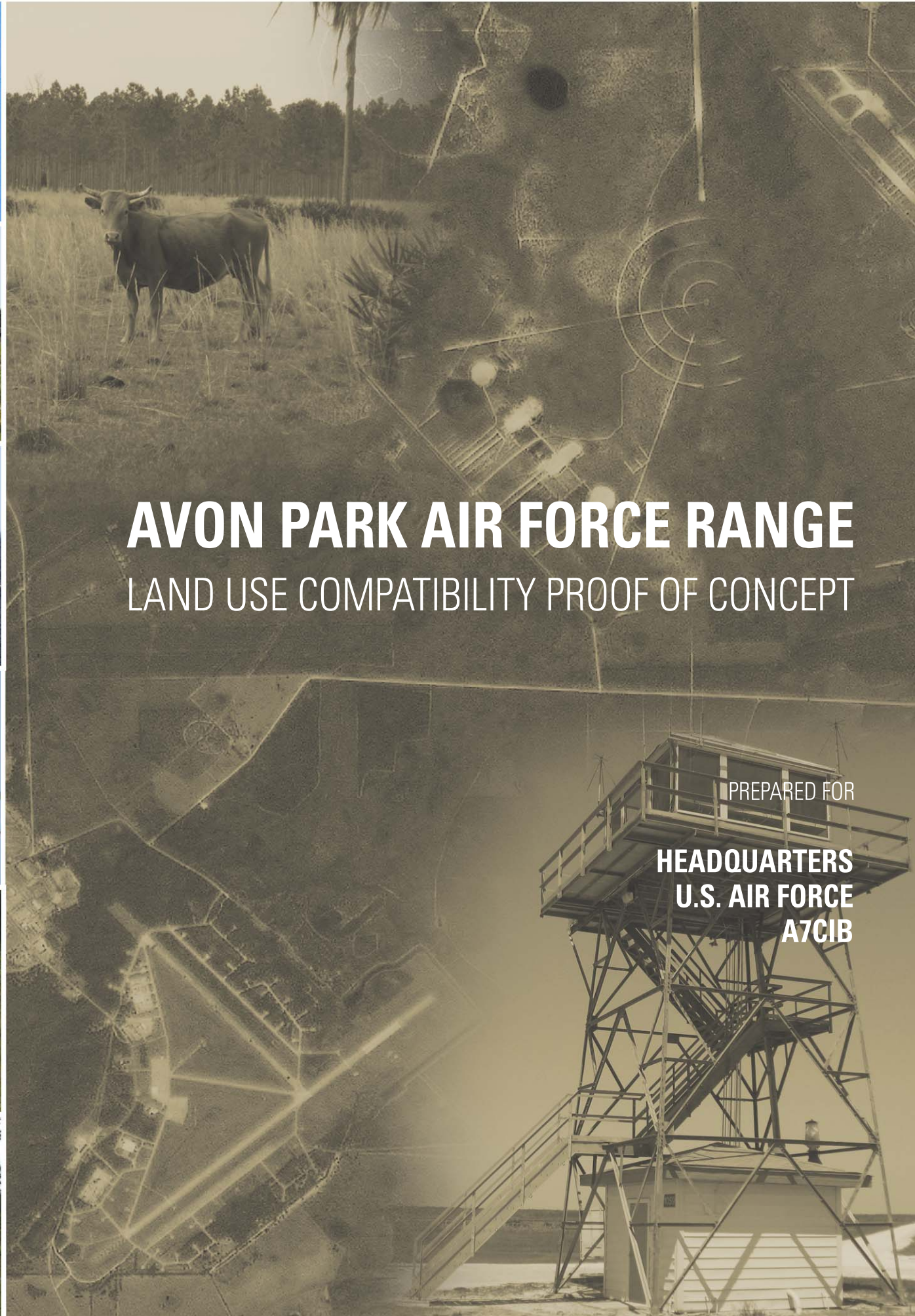


# AVON PARK AIR FORCE RANGE



## AVON PARK AIR FORCE RANGE

LAND USE COMPATIBILITY PROOF OF CONCEPT

PREPARED FOR  
**HEADQUARTERS  
U.S. AIR FORCE  
A7CIB**

# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept

Prepared for:

Headquarters U.S. Air Force A7CIB

2008

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# 1 Introduction

## 1.1 Program Goals

The U.S. Air Force intends to develop and implement an air-to-ground range Land Use Compatibility program with the goal of promoting compatible land use both on range and in the immediate vicinity of the range. There are four key objectives associated with the program. These are to preserve the U.S. Air Force mission and range training capabilities; to protect public health and safety; to educate the public of the military's requirement for realistic training operations; and to establish collaborative relationships with local entities, including the general public, local planners and government officials, to address incompatible land use issues and encroachment challenges. Ideally, a Land Use Compatibility program for U.S. Air Force air-to-ground ranges will be designed to preserve public investment in ranges by safeguarding its operational capability and sustaining its mission.

### 1.1.1 Preserve Mission and Training Capabilities

Primarily driven by population growth and employment opportunities, lands near military ranges are being developed for uses that may be incompatible with the military mission and range activities. The first objective of the U.S. Air Force Land Use Compatibility program is to promote compatible land uses near air-to-ground ranges to safeguard current and potential operations capabilities.

### 1.1.2 Protect Public Health and Safety

The second objective is to minimize public exposure to hazards and noise associated with air-to-ground ranges. Some military operations are inherently dangerous, such as the delivery of ordnance to targets. Other operations may pose safety risks in certain circumstances; for example, electromagnetic radiation may trigger the detonation of stored ordnance so special safety measures are required to prevent this. Military operations also may have potentially damaging consequences, such as exposure to high levels of noise. Actions need to be taken to protect not only the health and safety of personnel involved in executing the military operations, but also to the general public. Risks must be identified, evaluated, and addressed in order to manage health and safety concerns.

### 1.1.3 Promote Community Awareness

The third objective is to inform the general public of the need for military operations and the types of direct and indirect effects associated with those operations, inform the public about the U.S. Air Force's Land Use Compatibility program, and seek opportunities for cooperative efforts to minimize safety and noise impacts in the vicinity of air-to-ground ranges. Disclosure is critical and may potentially preclude buyers that would be bothered by the operations or establish a degree of acceptance for the operations and increased tolerance of the effects such as noise.

### **1.1.4 Establish Collaborative Relationships with Local Entities**

While the military has some ability to preserve its mission and to protect public health and safety, there often are allies within nearby communities that may be engaged to help. Most communities near military installations and ranges appreciate the economic contribution to the region through employment opportunities and increased tax revenues associated with local purchases made by Department of Defense (DoD) and DoD employees. Nearby communities are motivated to help preserve the military operations, but may not be aware of some of the ways they may assist and cooperate with DoD. Planning and zoning departments, in particular, have the tools to control and direct development. Establishing positive relationships with local planners and communicating with them regularly is a part of the fourth key objective of a Range Land Use Compatibility program.

## **1.2 Proof of Concept**

A Proof of Concept application phase of the Land Use Compatibility program was recommended by the program's stakeholders in order to assess the program's ability to address and mitigate land use incompatibility and encroachment issues that threaten the utilization and capability of training ranges and operating areas.

### **1.2.1 Program Elements**

Avon Park Air Force Range (APAFR) was selected for the initial Proof of Concept application, allowing an opportunity for each of the proposed program elements to be assessed. The Proof of Concept application specifically addresses each of the following elements as applicable to Avon Park Air Force Range:

- Range safety, particularly with the criteria applied to differentiate between the varying levels risk posed by the release and impact of ordnance, armed overflight and aircraft maneuver, inside and outside the range boundary.
- Noise, particularly an assessment of whether or not a noise study is warranted
- Land Use Compatibility guidelines, criteria used to determine areas of military influence and to assess impacts both inside and outside the fence line environments.
- Public Outreach program, an approach for identifying, engaging, and educating private citizens as well as municipalities and others in the mission, goals, and objectives of the land use compatibility program with the intent of arriving at mutually beneficial results.

It is anticipated that lessons learned from the Avon Park Air Force Range Proof of Concept application will further clarify the program's objectives and implementation steps as well as serve as a baseline for additional Proof of Concept applications.



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## 1.2.2 Unique Situational Features

Avon Park Air Force Range was, in part, selected for the first Proof of Concept application of the U.S. Air Force's pilot Land Use Compatibility program because the range offers a variety of unique situational features to examine and test the potential value of the program. Some of the unique features found at Avon Park Air Force Range include:

- **Joint Use Range.** Avon Park Air Force Range is a joint use facility. It is routinely used by the Army, Navy, Special Operations Command, the Coast Guard as well as the U.S. Air Force. It also hosts several multi-service exercises annually.
- **Multiple Targets, Impact Areas and Approach.** Air-to-ground ordnance is expended on six impact areas. Participating aircraft can attack targets from omni-directional approaches.
- **Restricted Airspace Complex.** Avon Park Air Force Range lies under contiguous elements of Restricted Airspace that extend well beyond the range boundary. R-2901C is adjacent to R-2901A beginning at the northern range boundary and extends in a northerly direction, merging with R-2901D, then E for roughly 17 miles beyond the range boundary. R2901A and F extend beyond the southern boundary in a southeasterly direction merging with R-2901G, H and I for approximately 18 miles. The eastern boundary of the range and airspace is flanked by the Avon Park East and Basinger Military Operations Areas (MOA's).
- **Multiple County Jurisdictions.** The range is located in two counties and adjacent to two other counties. The northern portion of the Range falls within Polk County which also borders the range on the north and northwest; the southern portion is in Highlands County, which also borders it to the south and southwest; Okeechobee County borders the range to the southeast; and Osceola to the northeast. Private land abuts the range on its northern, western and southern boundaries. The lands adjacent to the eastern boundary are owned by the South Florida Water Management District.
- **Public Access.** Nearly 100,000 acres of the range are open to public access when military activities allow. Public recreational activities include hunting, fishing, camping, and hiking and nature study areas. Cattle grazing out leases encompass more than 96,000 acres and timber sales take place on approximately 40,000 acres of range land. The range also includes an airfield, cantonment area, and adult and youth correctional facilities.
- **Compatible Land Uses.** The Air Force engages in land management activities that protect endangered species and their habitats, manage forest lands for timber production, provide cattle grazing through leases with local cattlemen and protect cultural resources and wetlands.
- **Airfield MacDill Auxiliary Airfield.** The airfield is located within the cantonment area but within the restricted airspace. The primary runway 05/23 is 7,984 feet long and 150 feet wide, with high intensity lighting, Pulse Light Approach Stop Indicator (PLASI) and rotating beacon. There is no taxiway lighting. A second 5,384 feet long landing surface 14/32 is not maintained or swept. The airfield has no traffic controllers. Landings on the airfield must be requested 24 hours in advance and visual flight rules apply.

- **Cantonment Area:** The cantonment area is divided into 2 primary locations, an area near to the front gate and an area adjacent to the airfield. The cantonment area is the critical support hub of the range. The front gate area contains support facilities, including temporary housing and dining, recreational and administrative facilities. Also within this area are the Avon Park Youth Academy and the Avon Park Correctional Institution. Both are state facilities located on former federal lands. The airfield area contains the facilities for Base operations support functions.

### 1.3 Area of Military Influence

A critical step in the program's process is to determine the extent of the study area, or Area of Military Influence (AMI). The AMI can be a formally designated geographic planning area where military operations may impact communities, and conversely where local activities may affect the military's ability to carry out its training mission. The expanse of the AMI will typically extend beyond the range boundaries and include, for example, run-in lines, flight corridors, Special Use Airspace, Military Training Routes, aircraft noise contours and prescribed Range Compatible Use Zones. The AMI is designated to accomplish the following:

- Promote an orderly transition between community and military land uses so that land uses remain compatible.
- Protect public health, safety and welfare.
- Preserve the public's investment in the installation as a national training range asset by maintaining the existing and potential operational capability of the installation.
- Promote the awareness of the size and scope of military training area in order to protect areas separate from the actual military installation that are critical to the installations training mission.
- Establish land use compatibility recommendations and guidelines within the designated area, such as recommending that real estate disclosure statements be provided with all affected real estate transactions; providing assistance in establishing avigation easements; and recommending sound attenuation guidelines for new and existing construction.

The AMI can be divided into zones that reflect the types and intensity of incompatible land use and encroachment issues. These zones, established in cooperation with the local jurisdictions, would identify areas where specific incompatibility and/or encroachment issues are more likely to occur. Implementation of the AMI and associated in strategies for these zones could:

- Create a broader framework for making sound planning decisions around military airfield and training ranges
- More accurately identify areas that can affect or be affected by military operations
- Create a compatible mix of land uses
- Promote an orderly transition and rational organization of land use around military airfields and training ranges

Four AMI zones were established to aid in the development of land use compatibility guidelines for land areas beyond the range boundaries. These AMI zones are defined in Table 1-1. AMI 1 includes all lands within 3 miles of the range boundary. AMI 2 includes land areas exposed to aircraft noise greater than DNL 65 dB and/or blast noise greater than 115 dB<sup>1</sup>. AMI 3 and AMI 4 capture land areas that lie under Avon Park’s Restricted Airspace and MOAs. AMI 3 includes land areas lying beneath restricted airspace with a floor ranging from 4,000 feet MSL to a low of ground surface; this airspace can accommodate low level flights. AMI 4 includes land areas lying beneath airspace with a floor of 4,000 feet MSL and above.

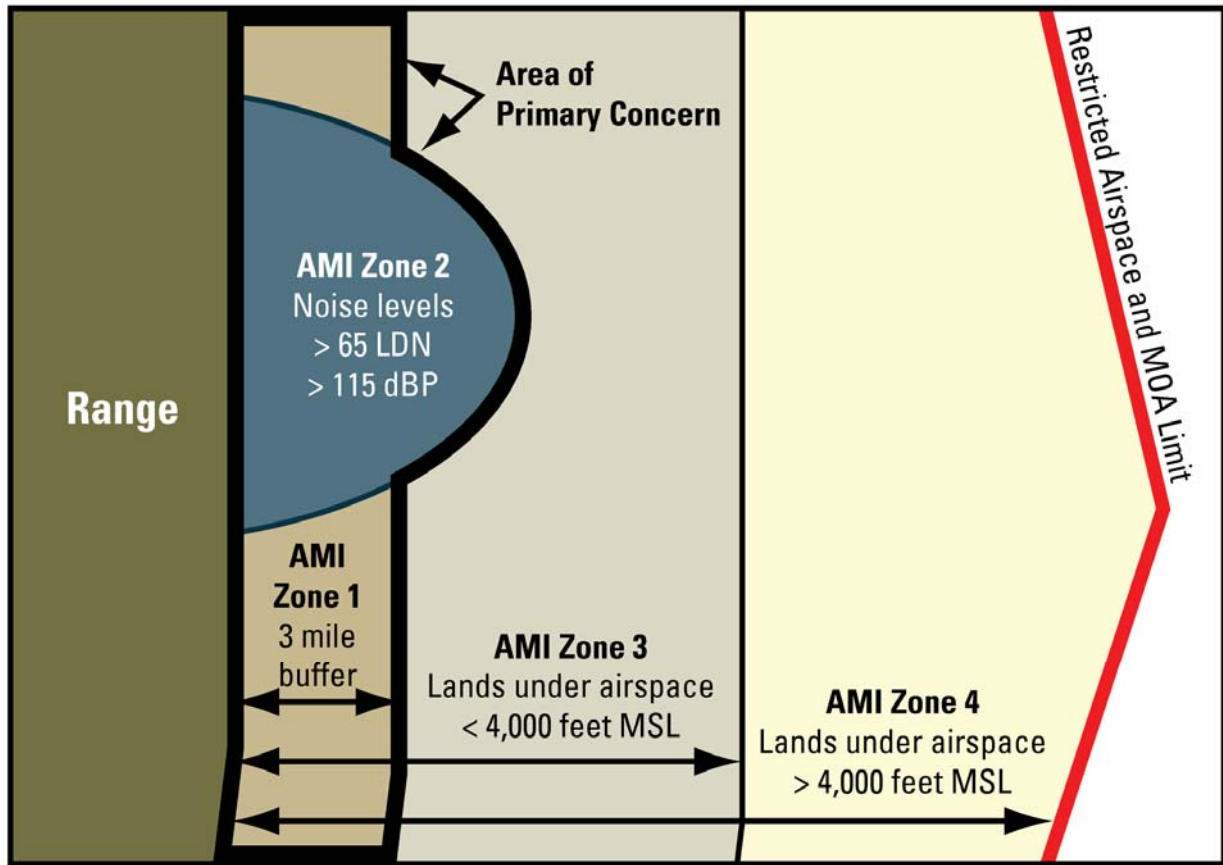
**Table 1-1  
Area of Military Influence Defined**

<b>Area of Military Influence (AMI)</b>	
<b>AMI Zone</b>	<b>Definition</b>
<b>AMI 1</b>	Includes areas of overflight within 3 nautical miles of the range
<b>AMI 2</b>	Includes areas of noise exposure greater than 65 DNL for aircraft noise and greater than 115 dB <sup>1</sup> for blast noise
<b>AMI 3</b>	Includes lands under restricted airspace and MOAs from the surface to 4,000 feet MSL
<b>AMI 4</b>	Includes all lands under restricted airspace and MOAs above 4,000 feet MSL
<b>Area of Primary Concern</b>	AMI Zone 1 + AMI Zone 2

When AMI Zones 1 and 2 are merged they form the area where military range operations could negatively impact the community, and conversely, where community development could severely affect range training opportunities and capabilities. AMI Zones 3 and 4 define the areas of aircraft overflight (beyond AMI Zones 1 and 2). AMI 3 supports low level flights to and from the range and consequently can negatively impact the underlying land use, and vice versa. AMI 4 has negligible impacts on underlying land use.

Figure 1-1 conceptually depicts the AMI zones and the Area of Primary Concern for the off range land use compatibility assessment as presented in Section 5.

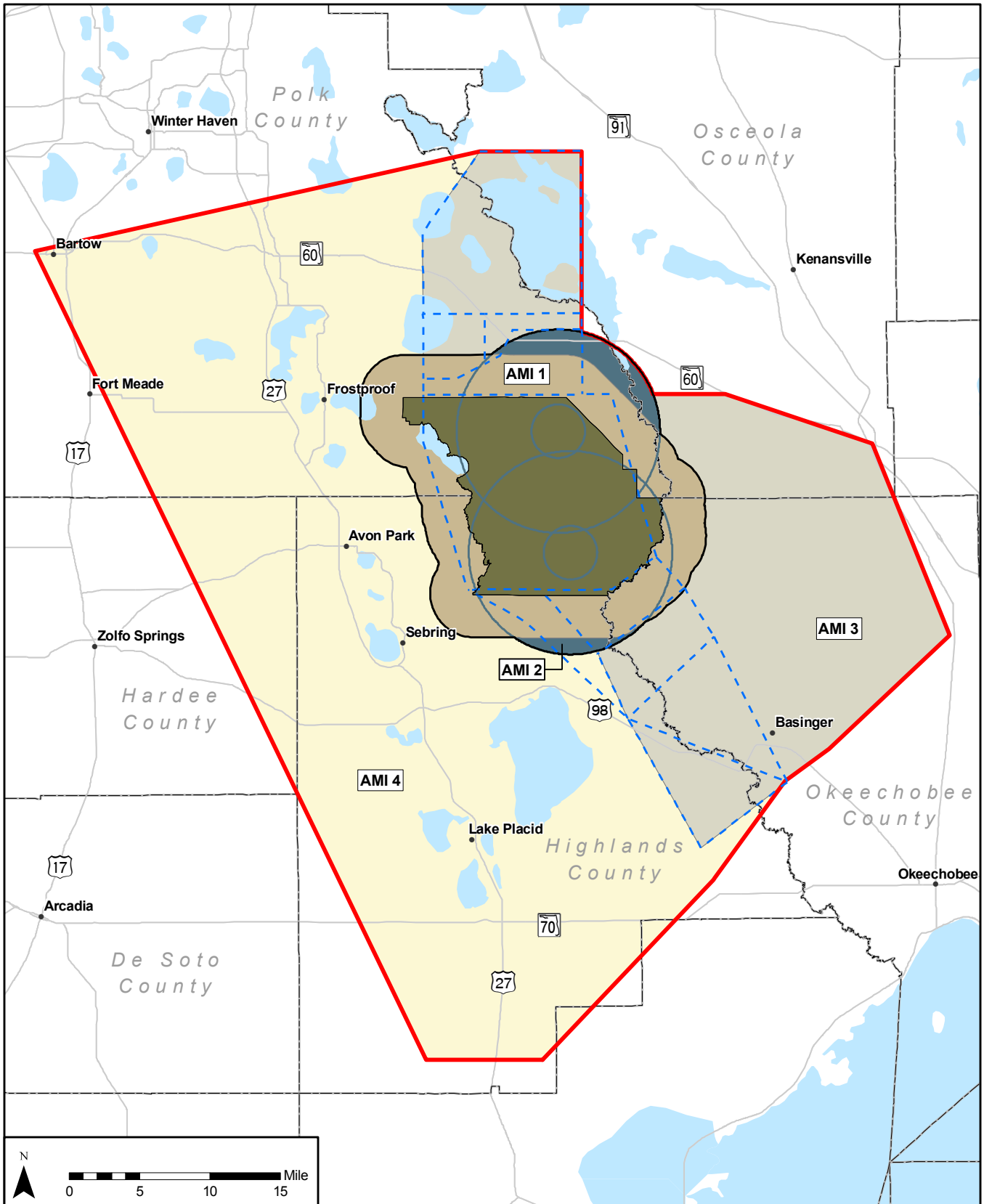
<sup>1</sup> This study utilized noise results provided in Wyle Laboratories, 2005, Noise Study for the Avon Park Air Force Range Complex; however, it may not accurately portray the existing noise exposure nor align with current DoD noise exposure guidance. For example, the Army uses CDNL for planning, but also recommends considering peak (dB<sup>1</sup>) noise to capture single event noise impact in areas of low to high risk of noise complaints from large caliber weapons and weapons systems.



