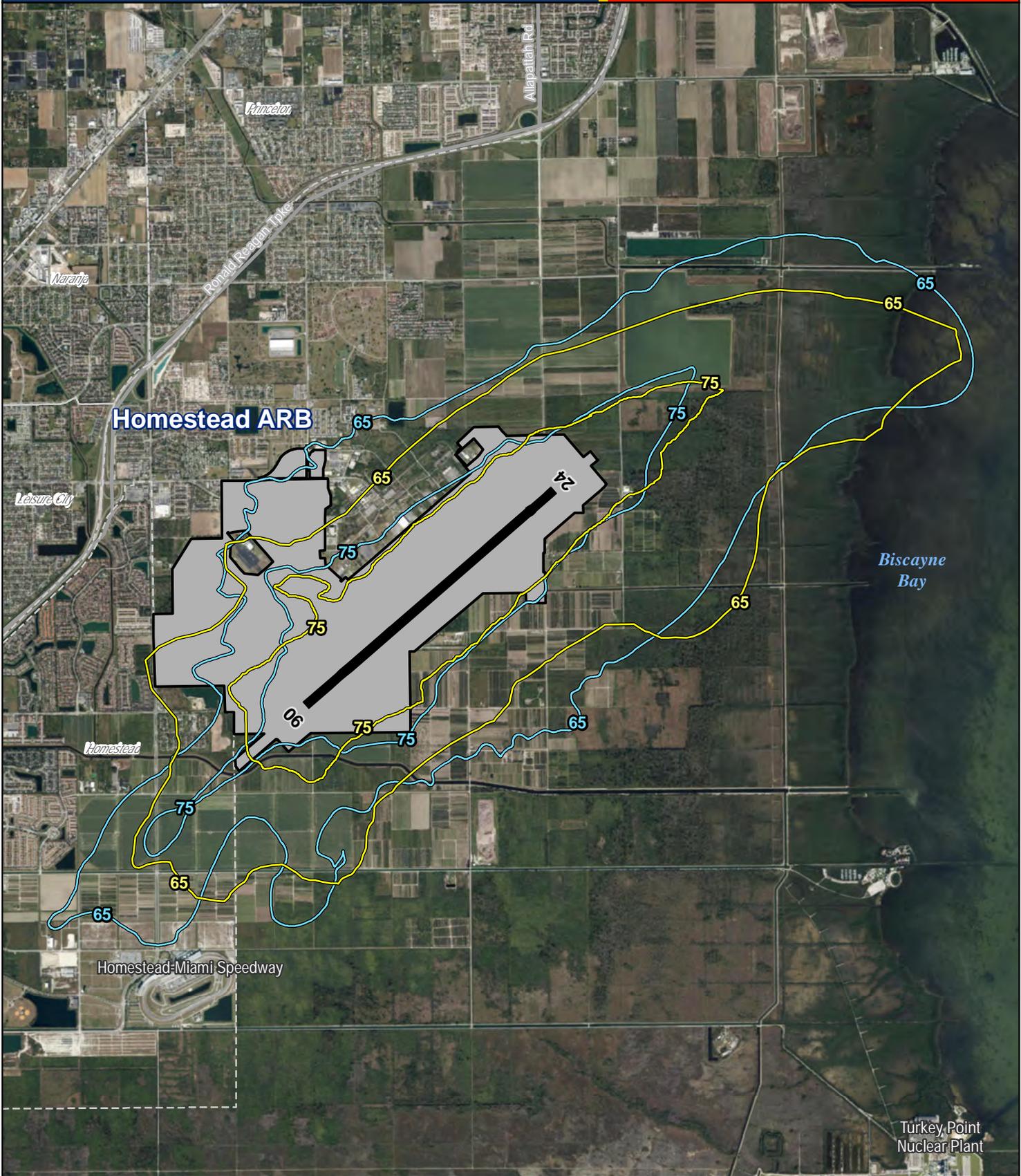
Noise Zone (dB DNL)	2020 AICUZ Contours (Planning)	2007 AICUZ Contours (Historical)
65-69	2,974	2,384
70-74	1,432	1,216
75-79	503	398
80-84	70	89
85+	1	0
Total	4,981	4,088

Note: Acreage total was rounded to the nearest whole number.

Figure 4-4

Homestead Air Reserve Base
Air Installations Compatible Use Zones

**Comparison of the 2020 AICUZ and
2007 AICUZ Noise Contours**



Legend

- Major Roads
- Noise Contour (2007 AICUZ)
- Noise Contour (2020 AICUZ)
- Airfield Runway
- City/Town Boundary
- Installation Boundary

Note: The historical contours are those that were modeled and presented in the 2007 AICUZ with the F-16 aircraft being the main contributor. The 2020 noise contours are based on planning contours for the year 2024 with the proposed F-35A aircraft being the main contributor.

0 0.5 1 Miles





4.4 Noise Abatement

The Air Force recognizes that noise 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 Homestead ARB Noise Abatement Program implements various strategies, techniques, and procedures to protect the installation's neighbors and structures from the effects of noise and vibrations.



Homestead ARB noise abatement procedures include the following:

- All aircraft avoid flying over housing and densely populated areas as much as possible;
- Flight operations and instrument approaches are conducted at times when individuals are normally awake. These activities are not scheduled between 10:00 p.m. and 7:00 a.m. During this time, only mission-essential aircraft arrivals and departures are conducted; and
- Aircraft maintenance engine runup locations have been designated in such a way to minimize noise for people in the surrounding communities, as well as for those on base. Activities are not performed between 10:00 p.m. and 7:00 a.m., except for high-priority mission requirements.

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.

4.5 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 Homestead ARB 482nd FW Public Affairs (PA) Office with any noise complaints. The PA Office can be reached at (786) 415-7330 or email 482fw.pa@us.af.mil.



When noise complaints are filed 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.

Homestead ARB PA also posts information on the installation website, including alerts about upcoming aircraft operations and EOD activities that are able to be shared publicly:

- Website (www.homestead.afrc.af.mil);
- Facebook (www.facebook.com/HomesteadARB); and
- Twitter ([https://twitter.com/Homestead ARB](https://twitter.com/Homestead_ARB)).



This page left intentionally blank.



5.0 Community and Aircraft Safety

Protecting community and aircraft safety, which are paramount to the Air Force, is a shared responsibility between the Air Force and the surrounding communities, with each playing a vital role in its success. Cooperation between the Air Force and the community results in strategic and effective 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 airfield. This AICUZ Study provides the information needed, in part, to reach this shared safety goal. Identifying safety issues assists the community in developing land uses compatible with airfield operations.



5.1 Clear Zones and Accident Potential Zones

In the 1970s and 1980s, the military conducted studies of historical accident 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. Because of accident potential, the studies identified three areas where planners should consider implementing density and land use restrictions: the CZ, the APZ I, and the APZ II. The CZs and APZs for Class B runways are described in the bullets below and are depicted on Figure 5-1:

- **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 centered on the end of the runway. All active runways have CZs and should remain undeveloped.
- **APZ I:** Beyond the CZ is APZ I. APZ I is 3,000 feet in width and 5,000 feet in length along the extended runway centerline.
- **APZ II:** APZ II is the rectangular area beyond APZ I. APZ II is 3,000 feet in width by 7,000 feet in length along the extended runway centerline.



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

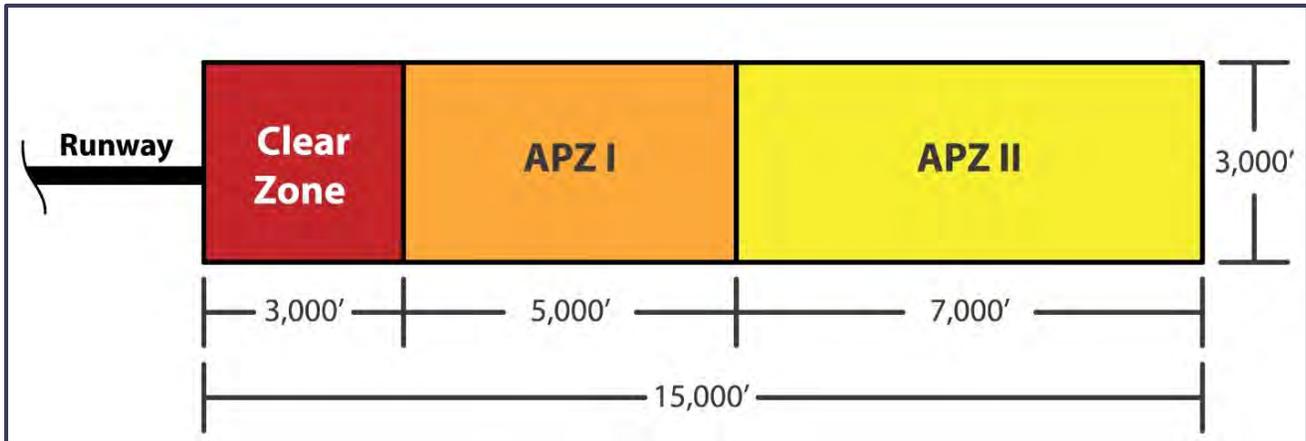


Figure 5-2 depicts the CZs and APZs for Runway 06/24 for Homestead ARB. There are no changes in the CZs or APZs from the 2007 AICUZ. The CZ and APZs off the end of Runway heading 24 extend northeast outside the installation boundary towards Biscayne Bay, overlaying local roads, natural open areas, and water bodies. The CZ and APZs off the end of Runway heading 06 extend southwest outside the installation boundary towards the City of Homestead. The land overlaid by the CZs and APZs is mostly undeveloped and open spaces utilized for agricultural activities. Table 5-1 presents the off-installation land acreage and estimated population within the CZs and APZs. The total land area outside the base’s boundary overlaid by the CZ and APZs total approximately 1,856 acres. There are over 200 acres of land that are impacted by the Homestead ARB CZs. Accident potential on or adjacent to the runway or within the CZ is high; therefore, most uses are incompatible with military aircraft operations. 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. Within APZ I and APZ II, a variety of land uses are compatible; however, higher density uses (e.g., schools, apartments, places of worship) are incompatible because of the greater safety risk associated in these areas. Section 6.0, Land Use Compatibility Analysis, discusses land use and recommendations for addressing incompatibility issues within CZs and APZs for an airfield.

The Air Force estimates population within the CZs and APZs geographic areas by using 2018 Census block-level data. This geometric proportion method assigns population based on the portion of a census block that falls within the land area and assumes the population across each census block is evenly distributed. This method has some limitations due to this distribution assumptions and as a result can show estimated population numbers within certain areas that may be different than what is actually there. As presented, there are an estimated 63 people in the CZs and APZs, based on the geometric proportion method; however, this is most likely a higher estimate in these zones than reality, since the off-installation areas within the CZs and APZs are mostly agricultural, open areas and transportation infrastructure, and areas with no habitable



structures. Therefore, based on the uses of the land and lack of habitable structures, it would be reasonable to assume no persons live within the CZs and a limited amount live within the APZs.

Table 5-1. Off-installation Land Area and Estimated Population within the 2020 AICUZ Clear Zones and Accident Potential Zones

Zone	Acres ^a	Population ^b
CZ	205	0
APZ I	687	26
APZ II	964	37
Total	1,856	63

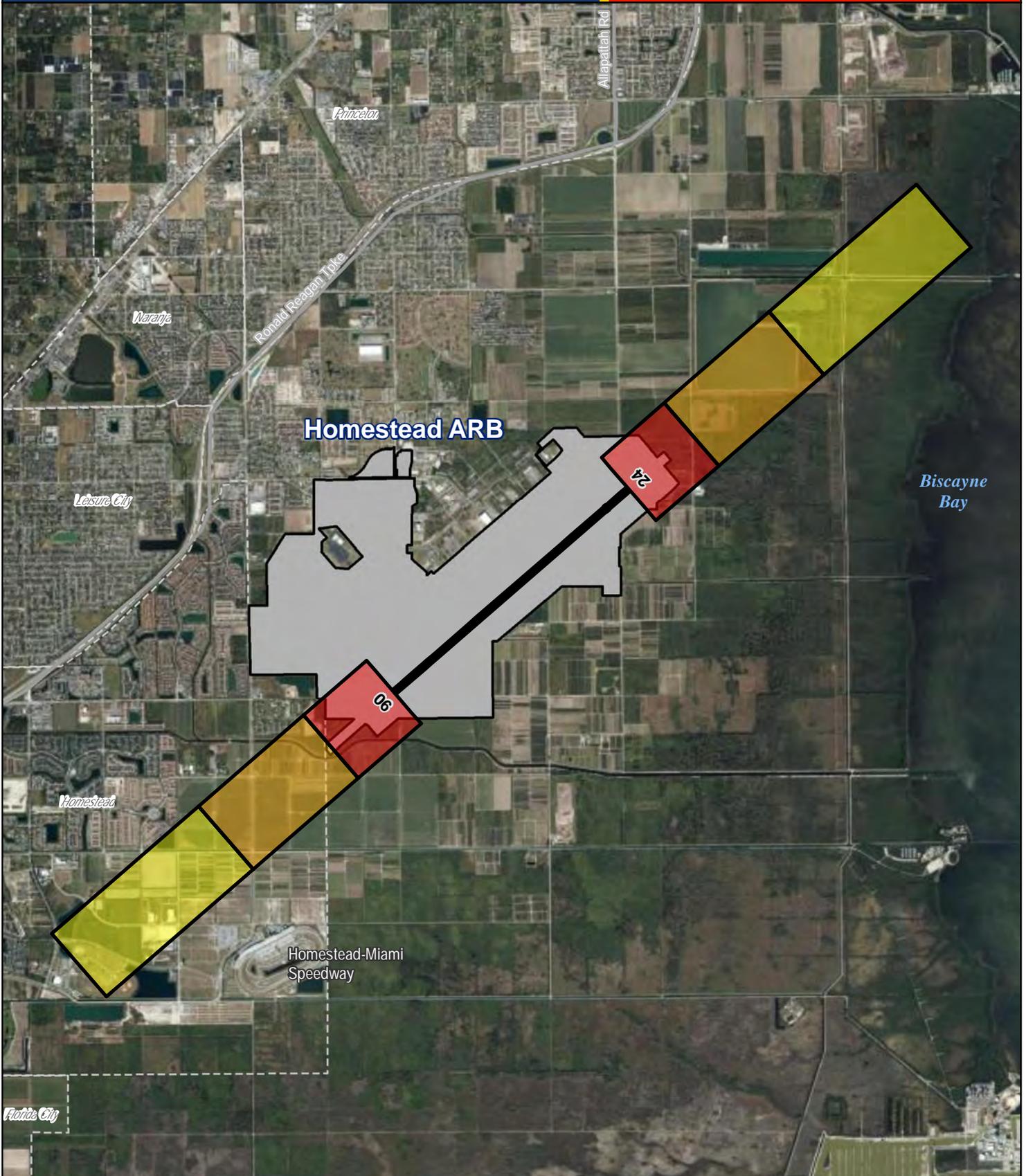
Source: U.S. Census Bureau Block Group 2018 ACS Five-year Estimates

Note:

^a = Acreages rounded to the nearest whole number.

^b = Based on the uses of the land and lack of habitable structures, it would be reasonable to assume no persons live within the CZs and a limited amount live within the APZs.