**Figure 1-1**  
**Area of Military Influence - Conceptual Diagram**

Figure 1-2 depicts Avon Park Air Force Range and the limits of the Area of Military Influence and AMI subzones.

With the exception of land located along the northeast corner of the range boundaries, all of the land area immediately surrounding Avon Park Air Force Range lies under Avon Park’s Restricted Airspace or MOAs.



- Avon Park Air Force Range
- County Boundary
- Highway
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Area of Military Influence
- Area of Primary Concern
- Influence Zones
- AMI 1 - 3 mile buffer
- AMI 2 - Noise Exposure
- AMI 3 - Low-level Overflight
- AMI 4 - Lands underlying SUA

**Figure 1-2**

**AREA OF MILITARY INFLUENCE  
PROOF OF CONCEPT  
STUDY AREA**

## 2 Assets, Utilization, and Requirements

### 2.1 Range Overview

#### 2.1.1 Vicinity

Located in central Florida, the Avon Park Air Force Range straddles the county line between southern Polk County and northern Highlands County. The northwestern corner of Okeechobee County abuts the range's southeastern boundary along the Kissimmee River and a tiny corner of Osceola County touches the range boundary at the intersection of all four counties. See Figure 2-1.

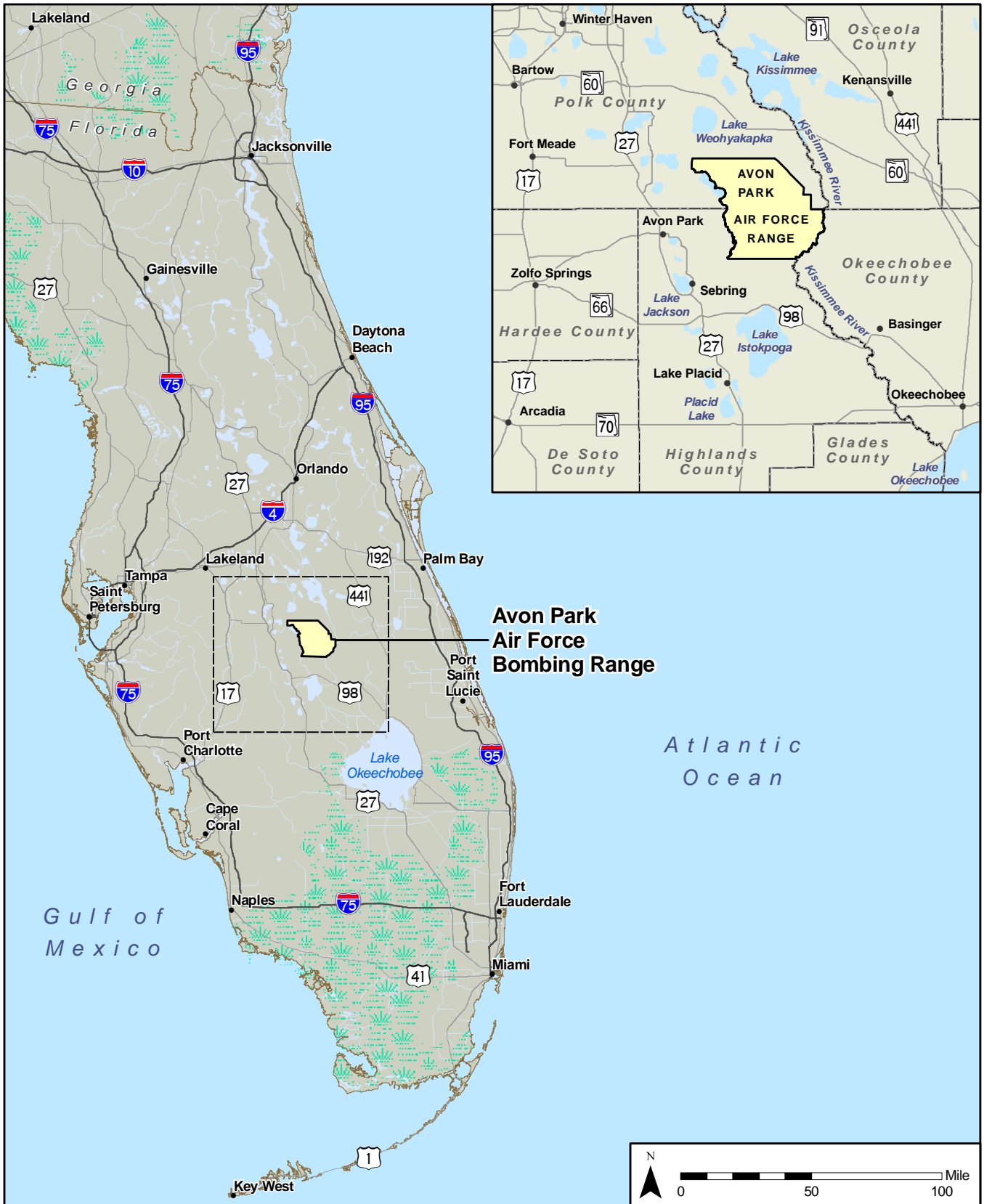
The Avon Park Air Force Range is located about 10 miles east of the town of Avon Park and 15 miles northeast of Sebring. Interstate 4 (I-4), 60 miles to the north, connects Orlando to Tampa. U.S. Highway 27 (US 27) intersects I-4 between Orlando and Tampa, passes through the town of Avon Park and finally connects to the Everglades Parkway at the south end of Lake Okeechobee. The only access to the range is via County Road 64 which intersects US 27 in the town of Avon Park.

North of the range, US 27 intersects State Route 60 (SR 60). Traveling east SR 60 intersects the Florida Turnpike near Yeehaw Junction. A major rail line runs south from Orlando and through the towns of Avon Park and Sebring to south Florida. Avon Park Air Force Range is 65 miles from the Orlando International Airport and 90 miles from the Tampa International Airport. There are a number of small general aviation airports and private airstrips in the region. The largest general aviation airport is in Sebring. The closest airstrip is at River Ranch Acres, located near the northeast range boundary.

#### 2.1.2 Background

Avon Park Air Force Range is the largest aerial bombing and gunnery range east of the Mississippi River and is used by various military units from all services: Air Force, Navy, Marines, Air and Army National Guard units, Army Airborne and Ranger units, and the Army Reserve. Normal hours of operation for Avon Park Air Force Range are Monday through Friday, 60 hours per week. Due to the closure of the range at Vieques, Puerto Rico, the Navy intends to increase its operations at Avon Park Air Force Range.

Throughout its history, a wide variety of high explosive and inert/practice ordnance has been delivered at Avon Park Air Force Range by many different fixed- and rotary wing aircraft. Today, Avon Park Air Force Range is used for air-to-air combat and air-to-ground inert / practice bombing and gunnery training by DOD aircrews, but is no longer authorized for the use of air-to-ground high explosive (HE) bomb delivery from fixed-wing aircraft. Air Force AC-130s are authorized for, and fire, air-to-ground HE warhead rounds including 25-millimeter (mm), (40mm and 105mm ammunition types). Among the many DOD users of Avon Park Air Force Range,



- Avon Park Air Force Bombing Range
- Interstate
- US/State Highway
- Swamp or Marsh

**Figure 2-1**

**AVON PARK  
AIR FORCE RANGE  
VICINITY MAP**

Navy aircrews currently use Avon Park Air Force Range for inert / practice ordnance delivery during integrated and sustainment training, each event requiring the use of Avon Park from four to eight days. The Navy is currently developing a live ordnance impact range for their use at Avon Park. Other DOD military units conduct a variety of other training activities at Avon Park Air Force Range, including HE artillery firing, small arms firing, troop maneuvers, search-and-rescue operations, joint service exercises, and other ground training exercises.

There are a few low level access routes that have been approved for access to Avon Park Air Force Range; however, because of changing doctrine, these routes have not been used recently. Detailed information on the Avon Park Air Force Range airspace is provided in the Airspace section of this report.

### **2.1.3 Ownership**

Administrative and operational responsibility for control and operation of the installation resides with the 23rd Wing, headquartered at Moody AFB, Georgia. Detachment 1 of the Wing is the Range Operating Agency. The Florida Army National Guard is a permanent on-range tenant.

## **2.2 Range Assets**

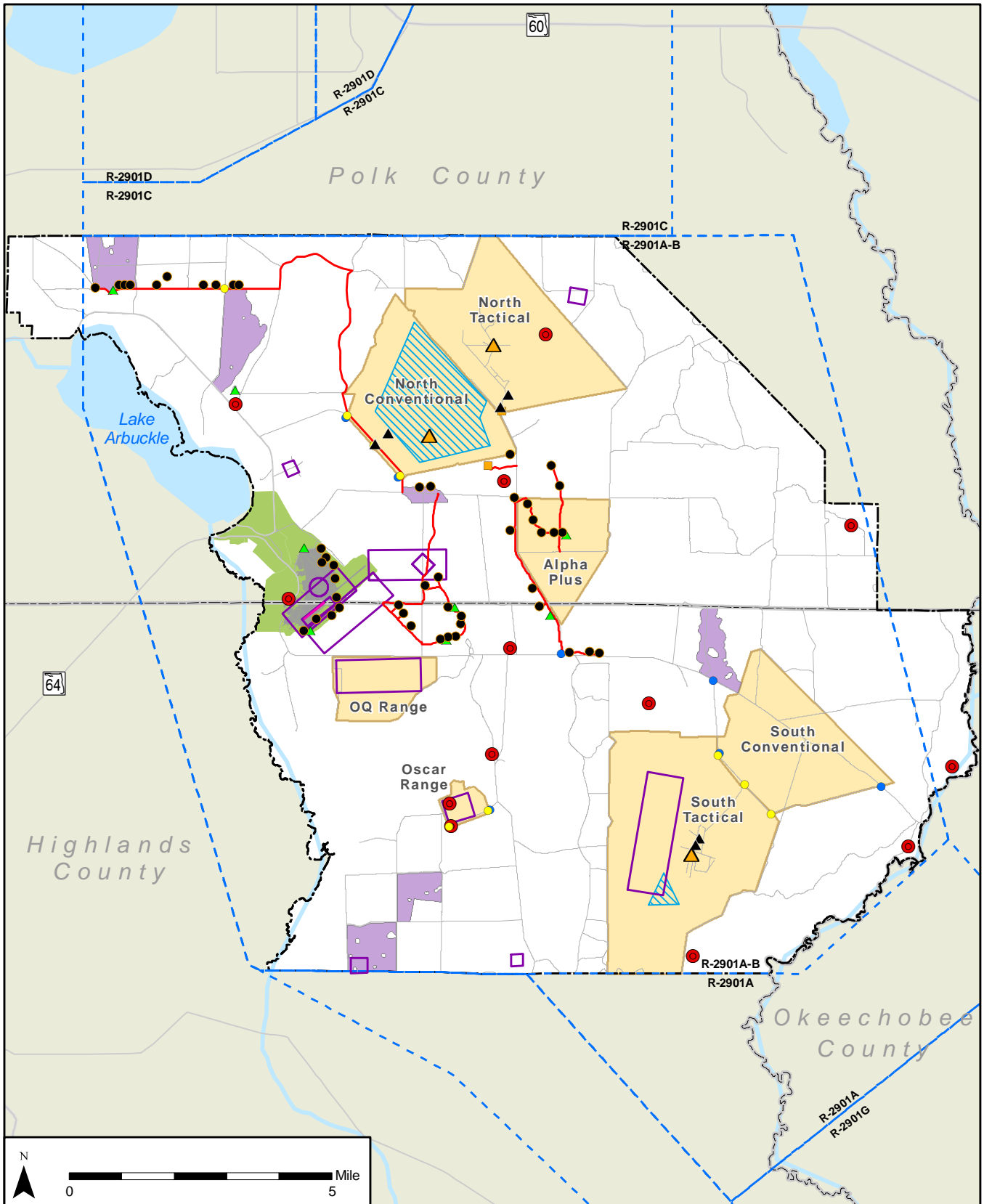
Avon Park Air Force Range's 106,073 acres (42,926 ha) are divided into a number of different areas delineated to support Avon Park Air Force Range military mission. This section provides a description of those areas and activities that occur within Avon Park Air Force Range. See Figure 2-2.

### **2.2.1 Air-to-Ground Range Impact Areas and Targets**

Avon Park Air Force Range has four active air-to-ground impact areas, comprised of approximately 21,000 acres. These areas include two scorable tactical, air-to-ground ordnance impact areas (Echo and Foxtrot) and two scorable conventional, air-to-ground ordnance impact areas (Charlie and Bravo). These impact areas are also known as North Conventional (Bravo), North Tactical (Foxtrot), South Conventional (Charlie), and South Tactical (Echo). A conventional impact area has specific targets that require the aircrews to fly specific flight patterns. Tactical areas are designed for aircrews to practice aircraft combat tactics. Aircrews are authorized to maneuver their aircraft using random attack patterns within the Restricted Airspace prior to releasing their ordnance on approved targets.

Within these impact areas, approximately 90 targets, such as simulated airfields, mock villages, military vehicles, aircraft, missiles, and convoys, are available for air-to-ground and ground-to-ground training primarily using inert/practice bombs and gunnery. Two helicopter "free-fire zones" are used for helicopter gunnery training. Inside these zones, helicopters may fire at any numbered or unnumbered target. In addition, laser buffer zones are shown for the Bravo/Foxtrot and Charlie/Echo impact areas. These zones are established to keep personnel out of an area during the use of potential sight damaging laser targeting that is employed during laser and laser-guided bomb (LGB) use at Avon Park Air Force Range.





- ▲ Bivouac Locations
- Observation Points
- Firing Points (Artillery and MLRS)
- ▲ MOUT Target
- Range Towers
- Emergency Phones
- ▲ Machine Gun Firing Points
- Helicopter Landing Zones
- Tank Trails
- - - Restricted Airspace Boundary
- Parachute Drop Zones
- ▨ High Explosive Target Area
- Assault Strip
- Airfield
- Cantonment Area
- Impact Area
- MLRS Maneuver Area

**Figure 2-2**

**AVON PARK RANGE  
INVENTORY**

**AVON PARK  
AIR FORCE RANGE**



In addition to the four active air-to-ground impact areas, four other impact areas have been or are currently being used for training exercises: Alpha, OQ, Delta and Oscar impact areas. The Alpha impact area was officially opened in 1942 and was the first target area at Avon Park Air Force Range. The area was inactivated in the 1960's and, except for a single live ordnance drop activity in the 1970's by the Navy; it has not been used since that time. The site is currently in the process of being re-activated to serve as a live ordnance impact range with exclusive use by the Navy.

The OQ Range was constructed in the late 1940s for gunnery training. OQ was used as a Florida Army National Guard (FLARNG) live impact area until the 1980s. Currently, the impact area is used as a "para-drop" training area where personnel or cargo are delivered to the area by a parachute from an aircraft in flight (USAF 2000). A small arms range up to 50 caliber munitions was constructed on a portion of the site by the Florida Army National Guard.

Delta impact area is an inactive tactical area contiguous on the east with Charlie Range that contained numerous tactical targets (USAF 1997). No information is available on when the area was first used for tactical training. It is currently inactive.

Constructed in 1985, Oscar Range was a conventional range consisting of a strafe pit and conventional circle target. It was closed to air-to-ground training in 1993 (USAF 2000); however, existing buildings and structures are currently used by ground special operations training (347WG Det 1 1999). In 2006, a rail mounted moving target to serve helicopter gunnery operations was constructed and the range was re-opened for that use.

## 2.3 Range Utilization

The Range has experienced a reduction in use from a high of 25,000 Air Combat Command (ACC) sorties per year in mid-1990's to less than 3,000. This is due to the realignment of the fighter wings at MacDill and Homestead Air Force Bases (AFBs). Recently, units from all services have increased their use of Avon Park Air Force Range, but have not met the pace of 25,000 sorties per year.

An emerging use of the APAFR is for multi-unit and multi-service training exercises that integrate forces to simulate the total battlefield scenario. Since FY 2004, up to four exercises annually have been conducted. Typically these activities last one week.

Future activities at Avon Park Air Force Range should remain consistent, or at least not exceed, the historic use when MacDill and Homestead AFBs were fully operational. It can be assumed that continued use by other services will continue.

### 2.3.1 Major Users

The major users of the impact areas are the 482nd Wing from Homestead ARB, the 23rd Wing from Moody AFB, 301 RQS from Patrick AFB, and numerous Special Operations and higher

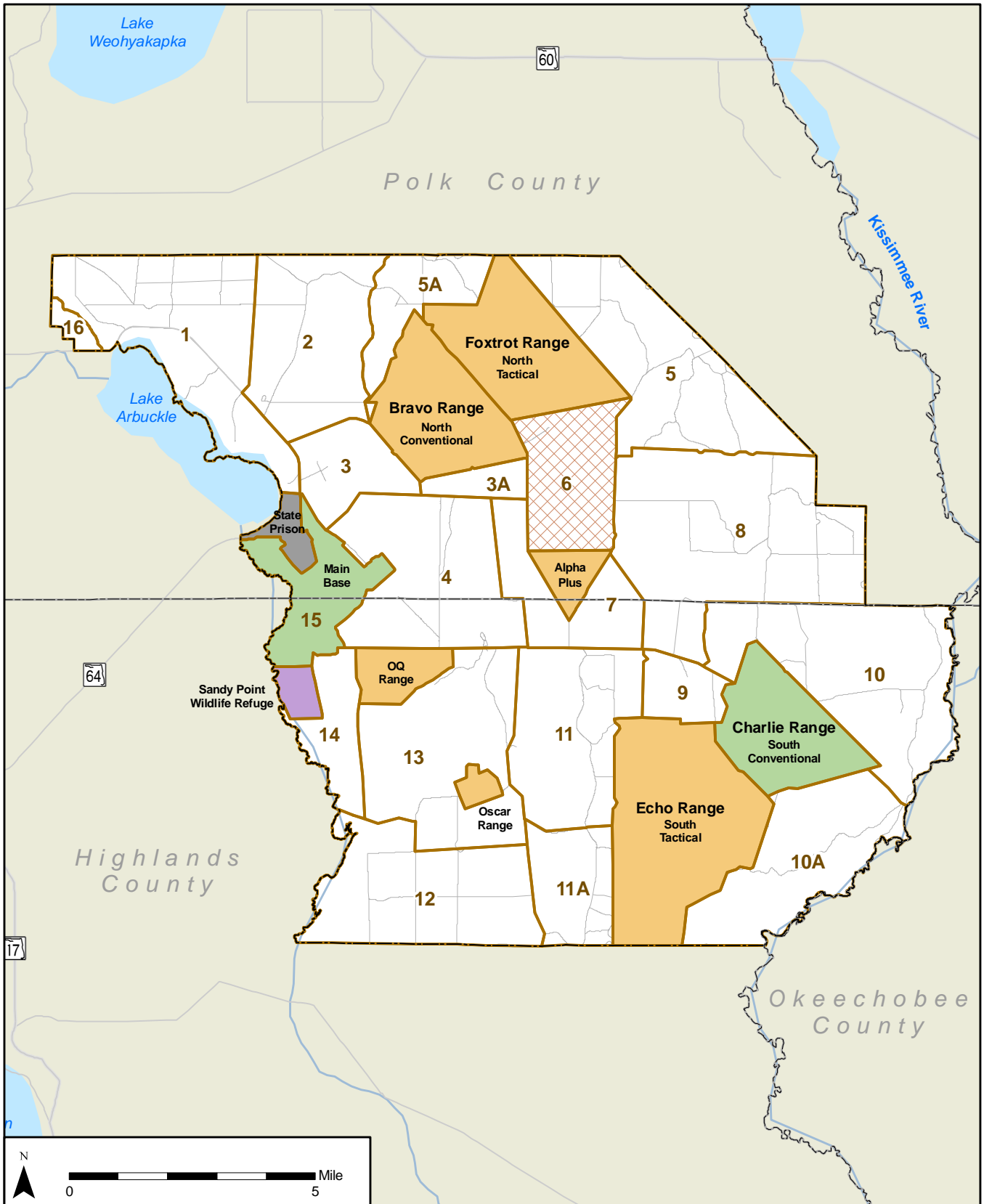
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headquarters exercises and operations. Avon Park Air Force Range was recently designated Avon Park Air Ground Training Complex (AAGTC) enabling realistic joint, interagency, and multinational war fighting. AAGTC builds on the existing range capabilities and focuses on Combat Search and Rescue (CSAR), Close Air Support (CAS), and Special Operations Training. The Navy also uses the range for delivery of inert/practice ordnance for integrated and sustainment phases of their Fleet Readiness Training Plan (FRTTP). Weekday use of the ranges is principally by Air Force and Air Force Reserves while the weekend use is primarily by the FLARNG.

### 2.3.2 Range Training Operations

The major users of the range primarily conduct air-to-ground ordnance delivery to satisfy training requirements. Range training operations are summarized below.

- **Air Force Special Operations Command (AFSOC) Training.** This military training includes AFSOC personnel conducting classified special operations training approximately three times per month. Airspace missions are performed using all R-2901 and the MacDill Auxiliary Airfield runway only. No one is on the ground except at the Auxiliary Field (Stewart 2003; Beers 2004).
- **Close Air Support (CAS).** This military training includes terminal air controllers (TACs) who operate on foot potentially within and outside the existing impact areas. TACs provide direction to incoming aircraft on the delivery of munitions in support of Army ground commanders. These activities occur on all tactical ranges, specifically in areas identified as observation points (*see* Figure 2-2). TACs use all-terrain vehicles for maneuvering around the range.
- **Combat Search and Rescue (CSAR).** This military training includes personnel practicing escape and evasion techniques that usually involves aerial pickup by helicopters under simulated combat conditions and could involve the use of other vehicles such as ATVs. These activities are conducted at both tactical ranges (Foxtrot and Echo) and all helicopter landing zones (*see* Figure 2-2).
- **Florida Army National Guard (FLARNG) Artillery Training.** This military training involves approximately 430 members of FLARNG performing battalion-level, live-fire training with 105mm Howitzers two to three times per year. The FLARNG deploys three firing batteries each with 80 to 100 members that may fire from three points within Management Units 3A, 4, 6, or 7 (*see* Figure 2-3 and Table 2-1 which is on page 2-10) into the Bravo/Foxtrot HE artillery impact area. The remaining members of the battalion remain in the same management unit as the members of the firing batteries, but at different firing points.
- **FLARNG Multiple Launch Rocket System (MLRS) Training:** The MLRS is a highly mobile, highly automated, self-loading and self-aiming, rapid-fire system that has the capability to fire surface-to-surface rockets. FLARNG currently performs battery-level training at Avon Park Air Force Range and performs maneuver exercises using tracked and wheeled vehicles at a number of maneuver points (*see* Figure 2-2).



- Avon Park Air Force Range
- County Boundary
- Highway
- Air Force Range Road
- Management Unit
- Area Closed at All Times
- Area Closed
- Restricted Access
- State Prison
- Wildlife Refuge

**Figure 2-3**

**MANAGEMENT AREAS**



- **FLARNG Mortar Training:** This military training involves approximately 40 members of FLARNG performing platoon-level, live-fire training with mortars two to three times per year. They deploy three teams that may fire from three points within Management Unit 3A into the Bravo/Foxtrot HE artillery impact area.
- **Forward Observing (FO):** This military training is similar to CAS, except that FLARNG personnel supporting indirect artillery fire training conduct this activity. The forward observers are located within view of the target and the fall of the shot in the HE impact area on Bravo/Foxtrot.
- **Parachute Jumping:** This military training includes paratroopers jumping from aircraft to conduct CAS, CSAR, FO, and other military training operations. Jumpers land in drops zones located near Foxtrot range, on Echo range, and in other areas throughout Avon Park Air Force Range (*see* Figure 2-2).
- **Security Forces Training:** This scenario includes 12 to 30 security force specialists who operate on foot, within areas of Avon Park Air Force Range including impact areas. They fire small arms weapons and could use vehicles such as ATVs in traveling to or from Foxtrot and Echo ranges, where the training occurs.

### 2.3.3 Types of Training

- **Air-ground Bombing.** The typical air-to-ground bombing mission is conducted on the tactical and conventional ranges. The mission is changing from low altitude approach and release with unguided munitions to high altitude release with precision guided munitions.
- **Unmanned Aircraft Systems (UAS) Operations.** As Unmanned Aerial Vehicles (UAVs) and Unmanned Combat Aerial Vehicles (UCAVs) are integrated further into the tactical mission of all services, their prominence in the air-to-ground fight is growing and will continue to grow. They will need to be integrated into the training environment both as reconnaissance and strike platforms. What makes the Avon Park Air Force Range so well suited to UAV operations is the airfield within restricted airspace completely under the control of the range operating agency. The combination of this element with the deployment capabilities of the DUC at MacDill AFB makes Avon Park Air Force Range a unique asset where UAV units can deploy and operate their UAVs remotely or locally.
- **Bare Base Training.** Avon Park has a unique asset. Very few ranges have a complete airfield within their restricted airspace. This airfield is an excellent location to conduct bare base training. Avon Park Air Force Range has supported some of this training in the past but the new focus in the Air Force on the Expeditionary Air Force will turn into a need for additional training opportunities.

## 2.4 Range Land Use Areas

The sections following describe three generalized land use areas within the range boundaries: training areas, developed area, and buffer area.

### 2.4.1 Training Areas

Avon Park Air Force Range has approximately 21,000 acres (8,498 ha) of impact area used for air-to-ground and ground-to-ground weapon training including the use of inert/practice and explosive ordnance and small arms. Military training trails, firing points, maneuvering points, mortar points, and bivouac areas are outside the ordnance impact areas (*see* Figure 2-2). Lands that are not otherwise restricted by their military use are used and managed for mixed uses including natural resources benefits such as endangered species and wetlands protection, recreation, cattle grazing, and timber production (see Section 2.5).

Training areas also exist outside the ordnance impact areas and include access trails, firing points, maneuvering areas and points, mortar points, landing and drop zones, and bivouac areas. Ground training includes infantry, field artillery; air defense using artillery, mortars, machine guns, and small arms; and CSAR.

Avon Park Air Force Range has 14 helicopter landing zones and 15 drop zones that are used, in part, for CSAR training; a 3,000-foot (914-meter) assault air strip; land navigation areas; and ground training areas used by the FLARNG. The 3rd Battalion of the 116th Field Artillery Regiment (3-116th), FLARNG, provides long-range indirect fire support to the 1st Infantry Division using the MLRS. The 3-116th is currently authorized to train one battery per weekend, two weekends per month for seven months annually in maneuvering operations. They rotate the use of 19 MLRS maneuvering points in Bravo Ridge, Delta, and Willingham maneuvering areas (MAs) shown on Figure 2-2 – Avon Park Range Inventory.

### 2.4.2 Developed Area

The developed area (or main base) of Avon Park Air Force Range occupies approximately 3,320 acres (1,344 ha) and includes the Air Force cantonment area and airfield complex. The cantonment area occupies approximately 2,770 acres (1,121 ha) and includes the airfield and all buildings except the prison and youth academy. Thirty-five (35) buildings and facilities are within the cantonment area, including the Unit Training Equipment Site where the FLARNG locates and maintains its vehicles. The airfield, designated MacDill Auxiliary Field, consists of one 8,000-foot (2,438-meter) runway (150 feet [46 meters] wide) and aircraft arresting barriers. The airfield can support aircraft weighing up to 150,000 pounds. One additional 5,000-foot (1,524-meter) runway (150 feet [46 meters] wide), that has no arresting barriers and is not maintained or swept, is used by fixed-wing aircraft conducting special operations and only during extreme emergency situations. Rotary-wing aircraft are authorized to use this runway.

In 1951, the U.S. Bureau of Prisons began to operate a prison in the developed area of the base (USACE 1999). This prison, the Avon Park Correctional Institution (AVPCI) is on state land and is operated by the State of Florida Department of Corrections. It typically houses 1,200 to 1,300 inmates. The Avon Park Youth Academy, a facility for approximately 200 troubled youths, occupies the former Air Force family housing area within the correctional institution area. The State of Florida Department of Juvenile Justice operates the Youth Academy on land deeded to Highlands County. These two facilities occupy approximately 550 acres (223 ha).

### 2.4.3 Buffer Areas

The remaining land within the installation is considered safety buffer zone, primarily for air-to-ground operations. The Air Force carries out an active land management program throughout the installation, as mission requirements permit. Activities carried out under this program include protection and management of threatened and endangered species and their habitat, protection of wetlands and other outstanding natural areas, cattle grazing, production and harvesting of timber and public recreation, as well as identification and protection of cultural resources.

## 2.5 Recreation and Other Non-Training Land Uses

The Avon Park Air Force Range has approximately 78,000 acres of land open to the public for outdoor recreation activities. Land management activities at Avon Park are in accordance with AFI 13-212 and are guided by Avon Park Range Integrated Natural Resource Management Plan. For management purposes the Range is divided into 20 Management Units. These areas were developed to manage the resource and provide safe access to users. Table 2-1 – Avon Park Air Force Range Land Use (Acreage) identifies each management unit, size and primary land use function.

<b>Management Area</b>	<b>Area</b>	<b>Forestry</b>	<b>Grazing</b>	<b>Hunting</b>	<b>Camping</b>	<b>Ground Training</b>	<b>Air-to Ground Training</b>
1	7,101	3,928	7,080	7,101	31	Authorized	
2	5,312	2,769	5,304	5,312		Authorized	
3	2,143	762	2,123	2,143		Authorized	
3A	806	425	806	806		Authorized	
4	6,011	1,607	5,849	6,011	32	Authorized	
5	6,923	2,462	6,917	6,923		Authorized	
5A	2,175	1,477	2,162	2,175		Authorized	
6	3,395	1,552	3,395	3,395		Authorized	Future Navy Range
7	2,828	1,125	2,801	2,828	31	Authorized	Future Navy Range
8	10,013	4,021	10,012	10,013		Authorized	
9	1,311	499	1,310	1,311		Authorized	
10	7,292	2,638	7,281	7,292	16	Authorized	
10A	5,151	175	5,137	5,151	36	Authorized	
11	5,211	1,499	5,193	5,211	11	Authorized	
11A	2,484	949	2,470	2,484		Authorized	
12	5,969	2,127	5,945	5,969		Authorized	
13	7,537	848	7,399	7,537	27	Authorized	
14	1,947	157	1,368	1,394		Authorized	
15	2,811	38	808	2,811	6	Authorized	
16	345	196	343	345		Authorized	
North Impact Area	8,238	3,462	3,245			Authorized	Authorized
South Impact Area	10,517	937	5,981			Authorized	Authorized
Alpha	784	344	774				Future Navy Range
Oscar	334	2	334			Authorized	Authorized
<b>Total</b>	<b>106,638</b>	<b>33,998</b>	<b>94,036</b>	<b>86,212</b>	<b>190</b>	<b>103,200</b>	<b>18,755</b>

Note: Permitted activities such as Forestry, Grazing, Hunting, and Camping area authorized IAW AFI 13-212.

### 2.5.1 Recreation Activities and Access

Access for all recreational pursuits is determined weekly and is dependent on training activities at the range (see Figure 2-3). Military exercises can restrict public access to management units on Avon Park Air Force Range, or can close the entire range. Up-to-date information about open/closed areas is posted at the Outdoor Recreation Office where recreation visitors must check in. Access information is also posted on a public website. Because scheduled mission activities typically occur from Monday through Thursday, most recreational use occurs during the weekend. During a typical year, weekend users of the range can expect the range to be closed approximately 10% of the time. The majority of Avon Park Air Force Range users are from Central and South Florida. Impact areas are always closed to recreation visitors.

The recreational opportunities offered by Avon Park Air Force Range focus on dispersed, resource-based recreation such as hunting, bird watching, hiking, fishing, and primitive camping. To manage public access, de-conflict public recreation and military use, and protect public safety, the installation has been divided into public management units which are open or closed as directed by planned military uses.

Of Avon Park Air Force Range's 106,073 acres, approximately 82,000 acres are now available for recreation. Management Area 4 was closed from 1999 through 2002, but was re-opened in 2003. Camping is allowed in four areas totaling approximately 160 acres; hiking occurs on 36 miles of trails; fishing occurs on approximately 5,025 acres of lakes and ponds and along 24 miles of rivers, streams, and canals; and approximately 130 miles of roads provides driving and sightseeing pleasure. Throughout the year, the public can purchase recreation permits that allow them to fish, camp, hike, and bird-watch.

- **Camping.** Three public use campground areas and a military use campground are located on Avon Park Air Force Range:
  - Willingham (near Lake Arbuckle);
  - Morgan Hole (near the center of the range);
  - Fort Kissimmee (on Kissimmee River); and
  - Austin Hammock (military use campground, main base area).

In addition to the campground areas, there are two day-use areas at Avon Park Air Force Range:

- Arnold Hammock (northwest, near Lake Arbuckle); and
  - Tomlin Hammock Lake (southwest).
- **Fishing.** Fishing is available along 24 miles of rivers, streams, and canals and 5,025 acres of ponds and lakes. Three catfish ponds and Tomlin Lake Hammock are stocked and managed for public access. Fishing can occur at any area on Avon Park Air Force Range where access is allowed.



- **Hunting.** Public access to the range for recreational hunting began in 1951. The program was first administered by the Florida Game and Freshwater Fish Commission until 1983 when the Air Force took over management of the program. The Air Force issues recreation permits for public recreation activities. Until recently, annual demand for hunting permits exceeded supply. Increased military activities have impacted demand due to lack of advance planning capabilities (Lichtler 2004).

Historically, over 3,500 applications for 2,000 hunting permits are submitted annually, although there has been a decline in the number of applications in recent years. The Air Force conducts a lottery to select permit recipients if applications exceed the number of available permits. In 2007, in an effort to improve the quality of hunting, the Air Force reduced the number of permits to 1,000. Most of the hunters are from an area extending from Orlando to Miami and South Florida with about 50% of the permits being issued to residents of the Avon Park area. In the last few years, permit numbers have decreased, potentially due to both real and perceived reduction in access to certain areas (Lichtler 2003).

- **Hiking.** Over 30 miles of hiking trails are available at the Lake Arbuckle National Recreational Trail. The Arbuckle Nature Trail Boardwalk, the Sandy Point Wildlife Refuge Trail, and the Florida National Scenic Trail. Additionally, Avon Park Air Force Range offers 130 miles of roads for windshield wildlife sightseeing. Four trails at Avon Park Air Force Range are designated for hiking, including a loop trail (northwest corner, part of the Florida National Recreation Trail system), a Boardwalk (to observation tower at Lake Arbuckle), a trail at the Sandy Point Area, and the Florida National Scenic Trail. Approximately 11 miles (18 km) of the Florida National Scenic Trail run through Avon Park Air Force Range and this trail is one of eight National Scenic Trails in the United States. The trail generally follows the western edge of the Kissimmee River floodplain and is oriented in a north-south direction. The portion of the trail located within Avon Park Air Force Range was incorporated on November 6, 1989, and is cooperatively managed through a certified agreement focusing on protection and management. The Air Force, the USDA Forest Service, and the Florida Trail Association renewed the certified agreement on January 22, 2002. Additionally, the Air Force and the Florida Trail Association developed a cooperative agreement to maintain the trail (Wimmer 2003).
- **Wildlife Observation.** Demand for wildlife observation opportunities and nature study is increasing at Avon Park Air Force Range. A 30-foot (9-meter) observation tower at Lake Arbuckle is a popular year-round site for birdwatchers and organized groups. The 600-acre (243-ha) Sandy Point Area is also popular, receiving a number of visits per year.

## **2.5.2 Other Management Activities**

In addition to recreation uses, the property at Avon Park Air Force Range is also managed for natural resources benefits, including income generating endeavors such as cattle grazing and forest management. These areas are depicted on Figure 2-4, as well as other natural resources found on the range.

### **Cattle Grazing**

Approximately 96,000 acres are leased for cattle grazing. The program is implemented in accordance with annual grazing management plans that consider heard management needs and natural resource conservation. The cattle grazing program at Avon Park Air Force Range is self-sustaining. Approximately \$150,000 is generated annually from grazing leases. Receipts are used to maintain facilities and improvements, as well as for salaries of personnel hired to implement the program. The indirect benefit of cattle grazing includes construction and maintenance of fencing as well as wildfire hazard reduction.

### **Forest Management**

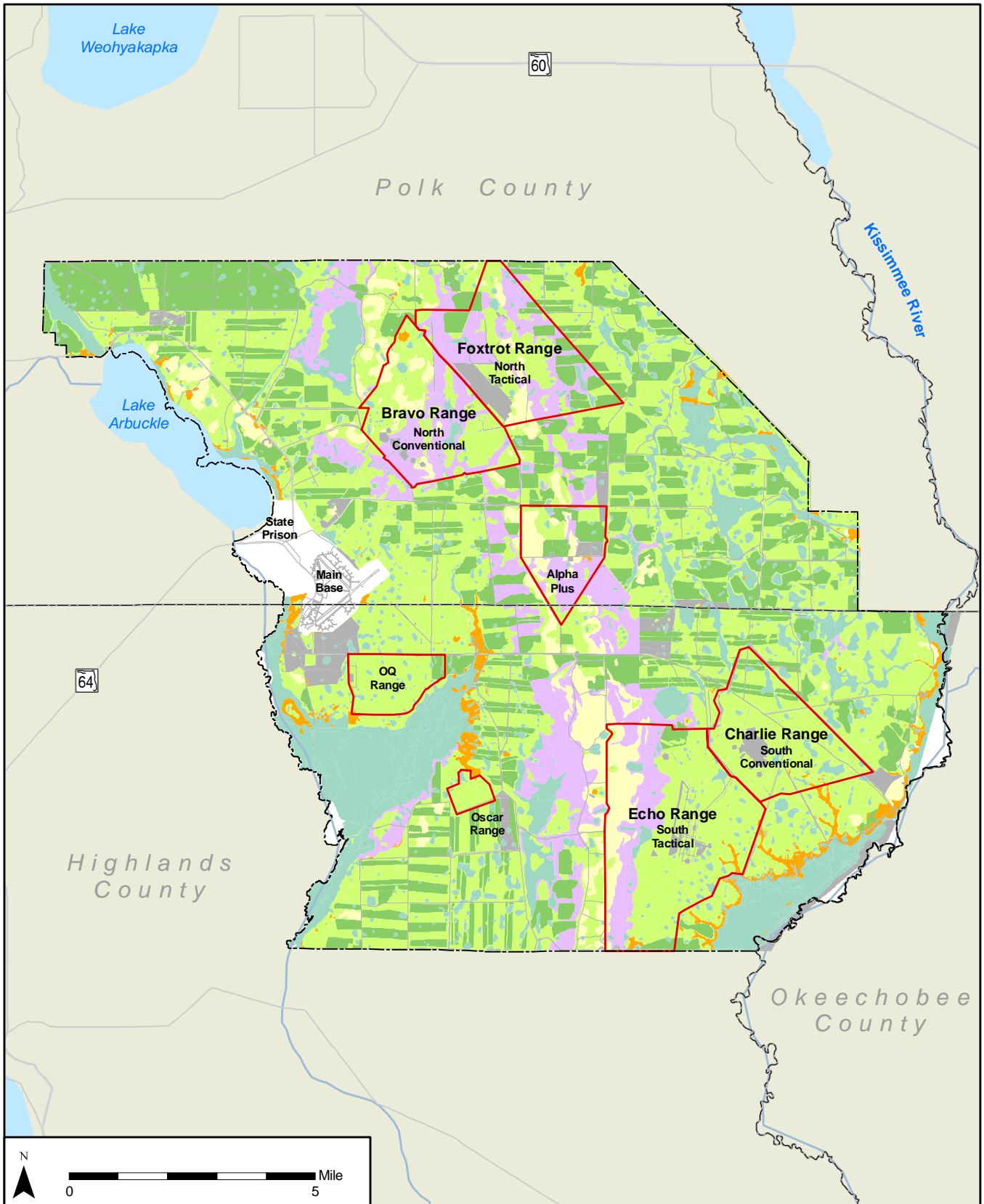
Over 35,000 acres are managed for production of wood fiber. Slash pines are planted on 18,000 acres and are clear cut and replaces at a rate of 250 to 350 acres per year. The remaining 19,000 acres are managed naturally through selective thinning. Forest management is also a self-sustaining program, generating over \$350,000 annually. Income from timber sales pays for the personnel to manage the program and funds the road and trail network necessary to support the program. Forest Management personnel and equipment also support the installation wild land management program. Under federal law, four percent of the net income from timber sales is returned to local counties.