Figure 5-2



Legend

- Major Roads
- Airfield Runway
- - - City/Town Boundary
- ▭ Installation Boundary
- ▭ Clear Zone
- ▭ Accident Potential Zone I
- ▭ Accident Potential Zone II

0 0.5 1
Mile



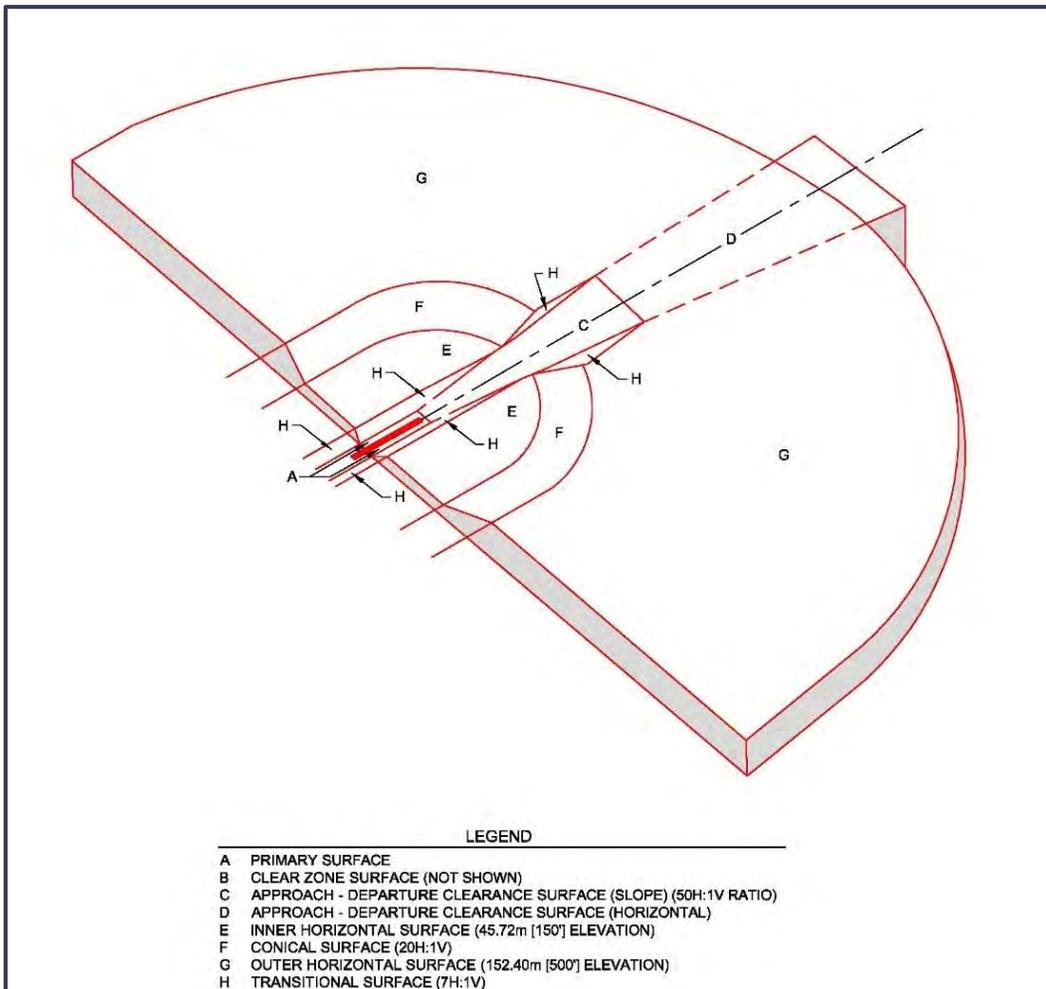


5.2 Imaginary Surfaces

The DoD and 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 form a bowl around the airfield to ensure safe flight approaches, departures, and pattern operations. Obstructions include natural terrain and man-made features such as buildings, towers, poles, wind turbines, cell towers, and other vertical obstructions to airspace navigation.

There are different imaginary surfaces for fixed-wing runways (depending on type of aircraft supported by the runway) and rotary-wing runways/helipads. An illustration of the imaginary surfaces for typical Class B fixed-wing runways like those at Homestead ARB is depicted on Figure 5-3. Table 5-2 provides brief descriptions for each of these surfaces. 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



Source: DoD, Unified Facilities Criteria (UFC) 3-260-01, 2019

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

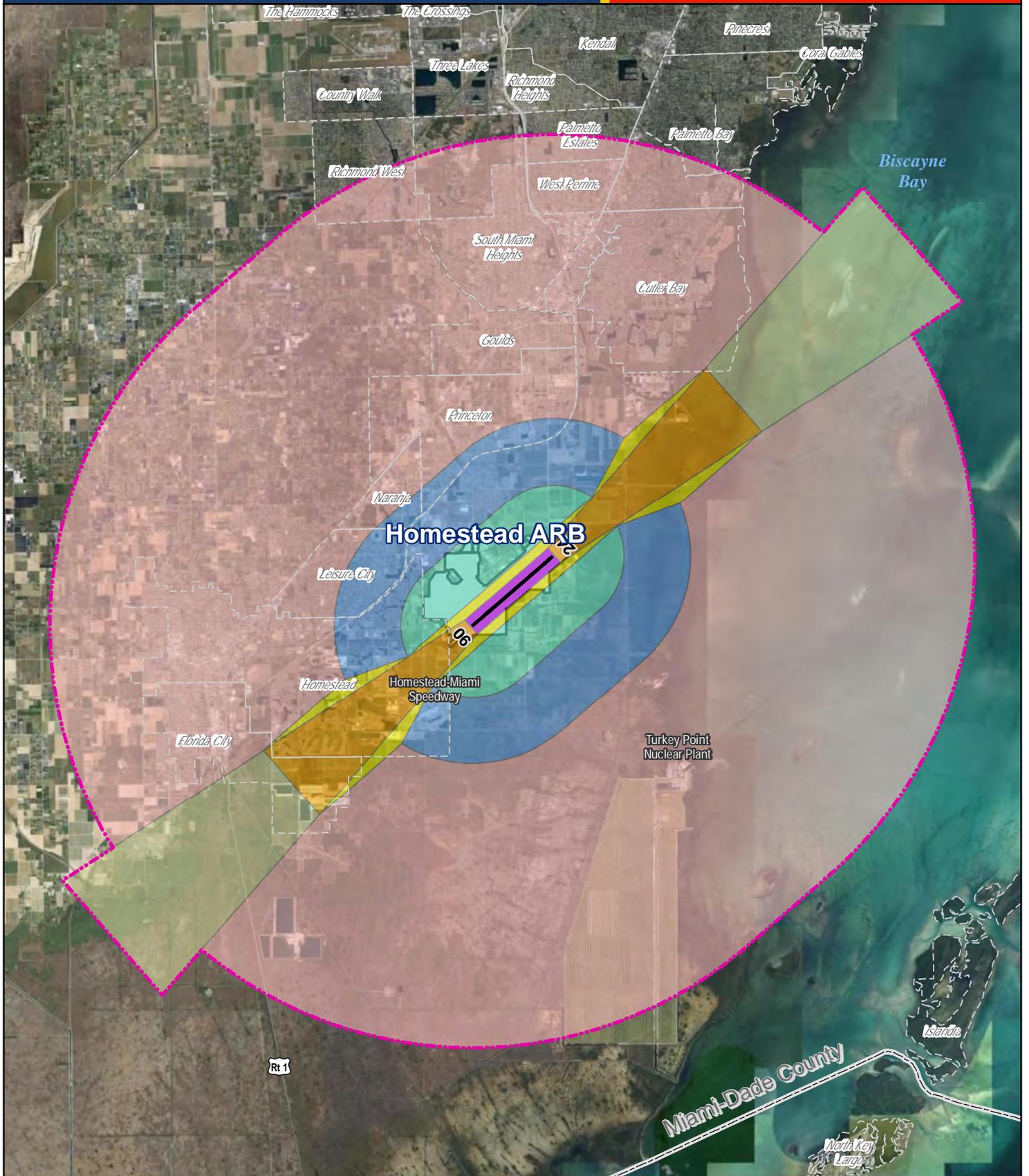
Primary Surface	An imaginary surface symmetrically centered on the runway, extending 200 feet beyond each runway end that defines the limits of the obstruction clearance requirements near the landing area. The width of the primary surface is 2,000 feet, or 1,000 feet on each side of the runway centerline.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

Figure 5-4 depicts the actual runway airspace imaginary surfaces specific to Homestead ARB's Class B runway. The northern portion of the imaginary surfaces extends out over multiple unincorporated communities including Leisure City, Naranja, Princeton, South Miami Heights, and the incorporated Town of Cutler Bay, all within Miami-Dade County. The western portion extends over the cities of Homestead and Florida City. The eastern portion extends mostly over water within the Biscayne Bay National Park. The southern portion of the imaginary surfaces extends out over undeveloped and unincorporated areas within Miami-Dade County towards Ocean Reef (Key Largo).

Figure 5-4

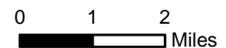
Homestead Air Reserve Base
Air Installations Compatible Use Zones

Runway Airspace Imaginary Surfaces and Transition Planes



Legend

- | | | |
|------------------------|---|--------------------------|
| Airfield Runway | Airfield Imaginary Surface | Conical Surface |
| City/Town Boundary | Primary Surface | Inner Horizontal |
| County Boundary | Approach-Departure Clearance Surface (Horizontal) | Outer Horizontal Surface |
| Installation Boundary | Approach-Departure Clearance Surface (50:1) | Transitional Surface |
| HAFZ Consultation Zone | | |





5.3 Hazards to Aircraft Flight Zone

Certain land uses and activities pose potential hazards to flight. To ensure land uses and activities are examined for compatibility, the Air Force has identified a Hazards to Aircraft Flight Zone (HAFZ). The HAFZ is defined as the area within the imaginary surfaces that are shown on Figure 5-4 (see Appendix B, Figure B-1, Runway Airspace Imaginary Surfaces, Transition Planes, and Hazards to Aircraft Flight Zone (HAFZ) Consultation Zone, for enlarged figure). Please note that the area and shape of the HAFZ may change with the encroachment issue at hand. For instance, issues related to bird/wildlife aircraft strike hazards (BASH) 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 tables. Instead, this area is considered a consultation zone where project applicants and local planning bodies are recommended to consult with the Air Force to ensure the project 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 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.
- **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 concerns.
- **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:** Wildlife represents a significant hazard to flight operations. Birds, in particular, 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 speed of the aircraft, 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. To reduce the potential of a BASH incident, the Air Force recommends that land uses that attract birds not be located near installations with an active air operations mission. These land uses include:

- Waste disposal operations;
- Wastewater treatment facilities;
- Transfer stations;
- Landfills;
- Golf courses;
- Wetlands;
- Storm water ponds; and
- Dredge disposal sites.

Birds and raptors in search of food or rodents will flock to landfills, increasing the probability of BASH occurrences near these facilities. One can also 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, as a result 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. Though many of these sources are low-level emitters of EMI, levels of EMI can increase when numerous sources are present in proximity to each other.

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.

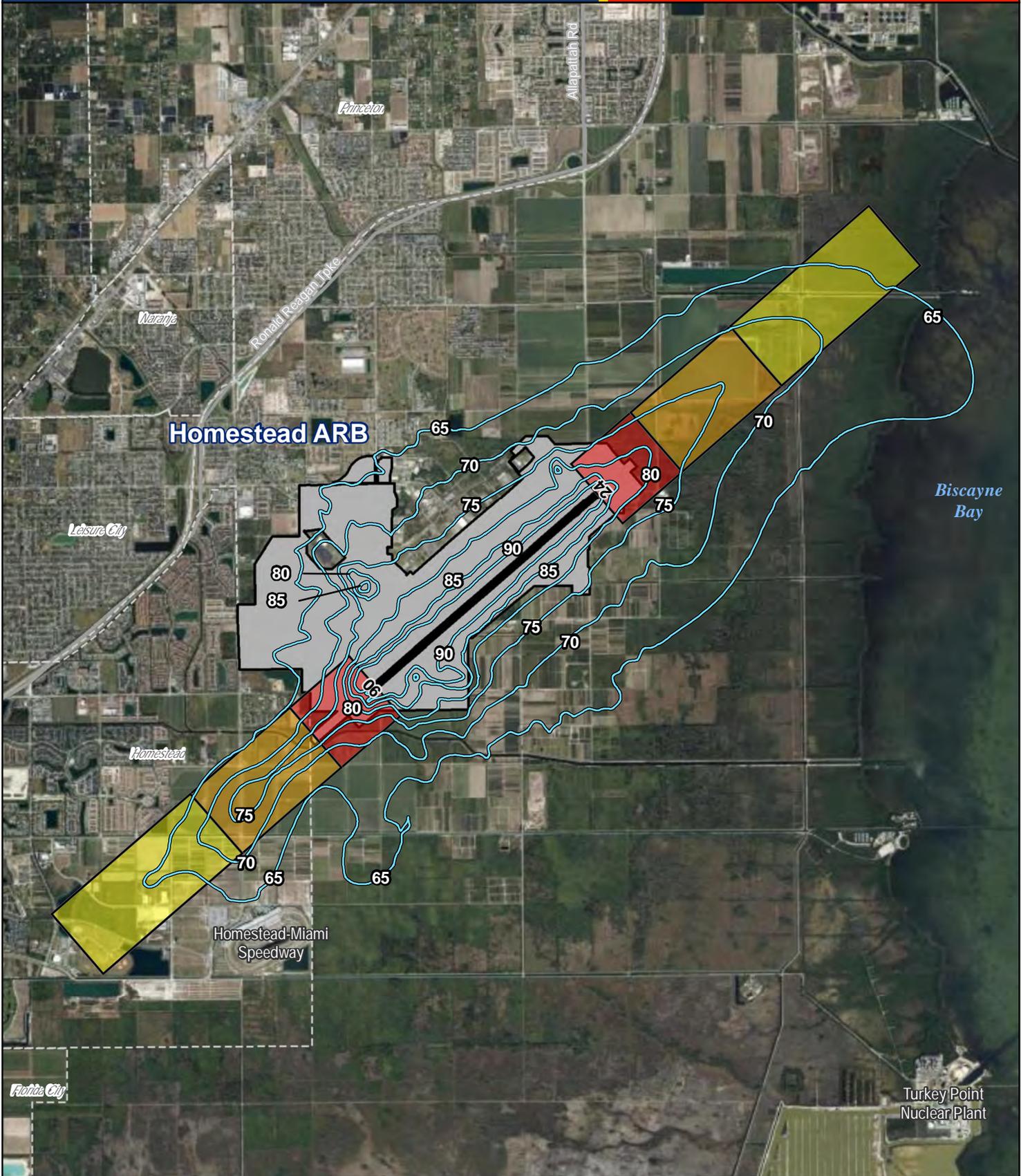
- **Drones/Unmanned Aircraft Systems (UAS):** The use of drones near military airfields poses a serious flight safety hazard due to the potential for a mid-air collision between military aircraft and small- to medium-sized drones. The FAA maintains specific guidance about where drones (i.e., UAS) can be flown. Currently, non-DoD drone operations are not permitted within certain zones surrounding military bases and controlled airspace. In order to assist UAS users in obtaining FAA approval to operate within controlled airspace, specifically around airports, the FAA implemented UAS facility maps (see Appendix B, Figure B-3, Homestead ARB Unmanned Aerial Systems Facility Map). The maps serve to inform UAS users of area restrictions. 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.



6.0 Land Use Compatibility Analysis

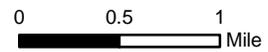
Clear Zones (CZs), Accident Potential Zones (APZs), and noise zones, shown on Figure 6-1, and the Hazards to Aircraft Flight Zone (HAFZ), shown on Figure 5-4, comprise the AICUZ footprint for an air installation and are the basis for Homestead ARB's land use compatibility analysis. The AICUZ footprint defines the minimum recommended area within which land use controls are needed and requested to enhance the health, safety, and welfare of those living or working near a military airfield and to preserve 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 the AICUZ noise zones, CZs, APZs, and HAFZ into planning studies, regulations, and processes to best guide compatible development around installations.

Figure 6-1



Legend

- Major Roads
- Noise Contour (2020 AICUZ)
- Airfield Runway
- City/Town Boundary
- Installation Boundary
- Clear Zone
- Accident Potential Zone I
- Accident Potential Zone II



Source: AFCEC 2019; ESRI 2018; FHWA 2020; U.S. Census Bureau 2018



6.1 Land Use Compatibility Guidelines and Classifications

In an effort 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). 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-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 noise zones for aircraft noise.

6.1.1 *Suggested Land Use Compatibility for Noise*

As discussed in Section 4.1, What is Sound/Noise?, DNL metrics present reliable measures of community sensitivity to aircraft noise. The guidelines recommend that noise-sensitive land uses (e.g., houses, places of worship, schools) be placed outside high noise zones. For land use planning purposes in AICUZ studies, noise contours 65 to 75 dB DNL are an area of moderate impact where some land use controls are recommended. Noise contours greater than 75 dB DNL are the most impacted areas where the greatest degree of compatible land use controls are recommended.