### **Endangered Species**

There are numerous federal and state listed species, both plant and animal that occur on the range. The Air Force has an active management program that monitors individual species' populations and implements management activities to maintain habitat quality for these species.

### **Wetlands and Floodplain Protection**

Over 50 percent of the installation is classified as wetland or floodplain. The Air Force has inventoried and mapped these sites, as required by federal law.



**Figure 2-4**

- Avon Park Air Force Range
- County Boundary
- Highway
- Air Force Range Road

- PINE PLANTATION
- PINE FLATWOODS
- HAMMOCK
- SCRUB
- CUTTHROAT SEEPAGE SLOPES
- MARSHES AND SWAMPS
- TAME PASTURE AND DEVELOPED SITES

**NATURAL RESOURCES**



## 3 Airspace

### 3.1 Overview

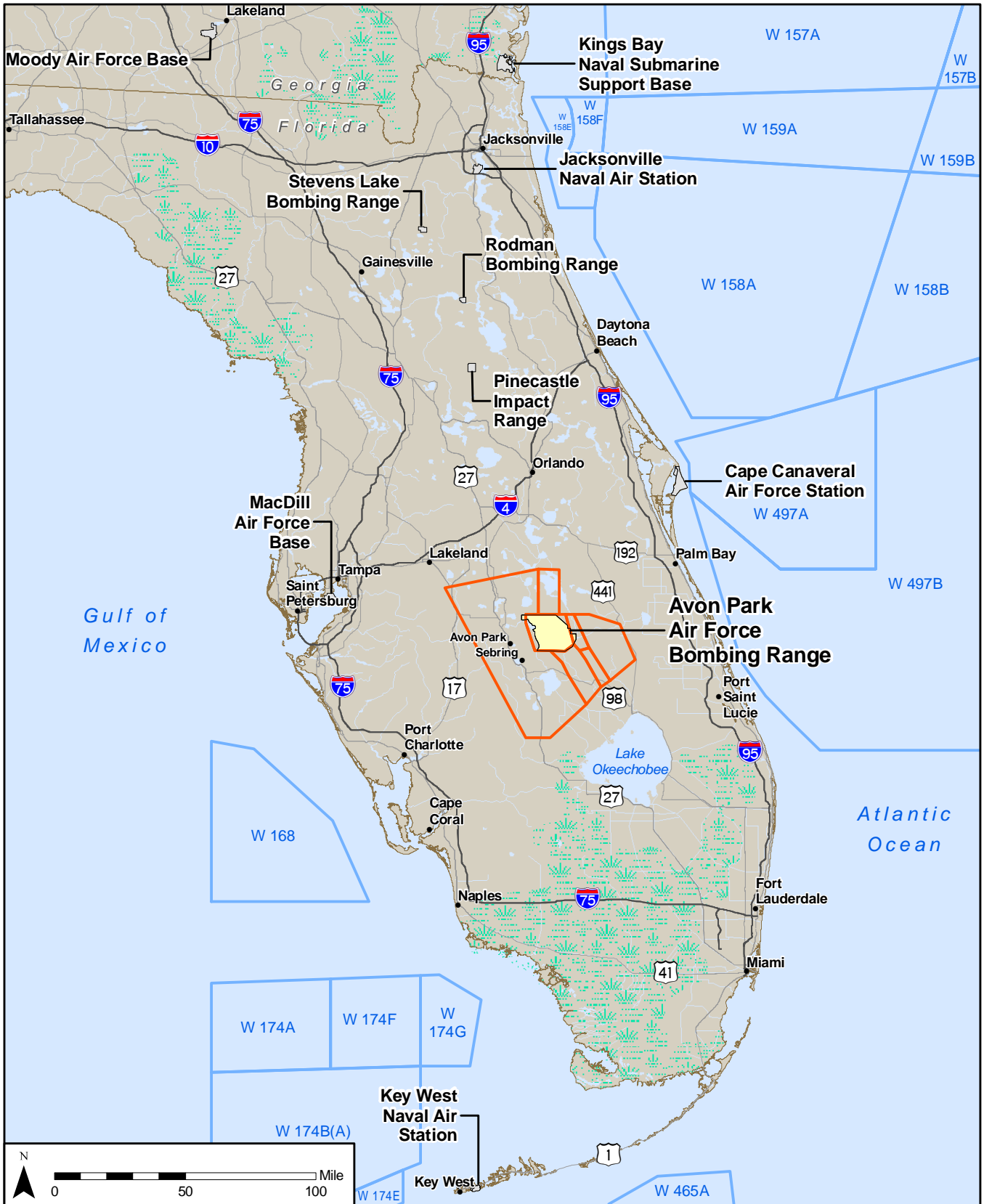
In addition to 106,034 acres of range assets described in Chapter 2, Avon Park Air Force Range's air-to-ground training operations are further enhanced by overlying restricted airspace, military training routes (MTRs), and MOAs. Avon Park Air Force Range, its Military Operations Areas, and Offshore Warning Areas are shown on Figure 3-1.

### 3.2 Special Use Airspace

The DoD, in conjunction with the Federal Aviation Administration (FAA), established Special Use Airspace (SUA) to separate military sortie operations from other non-compatible aviation activities. The designation of SUAs identifies for other users the areas where such activity occurs, provides for segregation of that activity from other users, and allows charting to keep airspace users informed of potential hazards. Special use airspace includes: Restricted airspace, Prohibited airspace, MOAs, Warning areas, Alert Areas, Temporary Flight Restriction (TFR), and Controlled Firing Areas.

The SUA overlying Avon Park Air Force Range and its immediate surroundings includes Restricted Airspace R-2901 complex and six military operations areas: Avon North, Avon South, Avon East, Lake Placid, Basinger, and Marian. Restricted airspace R-2901 complex, including subareas R-2901A through R-2901I, is used by aircraft to maneuver into position for bombing patterns and simulated attacks on Avon Park Air Force Range's six weapons impact areas. Entry into R-2901 from the north involves MTRs IR-046, 047, and 051 and VR-1098. Aircraft from the south use MTRs IR-049 and 050 and VR-1088 and 1098. These military training routes are scheduled by MacDill AFB. Total airspace covers approximately 2,200 square miles. See Figure 3-2.

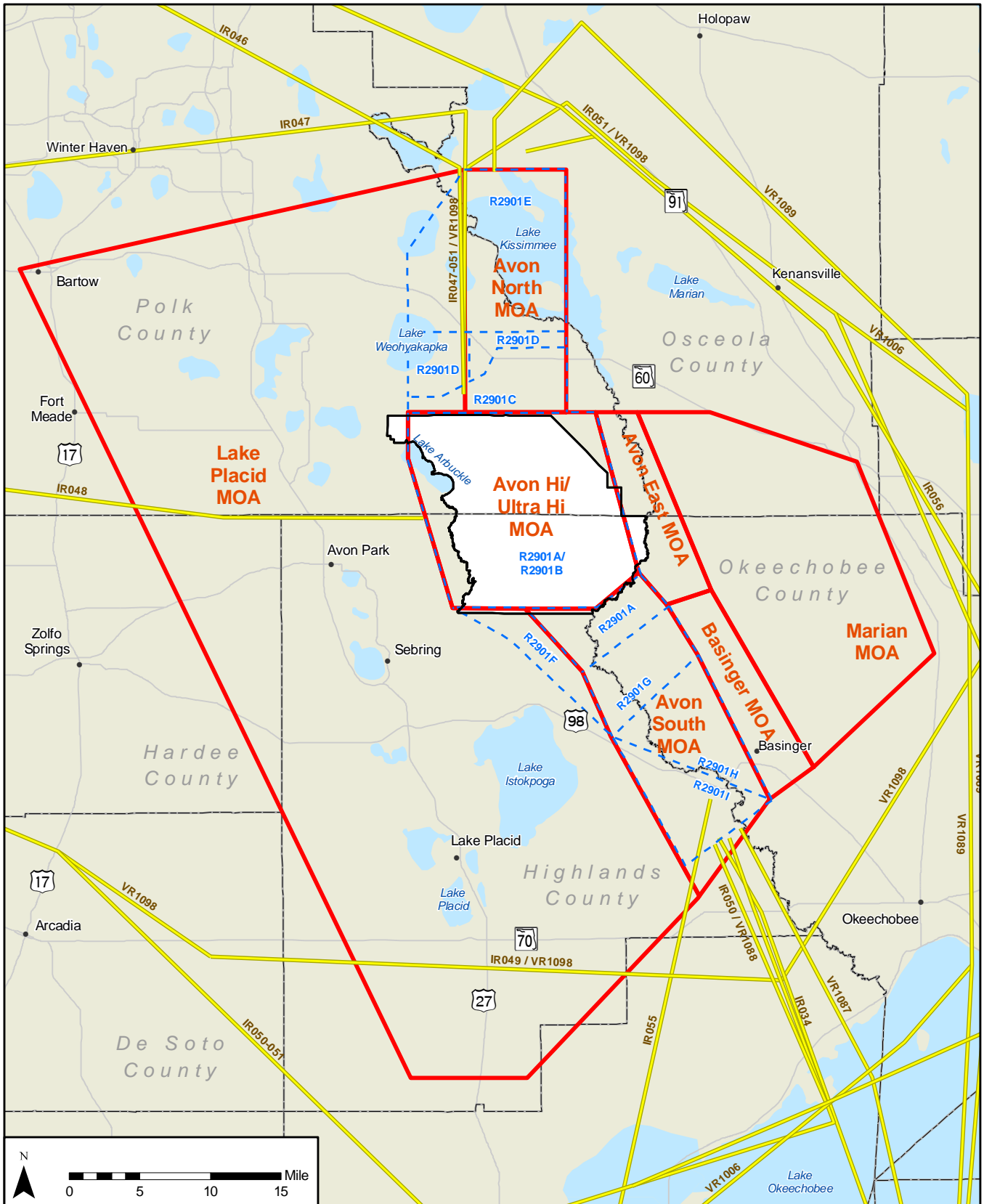
Aircraft from all branches of the service—especially Air Force aircraft based at Homestead ARB, Patrick AFB, and Moody AFB—use the range's SUA. The operations conducted include laser operations, chaff and flare training, inert/practice ordnance deliveries, drop zone and landing zone operations, and assault field operations. US Navy Strike squadrons will begin High Explosive air- to-ground training when construction of the new Navy Impact Area is complete.



- Avon Park Air Force Bombing Range
- Other DoD Installations
- Military Operation Area (MOA)
- Warning Area
- Swamp or Marsh

**Figure 3-1**

**MILITARY OPERATIONS AND OFFSHORE WARNING AREAS**



- Avon Park Air Force Range
- Military Operation Area (MOA)
- County Boundary
- Restricted Airspace Boundary
- Highway
- Military Training Routes (MTR)

**Figure 3-2**

**SPECIAL USE AIRSPACE**



### 3.2.1 Restricted Airspace

Restricted Airspace is designated airspace that supports ground or flight activities that could be hazardous to nonparticipating aircraft. Entry into Restricted Airspace without approval from the using or controlling agency is prohibited. Training activities on Avon Park Air Force Range are supported by Restricted Airspace R-2901 complex and its subareas R-2901A through R-2901I, ten separate and distinct airspace elements within the R-2901 complex. Table 3-1 below describes the basic characteristics of each airspace subarea.

**Table 3-1  
Description of Restricted Airspace**

Airspace	Airspace Floor (feet above MSL)	Airspace Ceiling (feet above MSL)	Area (acres) <sup>b</sup>	Controlling ARTCC
R2901A	Surface	14,000	139,903	Miami
R2901B <sup>a</sup>	14,000	18,000	122,367	Miami
R2901C	Surface	14,000	20,736	Miami
R2901D <sup>b</sup>	500	4,000	23,104	Miami
R2901D <sup>c</sup>	1,000	4,000	23,104	Miami
R2901E	1,000	4,000	76,096	Miami
R2901F	4,000	5,000	12,160	Miami
R2901G	Surface	5,000	22,848	Miami
R2901H	1,000	4,000	27,456	Miami
R2901I	1,500	4,000	25,792	Miami

Sources: USDOT 2000, USAF 1997.

Note: a The Avon Park High and Ultra-High Air Traffic Control Assigned Air Spaces (ATCAAs) overlie R-2901B.

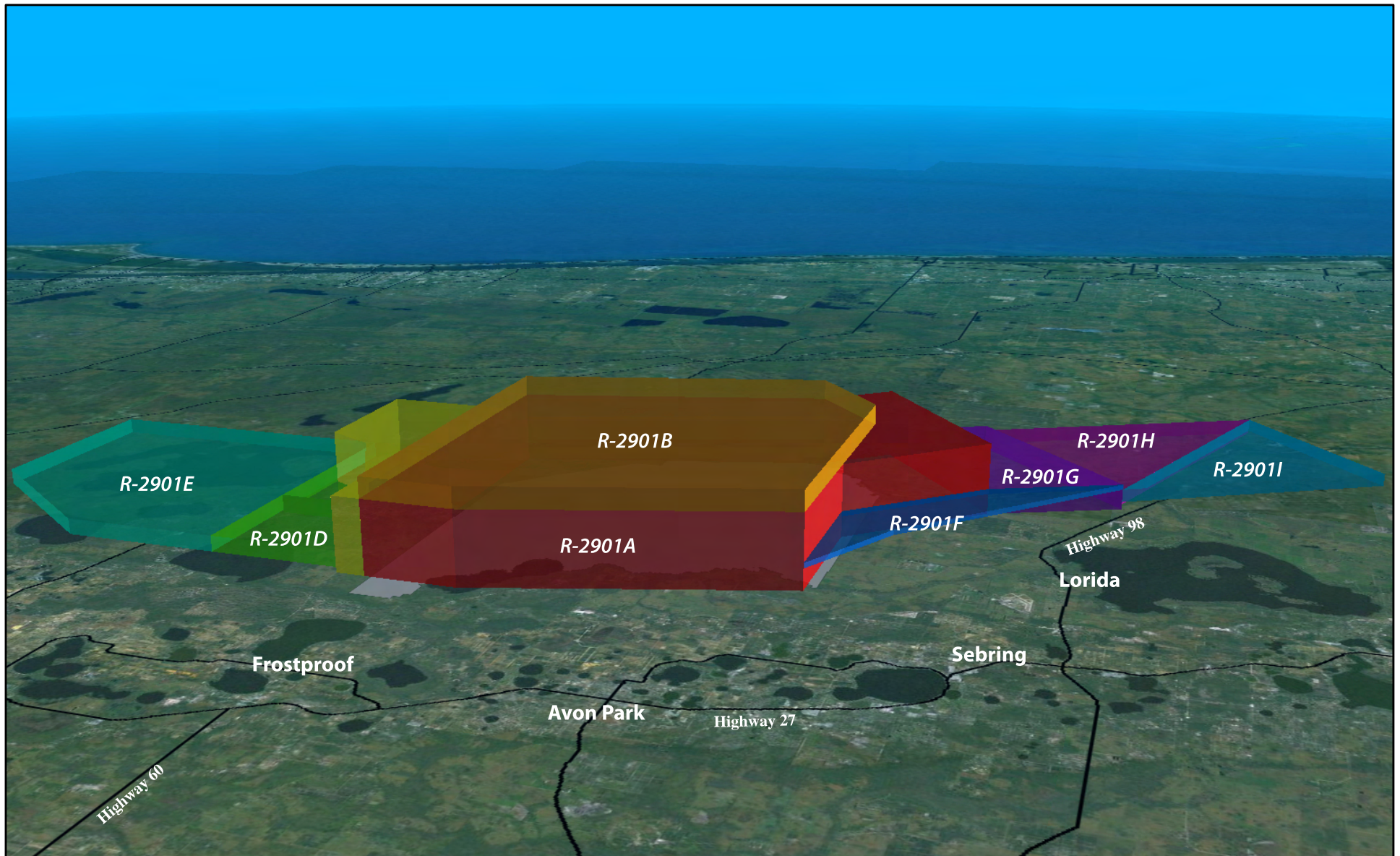
These allow the vertical airspace above R-2901B to be extended from 18,000 to 23,000 (Avon High) or to 31,000 (Ultra-High) feet above MSL. This airspace is activated/deactivated by Miami Center in coordination with the Range Control Officer.

b 500 feet above ground level (AGL) to 4,000 feet AGL East of 81°21' 00".

c 1,000 feet AGL to 4,000 feet AGL West of 81° 21' 00".

Key: ARTCC = Air Route Traffic Control Center.  
MSL = Mean sea level.

A three-dimensional depiction of the existing airspace is shown on Figure 3-3.



**Figure 3-3**  
**3D PORTRAIT OF SPECIAL USE AREAS**





Table 3-2 below depicts U.S. Air Force restricted airspace utilization of R-2901 subareas for Fiscal Year 2007 and suggests that Avon Park Air Force Range utilization is steady and consistent between all restricted airspace components. Since the mid-1990’s with the relocation of several F-16 squadrons to the west, restricted airspace utilization decreased at AFAFR to roughly 40% of its projected capacity. The potential for increased utilization does exist as additional airspace capacity is readily available.

**Table 3-2  
FY 07 Annual Restricted Area Utilization Report**

<b>Restricted Airspace</b>	<b>Sorties</b>	<b>Days Used</b>	<b>Hours Used</b>	<b>Hours Returned</b>
R2901A	10,558	279	3,406	5,254
R2901B <sup>a</sup>	3,723	186	1,201	7,559
R2901C	10,558	279	3,406	5,354
R2901D <sup>b</sup>	10,558	279	3,406	5,354
R2901D <sup>c</sup>	10,558	279	3,406	5,354
R2901E	10,558	279	3,406	5,354
R2901F	10,558	279	3,406	5,354
R2901G	10,558	279	3,406	5,354
R2901H	10,558	279	3,406	5,354
R2901I	10,558	279	3,406	5,354

Source: Annual Restricted Area/Military Operations Area Report, (IRCN: 1412-DOT-AN), 14 Dec 07. Depicts Utilization from 01Oct 06 to 30 Sept 07.

### **3.2.2 Military Operations Areas**

A MOA is airspace established outside Class A airspace to separate or segregate certain non-hazardous military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted (USDOT 2000). The R-2901 complex is surrounded by six MOAs, which provide range-supporting airspace (See Table 3-3; also see Figures 3-1 and 3-2). The Avon North MOA borders the Restricted Airspace on the north; the Avon East MOA borders the Restricted Airspace on the northeast; the Avon South MOA overlies the southern portion of the Restricted Airspace complex. The Basinger MOA borders the Restricted Airspace on the southeast. The Marian MOA borders the eastern boundaries of the Avon East and Basinger MOAs. The Lake Placid MOA borders the entire western side of the R-2901 complex.

**Table 3-3  
Description of Military Operations Areas**

<b>Airspace</b>	<b>Airspace Floor (feet)</b>	<b>Airspace Ceiling (feet)</b>	<b>Area (acres)<sup>b</sup></b>	<b>Controlling ARTCC</b>
Avon North	5,000 MSL	17,999 MSL	79,423	Miami
Avon South	5,000 MSL	17,999 MSL	98,752	Miami
Avon East	500 AGL	13,999 MSL	31,359	Miami
Lake Placid <sup>a</sup>	7,000 MSL	17,999 MSL	919,676	Miami
Basinger	500 AGL	5,000 MSL	35,776	Miami
Marian	500 AGL	5,000 MSL	173,567	Miami

Sources: USDOT 2000

Note: a Lake Placid Air Traffic Control Assigned Air Spaces (ATCAA) overlies MOA extending vertical limit of airspace to 23,000 feet MSL.

Key: AGL = Above ground level.  
ARTCC = Air Route Traffic Control Center.  
MSL = Mean sea level.

Table 3-4 below depicts utilization of Military Operations Areas for Fiscal Year 2007.

**Table 3-4  
FY 07 Annual Restricted Area/ Military Operations Areas Utilization Report**

<b>Airspace MOA</b>	<b>Number of Sorties</b>	<b>Days Used</b>	<b>Hours Used</b>	<b>Hours Returned</b>
Avon North	4,095	241	1,321	7,439
Avon South	4,095	241	1,321	7,439
Avon East	10,558	279	3,406	5,354
Lake Placid <sup>a</sup>	3,509	229	1132	7,628
Basinger	3,187	207	1,028	7,732
Marian	3,187	207	1,028	7,732

Source: Annual Restricted Area/Military Operations Area Report, (IRCN: 1412-DOT-AN), 14 Dec 07. Depicts Utilization from 01Oct 06 to 30 Sept 07.

### 3.2.3 Warning Areas

A Warning Area is airspace of defined dimensions starting at 3 nautical miles (NM; 5.6 km) from the coast of the United States and extending outward. Military activities in the Warning Area may be hazardous to nonparticipating aircraft. The purpose of such Warning Areas is to alert nonparticipating pilots of the potential danger.

The western boundary of W-122 begins just east of the Cape Hatteras National Seashore and extends south to a point approximately 135 NM east of Charleston, South Carolina. The W-158 complex lies south of W-122. The western boundary of the W-158 complex begins just to the east of Jacksonville, Florida, and extends south to a point east of Orlando, Florida. The western

boundary of the area follows the coastline, while remaining 12 to 15 NM off the coast. The W-168 complex begins off the western coast of Florida, approximately 10 NM west of Sarasota, Florida. Its eastern boundary then extends south, abutting the W-174 complex, which continues south, providing a block of contiguous airspace down to and around the Florida Keys. This airspace then extends to the west through the Gulf of Mexico. See Figure 3-1 above.

During major training events, carrier-based aircraft delivering inert/practice ordnance to Avon Park Air Force Range would depart from Warning Areas in the Atlantic Ocean or Gulf of Mexico, transit to the range, conduct training in Special Use Airspace, and return to the carriers. In coordination with the FAA, airspace designated Altitude Reservations (ALTRV) would be utilized by Navy fixed-wing aircraft during transit from the Warning Areas to Avon Park Air Force Range.

Once at Avon Park Air Force Range, aircrews participate in a variety of training operations. Ordnance delivery occurs in Restricted Airspace R-2901. The range-supporting MOAs (Avon North, Avon East, Avon South, Basinger, Marian, and Lake Placid) are used, as under current range operations.

### **3.3 MacDill Auxiliary Airfield**

#### **3.3.1 Airfield Assets**

MacDill Auxiliary Airfield is located near the western boundary of Avon Park Air Force Range and adjacent to the main cantonment area. The airfield has two runways: Runway 05/23 and Runway 14/32. Runway 05/23 is 8,000 feet (2,438 meters) long and 150 feet (46 meters) wide and is used as the main runway. Although Runway 14/32 was recently reactivated, it is rarely used due to the condition of the pavement and the associated danger of foreign object damage (FOD) to aircraft using the runway (Wyle 2004a).

#### **3.3.2 Flight Operations**

All aircraft operating at the airfield are transient aircraft; they fly in from off-site military installations such as MacDill AFB, Patrick AFB, and Homestead ARB. During the baseline year of CY 2000 only the F-16, A-10A, C-130, C-141B, and H-60 (Air Force) used the airfield facilities. Table 3-5 shows the percentage split between all operational aircraft at the airfield and the total annual operations by aircraft type. Fixed-wing traffic accounts for about 75% of the total annual operations at the airfield, and rotary-wing traffic accounts for 25%. While only five different types of aircraft used the airfield during baseline year 2000, other aircraft have also used the airfield in the past, such as: F-15, F-117, B-52, B-1, F-14, F/A-18, P-3, S-3, C-5, C-17, UH-1, AH-1, and AH-64 (Wyle 2004a).

**Table 3-5  
Annual Modeled Operations  
By Aircraft Type for Baseline (Calendar Year 2000) Conditions  
At Avon Park Air Force Range Airfield**

<b>Aircraft Type</b>	<b>Annual Operations</b>	<b>Day Operations 0700-2200</b>	<b>Night Operations 2200-0700</b>
C-130	322	278	44
H-60 (Air Force)	340	90	250
F-16	14	14	0
A-10A	424	424	0
C-141B	282	117	165
<b>Total</b>	<b>1,382</b>	<b>923</b>	<b>459</b>

Sources: Wyle 2005.

### 3.4 Competing Airspace Elements

#### 3.4.1 Other Aviation

Nineteen airfields and several federal airways (“Victor” routes) are within the vicinity of Avon Park Air Force Range. Seventeen of the airfields are within MOAs and two airfields, River Ranch Resort and Blanket Bay, are located to the north of the Avon East and Marian MOAs (see Table 3-6 and Figure 3-4). Of the 19 airfields, 15 are private, four are public, and one is military. Although River Ranch Resort Airport, located approximately 9 NM northeast of the Bravo impact area, is not within an SUA associated with the use of Avon Park Air Force Range, aircrews using the range are alerted to its presence.

Although no federal airways pass through the Restricted Airspace, several federal airways pass through the MOAs along the perimeter of the Restricted Airspace. Military pilots using Avon Park Air Force Range are aware of, and are alerted to, the possible presence of civil traffic in these areas.

#### 3.4.2 Military Aircraft Overflight Avoidance Areas

AFI 13-212 Addenda A identifies overflight avoidance areas both on and off the range. To the north, the avoidance areas include the populated areas of Walk-in-the-Water Ranch Resort, Indian Lake Estates and Westgate River Ranch Resort. To the west and southwest the avoidance areas include the cities of Avon Park and Sebring, Santa Rosa Ranch, and Avon Park Municipal Airport and Sebring Regional Airport. Within the installation’s boundaries, aviators are instructed to avoid the cantonment area and MacDill Auxiliary Airfield (see Figure 3-5).

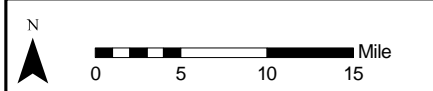
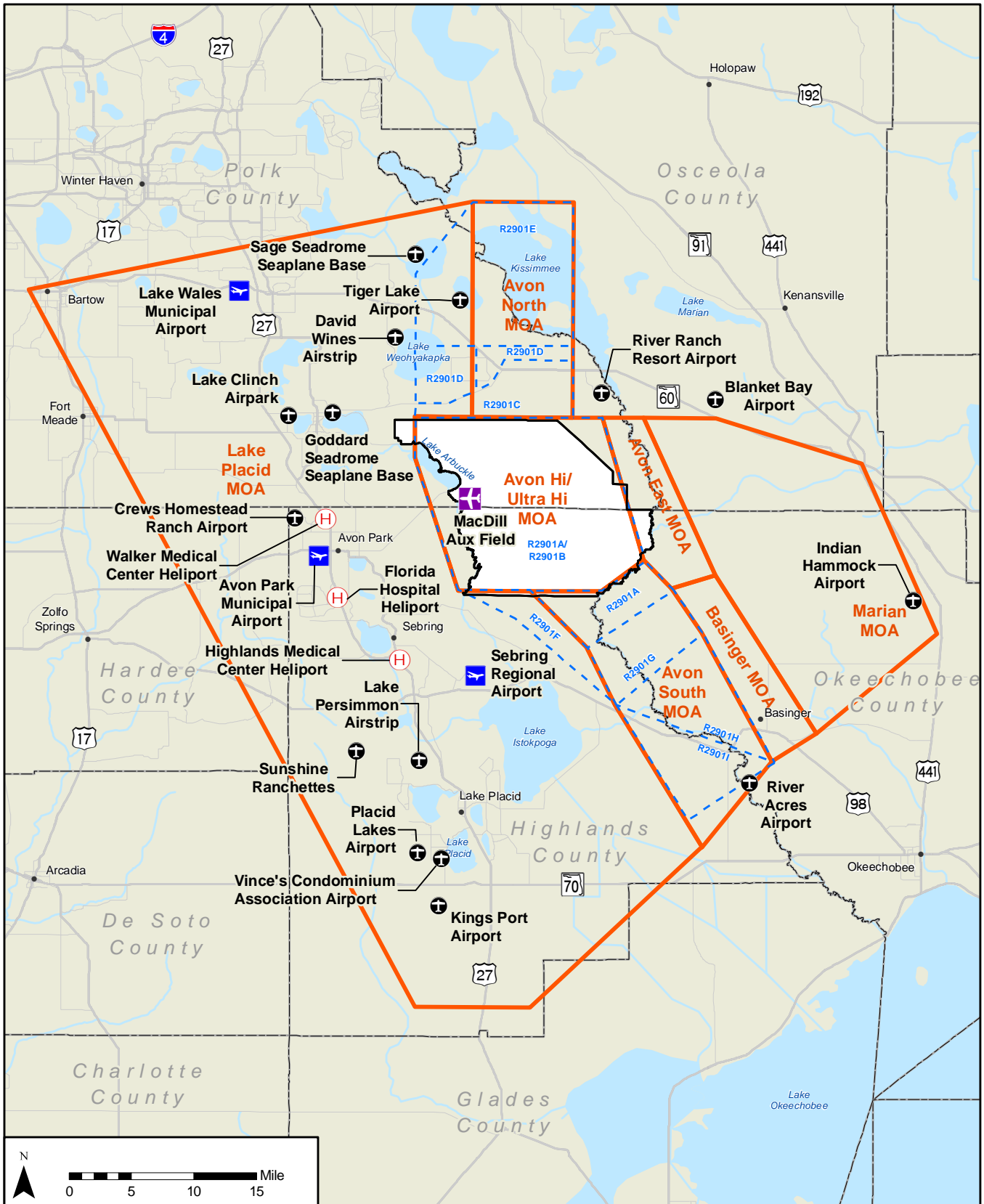
# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept Working Paper

**Table 3-6**  
**Airfields in Avon Park Air Force Range Military Operations Areas**

MOA Airspace	Airfield	Type	Supporting Airspace
Lake Placid Military Operations Area (MOA)	Lake Wales	Public	Class E Airspace 5 nautical miles (NM) around airfield
	Sage	Private (Sea Plane)	--
	Lake Clinch	Private	--
	Goddard	Private (sea Plan)	--
	David Wines	Private	--
	Tiger Lake	Private	--
	Crews	Private	--
	Avon Park	Public	--
	Sebring Regional	Public	Class E Airspace 5 NM around airfield
	Sunshine Ranchettes	Private	--
	Lake Persimmon	Private	--
	Placid Lakes	Private	--
	Vince	Private	--
	Kings Port	Private	--
Avon South MOA	River Acres	Private	--
Marian MOA	Indian Hammock <sup>a</sup>	Private	--
R-2901A/B	MacDill Aux Filed <sup>b</sup>	Military	--

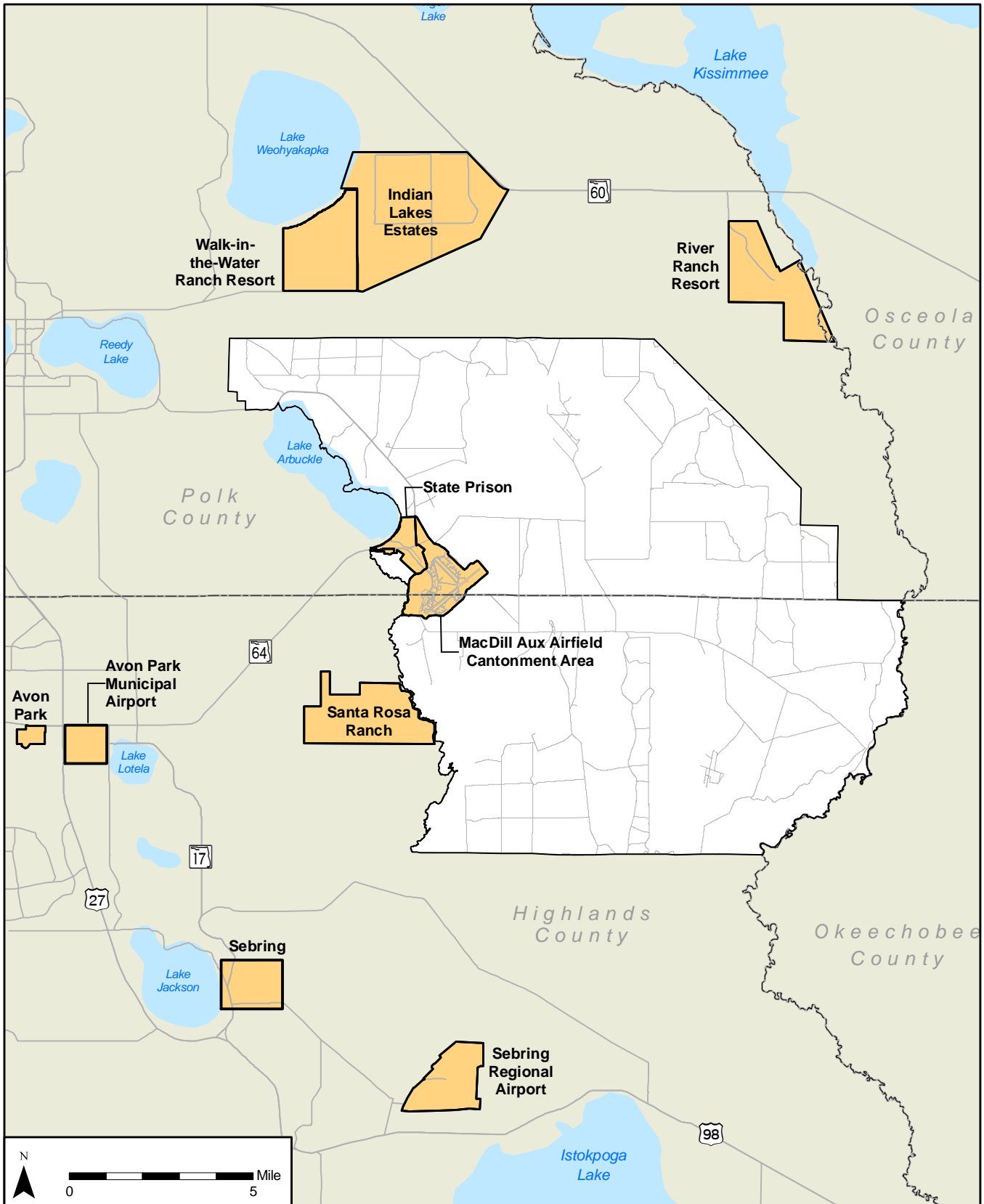
Note: a On border of MOA Boundary.  
 b No Air Traffic Control (ATC) services; Range Control Officer manages schedule and advisories.



- Avon Park Air Force Range
- County Boundary
- Highway
- Restricted Airspace Boundary
- Military Operation Area (MOA)
- ✈ Airports
- ✈ Military
- ✈ Private
- ✈ Public
- H Heliport

**Figure 3-4**

**AIRPORTS AND AIRSTRIPS**



**Figure 3-5**

**AFI 13-212 ADDENDA A  
AVOIDANCE AREAS**

- Avon Park Air Force Range    ■ Avoidance Area
- County Boundary
- Highway
- Air Force Range Road



### **3.5 Future Airspace Utilization**

Efforts are in progress to raise the ceiling of restricted airspace (R-2901) from 31,000 MSL to 40,000 MSL. This is being done to accommodate new weapons systems (Litening II Targeting Pod, night vision goggles (NVG) use, and ordnance deployment using these new systems) and associated tactical maneuvers. The action may require rule making by the FAA and will require approval by HQ USAF A30-AR. In addition, ordnance deployment may drive the need to relocate targets. New target construction may be difficult to accommodate given the sensitive species and associated habitat found throughout the range. This situation exists and is anticipated to continue into the future.

The U.S. Navy has determined that Avon Park Air Force Range as a valuable training asset accessible from both the Atlantic Ocean and the Gulf of Mexico. An Environmental Impact Statement (EIS) and Record of Decision (ROD) addressing the Navy's proposed action have been completed and the Navy is currently planning construction of the new range. In support of this training, the Navy would like to enhance the training environment with additional electronic warfare (EW) instrumentation and upgraded targets. The Navy is also participating in the shift from low-altitude, short-range weapons to high-altitude, stand-off weapons. This shift is also contributes to the need for increased airspace and upgraded targets.

Over the course of a typical year, it is estimated that for the common elements of the proposed action, 420 fixed-wing and 160 rotary-wing aircraft sorties could occur supporting Naval training exercises on Avon Park Air Force Range during up to three training exercises (up to 60 days annually). Under maximum usage of Avon Park Air Force Range for up to six exercises (up to 120 days annually), Naval aircraft sorties could increase to 2,067 fixed-wing and 320 rotary-wing sorties. Individual exercises would involve a large number of aircraft and could vary in overall scope depending on the specific exercise. It should be noted, however, that not all aircraft participating in an exercise would be actively using all the airspace all of the time. At any one time, it is estimated that a maximum of eight to 10 aircraft would be actively using the range.



# 4 Program Elements and Approach

## 4.1 Overview

This section outlines an approach for identifying and quantifying the varying degrees of weapons safety hazard and noise exposure relative to the air-to-ground training and other military operations occurring at the range. This systematic approach to hazard and noise exposure assessment is intended to evolve into logical and defensible land use guidelines and controls designed to maximize land use compatibility both on range and off range.

## 4.2 Range Compatibility Zones

Range Compatibility Zones translate aviation training and ordnance delivery safety and noise exposure concerns into recommended compatible land use zones. Range Compatibility Zone size is not affected by the number of sorties or training operations, but by the types of operations conducted at the range. At Avon Park these operations are prescribed in AFI 13-212, Addenda A, *The Avon Park Air Force Range Flying Operations Training Procedures and Requirements Instruction*.

This Proof of Concept application designates two range compatibility zones, referred to as Weapons Safety Zones and Noise Exposure Zones. See Table 4-1 below.

Weapons Safety Zones address hazard concerns relative to weapons delivery and aircraft overflight and their compatibility with activities on the ground. Weapons Safety Zones are subdivided by degree of safety severity into three subareas. Noise Zones address the intensity of noise exposure. The source of noise exposure is attributed to aircraft noise and to blast noise, and further subdivided by degree of intensity into three subareas.

**Table 4-1  
Range Compatibility Zones**

Weapons Safety Zones		Noise Exposure Zones (DoD Instruction)		
Severity of Hazard	Safety Area	Severity of Exposure	Aircraft Noise (DNL)	Blast Noise (dBP)
<b>Extreme Hazard</b>	Weapons Impact Area	<b>Most Severely Affected</b>	Noise Zone III DNL > 75	Noise Zone III dBP > 130
<b>Moderate Hazard</b>	Armed Overflight Area	<b>Moderately Affected</b>	Noise Zone II DNL 65 - 75	Noise Zone II dBP 115 - 130
<b>Minimal Hazard</b>	Aircraft Maneuver Area	<b>Minimal Impact</b>	Noise Zone I DNL < 65	Noise Zone I dBP 0 to 115

### 4.2.1 Weapons Safety Zones

This Land Use Compatibility Proof of Concept recognizes three critical areas of range safety compatibility for the array of safety hazard concerns associated with the release and impact of both live and inert weapons, armed overflight, and aircraft maneuvering in restricted airspace. Of the three subareas, the two most stringent areas are Weapons Impact Area and Armed Overflight Area. Both subareas align and conform to the U.S. Air Force guidance concerning safety and land use controls provided in AFI 13-212 and its supplement Avon Park Air Force Range-specific Addenda A, and consequently, both subareas are contained within the range boundaries.

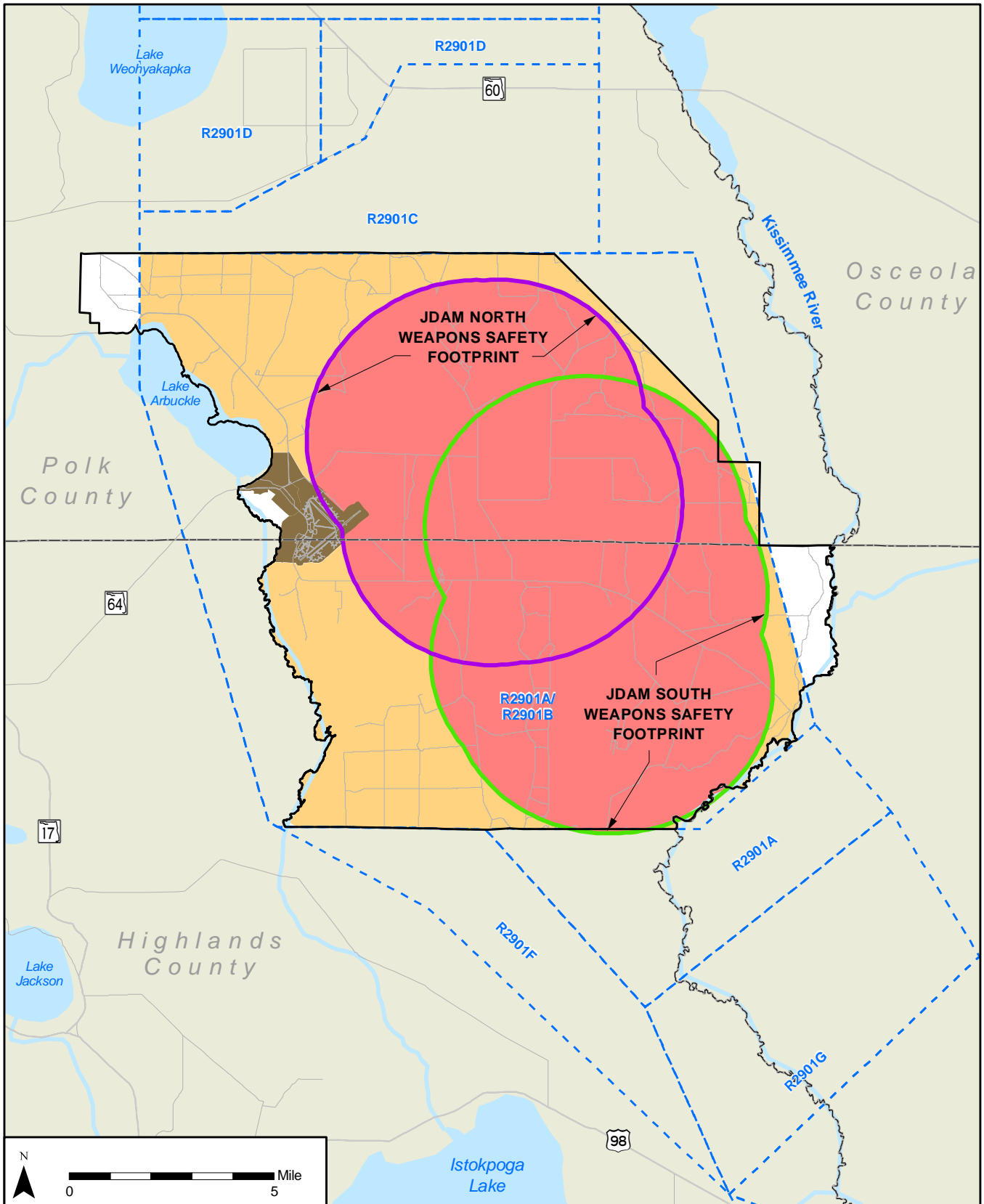
The third subarea, Aircraft Maneuver Area, is the most expansive. For this application of the Proof of Concept at Avon Park, this subarea encompasses all Special Use Airspace as depicted in Figure 3-2 including underlying land areas that are located beyond the boundaries of the Weapons Impact Area and Armed Overflight Area. The allowable altitude of aircraft overflight varies throughout the Aircraft Maneuver Area. Of particular concern are land areas underlying airspace supporting low-level aircraft overflight (defined as under 4,000 feet MSL).