6.1.2 *Suggested Land Use Compatibility for Accident Potential Zones*

As discussed in Section 5.0, Community and Aircraft Safety, the Air Force has designated areas of accident potential around its air installations to assist in preserving the health, safety, and welfare of residents living near its airfield. Although the likelihood of an accident is remote, the guidelines recommend that people-intensive uses (e.g., apartments, theaters, shopping centers, sports arenas) should not be placed in APZs. No land uses are compatible with CZs and they should remain free of all structures.

6.2 Planning Authorities, Stakeholders, and Policies

Development and control of land use outside of the installation are beyond the jurisdiction of the Air Force. Therefore, this land is regulated by state and local land use planning authorities, ordinances, and regulations. This section presents information for each governing body that has land use jurisdictions near Homestead ARB, including descriptions of existing and future land uses, relevant stakeholder groups, and existing compatible land use planning policies and regulations.



6.2.1 State of Florida



The State of Florida has established a number of laws and programs intended to mitigate encroachment around the state's military installations through requiring compatible land use planning, coordinating with the military, and acquiring land near military installations for conservation. Key State laws and programs are described below.

Florida Community Planning Act

The Florida Community Planning Act of 2011 (Florida Statutes sections 163.3161 – 163.3248) is intended to strengthen the roles, processes, and powers of local governments in creating and implementing comprehensive planning programs to guide and manage future development. The Legislature included various provisions in the Community Planning Act to protect the state's military installations from encroachment and ensure that the military is provided opportunities to participate in local land use planning.

To protect public safety and the ability of military installations to carry out their missions, the State enacted statute 163.3175 as part of the Community Planning Act, which establishes requirements for local governments to encourage compatible land use and prevent encroachment near installations. Section 163.3175(2) of the act identifies major military installations in the state, including Homestead ARB, that, because of their missions and activities, are more likely to experience effects to their missions and operations as a result of incompatible development. The statute requires local governments to notify and provide information to the commanding officer regarding proposed changes to comprehensive plans, plan amendments, and proposed changes to land development regulations which have the potential to affect the use of land or intensity or density of development near the installation. At the request of the commanding officer, local governments also are required to submit copies of applications requesting variances or waivers from height restrictions, lighting restrictions, or noise attenuation requirements within areas identified in the local comprehensive plan as being in a zone of influence of the military installation. Military installations must be given the opportunity to review and comment on proposed land use changes.

Additionally, to allow for regular communication and coordination between military installations and local governments, section 163.3175(7) of the act states that a military representative will serve as a non-voting member of an affected county or local government's land planning or zoning board.

Section 163.3177 of the Community Planning Act establishes required and optional elements for local comprehensive plans. Comprehensive plans must provide principles, guidelines, standards, and strategies for the orderly and balanced development of the jurisdiction and identify the strategy for implementing the plan. The statute requires plans to include data on the compatibility of uses on lands in proximity to military installations,



as applicable, and to include criteria that will be used to achieve compatible land use in these areas.

Florida Statute 288.980

Florida Statute 288.980 acknowledges that “it is critical that communities develop and implement strategies to preserve and protect military installations” (Florida Statutes Section 288.980(1)(a)). The statute notes that “the Legislature finds that encroachment of military installations has been identified by local, state, and federal leaders as a critical threat to protecting, preserving, and enhancing military installations [and] recognizes the unique need to secure lands that have no conservation value, but may present an encroachment threat to a military installation” (Florida Statutes Section 288.980(1)(c)). The statute establishes the Military Base Protection Program, which is used to secure non-conservation lands to serve as a buffer to protect military installations from encroachment and support local community efforts to partner with military installations.

Funds available through this program can be used to address emergent needs related to mission sustainment, encroachment reduction or prevention, and base retention. Under the program, military installations in the state annually submit a list of lands proposed for acquisition, which is reviewed and prioritized by the Florida Defense Support Task Force. The prioritized list is provided to the Board of Trustees of the Florida Internal Improvement Trust Fund, which may acquire the lands. The program is coordinated and implemented by the Department of Economic Opportunity (Enterprise Florida, Inc. 2019).

State Land Acquisition Programs

The State of Florida has established two programs, Florida Forever and the Rural and Family Lands Protection Program, dedicated to acquiring title or development rights to lands to preserve open space and farmland. These programs can be used to acquire conservation land near military installations to provide a buffer from urban growth and protect land from incompatible development (Enterprise Florida, Inc. 2019).

Florida Forever replaces the Preservation 2000 program. Since Florida Forever’s inception in 2001, the State has purchased over 818,616 acres of land for conservation. Funding under the program is distributed by the Florida Department of Environmental Protection to multiple state agencies and programs, including the Division of State Lands, Florida Communities Trust, and Water Management Districts, to purchase lands to be held in trust for the citizens of Florida (Enterprise Florida, Inc. 2019).

The Rural and Family Lands Protection Program is used to acquire perpetual agricultural conservation easements that preserve agricultural lands and open space, protect aquifer recharge areas and natural resources, and buffer military installations. While Florida Forever focuses on preserving natural resources and providing opportunities for nature-based recreation, the Rural and Family Lands Protection Program is intended to maintain agricultural lands and support rural economies. The program has leveraged Readiness and Environmental Protection Integration funding to protect military installations from encroachment. To date, the program has acquired 35 easements covering over 31,000 acres (Enterprise Florida, Inc. 2019).



6.2.2 South Florida Regional Planning Council



One of Florida's 10 regional planning councils, the South Florida Regional Planning Council (SFRPC) serves three counties (Monroe, Miami-Dade, and Broward), 71 municipalities, and 4.3 million residents (SFRPC n.d.). Regional planning councils are created by voluntary interlocal agreements, and their responsibilities and powers are established in Florida Statute 163.01. Generally, regional planning councils provide technical assistance to local governments, plan for and coordinate intergovernmental response to growth-related problems or regional issues, and meet other needs specific to their region (SFRPC n.d.).

The SFRPC's mission is "to identify the long-term challenges and opportunities facing Southeast Florida and assist the Region's leaders in developing and implementing creative strategies that result in more prosperous and equitable communities, a healthier and cleaner environment, and a more vibrant economy" (SFRPC 2004). The council manages various technical assistance and funding programs related to coastal resiliency, economic development, emergency preparedness, regional planning, transportation, and alternative fuels.

The SFRPC prepared and adopted the Strategic Regional Policy Plan (SRPP) for South Florida in 2004. The SRPP was developed to address regional issues and needs related to projected population growth and guide local governments in developing and implementing their comprehensive plans. The plan outlines 22 goals related to high-priority regional issues, including affordable housing, schools, transportation, infrastructure, development and redevelopment, emergency planning, coordinated planning and regional cooperation, rural and agricultural lands, and natural resources. Indicators and targets are provided for each goal to help determine progress, identify opportunities for improvement and collaboration, and identify successes. The SRPP does not include goals specifically related to Homestead ARB; however, strategic goals related to development and land use, infrastructure, and economic development have the potential to influence urban growth and development in areas near the installation. For instance, Goal 11 relates to development and redevelopment, Goal 12 relates to rural and agricultural lands, and Goal 14 relates to natural resources, which are intended to direct development to existing urban areas and preserve natural resources, rural and agricultural lands, and green infrastructure.

6.2.3 Regional Mid-Air Collision Avoidance Program

Homestead ARB participates in a regional mid-air collision avoidance program. The FAA Regional Safety Team, Miami Homestead General Aviation Airport, Miami Executive Airport, and the Ocean Reef Club, among other aviation-related organizations, also participate in the program. This group meets quarterly to discuss concerns and procedures surrounding flight safety.



6.2.4 Miami-Dade County

Lands to the north, south, and east of Homestead ARB are unincorporated areas of Miami-Dade County, and development and use of these lands are controlled by the County's land use policies and plans. Homestead ARB's AICUZ footprint extends off-base into the county. The local planning authorities for Miami-Dade County are the Board of County Commissioners and various planning boards, including the Miami-Dade Planning Advisory Board, Biscayne Bay Shoreline Development Review Committee, Development Impact Committee, and Community Councils. The Board of County Commissioners and planning boards are described briefly below:



- The **Board of County Commissioners** is made up of 13 elected commissioners serving the County's commission districts. The board meets regularly to consider zoning applications in the county that require board approval and is responsible for adopting the County's land use plans, including the Comprehensive Development Master Plan (CDMP).
- The **Miami-Dade Planning Advisory Board** is the County's designated Local Planning Agency and serves as the main advisory board to the Board of County Commissioners on matters related to land use planning. The board is made up of 17 voting members, who are appointed by the County Commissioners, and two non-voting members, including a representative of Homestead ARB (Miami-Dade County 2020a).
- The **Biscayne Bay Shoreline Development Review Committee** reviews all developments within the shoreline review boundary, except detached single-family or duplex homes, to ensure that development on the shoreline preserves the natural, recreational, and aesthetic values of the bay (Miami-Dade County 2020b).
- The **Development Impact Committee** includes representatives from different County departments who review and make recommendations to the Board of County Commissioners regarding large-scale zoning actions. The committee considers whether, and the extent to which, the proposed developments that would be permitted by zoning changes would burden utilities, public services and facilities, or transportation systems, and whether developments would have a beneficial or negative effect on the local economy (Miami-Dade County 2020c).
- The County has created 10 **Community Councils** to make zoning and land use decisions for specified unincorporated areas of the county. The councils make recommendations to the Board of County commissioners on matters related to land use and public services and facilities and serve as liaisons between their communities and County government. Council members are either elected or



appointed (Miami-Dade County 2020d). Homestead ARB is located in the jurisdiction of Area 15: South Bay Community Council (Miami-Dade County 2010). A representative from Homestead ARB holds ex officio (non-voting) membership on the Council.

The Development Services Division is the planning branch of the Department of Regulatory and Economic Resources. Three sections of the Development Services Division include zoning, community planning, and platting. The Development Services Division reviews and evaluates zoning and platting applications, provides technical support to developers, and provides support to boards and committees described previously in this section (e.g., Shoreline Development Review Committee and Board of County Commissioners, etc.)

The Planning and Zoning divisions under the County's Department of Regulatory and Economic Resources are responsible for updating and implementing the County's CDMP and its policies; conducting studies and research related to smart growth, sustainability, and demographic and economic conditions; reviewing and evaluating zoning applications; preparing community-based development plans and implementing ordinances as part of the Area Planning process; and providing technical assistance and support to developers, members of the public, and the County's land use boards and commissions.

The County's CDMP was last amended in 2013. The plan sets out the County's general objectives and policies directing development and conservation of natural resources over the 10- to 20-year planning period. It also establishes parameters for activities by County departments, including area and site-specific planning, zoning and programming infrastructure, and public services. The plan encourages development in areas in or adjacent to existing urban centers and in proximity to multi-modal transportation facilities (Miami-Dade County 2020e). Land use policies established in the CDMP include policies LU-4F, LU-4G, LU-4H, and LU-4I, which indicate the County's intention to adopt the guidelines of the Homestead ARB AICUZ Study into the County's planning policies and zoning regulations and note that the County will "continue to cooperate with Homestead ARB to ensure that future land uses on properties adjacent to the installation maintain or improve compatibility with the installation and its operations." (Miami-Dade County Department of Regulatory and Economic Resources 2019). The County is currently completing the 2020 Evaluation and Appraisal Report for the CDMP.

The CDMP establishes two areas where the County directs development within, the Urban Development Boundary (UDB) and the 2030 Urban Expansion Area (UEA), which are described below.

Urban Development Boundary. The CDMP establishes an UDB, which is the area in which urban development may occur during a planning period. The UDB includes developable land that has the capacity to sustain projected countywide residential demand for a period of 10 years following adoption of the most recent amendment of the CDMP. The current UDB applies to development through 2030. The County will generally approve development orders within the UDB, provided that developers meet level of service standards for public facilities. The UDB may be expanded if a need for additional



developable land area is determined during the plan review and amendment process or if a need is determined during review of an application from a developer (Miami-Dade County 2020e). The UDB in the vicinity of Homestead ARB is shown in Appendix B, Figure B-2.

2030 Urban Expansion Area. The 2030 UEA is the area where additional urban development beyond the UDB may be necessary by 2030, based on current population projections. The UEA includes the area between the 2020 UDB and the 2030 UEA boundary. Until the County brings lands within the UEA into the UDB through amendment of the CDMP, these lands can only be developed and used according to the requirements for lands designated Agricultural or Open Land (Miami-Dade County 2020e). The UEA in the vicinity of Homestead ARB is shown on in Appendix B, Figure B-2.

In addition, the CDMP designates coastal high hazard areas (CHHA) within the county in accordance with Florida Statutes Chapter 163. CHHA are areas that are seaward of a modeled Category 1 storm surge line and include areas east of Homestead ARB along the coast. The County's policy is to direct future population concentrations away from the CHHA by limiting most development and redevelopment in the area, prohibiting public investment in new or expanded infrastructure that would encourage population growth, and limiting construction of new public facilities.

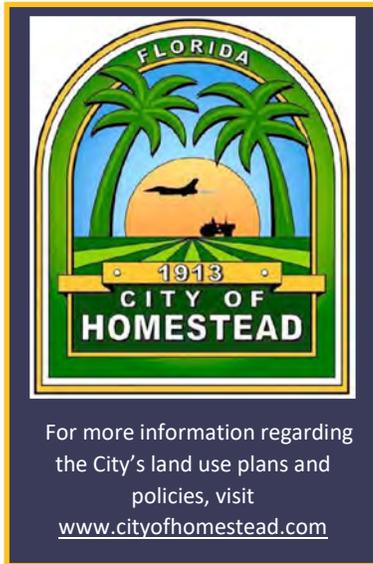
The County's zoning code is one of the tools used to implement the CDMP and regulates development and land use in unincorporated areas of the county. In 2017, Miami-Dade County adopted the Homestead Air Reserve Base Zoning Ordinance, which amended Article XXXV of Chapter 33 of the zoning code and established zoning regulations to promote the compatibility of land uses and development adjacent to the installation. The article regulates land uses within the CZs and APZs, noise zones, and airport height zones designated outside of Homestead ARB. In addition, the Homestead Air Reserve Base Zoning Ordinance includes notification process guidelines for development surrounding Homestead ARB including Sec. 33-295(g) *Zoning applications* and Sec. 33-296(d) *Courtesy notice to HARB*.

Miami-Dade County has designated Homestead ARB a Facility of Countywide Significance, according to the County's CDMP. The CDMP and code of ordinances include policies and regulations related to Facilities of Countywide Significance. To prevent incompatible land uses that would negatively affect the facility, the County's policy is to review and approve changes to land use and development and zoning of properties that surround Facilities of Countywide Significance (Miami-Dade County 2020e). Homestead ARB has started discussions with the County to create a 0.5-mile buffer around the installation within which the County would review and approve land use changes.



6.2.5 City of Homestead

The City of Homestead is located west of Homestead ARB and portions of the city southwest of the airfield are within the AICUZ footprint. Planning authorities for the city include the City Council, Development Services Department, and Planning and Zoning Board. Within the Development Services Department, the Planning and Zoning Division maintains and implements the City's comprehensive plan and zoning code and coordinates development activities in the city. The Planning and Zoning Board includes seven members appointed by the City Council. A representative from Homestead ARB holds ex officio membership on the Council. The Board reviews and makes recommendations to the City Council on amendments to the comprehensive plan and development regulations and various types of development and zoning applications (City Code Section 2-179). The City Council adopts the City's comprehensive plan and zoning regulations and approves development and zoning applications that require council hearings.



The City of Homestead Comprehensive Plan sets out the goals, objectives, and policies to guide future redevelopment and growth of the city. The comprehensive plan is divided into 10 elements, including future land use, transportation, housing, infrastructure, hazard mitigation and post-disaster redevelopment, conservation, recreation and open space, public school facilities, intergovernmental coordination, and capital improvements elements. Objective 13 of the plan's future land use element is intended to ensure that future development near the installation "protects the public health, safety, and welfare by maintaining compatibility with current and foreseeable training operations and minimizing land use conflicts resulting from exposure to the nuisances and safety risks of aircraft use" (City of Homestead 2011). Policies under the objective include the investigation or adoption of programs that would implement Objective 13, including adoption of a Homestead ARB overlay zone, investigation of a by-right transfer of development rights program in coordination with Miami-Dade County, exploration of partnerships with other regional stakeholders to secure conservation easements on properties near the base, and other programs and coordination measures. Objective 8 of the transportation element and Objective 3 of the intergovernmental coordination element also establish policies for coordination with Homestead ARB related to development near the installation (City of Homestead 2011).