- **Weapons Impact Area** portrays the maximum safety hazard and is also defined as the minimum surface area needed to contain ordnance delivered in air-to-ground training. Weapons Impact Area corresponds with the range composite weapons safety footprint, which is calculated using the HAZARD methodology. The weapons safety footprint includes both initial weapon impacts and any subsequent ricochet impacts.

The Weapons Impact Area is used as the basis for designating types of compatible land use with the public's safety in mind both on and off the range. Weapons Safety Zone land use recommendations are more stringent than those for overflight and noise because the possible consequences of incompatible development are more serious.

The SAFE-RANGE program was used to assess all current targets on Avon Park Air Force Range for inert/practice ordnance delivery using all approved delivery profiles. All suitable targets and applicable mission profile limitations (e.g., type of permitted weapon for use on a target at a specific run-in heading) have been identified and documented in detailed range operating procedures, Avon Park Air Force Range's AFI 13-212 supplement. Weapon safety footprints for all ordnance currently used at the range fall within the range boundary. Land area covered by weapon safety footprints during training events includes areas of the range within and outside the existing impact areas. Per AFI 13-212, public access is not permitted within any weapon safety footprint when that portion of the range is active. Inert/practice ordnance delivery profiles currently in use by the Navy at Avon Park Air Force Range meet the requirements of APAFR's AFI 13-212 supplement.

Due to the fact that Avon Park Air Force Range is a joint use facility, two Weapons Safety Zone configurations were developed. One reflects existing U.S. Air Force use of both the North and South target complexes (see Figure 4-1), and the other depicts the proposed U.S. Navy use of High Explosive Ordnance at the Alpha Plus Impact Area, located in the middle of the range (see Figure 4-2).



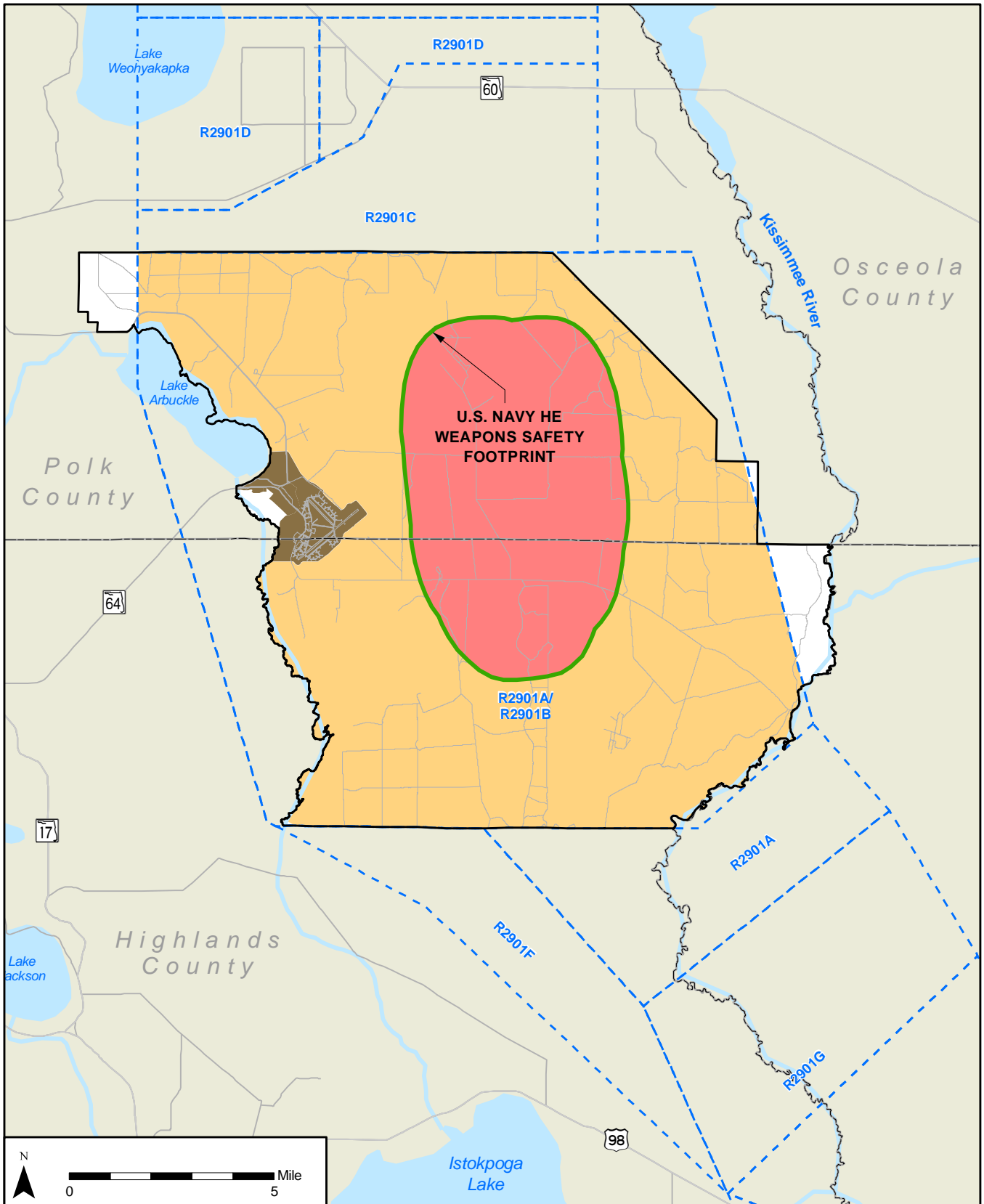
- Avon Park Air Force Range
  - County Boundary
  - Highway
  - Air Force Range Road
  - Restricted Airspace Boundary
  - Cantonment Area
  - JDAM North Weapons Safety Footprint
  - JDAM South Weapons Safety Footprint
- Weapons Safety Zones
- Weapons Impact Area
  - Armed Overflight

**Figure 4-1**

**EXISTING U.S. AIR FORCE  
WEAPONS IMPACT AREA AND  
ARMED OVERFLIGHT AREA**

**AVON PARK  
AIR FORCE RANGE**





- Avon Park Air Force Range
  - County Boundary
  - Highway
  - Air Force Range Road
  - Restricted Airspace Boundary
  - Cantonment Area
  - U.S. Navy HE Weapons Safety Footprint
- Weapons Safety Zones
- Weapons Impact Area
  - Armed Overflight Area

**Figure 4-2**

**PROPOSED U.S. NAVY  
WEAPONS IMPACT AREA AND  
ARMED OVERFLIGHT AREA**

**AVON PARK  
AIR FORCE RANGE**



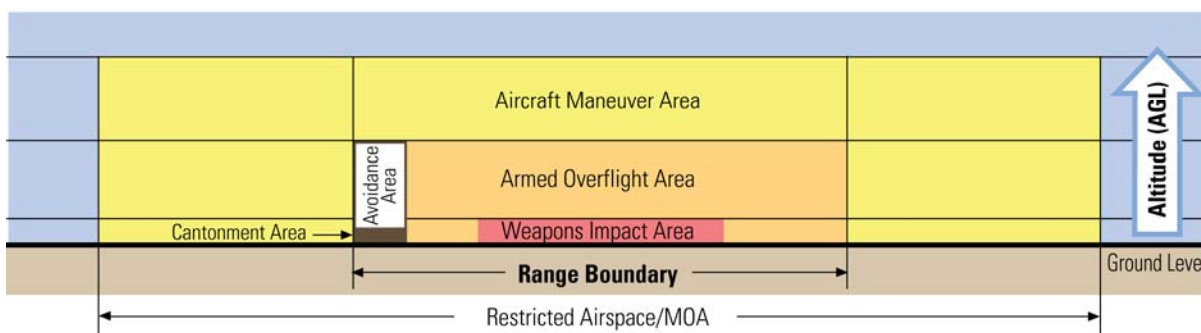
After a review of the weapon safety footprints of all air-to-ground ordnance dispensed at Avon Park Air Force Range, it was determined that the delivery of the Joint Direct Attack Munition (JDAM) generated the largest weapons safety footprint for both the North and South Tactical Target Complexes, and consequently encompassed the weapons safety footprints for all air-to-ground ordnance utilized at Avon Park Air Force Range. Typically when the U.S. Air Force schedules training activity at the Range it is standard procedure to schedule both the North and South Tactical Ranges simultaneously. The Weapons Impact Area represents the consolidated footprint for activity at both the North and South Tactical Range Complexes and is depicted as such. The U.S. Air Force consolidated footprint encompasses 69,053 acres and extends to the Range southern and eastern boundaries (see Figure 4-1).

Upon completion of a new impact area, the US Navy will begin High Explosive training at Avon Park Air Force Range. The Navy will have exclusive use of the Alpha+ impact area. As part of the environmental analysis conducted for the EIS for the Navy's proposed utilization of the range, SAFERANGE Weapons Safety footprints were developed. These footprints, as presented in the EIS, have been incorporated into this study and are depicted in Figure 4-2 above. The Weapons Impact Area encompasses 25,970 acres, and is confined within the U.S. Air Force consolidated weapons safety footprint (see Figure 4-1). It should be noted that when the Navy is utilizing the Alpha+ impact area, all other range training activity stops.

- **Armed Overflight Area** represents the area of armed overflight, not including the Weapons Impact Area. Because the Weapons Impact Area is the highest safety hazard, its footprint overrides that of Armed Overflight Area. After an initial pass on the target, aircrews typically engage the master arming switch once inside the range. In the case of the JDAM weapons delivery, the JDAM is released approximately 5.5 miles from the target. Air Force instruction states that approaches to the targets can be omni-directional, however, the arming of weapons can only be accomplished once inside the restricted airspace and within the range boundary, and only after assuring that the weaponry is not pointed toward an inhabited area (AFI 13-212, Addenda-A, September, 2005). Armed Overflight is prohibited by AFI 13-212, Addenda-A from extending beyond the range boundary and from extending over the cantonment area. The Armed Overflight Area then extends from the edge of Weapons Impact Area to the range boundary but falls short of the cantonment area. The Armed Overflight Area for the U.S. Air Force overlies 32,769 acres of land on range; the Navy Armed Overflight Area footprint encompasses 75,388 acres (see Figures 4-1 and 4-2).

- Aircraft Maneuver Area** is the third Weapons Safety Zone. This subarea defines the minimum level of safety concern and occurs in restricted airspace, not including the Weapons Impact Area and the Armed Overflight Area described above. The purpose of the Aircraft Maneuver Area is to provide participating aircraft tactical maneuver area as they prepare to release their ordnance and separation from other participating and non participating aircraft. This space is three dimensional and sets restrictions both laterally and vertically as conceptually depicted in Figure 4-3.

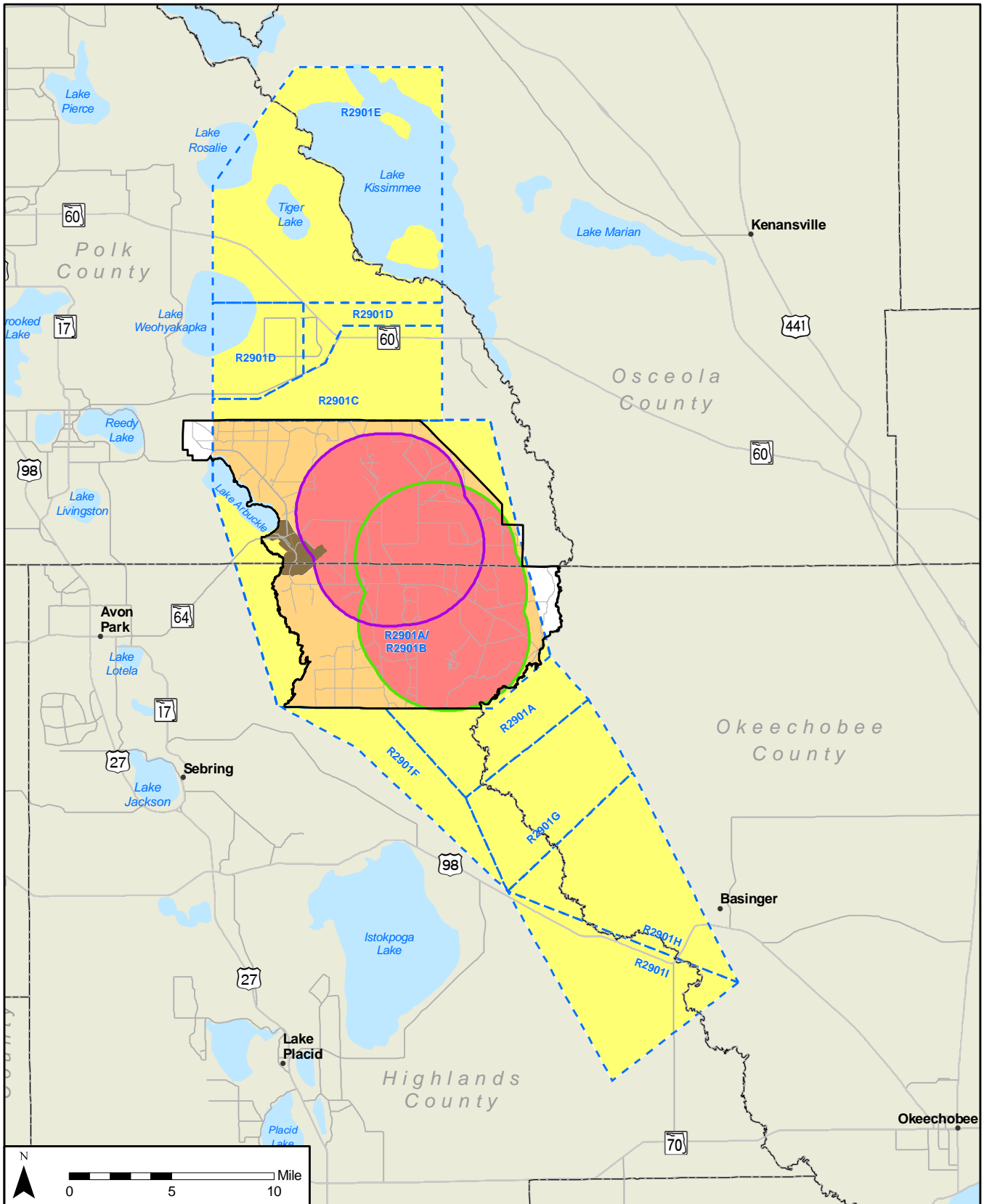
**Figure 4-3  
Weapons Safety Zone Conceptual Cross Section**



This subarea originates and extends beyond the range boundaries. The Restricted Airspace and MOAs extend approximately 17 miles to the north and 18 miles to the south. In total, the land area under the Restricted Airspace and MOAs measures over 246,000 acres of public and private land. Aircraft Maneuver Area correlates to the restricted airspace/MOAs as depicted in Figure 3-2, but it is the land use underlying the airspace that is considered for land use compatibility analysis and land use control guidelines, see Figure 4-4. Of particular concern is the land area impacted by low-level aircraft overflight (overflight under 4,000 feet MSL). See Table 3-1 - Description of Restricted Airspace and Table 3-3 - Description of Military Operations Areas.

#### 4.2.2 Other Range Safety Concerns

**MacDill Auxiliary Airfield.** MacDill Auxiliary Airfield is located in the Avon Park Air Force Range complex. The airfield has no air traffic control capability. Range training over flights of the airfield is prohibited. An Air Installation Compatible Use Zone (AICUZ) study has not been completed for the airfield, and may not be required because aircraft operations average less than 3,000 annually.



- Avon Park Air Force Range
- County Boundary
- Highway
- Air Force Range Road
- - - Restricted Airspace Boundary
- Cantonment Area
- JDAM North Weapons Safety Footprint
- JDAM South Weapons Safety Footprint
- Weapons Safety Zones
- Weapons Impact Area
- Armed Overflight
- Aircraft Maneuver Area

**Figure 4-4**

**WEAPONS SAFETY ZONES**

- **Bird/Wildlife Aircraft Strike Hazards.** A bird strike hazard exists on Avon Park Air Force Range due to the presence of resident and migratory bird populations, and the abundance of habitat that exists on and in the immediate vicinity of the range. Significant water bodies include Lake Arbuckle, Arbuckle Creek, and the Kissimmee River. Numerous swamps and marshes throughout the area also provide aquatic habitat. Additionally, the Avon Park Correctional Institution maintains a landfill approximately 3 miles (5 km) west of the Bravo Range, which serves as an attractant to vultures, gulls, and raptors. Over 82,000 acres of Avon Park Air Force Range (approximately 79% of range property) remain in a natural vegetative state.
- **Fire Safety.** The APAFR is located in an area of high potential for wildland fires. Wildfires occurring in high explosive-contaminated (HE) are especially problematic, since these areas are normally unsafe to enter. This issue is especially important on the future Navy impact area. There is the potential for range closures during those periods if fires interfere with mission activities. The Air Force plans to investigate the possibility of utilizing airborne fire suppression to control fires on HE areas. The Air Force has also adopted restrictions on activities when fire hazards become extreme in an effort to reduce probability of occurrence of wildfires. The Air Force also conducts a prescribed burning program to reduce wildfire hazards.
- **Laser Safety.** The land area subject to laser targeting on the range could increase with new target locations over time. Laser Range Management Software (LRMS) is available to calculate laser safety footprints that could result from varying slant ranges to the target being lased, and the altitude of the aircraft firing the laser. By varying these parameters, flight profile limitations can be developed for specific targets to ensure containment of the laser footprint within acceptable zones.

### 4.2.3 Noise Exposure Zones

Noise exposure from aircraft training operations and weapons delivery at air-to-ground ranges is a potential hazard and concern to communities located in their vicinity. The impact of aircraft and weapons delivery noise is also a factor in the planning of future land uses near military training ranges. Noise impacts should be evaluated to determine the hazard potential and their effect upon land use compatibility within the Area of Military Influence. For air-to-ground ranges where adjacent or nearby land uses exist or the potential for development is present, a noise impact analysis is warranted. Such is the situation at Avon Park Air Force Range.

A noise analysis addressing the potential for noise impacts in the vicinity of Avon Park Air Force Range has not been completed, but efforts are underway to contract a noise study in the near future. For the purposes of this assessment and Proof of Concept, the Noise Assessment completed for the EIS (Wyle 2005), will serve as a baseline for noise assumptions until a new noise analysis has been completed.



At Avon Park Air Force Range, the source of on range and off range noise exposure is attributed to aircraft noise and to weapons delivery blast noise. Each noise source is further subdivided by degree of severity of noise exposure into three subareas.