The City Code includes building and zoning ordinances that regulate development and land use in the city. The zoning code includes by reference Ordinance 2010-09-25, the Homestead Comprehensive Airport Zoning Ordinance, which regulates land uses and the heights of structures and vegetation near the installation and includes building standards for structures within high noise zones. The City's building regulations include Ordinance 2004-07-26, which requires people who own or who are developing or selling property for residential use to file a disclosure noting the proximity of the property to the installation in the public records of Miami-Dade County.



6.3 Land Use and Proposed Development

The land use compatibility analysis evaluates existing and future land uses and zoning near Homestead ARB 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 data utilized were obtained from the Information Technology Department of Miami-Dade County.

In order to analyze the compatibility of nearby land uses surrounding Homestead ARB, the use of each parcel of land is characterized into use categories. Shown below are broad use categories as defined by the FHWA SLUCM tables. Although 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, 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:** Including food, textile, and apparel manufacturing; household goods; and trades manufacturing (metals, stones, clays, glass, plastic, rubber, etc.).
- **Transportation, Communication, and Utilities:** Including public and private transportation uses (road, rail, air, marine); parking infrastructure, communication uses (cell towers, relay towers, etc.); and public, semi-public, and private utilities (power stations, power transmission lines, substations, wastewater treatment plants, solid waste disposal facilities, etc.).
- **Trade:** Including wholesale trade; retail trade (neighborhood, community, regional and super-regional: food, transportation, home furnishings, etc.); financial services; personal and professional services; medical services; government and educational services; and religious activities.
- **Cultural, Entertainment and Recreational:** Including cultural activity uses; nature exhibits; public assembly, indoor auditoriums, and outdoor amphitheaters; outdoor sports; amusements and recreational activities; parks, etc.
- **Resource Production and Extraction:** Including farm and livestock agriculture, forestry and fishing activities, and resource mining, etc.
- **Other:** Including undeveloped land and water areas.

Typical municipal governments have land use categories or zoning districts that differ slightly from the FHWA SLUCM categories. To analyze the compatibility of nearby land uses surrounding Homestead ARB, land use is characterized into generalized land use



types. While the specific categories used by each local government may vary, these generalized categories provide a starting point for each analysis. These generalized land use categories are not exact representations of the local community's land use designations, but combine similar land uses into one of several categories. The following are generalized land use types for Miami-Dade County and the City of Homestead used in this study:

- **Single-Family Residential (Low Density):** Includes single-family residential development under two dwelling units per acre.
- **Single-Family Residential (Medium Density):** Includes single-family residential development between two and five dwelling units per acre.
- **Single-Family Residential (High Density):** Includes single-family residential development over five dwelling units per acre.
- **Two-Family Residential:** Single-family attached dwelling units designed to house two families (i.e., duplexes).
- **Multi-Family Residential:** Includes multi-family residential developments.
- **Agriculture:** Includes lands used to raise crops or animals or land developed with agricultural facilities.
- **Commercial:** Includes food establishments, entertainment, retail sales and personal services, vehicle sales and services, marina facilities, big box establishments, strip malls, and hotels and lodging.
- **Conservation/Protected Areas:** Includes nature preserves and protected natural areas.
- **Parks and Recreation:** Includes local public parks and private recreational facilities (e.g., golf courses, camps).
- **Industrial:** Includes manufacturing uses (textiles, food, printing, chemicals, professional, etc.), light industrial uses (vehicle storage, sign-making, craftsman and skilled trades like carpentry and welding, etc.), heavy industrial uses (asphalt and concrete batching, wrecking and salvage yards, petrochemical refineries, heavy equipment, seaports, etc.), warehousing and freight uses, resource extraction and mining, waste-related industries, and aquatic farming facilities.
- **Institutional:** Includes school uses (primary, secondary, and post-secondary) day care centers, hospitals, places of worship, cemeteries, and cultural venues and public gathering places.
- **Public/Government:** Includes government uses (administrative facilities, public works facilities, public services) and community organizations.
- **Sports Stadium:** Includes sports stadiums, arenas, and tracks.



- **Transportation:** Includes vehicle transportation facilities (roads, highways), public and commercial airports, canals, parking facilities, and vehicle and road maintenance and storage facilities.
- **Utility:** Includes communications and electric facilities and rights-of-way.
- **Vacant/Open Space:** Includes public and private vacant land, whether protected or not protected from development.

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

The land use compatibility analysis performed as part of this AICUZ study identifies existing and future land uses near Homestead ARB to determine compatibility conditions. 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 Uses

Homestead ARB is located within Miami-Dade County, east of the City of Homestead. Urban development near the base is concentrated within the County UDB. The noise zones, CZs, and APZs associated with the airfield extend off-base into the county and areas of the city to the southwest of the base.

As noted in Section 6.3, Land Use and Proposed Development, land use was analyzed using best available geographic information system data provided by Miami-Dade County.

Miami-Dade County

Existing land uses northeast, east, and south of Homestead ARB in Miami-Dade County include agricultural land, conservation and protected areas, and vacant and open space. Conservation and protected areas near the base include Biscayne National Park along the coast and other conservation lands. Vacant lands within the AICUZ footprint northeast of the airfield are a mixture of government-owned and private lands. Although some vacant parcels within the AICUZ footprint are protected from development, others, including parcels within the CZ and APZs, may be developed in the future (Miami-Dade County 2015).

Existing land uses north of Homestead ARB include low- and medium-density single-family residential neighborhoods; multi-family residential developments; and institutional, commercial, industrial, utility, and parks and recreation uses. Commercial uses are concentrated along the Ronald Reagan Florida Turnpike and Biscayne Drive



northwest of the base. The designated institutional land north of the base includes approximately 601 acres that were transferred to Miami-Dade County following the closure of the former Homestead AFB as recommended by the 1993 BRAC Commission. Existing land uses in this area include a homeless shelter, various industrial designations, and vacant land.

Two industrial properties are located north and east of the base. One of these properties, a borrow pit, is located within APZ I and APZ II and in noise contours greater than 65 dB DNL. The second industrial property, an aquaculture farm, is partially located within northeasterly CZ and within the 75 to 79-dB DNL noise zone. Other existing land uses in Miami-Dade County that are within the AICUZ footprint include two utility facilities located north and south of the base that are within the 65 to 69-dB DNL noise zone and a commercial property, a shooting range, south of the installation within the greater than 75-dB DNL noise contours.

City of Homestead

Existing land uses west and southwest of the base in the City of Homestead are primarily residential, including medium- and high-density, single-family residential, and multi-family residential, with scattered institutional land uses. The multi-family residential development is partially within APZ I that extends south of Runway 06 and within 65 to 69-dB DNL noise zone. Land adjacent to the installation boundary in this area is developed with agricultural, institutional, utility, or commercial uses or is vacant. Institutional and commercial uses are clustered at the Ronald Reagan Florida Turnpike interchange with Campbell Drive and include Homestead Hospital.

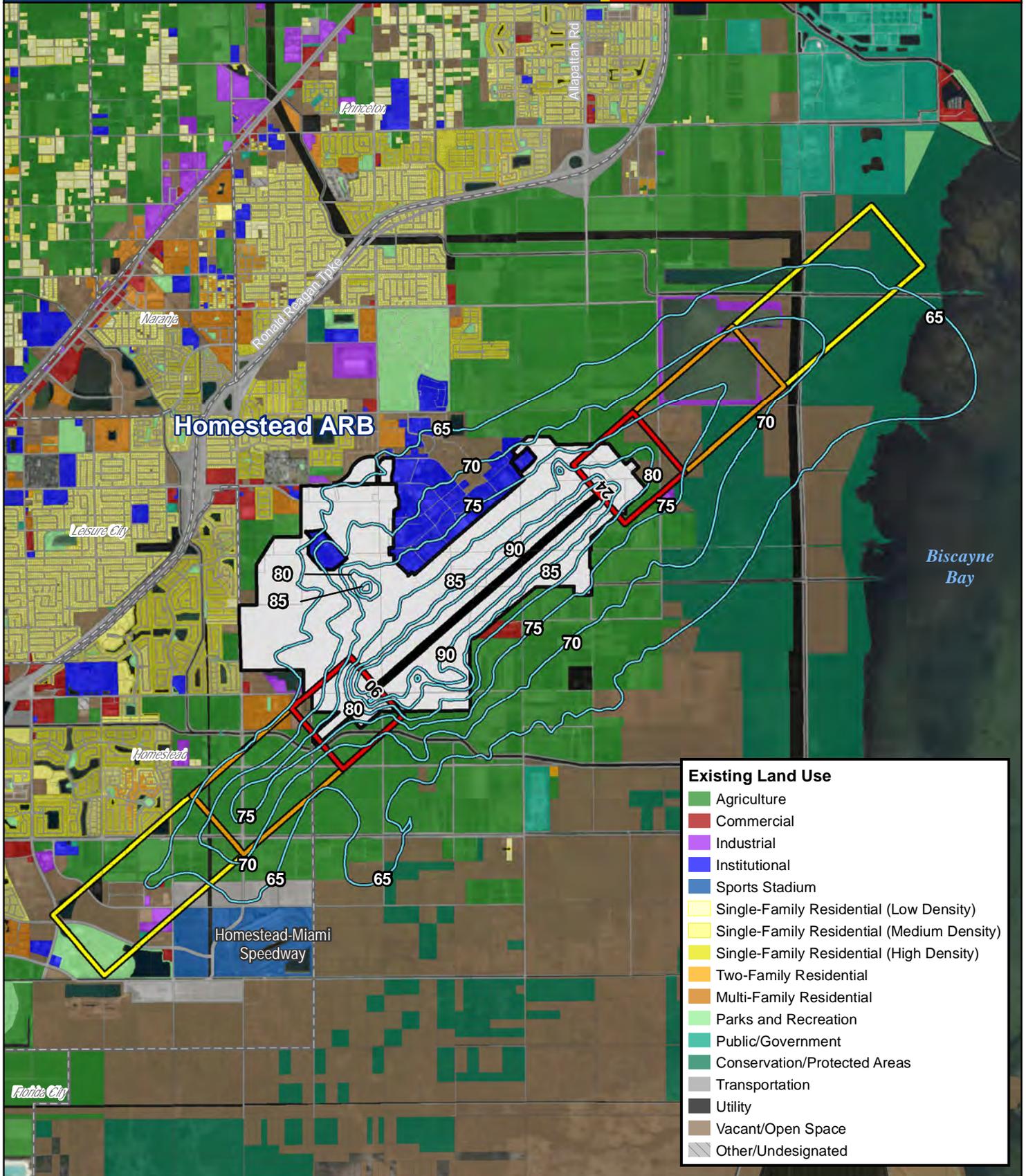
Homestead-Miami Speedway is located approximately 3 miles south of the base. Other industrial, recreational, commercial, and institutional uses are sited in this area, including Homestead Sports Complex and a high school.

Existing land use within the 2020 AICUZ CZs, APZs, and noise contours for Homestead ARB are illustrated on Figure 6-2. Areas of specific land use compatibility concerns within the Homestead ARB AICUZ footprint are further evaluated in Section 6.4, Compatibility Concerns.

Figure 6-2

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Existing Land Use and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential Zones



Source: AFCEC 2019; ESRI 2018; FHWA 2020; Miami-Dade County 2019; U.S. Census Bureau 2018



6.3.2 Zoning

Miami-Dade County

Land in Miami-Dade County surrounding the base to the north, east, and south primarily is zoned agricultural or single-family estate residential. The County's Agricultural zoning district encompasses inland areas north and south of the base. This zoning district permits residential uses at a density of one dwelling unit per 5 acres and other uses including agricultural facilities; housing for farm workers; small group homes; farm stands and wineries, breweries, and distilleries; and schools, subject to the requirements of the County's zoning code.

Lands along the coast are zoned single-family estate residential. This zoning district allows agricultural uses and single-family residences on five-acre lots and customary use associated with it (e.g., pools, sheds, carports, etc.). Other uses allowed in this zoning district include workforce housing, recreational uses and facilities, daycares, and group homes, subject to the requirements of the zoning code. Smaller areas north and south of Homestead ARB are zoned industrial and allow light and heavy manufacturing uses. Figure 6-3 shows existing generalized zoning district categories within Homestead ARB's CZs, APZs, and noise zones.

Urban areas in the county north of the base include a mixture of single-family residential, medium-density residential, high-density residential, business/commercial, and industrial zoning districts. The County zoning code allows residential development at densities of up to one dwelling unit per 4,500 square feet net in single-family residential zoning districts, two dwelling units per 7,500 square feet net in medium-density residential districts, and 50 units per net acre in high-density residential districts.

City of Homestead

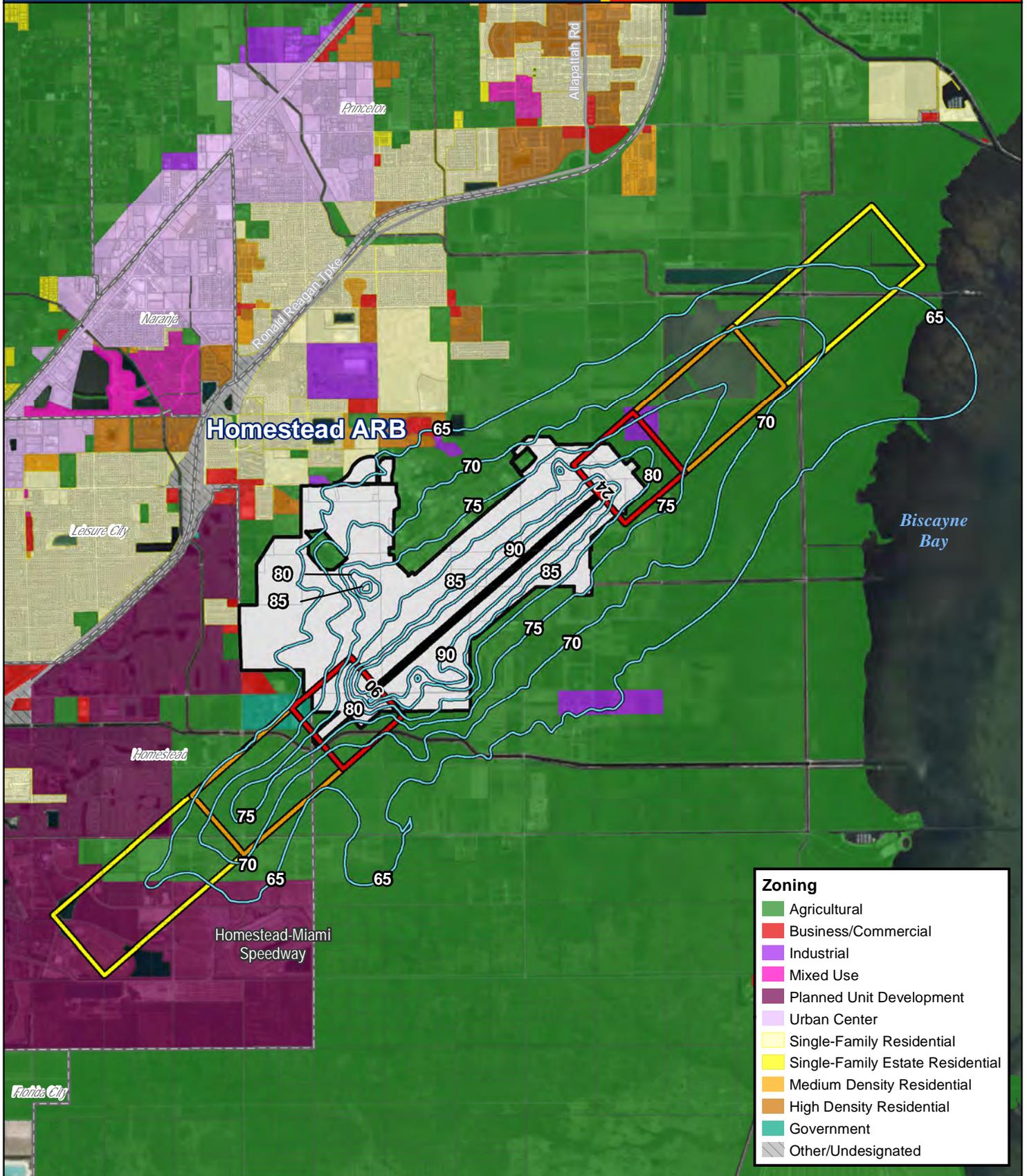
Zoning in the City of Homestead west and southwest of Homestead ARB includes a mixture of single-family residential, medium-density residential, and high-density residential; business/commercial, industrial, and government districts, reflecting existing land uses. The City allows residential development at densities of up to one dwelling unit per 7,500 square feet net in the single-family residential district, four dwelling units per 3,600 square feet net in the medium-density residential district, and multi-family developments of three or more dwelling units per 13,000 square feet in the high-density residential district.

South of the base, areas of the city surrounding and north of Homestead-Miami Speedway are included in the City's planned unit development (PUD) zoning district. Article VI of the City's zoning code states that this district is intended to establish a method to evaluate unique development projects that aren't provided for or allowed by the City's other zoning district and to "encourage the development of well-planned mixed use communities." A PUD must be consistent with the City's comprehensive plan, and PUD districts must be approved by City Council.

Figure 6-3

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Zoning and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential Zones



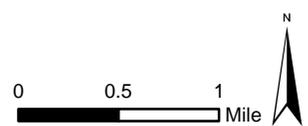
Legend

- Major Roads
- Noise Contour (2020 AICUZ)
- Airfield Runway
- City/Town Boundary
- Installation Boundary
- Parcel Boundary
- Clear Zone
- Accident Potential Zone I
- Accident Potential Zone II

Zoning

- Agricultural
- Business/Commercial
- Industrial
- Mixed Use
- Planned Unit Development
- Urban Center
- Single-Family Residential
- Single-Family Estate Residential
- Medium Density Residential
- High Density Residential
- Government
- Other/Undesignated

Note: Figure does not depict zoning category for inland waterbodies.





6.3.3 Future Land Use

Miami-Dade County and the City of Homestead have designated future land uses in the vicinity of Homestead ARB. Future land uses are consistent with the future land use policies set out in the County's CDMP and the City's Comprehensive Plan.

Miami-Dade County

Future land uses in areas of the county near Homestead ARB are generally consistent with existing land uses. Areas northeast, east, and south of the base are designated for agriculture, conservation/protected areas or open land uses. North of Homestead ARB, large areas are designated for institutional land uses within the Homestead ARB Redevelopment and Economic Development Area. Uses allowed in this area include land uses that are allowed under the County's Institutions, Utilities, and Communications land use category. In particular, the County intends for this area to be developed with land uses related to military aviation and national security. Industrial, commercial, and other land uses may be approved if they are compatible with Homestead ARB and its operations, compatible with other adjacent uses, and consistent with the applicable policies of the CDMP (Miami-Dade County Department of Regulatory and Economic Resources 2019). Low-density residential, medium-density residential, parks and recreation, and commercial land uses also are designated north of the base, consistent with existing land uses in this area. Future utility land uses are in the CZ and APZ I, as well as within noise zones greater than 65 dB DNL on the northeast end of Runway 24.

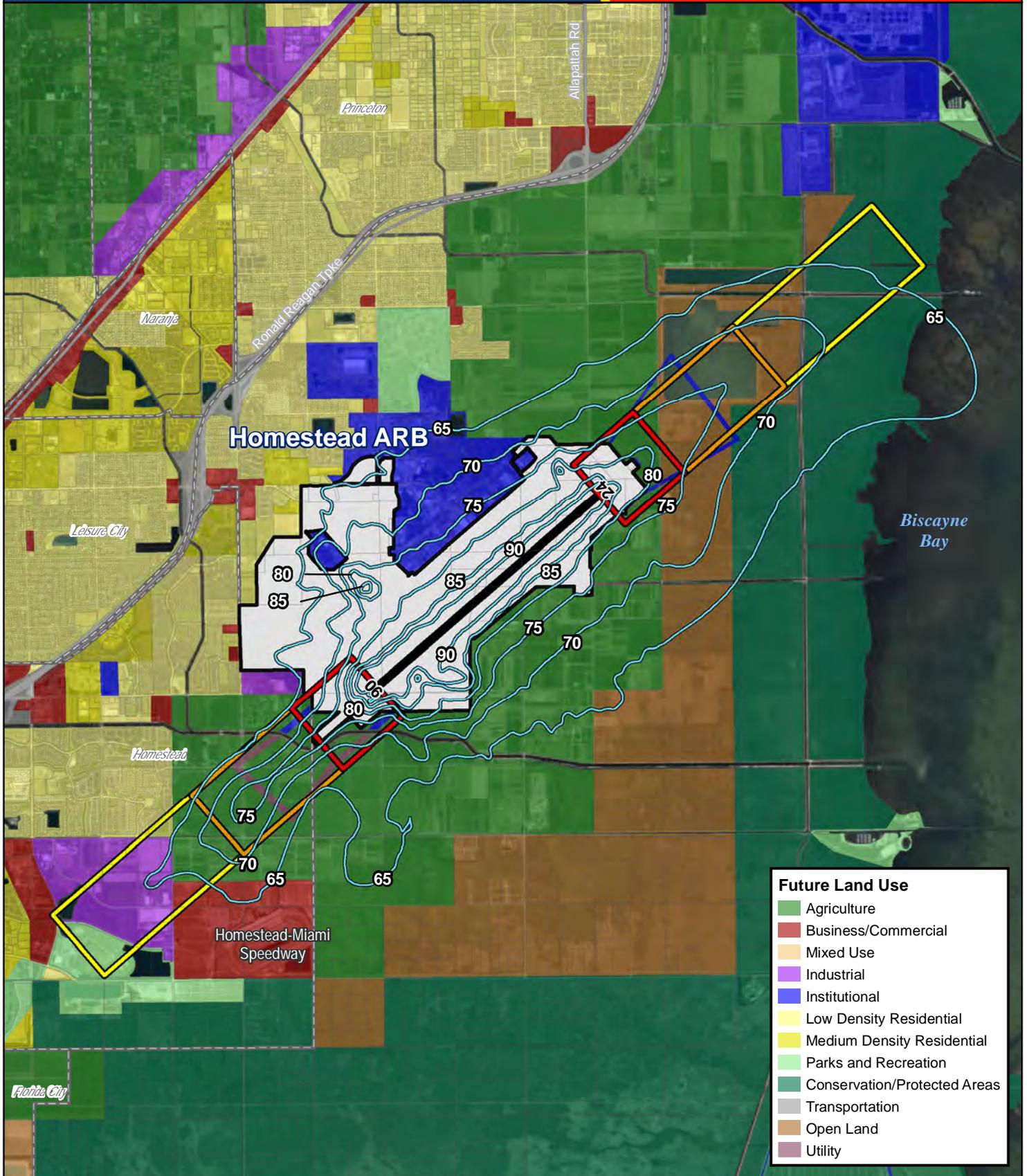
City of Homestead

Future land uses in the City of Homestead include low- and medium-density residential areas, commercial, industrial, and institutional areas west of the base. Future land use in this developed area largely are similar to existing land uses. Southwest of the base, agricultural land uses are designated in areas adjacent to the base. Areas within the APZs and/or the greater than 65-dB DNL noise zones are designated for business/commercial, industrial, and parks and recreation uses. This includes vacant and agricultural land west of Homestead-Miami Speedway that is targeted for industrial and commercial development, known as the Homestead Park of Commerce. Future utility land uses are in the CZ and APZ I, as well as within noise zones greater than 65 dB DNL on the southwest end of Runway 06.

Figure 6-4

Homestead Air Reserve Base
Air Installations Compatible Use Zones

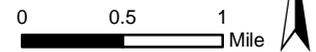
Future Land Use and 2020 AICUZ Noise Contours, Clear Zones, and Accident Potential Zones



Legend

- Major Roads
- Noise Contour (2020 AICUZ)
- Airfield Runway
- City/Town Boundary
- Installation Boundary
- Parcel Boundary
- Clear Zone
- Accident Potential Zone I
- Accident Potential Zone II

Note: Figure does not depict future land use category for inland waterbodies.





6.4 Compatibility Concerns

6.4.1 Land Use Analysis

The Air Force has developed land use compatibility recommendations for CZs, APZs, and noise zones to address the potential for incompatible development. These recommendations, found in AFI 32-1015, serve as guidelines for both the placement of APZs and noise zones and land use around military air installations. The guidelines recommend that noise-sensitive land uses be placed outside high noise zones, and that people-intensive uses should not be placed in APZs.

Land use describes how land is developed and managed and is characterized by the dominant function occurring within an area. To compare land use consistently across jurisdictions, this analysis uses generalized land use classifications illustrating land use compatibility across common land use types. These generalized land use categories 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.

For the purpose of this analysis, the DoD AICUZ compatibility guidelines (Tables A-1 and A-2 of Appendix A) utilize the SLUCM standards to provide generalized land use classifications. Table 6-1 provides generalized compatibility guidelines for the SLUCM categories. Land use compatibility falls into one of four categories: (1) Compatible; (2) Compatible with Restrictions; (3) Incompatible; and (4) Incompatible with Exceptions. Incompatible land use may require incorporation of noise attenuation measures into the design and construction of structures and further evaluation, and may require density limitations for land in APZs or other modifications in order to be deemed compatible.

For analysis purposes, the compatible concerns for Homestead ARB were divided into two discussions provided in the following sections: Compatibility Concerns within Noise Contours and Compatibility Concerns within CZs and APZs.



Table 6-1. Generalized Land Use Categories and Noise/Safety Compatibility

Generalized Land Use Category ³	Noise Zone (dB DNL)						CZ	APZ I	APZ II
	<65	65-69	70-74	75-79	80-84	85+			
Residential	Yes	No ¹	No ¹	No	No	No	No	No	No ¹
Commercial	Yes	Yes	Yes ²	Yes ²	No	No	No	Yes ²	Yes ²
Industrial	Yes	Yes	Yes	Yes	Yes ²	No	No	Yes ²	Yes ²
Public/Quasi-Public/Institutional	Yes	Yes ²	Yes ²	Yes ²	No	No	No	No	Yes ²
Parks and Recreation	Yes	Yes ²	Yes ²	No	No	No	No	Yes ²	Yes ²
Open/Agriculture/Low Density	Yes	Yes ²	No	Yes ²	Yes ²				
Undesignated	Yes	No	No	No	No	No	No	No	No

Notes:

¹ Incompatible with exceptions.

² Compatible with restrictions.

³ This generalized table demonstrates the land compatibility guidelines. Refer to Appendix A for use in determining land use compatibility



This page left intentionally blank.



6.4.2 Existing Land Use Compatibility Concerns

Compatibility Concerns within Noise Contours

As shown in Table 6-2 and in Figure 6-5, most existing land uses within the Homestead ARB noise zones are compatible with aircraft operations or compatible with restrictions. There are over 2,044 acres of agricultural land in the greater than 65-dB DNL noise zones that are compatible with restrictions. Additionally, institutional and public/government uses within the greater than 65 to 69-dB DNL noise zone and conservation/protected areas and industrial, institutional, and utility uses within the 70 to 74-dB DNL and 75 to 79-dB DNL noise zones are considered compatible with restrictions.

Areas of compatibility concern within the greater than 65-dB DNL noise contours include a multi-family residential development located southwest of Homestead ARB in the City of Homestead. This development is located partially within the 65 to 69-dB DNL noise zone and is considered incompatible per the Air Force AICUZ guidance. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor noise level reduction (NLR) of at least 25 dB should be incorporated into building in 65 to 69 dB DNL. Other incompatible existing land uses within the noise zones include an existing commercial use located south of the base within the 80 to 84-dB DNL noise zone, and a small segment of a local roadway located within the 85 to 89-dB DNL noise zone. Although the current commercial use is an outdoor gun range which generates its own noise levels, the potential for other types of commercial uses would be considered incompatible. Therefore, due to the potential for people to be exposed to increased noise levels in these areas, these uses are considered incompatible per the AICUZ guidance.



Table 6-2. Off-installation Existing Land Use Acreage Compatibility within AICUZ Noise Zones

Designation	Generalized Land Use Category ³	Noise Zone (dB DNL) (In Acres)					Total
		65-69	70-74	75-79	80-84	85+	
Compatible	Agriculture	1,137.52 ²	613.73 ²	241.73 ²	50.07 ²	1.33 ²	2,044.38
	Commercial	0.14	--	12.73 ²	--	--	12.87
	Sports Stadium	--	--	--	--	--	--
	Conservation/Protected Areas	760.33	205.16 ²	13.40 ²	--	--	978.89
	Parks and Recreation	--	--	--	--	--	--
	Industrial	31.90	26.02 ²	14.47 ²	--	--	72.39
	Institutional	104.62 ²	174.30 ²	56.21 ²	--	--	335.13
	Single-Family Residential (High Density)	--	--	--	--	--	--
	Multi-Family Residential	--	--	--	--	--	--
	Public/Government	0.10 ²	--	--	--	--	0.10
	Transportation	154.68	69.06	25.61	3.48	--	252.83
	Utility	74.11	25.76 ²	--	--	--	99.87
	Vacant/Open Space	333.51	143.34	123.87	8.18	--	608.90
Incompatible	Agriculture	--	--	--	--	--	--
	Commercial	--	--	--	8.34	--	8.34
	Sports Stadium	--	--	--	--	--	--
	Conservation/Protected Areas	--	--	--	--	--	--
	Parks and Recreation	--	--	--	--	--	--
	Industrial	--	--	--	--	--	--
	Institutional	--	--	--	--	--	--
	Single-Family Residential (High Density)	--	--	--	--	--	--
	Multi-Family Residential	10.08 ¹	--	--	--	--	10.08
	Public/Government	--	--	--	--	--	--
	Transportation	--	--	--	--	0.03	0.03
	Utility	--	--	--	--	--	--
	Vacant/Open Space	--	--	--	--	--	--
Subtotals	Compatible	2,596.91	1,257.37	488.02	61.73	1.33	4,405.36
	Incompatible	10.08	0.0	0.0	8.34	0.0	18.45
TOTAL		2,606.99	1,257.37	488.02	70.07	1.33	4,423.81

Notes:

All contour areas on-installation are excluded from the counts.

Acreage amounts do not include water areas within the noise contours.

¹ Incompatible with exceptions.