- **Aircraft Noise**

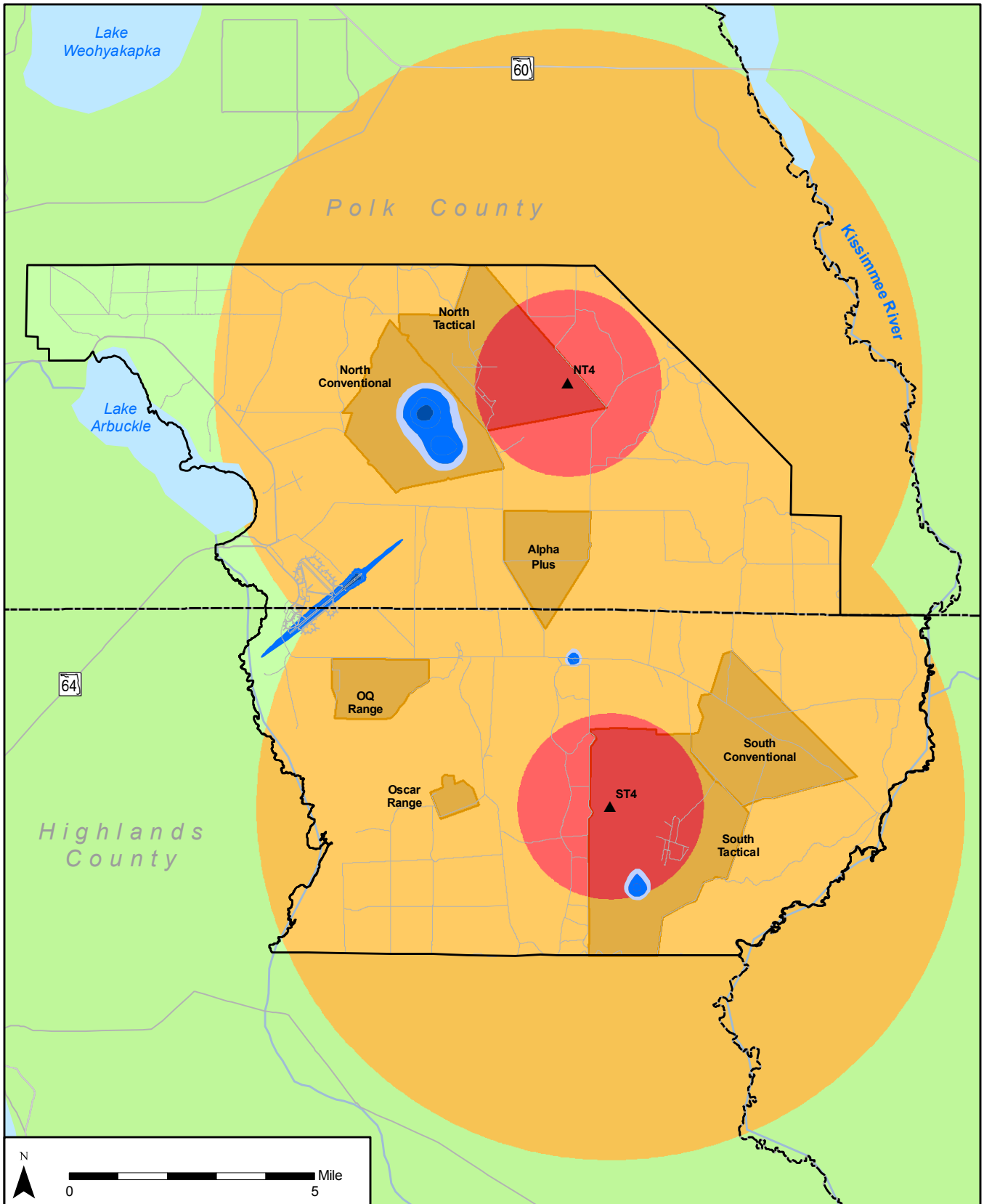
DoD Instruction for aircraft noise assessment divides noise exposure into three Noise Zones:

- **Noise Zone 1, DNL<65**, is an area of minimal impact where limited noise reduction (or sound attenuation) may be recommended.
- **Noise Zone 2, DNL 65-75**, is an area of moderate impact where some land use controls are needed.
- **Noise Zone 3, DNL>75**, is the most severely affected area and requires the greatest degree of land use controls to encourage compatibility.

In addition to noise zones, areas of concern may be defined where all land uses are considered to be compatible (less than 65 DNL) but some degree of land use controls is recommended in order to protect the long term viability of the range and ensure public safety; such as areas subject to frequent aircraft overflight and noise exposure. These areas may align with critical ingress and egress corridors or areas under MOAs and MTRs that provide participating aircraft access to the range.

Currently, the only aircraft overflight noise modeled for Avon Park Air Force Range occurs at the MacDill Auxiliary Airfield (see Figure 4-5). The airfield has one primary runway with straight-in arrivals and departures by aircraft flying to and from the facility. A limited number of pattern operations are flown to the south of the airfield. NOISEMAP 7.2 was used to calculate and plot the 65-dBA through 75-dBA contours for the flight operations at the airfield; these contours are shown in the Noise Exposure Zones, Figure 4-5. As would be expected from an airfield that basically has only straight-in arrivals and departures and limited patterns to the southeast of the runway, the contours generally extend straight out from the runway ends. The major contributor to the noise at the airfield is the C-141B, followed by the C-130, and the A-10A (Wyle 2005).

The 65-dBA contour is contained within the range boundary. The 65-dBA noise contour extends about 5,000 feet past the end of Runway 05, and 4,200 feet past the end of Runway 23 where it comes within 2,200 feet of the southwest range boundary. It covers an area of about 388 acres. The 70-dBA contour, which remains very close to the airfield, covers an area of about 146 acres. The 75-dBA contour occurs at the beginning of Runway 23 and covers an area of about 20 acres. This is due to the majority of take-offs being conducted on Runway 23 (Wyle 2005).



- Avon Park Air Force Range
- County Boundary
- Highway
- Air Force Range Road
- ▲ Target
- Impact Area

Aircraft Noise (DNL)

- Noise Zone III (>75)
- Noise Zone II (65-70)
- Noise Zone I (<65)

Blast Noise (dBp)

- Noise III (>130)
- Noise II (115-130)
- Noise I (<115)

**Figure 4-5**

**EXISTING U.S. AIR FORCE  
NOISE EXPOSURE ZONES**



- **Blast Noise**

Noise produced by artillery fire and detonation of air-to-ground or ground-to-ground live ammunition, such as shell bursts, surface blasting, cratering charges and aircraft bombs and rockets are analyzed differently than other noise sources such as aircraft engines. This is because of the significantly higher energy created at low frequencies by these blasts. The low frequency component can induce structural vibrations which may generate additional annoyance to people, beyond the audibility of the sound created by the blast. Noise contours resulting from the firing of projectiles from weapons (muzzle blast at firing points) and the detonation of HE ordnance from aircraft in the vicinity of the targets extend beyond the range and are depicted in Figure 4-5

- **Peak levels between 0-115 dB Peak** present a low risk of noise complaints (comparable to Noise Zone 1)
- **Peak levels between 115-130 dB Peak** present a moderate risk of noise complaints (comparable to Noise Zone 2)
- **Peak levels between 130-140 dB Peak** present a high risk of noise complaints and possibilities of damage claims (comparable to Noise Zone 3)

**Note - Peak Levels above 140dB Peak** represents the threshold for permanent physiological damage to unprotected human ears. They also represent a high risk of physiological and structural damage claims (Wyle 2005 and AR 200-1 13 Dec 2007, Ch 14).

Generally, the noise contours resulting from blast noise extend in circular shapes around both the target and firing locations. The 115, 130 and 140 dB Peak contours represent unweighted levels that are exceeded only 10% of the time. As shown on Figure 4-5, noise greater than 115 dB Peak occurs beyond the range boundaries. As noted above, peak noise levels between 115-130 dB Peak present a moderate risk of noise complaint and also fall within Noise Zone II.

**4.2.4 Other Noise Exposure Concerns**

- **Baseline Noise Exposure within the Military Operations Areas**

Table 4-2 presents the average noise levels within each of the MOAs during CY 2000. Range utilization has remained constant through CY 2007 and as the table indicates noise impacts are relatively low on lands underlying the Military Operations Areas in the vicinity of Avon Park.

**Table 4-2  
Annual Modeled Operations**

<b>Military Operations Area</b>	<b>Baseline Average <math>L_{dnmr}</math> (decibels)</b>
Avon North	<45
Avon South	<45
Avon East	57
Lake Placid	<45
Basinger	57
Marian <sup>a</sup>	54

Sources: Wyle 2005.

Note: a Northern Half of Marian MOA.

Key:  $L_{dnmr}$  Onset-Rate Adjusted Monthly Day-Night Average Sound Level.

- **Airspace Operations and Baseline Noise Exposure in Restricted Airspace R-2901**

Similarly to the MOAs, the altitude distribution of the F-15E is 40% of the time between 500 and 5,000 feet AGL. The A-10A spends 10% of its operation time between 100 and 3,000 feet AGL, while the F-16 spends only 10% of its time below 5,000 feet AGL. These three aircraft (F-15E, F-16, and A-10-A) contribute the most to the noise environment within Restricted Airspaces based on the cumulative effects of their reference noise level, their number of operations, their operation duration and altitude structure (Wyle 2005). Table 4-3 presents average noise levels on the ground for operations within APAFR Restricted Airspace, these levels are well below noise hazard levels.

**Table 4-3**  
**Average Noise Levels within the Restricted Airspace**  
**R-2901 for Baseline Conditions**

Restricted Airspaces	Baseline Average $L_{dnmr}$ (decibels)
R2901A	49
R2901B <sup>a</sup>	<45
R2901C	46
R2901D <sup>b</sup>	47
R2901D <sup>c</sup>	<45
R2901E	45
R2901F	<45
R2901G	47
R2901H	<45
R2901I	<45

Sources: Wyle 2005.

Note: a 500 feet above ground level (AGL) to 4,000 feet above ground level (AGL) East of 81°21'00".

b 1,000 feet AGL to 4,000 feet (AGL) West of 81°21'00".

Key:  $L_{dnmr}$  Onset-Rate Adjusted Monthly Day-Night Average Sound Level.

- **Noise Complaint Data**

Over the course of CY2007, Avon Park Air Force Range received 3 noise complaints; each was attributed to helicopter operations. Noise complaints were received from Indian Lake Estates, River Ranch Resort, and the community of Sunray.

### 4.3 Land Use Compatibility Assessment Tools

To aid with the identification and assessment of land use compatibilities and incompatibilities both on and off the range, suggested land use compatibility guidelines were developed and are described in the subsections below. These guidelines were adapted from DoD guidance OPNAVINST 3550.1A *Range Air Installations Compatible Use Zones (RAICUZ) Program Procedures*, 28 January 2008, and OPNAVINST 11010.36 B *Air Installations Compatible Use Zones (AICUZ) Program*, 19 December 2002. One cautionary note, a DoD-wide study is underway to review land use compatibility guidelines with the intent of adopting a consistently applied DoD-wide program. The guidelines suggested in this study will be revised to align with the DoD-wide program once implemented.

This Proof of Concept study introduces three land use compatibility guidelines:

- Suggested Land Use Compatibility in Weapons Safety Zones (Table 4-4)
- Suggested Land Use Compatibility in Noise Zones (Table 4-5)
- Suggested Land Use Compatibility in Areas of Military Influence (Table 4-6)

The guidelines shown on Tables 4-4 and 4-5 address the impact of weapons and noise exposure on land use both on and off range, and align with the Range Compatibility Zones described in Section 4.2. The varying degrees of safety severity and noise exposure characterized in Section 4.2 are compared to 18 land use categories, arrayed from residential, to wilderness areas, and assigned suggested land use compatibility determinations. Generally, most land uses are compatible with the least severe of the Weapons Safety and Noise Exposure subzones. Conversely, most land uses are incompatible with the most severe subzones.

The land use compatibility guidelines developed for the Areas of Military Influence (Table 4-6) differ in application from the guidelines proposed for Weapons Safety and Noise Exposure. The land use compatibility guidelines for Areas of Military Influence apply to public and private land uses off the range. As defined in Section 1.3, AMI 1 (land area within 3 miles of the range boundary) and AMI 2 (land area subject to noise exposure) combine to form the area(s) of primary concern from a land use compatibility perspective. AMI 3 and AMI 4 underlie Restricted Airspace and MOAs and define the areas of secondary concern. AMI 3 supports low level aircraft flight, primarily in support of aircraft egress and ingress to the range, and consequently some land use restrictions are proposed. AMI 4 acknowledges the land area underlying the balance of the Restricted Airspace (overflight above 4,000 MSL). No land use restrictions are proposed, however, it is acknowledged that military aircraft overfly the land area and individuals may be impacted by visual sightings and noise exposure.

In Section 5 of this Proof of Concept, these guidelines are applied to existing and future land use situations occurring in and around Avon Park Air Force Range with the intent of identifying areas of existing or future concern.

**4.3.1 Weapons Safety Zone Compatibility Guidelines**

Table 4-4 provides suggested land use compatibility guidelines for land use categories exposed to one of three Weapons Safety Zones, namely Weapons Impact Area (WSZ A), Armed Overflight Area (WSZ B), or Aircraft Maneuver Area (WSZ C). Because of the extreme hazard associated with air-to-ground weapons delivery, the land area within the Weapons Impact Area is the most severely constrained of the three subzones. WSZ A and WSZ B are entirely contained within the range boundary (see Figures 4-1 and 4-2). The land use controls for land underlying Aircraft Maneuver Area (WSZ C) is less stringent.

**Table 4-4  
Suggested Land Use Compatibility in Weapons Safety Zones**

Land Use	WSZ A	WSZ B	WSZ C
Residential - Single Family, Duplex, Mobile Homes	N	N	Y
Residential - Multiple Family Homes	N	N	N
Transient Lodging	N	N	N
School Classrooms, Library, Churches	N	N	N
Hospitals	N	N	N
Nursing Home	N	N	N
Auditoriums, Concert Halls	N	N	N
Office Buildings - Personal, Business, Professional	N	N	Y
Commercial, Retail	N	N	Y
Manufacturing	N	N	Y
Utilities	N	N	Y
Playgrounds, Neighborhood Parks	N	N	Y
Golf Courses, Riding Stables, Cemeteries	N	Y	Y
Outdoor Spectator Sports	N	N	Y
Industrial, Warehouse, Supplies	N	N	Y
Livestock, Farming, Animal Breeding	N	Y	Y
Agriculture (except Livestock), Mining, Fishing	N	Y	Y
Recreational, Wilderness Areas	N	Y	Y

**Notes:**

- WSZ A** Weapons Impact Area
- WSZ B** Armed Overflight Area
- WSZ C** Aircraft Maneuver Area

**4.3.2 Noise Exposure Compatibility Guidelines**

Table 4-5 provides suggested land use compatibility guidelines by land use type for land areas exposed to noise generated by either aircraft overflight or by ordnance detonation (blast). Noise Zone I defines land areas exposed to mild noise levels and consequently compatible with all of the 18 land use categories. Noise Zones II and III define land areas exposed to moderate to severe noise levels where land use controls may be applicable.

**Table 4-5  
Suggested Land Use Compatibility in Noise Zones**

Land Use	Aircraft Noise (DNL) Blast Noise (dBP)	Noise Zone I		Noise Zone II		Noise Zone III		
		< 55	55-65	65-69	70-74	75-79	80-84	85+
		< 115		115-130		> 130		
Residential - Single Family, Duplex, Mobile Homes		Y	Y	N	N	N	N	N
Residential - Multiple Family Homes		Y	Y	N	N	N	N	N
Transient Lodging		Y	Y	N	N	N	N	N
School Classrooms, Library, Churches		Y	Y	25	30	N	N	N
Hospitals		Y	Y	25	30	N	N	N
Nursing Home		Y	Y	N	N	N	N	N
Auditoriums, Concert Halls		Y	Y	25	30	N	N	N
Office Buildings - Personal, Business, Professional		Y	Y	Y	25	30	35	N
Commercial, Retail		Y	Y	Y	25	30	N	N
Manufacturing		Y	Y	Y	25	30	35	N
Utilities		Y	Y	Y	Y	Y	Y	N
Playgrounds, Neighborhood Parks		Y	Y	Y	Y	N	N	N
Golf Courses, Riding Stables, Cemeteries		Y	Y	Y	Y	N	N	N
Outdoor Spectator Sports		Y	Y	Y	Y	N	N	N
Industrial, Warehouse, Supplies		Y	Y	Y	25	30	35	N
Livestock, Farming, Animal Breeding		Y	Y	Y	Y	N	N	N
Agriculture (except Livestock), Mining, Fishing		Y	Y	Y	Y	Y	Y	Y
Recreational, Wilderness Areas		Y	Y	Y	Y	N	N	N

**Notes:**

- 25** Measures to achieve noise level reduction of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 30** Measures to achieve noise level reduction of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 35** Measures to achieve noise level reduction of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.



### 4.3.3 Compatibility Guidelines by Area of Military Influence Zone

The suggested land use guidelines displayed in Table 4-6 are applicable to land areas beyond the range boundaries and intended to help identify areas of primary and critical concern from an adjacent land use and potential encroachment perspective. The first level of concern, defined as AMI 1, encompasses all land area within 3 miles of the range boundary. The second level of concern is all land area exposed to noise levels that exceed 65 DNL or 115 dPB off range and defined as AMI 2, the land area within AMI 1 and AMI 2 is the primary focus of the analysis in Section 5. AMI 3 is defined as land area beyond the range boundaries but underlying restricted airspace that supports low level overflight, and AMI 4 includes all other land area located under the balance of the Restricted Airspace or MOAs.

**Table 4-6  
Suggested Land Use Compatibility in Area of Military Influence Zones**

Land Use	AMI 1	AMI 2	AMI 3	AMI 4
Residential - Single Family, Duplex, Mobile Homes	N	N	Y1	Y
Residential - Multiple Family Homes	N	N	N	Y
Transient Lodging	N	N	N	Y
School Classrooms, Library, Churches	N	N	N	Y
Hospitals	N	N	N	Y
Nursing Home	N	N	N	Y
Auditoriums, Concert Halls	N	N	N	Y
Office Buildings - Personal, Business, Professional	N	N	N	Y
Commercial, Retail	N	N	N	Y
Manufacturing	N	N	N	Y
Utilities	N	N	Y	Y
Playgrounds, Neighborhood Parks	N	N	N	Y
Golf Courses, Riding Stables, Cemeteries	N	Y	N	Y
Outdoor Spectator Sports	N	N	N	Y
Industrial, Warehouse, Supplies	N	N	Y	Y
Livestock, Farming, Animal Breeding	Y	Y	Y	Y
Agriculture (except Livestock), Mining, Fishing	Y	Y	Y	Y
Recreational, Wilderness Areas	Y	Y	Y	Y

**Notes:**

- 1 Suggested maximum density in AMI 3 is no more than 1 dwelling unit per 5 acres.

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## 5 Land Use Compatibility Analysis

### 5.1 Overview

#### 5.1.1 Objectives

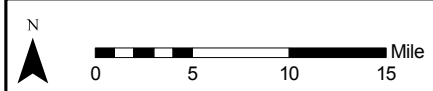
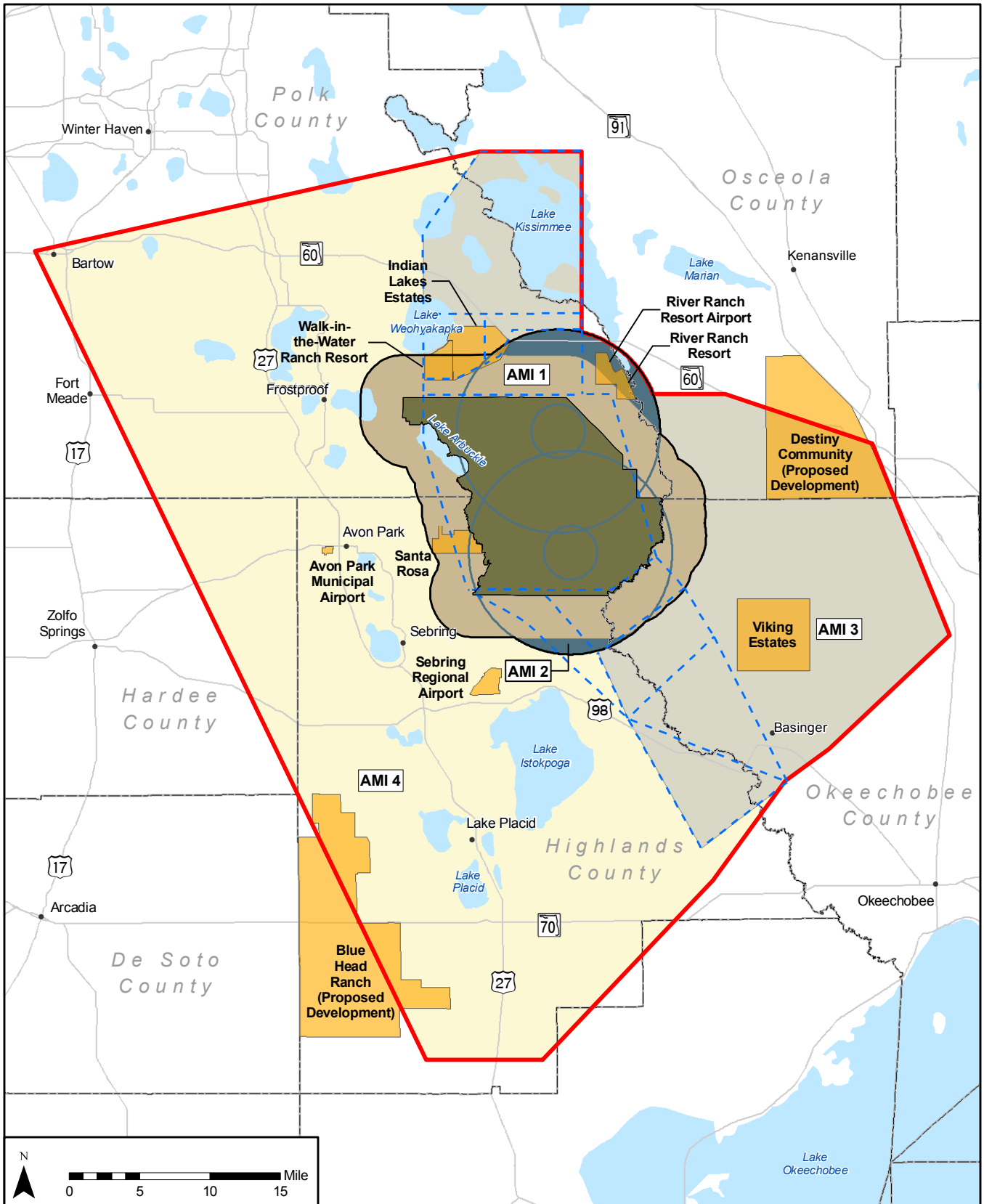
This section, through a sequential series of graphic and analytical exercises, applies the land use compatibility guidelines presented in Section 4 to the future land use situations in and around Avon Park Air Force Range. The intent is to describe the characteristics of the region, to illustrate future land use patterns, and to identify areas of mutual compatibility and areas of existing or potential land use concern. Ideally, the information and recommendations provided in this section will provide planners and local governments with defensible tools to assist with the enforcement of effective land use controls that will preserve range sustainability while protecting the public's land interests as well.