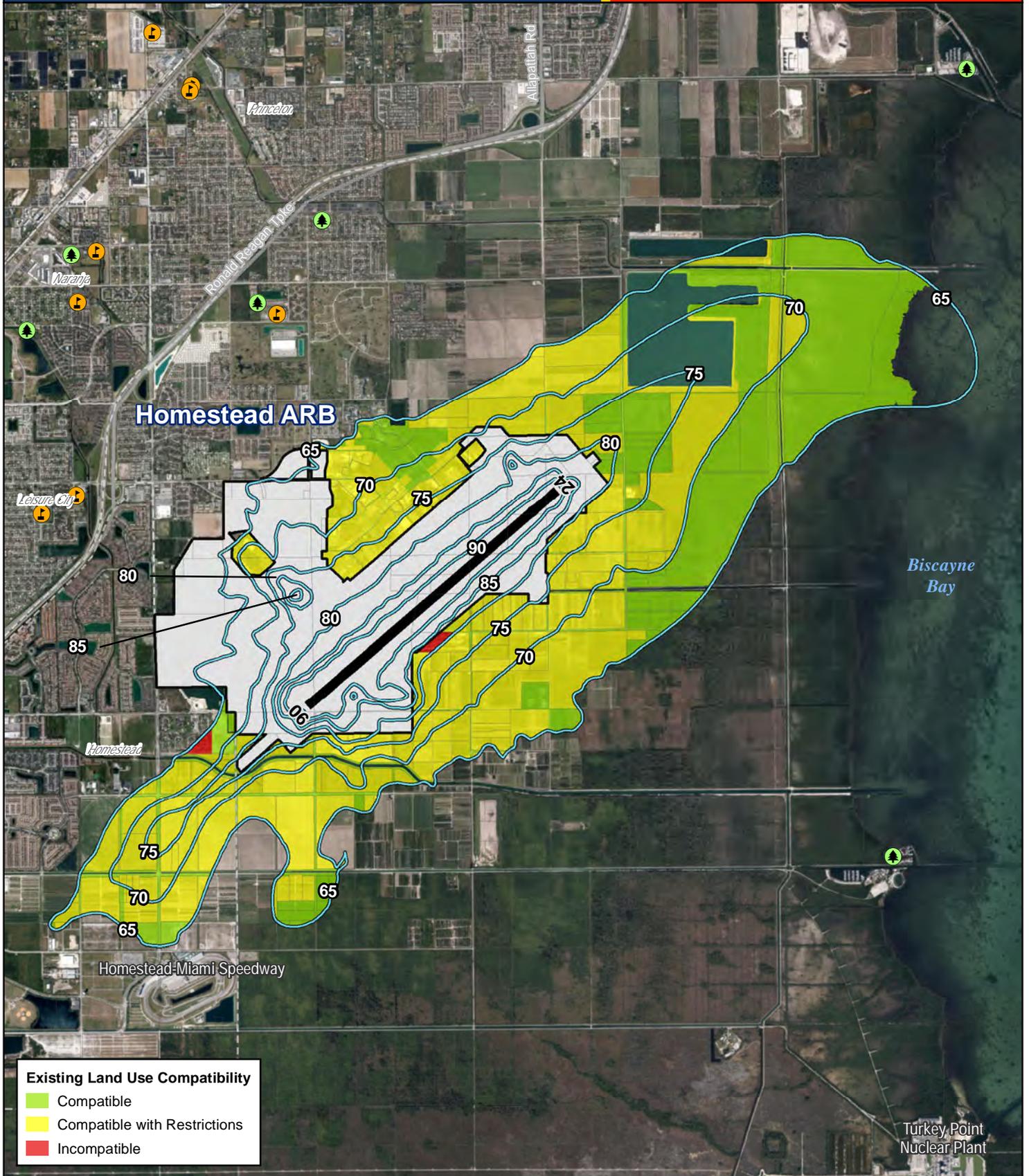
² Compatible with restrictions.

³ Refer to Appendix A for details.

Figure 6-5

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Incompatible Existing Land Use within Noise Contours



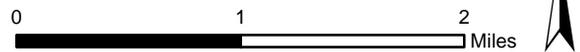
Existing Land Use Compatibility

- Compatible
- Compatible with Restrictions
- Incompatible

Legend

- Park
- Major Roads
- Airfield Runway
- Installation Boundary
- School
- Noise Contour (2020 AICUZ)
- City/Town Boundary
- Parcel Boundary

Note: Incompatible land use designation may include the No1 category, incompatible with exceptions. Figure does not depict land use compatibility for water areas. Naturally occurring water features are pre-existing, nonconforming land uses. Refer to Appendix A for use in determining compatibility.





Compatibility Concerns within CZs and APZs

As shown in Table 6-3 and in Figure 6-6, most existing land uses within CZs and APZs are compatible or compatible with restrictions with aircraft operations. There are approximately 603 acres of agricultural land in the CZs and APZs that are compatible with restrictions.

A multi-family residential development located southwest of Homestead ARB in the City of Homestead is located partially within APZ I and is classified as incompatible per the AICUZ guidance.

Other areas of compatibility concern within the CZs and APZs include local roadways in both CZs northeast and southwest of Homestead ARB and Biscayne-Everglades Greenway Canal in the CZ southwest of the base. An existing industrial use that is partially within the CZ northeast of the base also is considered an incompatible use in this area; however, there are no structures associated with the industrial area within the CZ. Slightly less than 2 acres of existing high-density, single-family residential uses are located within APZ II and are considered incompatible uses in this area. However, the portion of the residential area within the APZ is developed with a stormwater detention pond that was sited in this area following consultation with the Air Force. No homes within this development are located within APZ II.



Table 6-3. Off-installation Existing Land Use Acreage Compatibility within Clear Zones/Accident Potential Zones

Designation	Generalized Land Use Category ³	CZ	APZ I	APZ II	Total
Compatible	Agriculture	116.38 ²	286.98 ²	199.22 ²	602.58
	Commercial	--	--	1.13 ²	1.13
	Sports Stadium	--	--	--	--
	Conservation/Protected Areas	0.33	49.04	285.93	335.30
	Parks and Recreation	--	--	53.08 ²	53.08
	Industrial	--	28.21 ²	27.89 ²	56.10
	Institutional	--	--	--	--
	Single-Family Residential (High Density)	--	--	--	--
	Multi-Family Residential	--	--	--	--
	Public/Government	--	--	2.43 ²	2.43
	Transportation	--	41.58 ²	75.18	116.76
	Utility	--	2.85 ²	50.94	53.75
	Vacant/Open Space	63.90	122.91	203.92	390.73
	Water Areas	--	--	--	--
Incompatible	Agriculture	--	--	--	--
	Commercial	--	--	--	--
	Sports Stadium	--	--	0.83	0.83
	Conservation/Protected Areas	--	--	--	--
	Parks and Recreation	--	--	--	--
	Industrial	0.15	--	--	0.15
	Institutional	<0.01	--	--	<0.01
	Single-Family Residential (High Density)	--	--	1.62	1.62
	Multi-Family Residential	--	8.41	--	8.41
	Public/Government	--	--	--	--
	Transportation	17.84	--	--	17.84
	Utility	--	--	--	--
	Vacant/Open Space	--	--	--	--
	Water Areas	6.52 ³	146.79 ³	61.35 ³	214.66
Subtotals	Compatible	180.60	531.57	899.72	1,611.89
	Incompatible	24.52	155.20	63.80	243.52
TOTAL		205.12	686.77	963.52	1,855.41

Notes:

All contour areas on-installation are excluded from the counts.

Acreage amounts do not include water areas within the zones.

Single-Family Residential uses should not exceed the recommended density limits of 2 Du/Ac within APZ II.

¹ Incompatible with exceptions

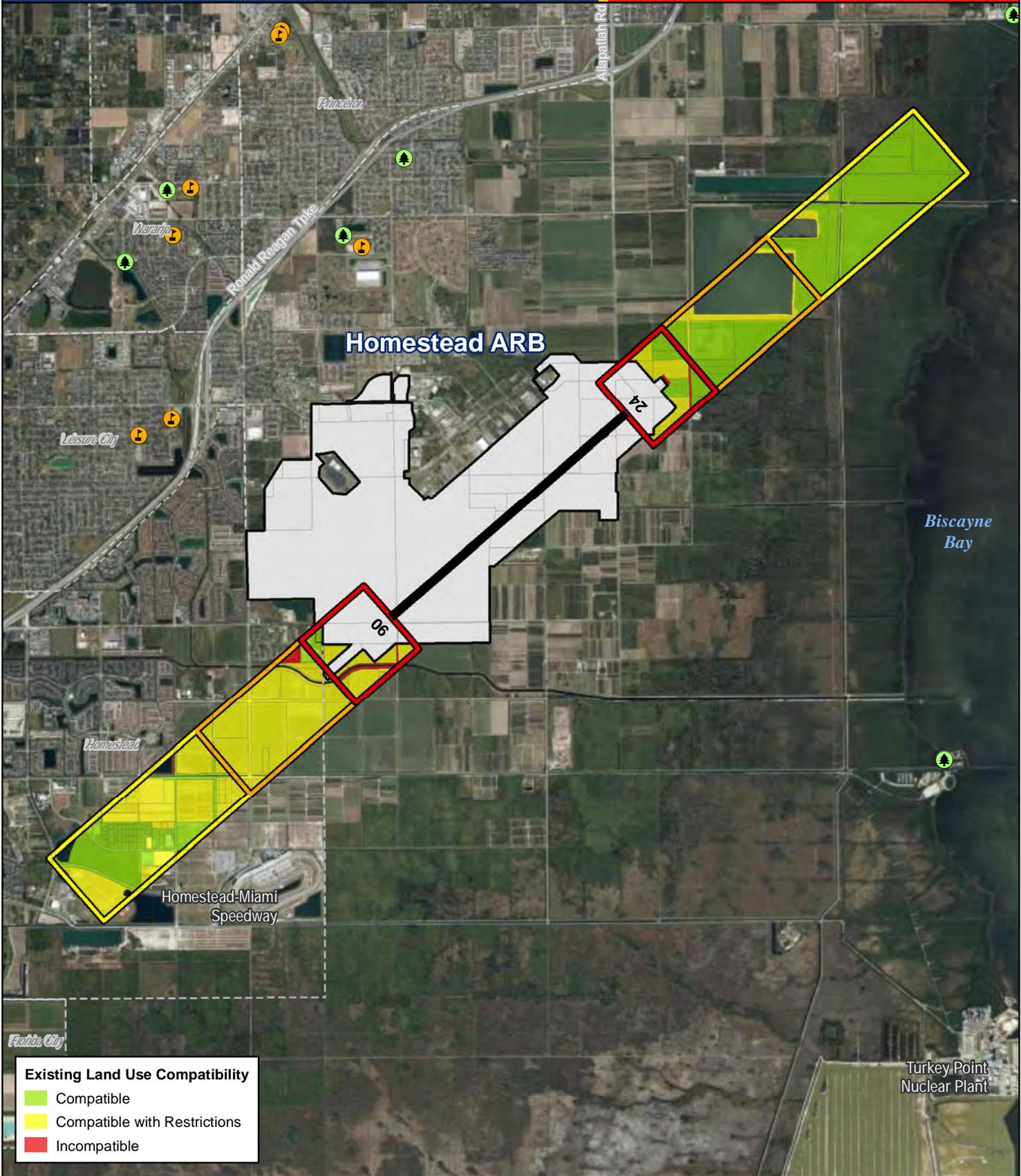
² Compatible with restrictions

³ Refer to Appendix A for details

Figure 6-6

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Incompatible Existing Land Use within Clear Zones and Accident Potential Zones



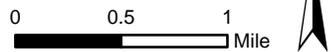
Existing Land Use Compatibility

- Compatible
- Compatible with Restrictions
- Incompatible

Legend

Park	Major Roads	Installation Boundary	Parcel Boundary	Accident Potential Zone I
School	Airfield Runway	City/Town Boundary	Clear Zone	Accident Potential Zone II

Note: Figure does not depict land use compatibility for water areas. Naturally occurring water features are pre-existing, nonconforming land uses. Refer to Appendix A for use in determining compatibility.





6.4.3 Future Land Use Compatibility Concerns

As noted in Section 6.3.3, Future Land Use, future land uses are consistent with the future land use policies set out in the County's CDMP and the City's Comprehensive Plan. The UDB and UEAs discussed in Section 6.2, Planning Authorities, Stakeholders, and Policies, indicate where growth is likely to occur and help guide development within the county and surrounding Homestead ARB.

Compatibility Concerns within Noise Contours

The existing land uses discussed in Section 6.4.2, Existing Land Use Compatibility Concerns, are similar to the future land use classifications for the land surrounding Homestead ARB; therefore, many of the compatibility classifications are similar to the existing land use analysis. The majority of future land uses within the noise zones are considered compatible or compatible with restrictions.

Areas of compatibility concern within the noise zones include approximately 66 acres of designated institutional uses within the greater than 75-dB DNL noise zones. This includes the area north of the base, formerly part of Homestead AFB, that was transferred to Miami-Dade County following the 1993 BRAC Commission recommendations and is now referred to as the Homestead ARB Redevelopment and Economic Development Area. Future development and redevelopment of this area will need to be coordinated with the Air Force to ensure that land uses are compatible with aircraft operations at Homestead ARB. The remaining lands designated for institutional uses in this area are considered incompatible. The County is aware of the restrictions that would affect future development of this area, including height restrictions and compatibility concerns, and has recommended that a portion of this area adjacent to the airfield apron be retained by the Air Force for development with government and institutional uses related to Homestead ARB's mission (Miami-Dade County 2004).

Less than one acre of future low-density residential land is within the 65 to 69-dB DNL noise zone northwest of the base. Due to the potential for noise concerns from the community, AICUZ guidance recommends that residential land uses are sited outside of the greater than 65-dB DNL noise zones whenever possible.



Table 6-4. Off-installation Future Land Use Acreage Compatibility within AICUZ Noise Zones

Designation	Generalized Land Use Category ³	Noise Zone (dB DNL) (In Acres)					Total
		65-69	70-74	75-79	80-84	85+	
Compatible	Agriculture	1,211.64 ²	604.97 ²	288.95 ²	64.13 ²	1.35 ²	2,171.04
	Business/Commercial	29.59	--	--	--	--	29.59
	Conservation/Protected Area	775.65	63.47 ²	--	--	--	839.12
	Industrial	19.10	--	--	--	--	19.10
	Institutional	188.71 ²	200.84 ²	60.08 ²	--	--	449.63
	Low-Density Residential	--	--	--	--	--	--
	Parks and Recreation	--	--	--	--	--	--
	Utility	53.84	43.97 ²	20.01 ²	--	--	117.82
	Open Land	288.36	333.52	119.86	--	--	741.74
Incompatible	Agriculture	--	--	--	--	--	--
	Business/Commercial	--	--	--	--	--	--
	Conservation/Protected Area	--	--	--	--	--	--
	Industrial	--	--	--	--	--	--
	Institutional	--	--	--	5.82	0.02	5.84
	Low-Density Residential	<0.01 ¹	--	--	--	--	<0.01
	Parks and Recreation	--	--	--	--	--	--
	Utility	--	--	--	--	--	--
	Open Land	--	--	--	--	--	--
Subtotals	Compatible	2,566.89	1,246.77	488.90	64.13	1.35	4,368.04
	Incompatible	<0.01		0.0	5.82	0.02	5.85
TOTAL		2,566.90	1,246.77	488.90	69.95	1.37	4,373.89

Notes:

All contour areas on-installation are excluded from the counts.

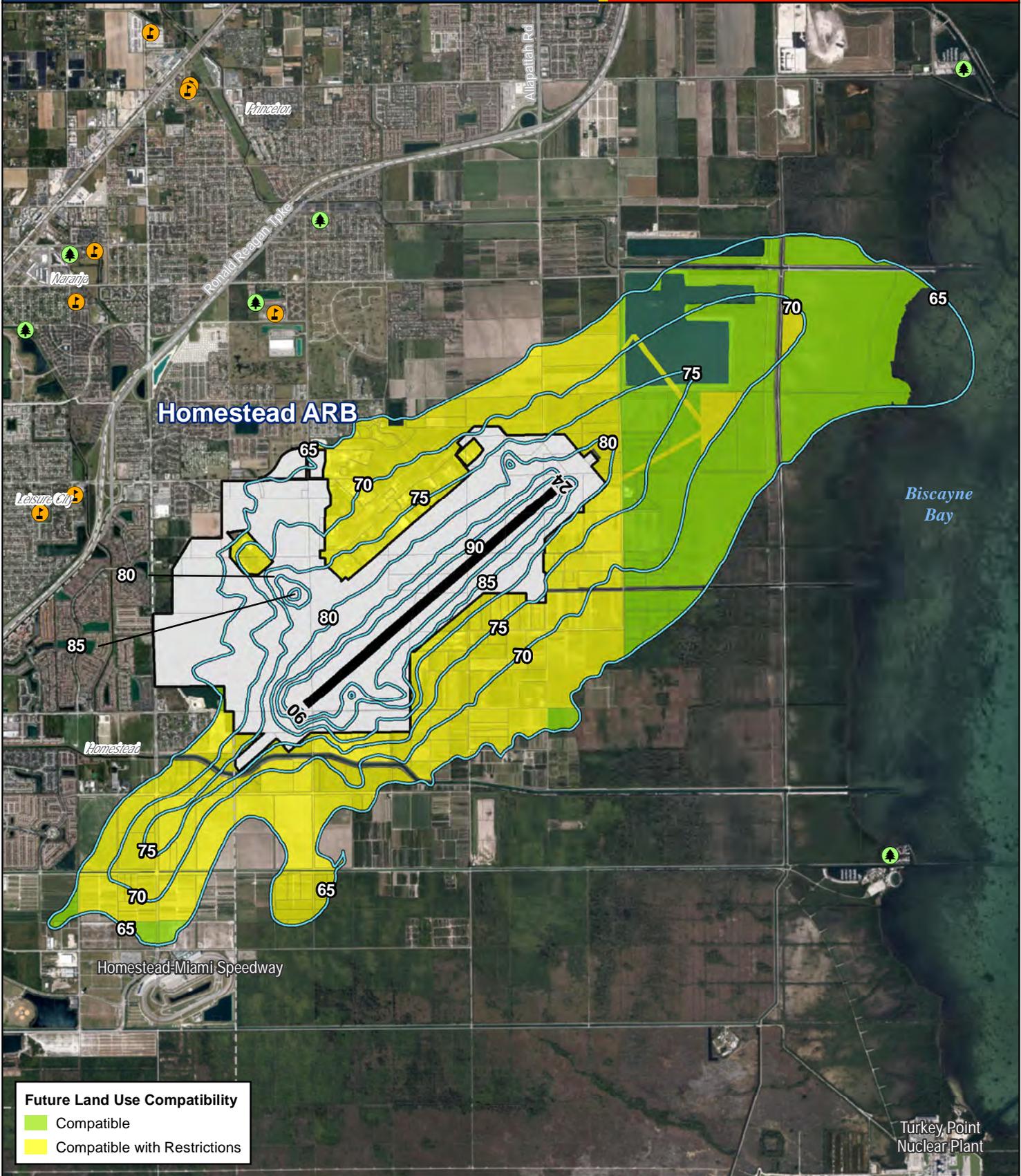
Acreage amounts do not include water areas within the noise contours.

¹ Incompatible with exceptions.

² Compatible with restrictions.

³ Refer to Appendix A for details.

Figure 6-7



Legend

- Park
- School
- Major Roads
- Airfield Runway
- Installation Boundary
- City/Town Boundary
- Parcel Boundary
- Noise Contour (2020 AICUZ)

Note: Figure does not depict land use compatibility for water areas. Naturally occurring water features are pre-existing, nonconforming land uses. Refer to Appendix A for use in determining compatibility.

0 1 2 Miles





Compatibility Concerns within CZs and APZs

The majority of future land uses within the CZs and APZs are considered compatible or compatible with restrictions. A small portion of utilities are recommended as incompatible within the CZ. Per AICUZ guidance, transportation, communication, and utilities are incompatible. SW 137 Avenue (Tallahassee Road) is an existing roadway that crosses APZ I southwest of the base. Transportation uses are considered compatible with restrictions in APZ I. However, future development, including residential development or other uses that concentrate large numbers of people, along the roadway and surrounding the speedway could create compatibility concerns for the base. The City of Homestead has decided to grant future residential development approval within APZ I of their jurisdiction. This is a change from the historical prohibition of residential uses within APZ I that are deemed incompatible per AICUZ guidance. Therefore, any future residential development in this area would be a compatibility concern and not recommended.

A micro-smelting plant with solar panels and a stack ranging from 60 to 70 feet in height, which could produce thermal emissions, has been proposed to the north of the base and may pose a flight safety concern. Review of the proposed plant and solar panels by the Military Aviation and Installation Assurance Siting Clearinghouse would be necessary to evaluate potential impacts to Homestead ARB aviation operations, including potential thermal emissions and glint/glare impacts. Additionally, FAA Obstruction Evaluation/Airport Airspace Analysis of the proposed stack would be necessary to evaluate potential impacts to Homestead ARB operations as well.



Table 6-5. Off-installation Future Land Use Acreage Compatibility within Clear Zones/Accident Potential Zones

Designation	Generalized Land Use Category ³	CZ	APZ I	APZ II	Total
Compatible	Agriculture	144.06 ²	301.94 ²	132.00 ²	578.00
	Business/Commercial	--	--	22.60 ²	22.60
	Conservation/Protected Area	--	13.56	295.26	308.82
	Industrial	--	--	241.19 ²	241.19
	Institutional	--	--	--	--
	Low-Density Residential	--	--	12.43 ²	12.43
	Parks and Recreation	--	--	56.67 ²	56.67
	Utility	--	62.59 ²	--	62.59
	Open Land	19.12	165.51	116.87	299.40
	Water Areas	--	--	--	--
Incompatible	Agriculture	--	--	--	--
	Business/Commercial	--	--	--	--
	Conservation/Protected Area	--	--	--	--
	Industrial	--	--	--	--
	Institutional	--	--	--	--
	Low-Density Residential	--	--	--	--
	Parks and Recreation	--	--	--	--
	Utility	29.95	--	--	29.95
	Open Land	--	--	--	--
Water Areas	11.99 ³	143.17 ³	86.51 ³	241.68	
Subtotals	Compatible	163.18	543.60	877.02	1,583.80
	Incompatible	41.94	143.17	86.51	271.63
TOTAL		205.12	686.77	963.53	1,855.43

Notes:

All contour areas on-installation are excluded from the counts.

Acreage amounts do not include water areas within the zones.

Single-Family Residential uses should not exceed the recommended density limits of 2 Du/Ac within APZ II.

¹ Incompatible with exceptions

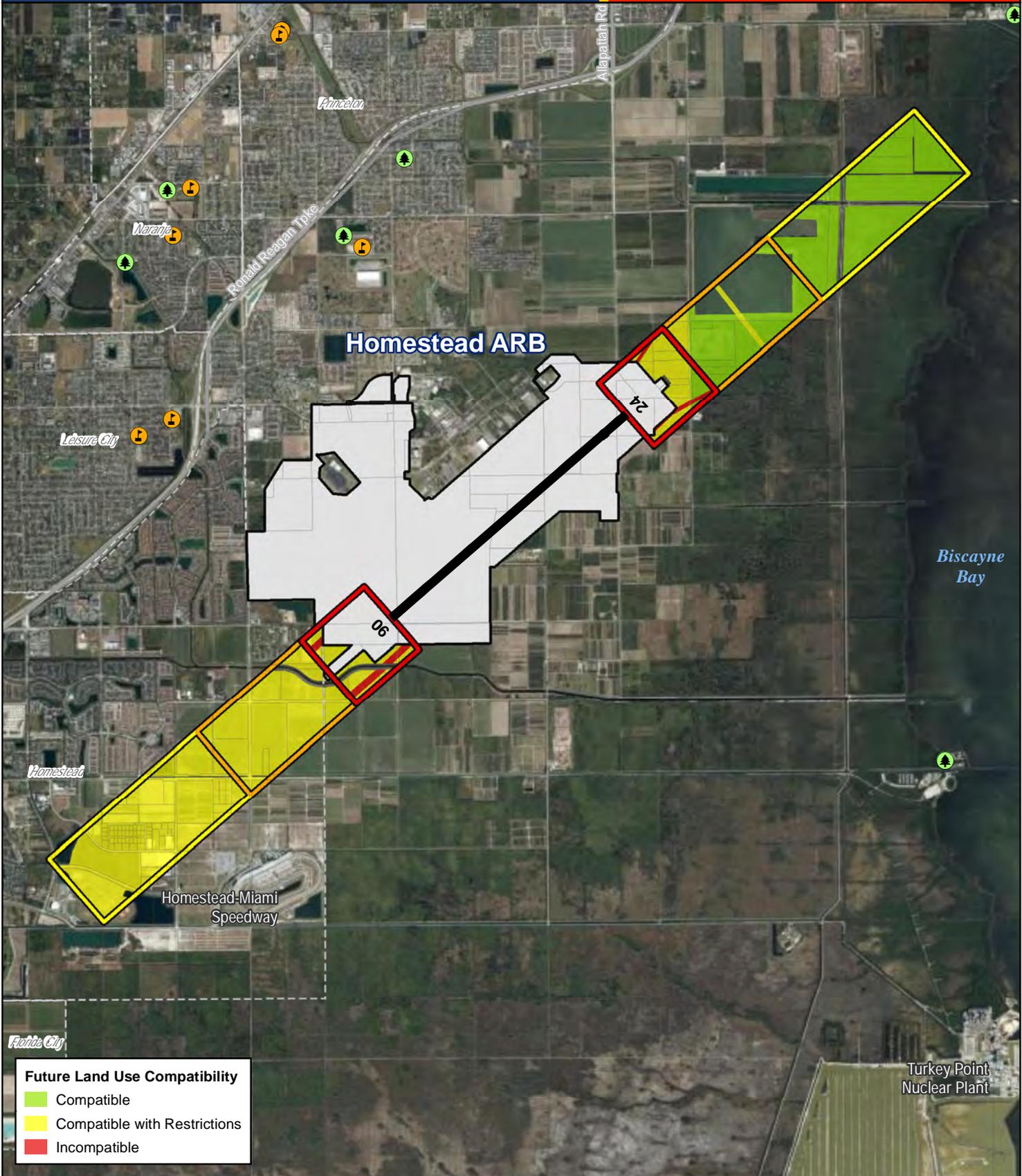
² Compatible with restrictions

³ Refer to Appendix A for details

Figure 6-8

Homestead Air Reserve Base
Air Installations Compatible Use Zones

Incompatible Future Land Use within Clear Zones and Accident Potential Zones



Future Land Use Compatibility

- Compatible
- Compatible with Restrictions
- Incompatible

Legend

Park	Major Roads	Installation Boundary	Parcel Boundary	Accident Potential Zone I
School	Airfield Runway	City/Town Boundary	Clear Zone	Accident Potential Zone II

Note: Figure does not depict land use compatibility for water areas. Naturally occurring water features are pre-existing, nonconforming land uses. Refer to Appendix A for use in determining compatibility.

0 0.5 1
Mile



7.0 Implementation

Implementation of the AICUZ Study must be a joint effort between Homestead ARB and the surrounding communities. This AICUZ Study provides the best source of information to ensure land use planning decisions made by local municipalities are compatible with current and future military installation operations. This chapter discusses the roles of all partners in the collaborative planning.

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 concerns for the surrounding communities and advises these communities about potential impacts from flight operations on the safety, welfare, and quality of life of their citizens. The Air Force promotes compatible partnerships between its installations and surrounding communities by being a good neighbor.

Homestead ARB 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.

Homestead ARB 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.
- Provide copies of the 2020 AICUZ Study to local, county, 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.
- Continue to engage the community and communicate Homestead ARB's mission. Other community engagement includes participation in Military Affairs Committee, hosting base tours for community figures and organizations such as high school Reserve Officer Training Corps programs, as well as hosting the Wings Over Homestead Air Show and Open House. Homestead ARB also participates in the Honorary Commander Program, which partners professionals from various



areas of the community with commanders to strengthen the relationship between the base and local community.

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

7.2 State Roles

As noted in Section 6.2, Planning Authorities, Stakeholders, and Policies, growth management is guided by state legislation such as the Florida Community Planning Act of 2011. The periodic reviews and updates to the surrounding jurisdiction local plans is an opportunity to revise the AICUZ-specific information within them and implement targeted zoning and land use controls to prevent future incompatibility.

In addition to planning legislature, there are military-related organizations, councils, and programs that help to promote community development that is compatible with Homestead ARB's mission. Examples of these include:

- Florida Defense Support Task Force, a legislatively-mandated council (created by Florida Statute 288.987) whose mission is to preserve, protect, and enhance Florida's military missions and installations.
- Florida Defense Alliance, created by Enterprise Florida, Incorporated in 1998 in accordance with Florida Statute 288.980 as a non-profit partnership between the Governor, Florida state officials, the Florida Congressional Delegation, state legislators, base commanders and staff, community leaders, and business executives. The purpose of the Florida Defense Alliance is to increase military value, enhance base capabilities, and promote multi-service synergies for Florida's military bases, while supporting and enhancing the quality of life of Florida military families.

7.3 Regional and 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 Homestead ARB. Adoption of 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:

- Local government planners consider AICUZ policies and guidelines when developing or revising city comprehensive plans and use AICUZ overlay maps and Air Force Land Use Compatibility Guidelines (see Appendix A) to evaluate existing and future land use proposals.



- Continue to ensure that new development applications or properties that are applying for a change of land use are submitted to Homestead ARB to afford the installation the opportunity to assess those applications for potential impacts on defense missions.
- Adopt or modify zoning ordinances to reflect the compatible land uses outlined in the 2020 AICUZ Study, building on the best practices and codes already in place for Homestead ARB's previous AICUZ footprint.
- Local governments review their capital improvement plan, transportation plans, infrastructure investments, and development policies to ensure they do not encourage incompatible land use patterns near Homestead ARB, with particular emphasis on utility extension and transportation planning.
- Enact fair disclosure ordinances to require disclosure to the public for those AICUZ items that directly relate to military operations at Homestead ARB.
- Where allowed, local governments continue to require real estate disclosure for individuals purchasing or leasing property within noise zones or CZs/APZs. (Pursuant to Miami-Dade County Ordinance No. 17-06, § 2, adopted Jan. 24, 2017, regarding disclosure statement for real property transactions within the Airport Land Use Restriction Area).
- Enact or modify building/residential codes to ensure that any new construction near Homestead ARB has the recommended NLR measures incorporated into the design and construction of structures.
- Continue to monitor proposals for tall structures, such as smoke stacks and communication towers, to ensure that new construction does not pose a hazard to navigable airspace around Homestead ARB. Where appropriate, coordinate with the FAA on the height of structures.
- Local governments consult with Homestead ARB on planning and zoning actions that have the potential to affect installation operations.
- Continue to invite Air Force representatives to be ex officio members on boards, commissions, and regional councils addressing long-range development and other planning policies.
- Continue committees that promote Homestead ARB mission and relation with the surrounding community such as the Military Affairs Committee, which aims to assist the military units within the South Dade Chamber of Commerce's service area to achieve their missions and goals and to promote understanding and cooperation between the civilian and military communities, as well as the South Florida Defense Alliance, formed in 2017 as a regional coalition that supports local military commands, defense industry, academia, government, and the community through advocacy and support, relationship building, and expertise.



7.4 Community Role

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

- **Real Estate Professionals and Brokers:**
 - Know where noise zones and CZs/APZs 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 CZs/APZs. (Pursuant to Miami-Dade County Ordinance No. 17-06, § 2, adopted Jan. 24, 2017, regarding disclosure statement for real property transactions within the Airport Land Use Restriction Area).
- **Developers:**
 - Know where the noise zones and CZs/APZs encumber land near the air installation. Consult with City of Homestead and Miami-Dade County planning officials 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.
 - When considering property purchases, ask local real estate professionals and city planners about noise and accident potential.

While the installation and community are separated by a fence, it is recognized that Homestead ARB activities and operations may affect the community. Likewise, community activities and development decisions can affect Homestead ARB's ability to complete its local hometown mission. The local military and community goals can be mutually achieved through a combination of collaborative planning and partnerships, open communication, and close relationships. The AICUZ Study can provide a foundation



to ensure that the community and its hometown military installation can continue to coexist for many years.

Questions about the AICUZ Program may be directed to the installation Mission Sustainment Program Manager at 786-415-7163 or lawrence.ventura@us.af.mil.



This page left intentionally blank.



8.0 References

- City of Homestead. 2011. EAR-Based Amendments to the Homestead Comprehensive Plan: Goals, Objectives, and Policies. Accessed May 29, 2020. <https://www.cityofhomestead.com/181/Zoning-Maps>.
- Enterprise Florida, Inc. 2019. Florida Programs to Mitigate Encroachment to Military Installations. Accessed May 27, 2020. <https://www.enterpriseflorida.com/wp-content/uploads/Florida-Programs-to-Mitigate-Encroachment-to-Military-Installations-FINAL-July-12.pdf>.
- _____. 2020a. The Florida Defense Support Task Force. Resources. Accessed September 10, 2020. <https://www.enterpriseflorida.com/fdstf/resources/>.
- _____. 2020b. Florida Defense Industry Economic Impact Analysis, January 2020. Accessed September 10, 2020. https://www.enterpriseflorida.com/wp-content/uploads/Florida-Defense-Industry-Economic-Impact-Assessment_2020-FINAL.pdf.
- Miami-Dade County. 2004. Memorandum, Office of the County Manager. Subject: Expansion of Cantonment Area at Homestead Air Reserve Base. January 20, 2004.
- _____. 2010. Final BCC Adopted June 4, 2010. Community Councils – Subareas. <https://www.miamidade.gov/zoning/library/maps/community-councils-subareas-countywide.pdf>.
- _____. 2015. Parks, Conservation, and Vacant Land, Miami-Dade County, Florida. Accessed June 22, 2020. <https://www.miamidade.gov/planning/maps.asp>.
- _____. 2019. Memo Re: Contract Award Recommendation to the Amount of \$7,292,647.42 to Horizon Contractors, Inc., for the Project Entitled People’s Transportation Plan (PTP) Roadway Improvements to SW 137 Avenue from Homestead Extension of Florida’s Turnpike to US-1, located within Commission District 8. Accessed June 24, 2020. <https://www.miamidade.gov/govaction/legistarfiles/Matters/Y2019/190132.pdf>.
- _____. 2020a. Planning Advisory Board. Accessed May 28, 2020. <http://www.miamidade.gov/planning/planning-advisory-board.asp>.
- _____. 2020b. Biscayne Bay Shoreline Development. Accessed May 28, 2020. <https://www.miamidade.gov/zoning/boards-shoreline-review.asp>.
- _____. 2020c. Development Impact Committee. Accessed May 28, 2020. <https://www.miamidade.gov/zoning/development-impact-committee.asp>.
- _____. 2020d. Community Councils. Accessed May 28, 2020. <https://www.miamidade.gov/zoning/community-councils.asp>.
- _____. 2020e. Community Development Master Plan (CDMP). Accessed May 29, 2020. <http://www.miamidade.gov/planning/cdmp.asp>.



Miami-Dade County Department of Regulatory and Economic Resources. 2019. Application No. 3 (CDMP201990011) Countywide. Revise the Land Use Element “Institutions, Utilities and Communications” land use category on page I-56 to provide clarification on the uses allowed in Homestead Air Reserve Base (HARB) and the HARB Redevelopment and Economic Development Area (HARB REDA). May 2019.

_____. 2019. Adopted Components Comprehensive Development Master Plan for Miami-Dade County, Florida. October 2013 Edition, as adopted October 2, 2013, and as amended through January 24, 2019. Accessed May 29, 2020.
<http://www.miamidade.gov/planning/cdmp-adopted.asp>.

South Florida Regional Planning Council (SFRPC). 2004. Strategic Regional Policy Plan for South Florida. Accessed May 27, 2020. <http://sfrationalcouncil.org/portfolio-items/srpp/>.

_____. n.d. About Us. Accessed May 27, 2020. <http://sfrationalcouncil.org/about/>.

U.S. Air Force (USAF). 2019. Homestead Air Reserve Base Economic Impact. Fact Sheets, Official United States Air Force Website. Accessed July 10, 2020.
<https://www.homestead.afrc.af.mil/About-Us/Fact-Sheets/Display/Article/700488/homestead-air-reserve-base-economic-impact/#:~:text=in%20the%201940s,-,As%20a%20pillar%20of%20the%20Homestead%20community%2C%20Homestead%20Air%20Reserve,to%20the%20base%20finance%20office>.



Appendix A. Land Use Compatibility Tables

Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
10	Residential				
11	Household Units				
11.11	Single units: detached	N	N	Y ²	Maximum density of 2 Du/Ac ²
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	
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	Manufacturing³				
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



Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
28	Chemicals and allied products; manufacturing	N	N	N	
29	Petroleum refining and related industries	N	N	N	
30	Manufacturing³ (continued)				
31	Rubber and miscellaneous plastic products; manufacturing	N	N	N	
32	Stone, clay, and glass products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
33	Primary metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
34	Fabricated metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	N	N	N	
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



Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
48	Utilities ⁷	N	Y ⁶	Y ⁶	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48.5	Solid waste disposal (landfills, incinerators, etc.)	N	N	N	
49	Other transportation, communication, and utilities	N	Y ⁶	Y	See Note 6 below
50	Trade				
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	See Note 8 below
53	Retail trade – including, discount clubs, home improvement stores, electronics superstores, etc.	N	N	Y	Maximum FAR of 0.16 in APZ II
53	Shopping centers- Neighborhood, Community, Regional, Super-regional ⁹	N	N	N	
54	Retail trade – food	N	N	Y	Maximum FAR of 0.24 in APZ II
55	Retail trade – automotive, marine craft, aircraft, and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR of 0.28 in APZ II
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Maximum FAR of 0.28 in APZ II
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.16 in APZ II
60	Services¹⁰				
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	



Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Maximum FAR of 0.22 in APZ II
63.7	Warehousing and storage services ¹²	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Maximum FAR of 0.22 in APZ II
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
68	Educational services	N	N	N	
68.1	Child care 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



Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
75	Resorts and group camps	N	N	N	
76	Parks	N	Y ¹³	Y ¹³	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
79	Other cultural, entertainment and recreation	N	Y ¹¹	Y ¹¹	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
80	Resource production and extraction				
81	Agriculture (except live-stock)	Y ⁴	Y ¹⁴	Y ¹⁴	
81.5,81.7	Agriculture-Livestock farming, including grazing and feedlots	N	Y ¹⁴	Y ¹⁴	
82	Agriculture related activities	N	Y ¹⁵	Y ¹⁵	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
83	Forestry activities ¹⁶	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
84	Fishing activities ¹⁷	N ¹⁷	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
85	Mining activities ¹⁸	N	Y ¹⁸	Y ¹⁸	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
89	Other resource production or extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives



Table A-1. Land Use Compatibility Recommendations in Accident Potential Zones and Clear Zones

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
90	Other				
91	Undeveloped land	Y	Y	Y	
93	Water areas ¹⁹	N ¹⁹	N ¹⁹	N ¹⁹	

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 considered to be 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 (43560/1000)). The formula for APZ II is FAR = 50/ (Average Vehicle Occupancy x Average Parking Rate x (43560/1000)).
2. The suggested maximum density for detached single-family housing is two Du/Ac. 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, electronic interference with aircraft, height of structures, and potential 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 normally be located 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.
6. No above ground passenger terminals and no above ground power transmission or distribution lines. 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 to 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-II; 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.
10. Ancillary uses such as meeting places, auditoriums, etc. are not recommended.
11. Chapels, houses of worship, and other 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. Facilities must be low intensity, and provide no playgrounds, etc. Facilities such as club houses, meeting places, auditoriums, large classes, etc., 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. Naturally occurring water features that attract waterfowl present a potential BASH. 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, such features should be designed so that they do not attract waterfowl.
- ²⁰. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations of people, including employees and visitors, greater than 50 people per acre at any given time are incompatible in APZ II.



This page left intentionally blank.



Table A-2. Recommended Land Use Compatibility for Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
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
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
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



Table A-2. Recommended Land Use Compatibility for Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
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	Y ⁴	N
49	Other transportation, communication and utilities	Y	25 ⁵	30 ⁵	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
63.7	Warehousing and storage	Y	Y ²	Y ³	Y ⁴	N
64	Repair services	Y	Y ²	Y ³	Y ⁴	N



Table A-2. Recommended Land Use Compatibility for Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
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	Child care 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
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

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 dB and strongly discouraged in DNL 70-74 dB. 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 dB and 30 dB in DNL 70-74 dB 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 dB.
 - 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 dB 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 dB 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 dB 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 dB.
 9. Residential buildings require an NLR of 30 dB.
 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.

Key

25 = Measures to achieve NLR of 25 dB.

30 = Measures to achieve NLR of 30 dB.

35 = Measures to achieve NLR of 35 dB.



Appendix B. Enlarged Figures

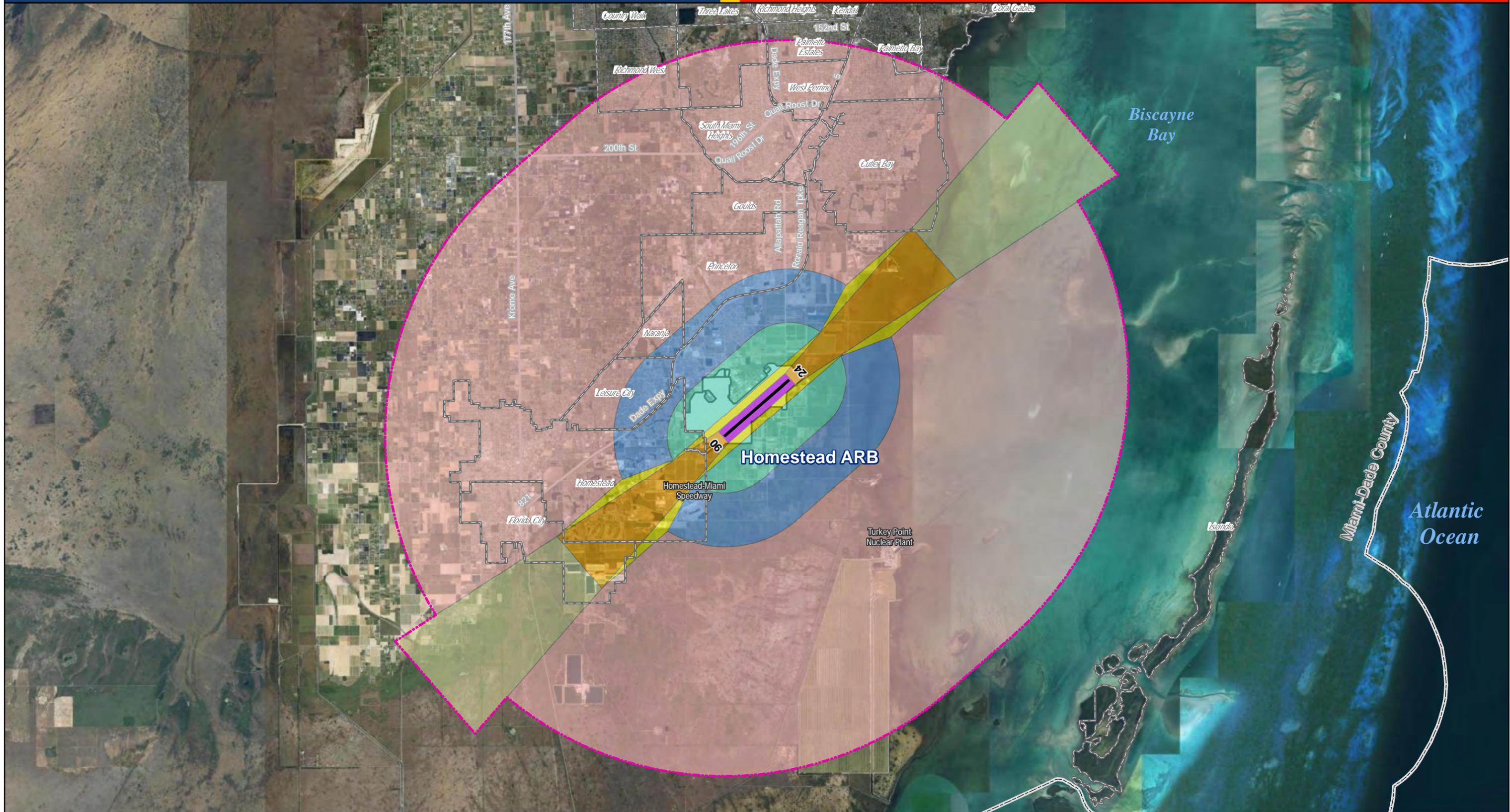


This page left intentionally blank.

Figure B-1

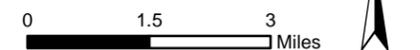
Homestead Air Reserve Base

Runway Airspace Imaginary Surfaces, Transition Planes, and Hazards to Aircraft Flight Zone (HAFZ) Consultation Zone



Legend

- | | | | |
|--------------------------|-------------------------|---|----------------------------|
| — Major Roads | □ City/Town Boundary | Airfield Imaginary Surface | □ Conical Surface |
| ▬ Airfield Runway | □ County Boundary | ■ Primary Surface | □ Inner Horizontal |
| ⬮ HAFZ Consultation Zone | ▬ Installation Boundary | ■ Approach-Departure Clearance Surface (Horizontal) | □ Outer Horizontal Surface |
| | | ■ Approach-Departure Clearance Surface (50:1) | ■ Transitional Surface |

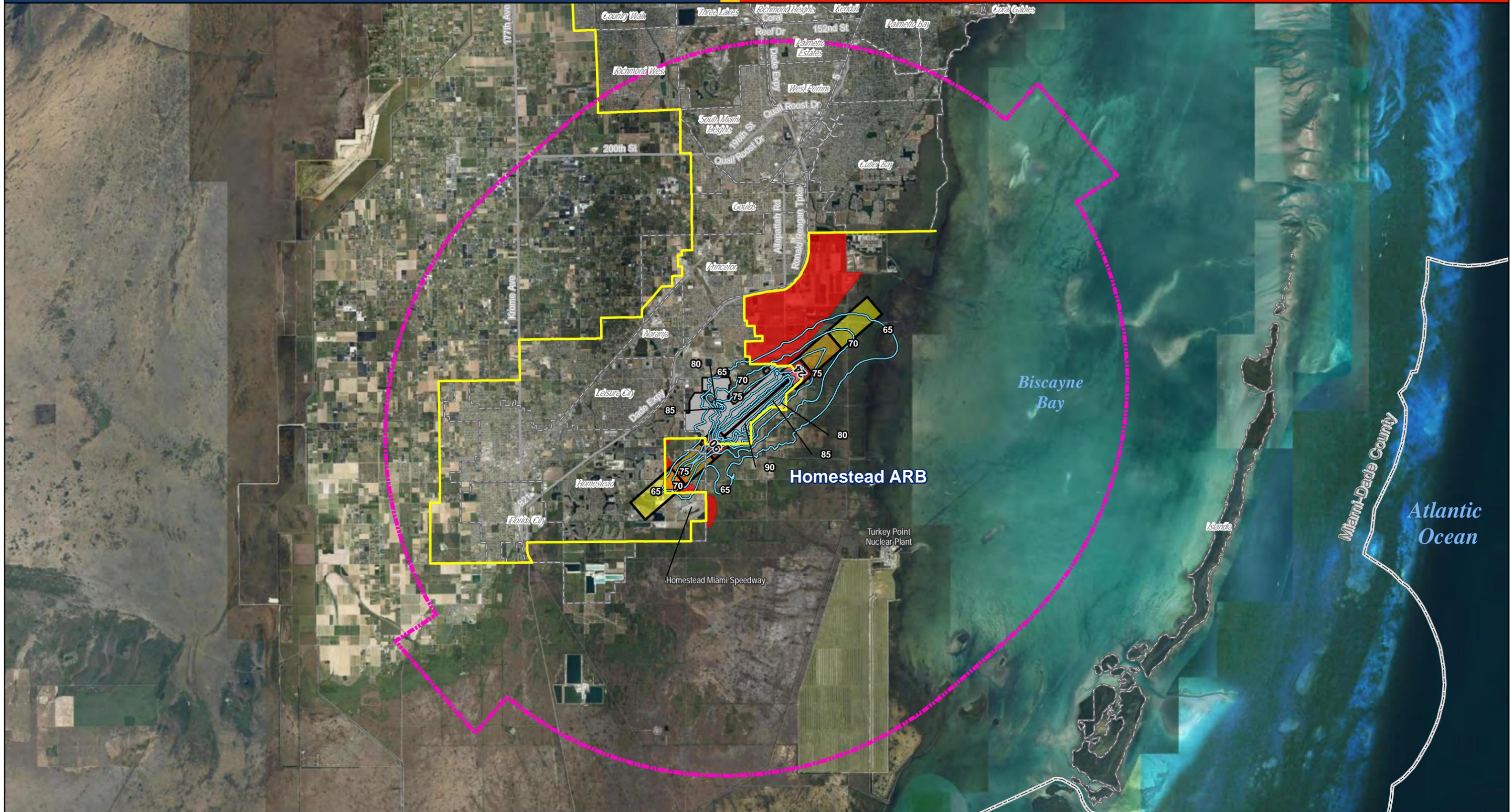


This page left intentionally blank.

Figure B-2

Homestead Air Reserve Base

Urban Development Boundary (UDB) and 2030 Urban Expansion Area (UEA)



- Legend**
- Major Roads
 - Noise Contour
 - Urban Development Boundary
 - Urban Expansion Area
 - Airfield Runway
 - City/Town Boundary
 - County Boundary
 - Installation Boundary
 - Clear Zone
 - Accident Potential Zone I
 - Accident Potential Zone II
 - HAFZ Consultation Zone



Source: AFCEC 2019; ESRI 2018; FHWA 2020; Miami-Dade County 2014; U.S. Census Bureau 2018

This page left intentionally blank.

This page left intentionally blank.