#### 5.1.2 Area of Military Influence

The study area, referred to as the Area of Military Influence, includes all land area under the Restricted Airspace and MOAs that combine to form Avon Park Air Force Range's Special Use Airspace plus the area impacted by noise that extends beyond the airspace boundaries (*see* Figure 5-1). This land area involves major portions of the Central Florida counties of Highlands, Polk, Okeechobee, and Osceola, and smaller portions of Hardee and Glades counties.

As discussed in Section 1.3, the Area of Military Influence has been subdivided into four influence zones to help organize and prioritize the land use compatibility issues surrounding the range. Influence zone AMI 1 includes all of the land area located within three miles of the range boundaries, and considered the area of immediate concern. AMI 2 includes all land area exposed to noise in excess of 65 DNL and/or 115 dPB outside AMI 1. AMI 3 designates land areas underlying airspace that accommodates low-level aircraft overflight, outside AMI 1 and 2. AMI 4 captures the balance of the land area within the Area of Military Influence, outside AMI 1, 2, and 3. AMI 4 includes community population centers in Highlands and Polk Counties making it an important area to monitor for trends in population and employment growth.

Concerns located beyond the Area of Military Influence include land use and development occurring under Military Training Routes. As described in Section 3 (*see* Figure 3-2), entry to Restricted Airspace R-2901 is made possible through a web of MTRs surrounding the Area of Military Influence. The preservation of MTRs is critical to the safe and efficient use of the range.



- Avon Park Air Force Range
- County Boundary
- Highway
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Area of Military Influence
- Area of Primary Concern
- Anticipated Growth Areas
- Influence Zones**
- AMI 1 - 3 mile buffer
- AMI 2 - Noise Exposure
- AMI 3 - Low-level Overflight
- AMI 4 - Lands underlying SUA

**Figure 5-1**  
**AREA OF MILITARY INFLUENCE**  
**LAND USE COMPATIBILITY**  
**STUDY AREA**

## 5.2 Land Use within the Area of Military Influence

### 5.2.1 Regional Setting

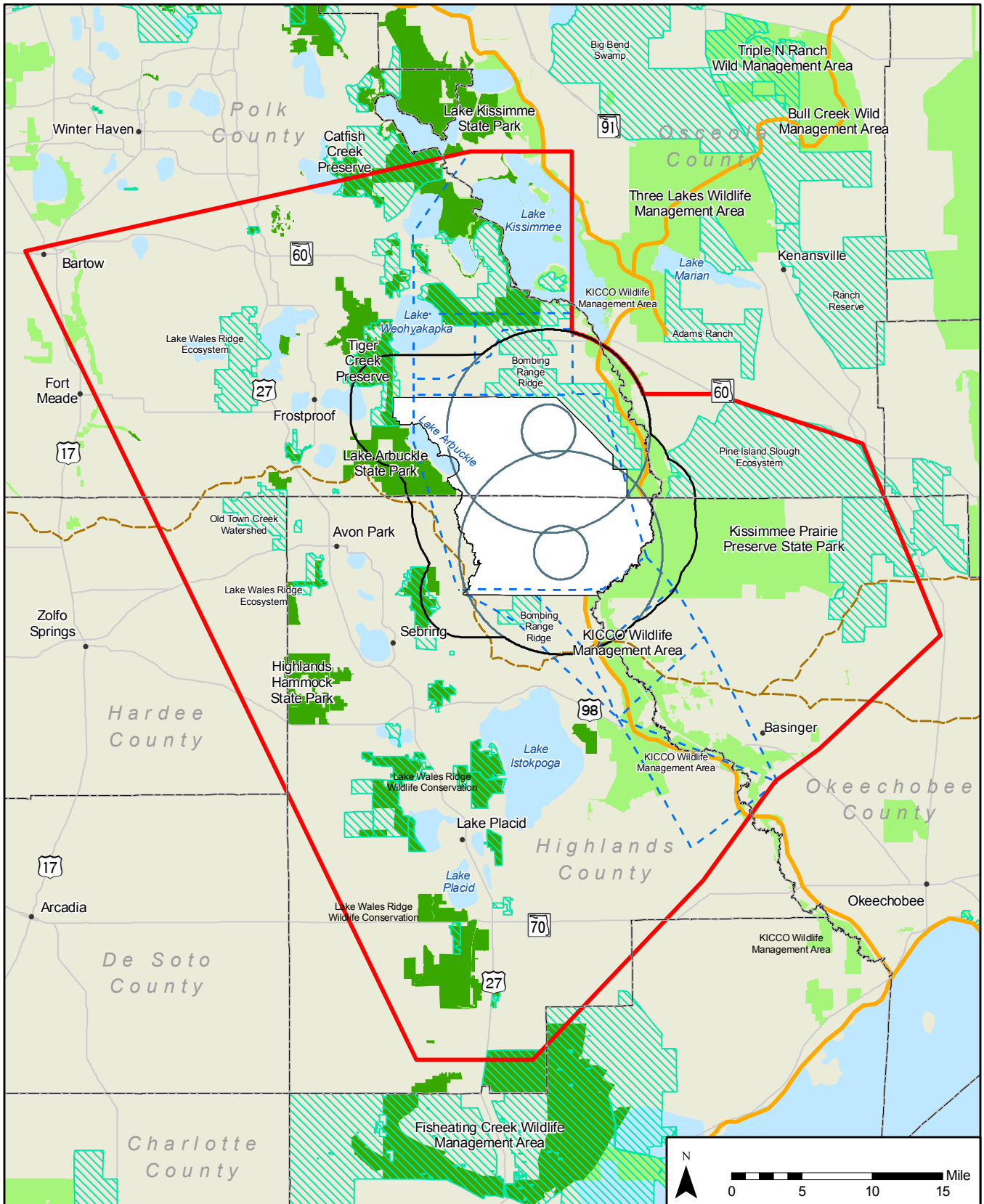
Located in the heart of Central Florida, Avon Park Air Force Range straddles the county line between the southeastern part of Polk County and the northeastern part of Highlands County in a rural area of Central Florida. The eastern boundary of the range borders Osceola and Okeechobee Counties. The Kissimmee River delineates the county lines and the southern portion of the range's eastern border. Towns within the Area of Military Influence Avon Park Air Force Range include Alcoma, Alturas, Babson Park, Bartow, Frostproof, and Lake Wales within Polk County, and De Soto City, Sebring, Lake Placid, Placid Lakes, and Avon Park within Highlands County. The cities of Avon Park, located 9 miles west of the range, and Sebring, located 16 miles southwest of the range, are the largest populated areas with a combined population of approximately 21,000 residents.

The general land use pattern surrounding the range is characterized as agricultural, rangeland, upland forests, and water bodies with the predominant use being agricultural. Strikingly, large bodies of land area are designated conservation areas. Due to the abundance of environmentally significant areas within the region, considerable efforts have been made to permanently protect vast acreages. According to the Florida Natural Areas Inventory (FNAI), more than 90,000 acres of land have been placed in conservation. According to the South Florida Ecosystem Restoration Land Acquisition Strategy, these public acquisitions are needed to meet the following goals:

- Retain water rights
- Restore, preserve, and protect habitats and species
- Foster compatibility between built and natural systems

The major conservation acquisition projects surrounding Avon Park Air Force Range include specific areas within the Lake Wales Ridge Ecosystem, areas around the Kissimmee River, and an area referred to as Avon Park Bombing Range, which is located along the north boundary of the range. The majority of these acquisitions have occurred with state and federal funding, however, additional areas have been purchased or placed in conservation easements by private sources, such as the Nature Conservancy and Archbold Biological Station.

Figure 5-2 delineates three land conservation areas. The lands designated by green hatching are lands dedicated or proposed for conservation preservation by the Florida Forever Board of Trustees (FFBOT). The lands shown in dark green are Lake Wales Ridge (LWR) Conservation Lands, and the lands in light green are other conservation lands. See Section 5.2.2 following.



- Avon Park Air Force Range
- County Boundary
- Highway
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Florida National Scenic Trail
- Heartland Coast to Coast Path (Proposed)

- Area of Military Influence
- Area of Primary Concern
- FFBOT Projects
- LWR Region Conservation Lands
- Public Land

**Figure 5-2**

**WILDLIFE CONSERVATION  
EXISTING AND PROPOSED**

### 5.2.2 Natural Resources and Wildlife Conservation Areas

Several conservation areas occur near Avon Park Air Force Range, including the Lake Wales Ridge State Forest, the Lake Wales Ridge National Wildlife Refuge, and lands owned by the South Florida Water Management District (SFWMD) located along the Kissimmee River. The Florida National Scenic Trail passes through the Range along its southeastern border. In addition, initiatives under the Florida Forever Board of Trustees plan to acquire land north of Avon Park Air Force Range as part of the Bombing Range Ridge project. FFBOT also plans to acquire land located along the range's southern boundary.

The Florida National Scenic Trail, stretching from the Gulf Islands National Seashore to the Big Cypress National Preserve, is considered one of the nation's premier long distance hiking trails. To date, approximately 684 miles of the planned 1,300-mile trail have been prepared and opened for public use, including an approximately 11-mile stretch located within Avon Park Air Force Range (see Figure 5-2). Approximately 24 miles of the trail underlie the Restricted Airspace and an additional 15 miles underlie the MOAs. Avon Park Air Force Range is the controlling agency for the portion of the trail within the Range. Although the trail is maintained by the Florida Trail Association through a Cooperative Agreement with the Air Force, it is an Avon Park Air Force Range asset and can be closed at any time.

Located within Polk County, the Lake Wales Ridge State Forest, administered by the State of Florida, comprises approximately 20,000 acres and offers hiking and equestrian opportunities, canoeing, picnicking, and primitive camping opportunities (Florida Division of Recreation and Parks 2003). The Lake Wales Ridge National Wildlife Refuge was so designated by the USFWS in 1993 and encompasses about 19,000 acres in Highlands County (Florida Division of Recreation and Parks 2003). Lake Kissimmee State Park is located on the southwestern bank of the lake (the third largest in Florida) and comprises about 6,000 acres with abundant opportunities for fishing, bird watching, picnicking, camping, boating and hiking (Florida Division of Recreation and Parks 2003).

The South Florida Water Management District, in cooperation with the US Army Corps of Engineers, is in the process of restoring the Kissimmee River, which was channelized in the 1970's. As part of that initiative, SFWMD has purchased lands that will be impacted by the restoration project. These lands, some of which adjoin the APAFR, will be managed for their conservation values in perpetuity.

### 5.2.3 Agriculture and Rural Lands

The primary land use and the main economic contributor to the region is agriculture, however, much of Central Florida is transitioning from an agriculture dependant economy to a service economy. Other efforts are underway to also attract commercial and industrial industries.

That said, Avon Park Air Force Range is in the heart of Central Florida's farmland community. Of the 1.2 million acres within the Area of Military Influence, 77 percent have a future land use

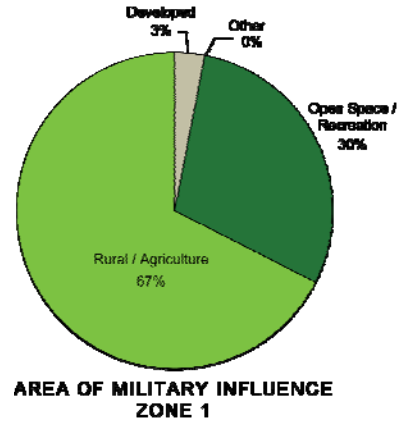
designation of rural/agriculture and 12 percent as conservation area or open space. Only 10 percent of the land area within the Area of Military Influenced is projected to be developed. See Table 5-1 and Figure 5-3, page 5-7.

**Table 5-1**  
**2020 Projected Future Land Use**  
**APAFR Area of Military Influence (Acres)**

Land Use	AMI 1	AMI 2	AMI 3	AMI 4	Total
Rural/Agriculture	84,127	10,562	255,433	589,574	939,696
Open Space/Recreation/Conservation	35,887	3,122	63,112	38,604	140,725
Developed	3,638	252	21,315	102,261	127,466
Other	0	0	0	13,696	13,696
<b>Total</b>	<b>123,652</b>	<b>13,936</b>	<b>339,860</b>	<b>744,135</b>	<b>1,221,583</b>

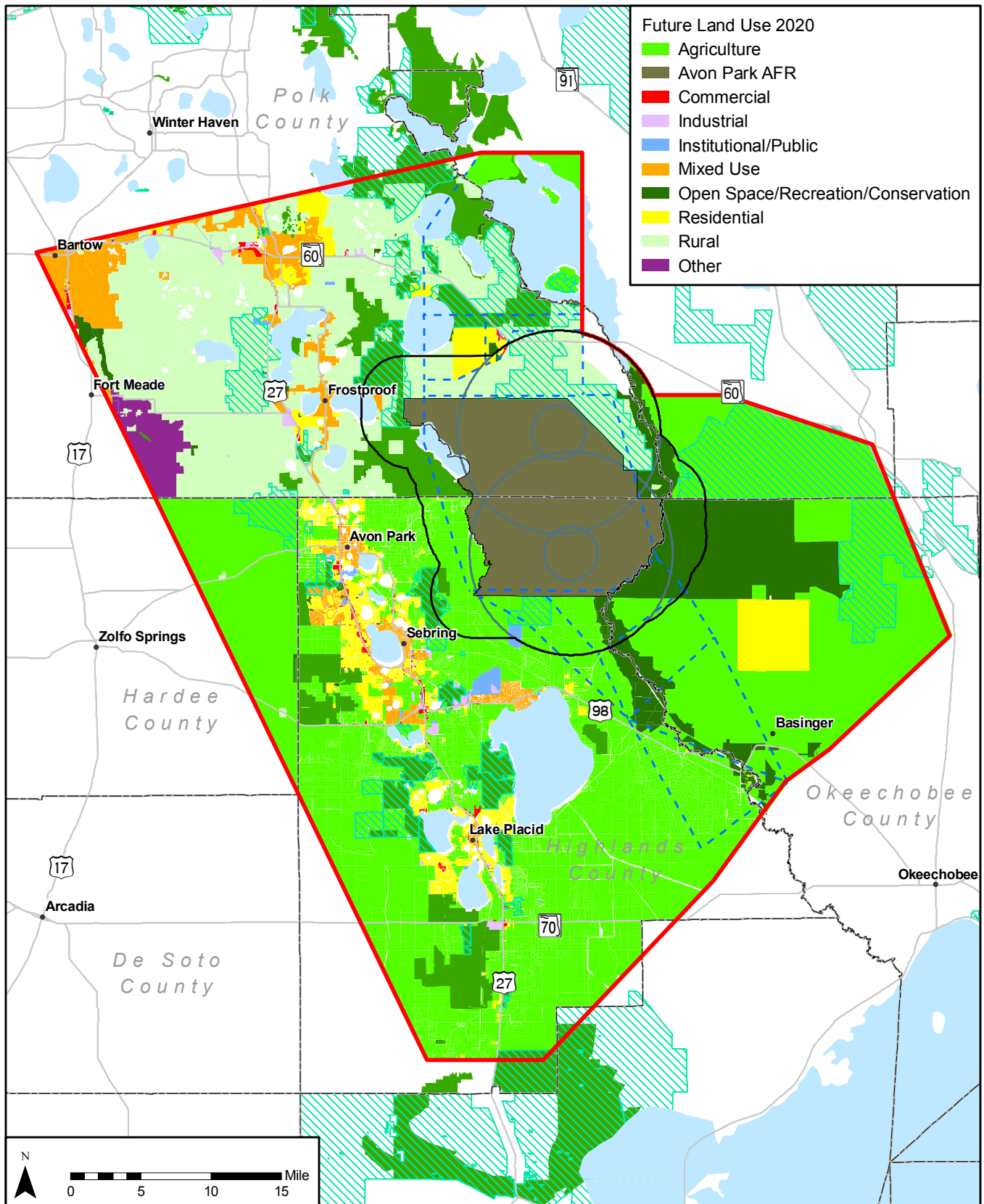
Source: Composite GIS Mapping of County Future Land Use, RSP August 2008.

In the area immediately surrounding Avon Park Air Force Range (AMI 1), over 67 percent of the land has a future land use designation of rural/agriculture, 30 percent as conservation lands, and only 3 percent as developed lands. Without exception, the adjacent land use designations surrounding the range boundaries are theoretically compatible with the land use activities associated with Avon Park Air Force Range.



In Highlands County, for example, 81.5 percent of its land area is identified as farmland. The majority of the farmland in Highlands County is comprised of pasture land, including natural areas and marshes and wetlands. Less than one in five acres of agricultural land in Highlands County is harvested. The average-sized farm for harvested crops is 193-acres, compared to an average of 916 acres for pasture farms.

A portion of the Area of Primary Concern (AMI 1 and 2) falls on land area located within the southwest corner of Osceola County and beyond the boundary limits of Avon Park Air Force Range special use airspace. The portions of Osceola County lying within AMI 1, 2 or 3 (AMI 4 does not extend into Osceola County) include water bodies and areas designated on the Osceola County Future Land use Map as Rural/Agricultural or conservation. Without exception, the lands which are in these zones lie outside of the county’s Urban Growth Boundary. As the Rural/Agricultural Future Land Use Category provides for the continuation of agricultural production and limits residential development to one unit per five acres, and as the Conservation Future Land Use Category does not allow for development, no land use incompatibilities are foreseen in this area.



- Avon Park Air Force Range
- County Boundary
- Highway
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Area of Military Influence
- Area of Primary Concern
- FFBOT Projects
- LWR Region Conservation Lands

**Figure 5-3**

**FUTURE LAND USE**





To maintain the long-term viability of farmlands and the rural character of the region, each of four counties surrounding Avon Park Air Force Range has adopted some form of rural area comprehensive land use plan designed to maintain, protect and preserve environmentally sensitive and agriculturally viable lands. Each plan encourages development within designated urban growth centers and protects farmlands and natural resources through land use controls and incentives.

**5.2.4 Urban Growth Areas**

As evidenced by the land use patterns illustrated on Figure 5-3, most of the urban growth and consequently most of the development within the Area of Military Influence occurs along SR 27, a state highway that transverses north and south about 9 miles west of Avon Park Air Force Range. Urban growth and development is also planned along SR 98, located about 9 miles south of the range. There are pockets of anomalies, namely Indian Lakes Estates, Walk-in-the-Water, and Westgate River Ranch Resort, all located north of the range boundaries in Polk County; and Viking Estates, located in the northwest corner of Okeechobee County. These developments are discussed in Section 5.4 below.

**Table 5-2  
Regional Population Growth Projections by County**

County	Largest Cities in County	Population		
		2007	2015	2030
<b>Highlands</b>		<b>99,349</b>	<b>108,771</b>	<b>127,358</b>
	Sebring	10,648		
	Avon Park	9,056		
	Lake Placid	1,845		
<b>Polk</b>		<b>574,746</b>	<b>651,241</b>	<b>779,172</b>
	Lakeland*	90,207		
	Winter Haven*	30,978		
	Bartow	16,455		
	Frostproof	2,922		
<b>Okeechobee</b>		<b>40,311</b>	<b>41,221</b>	<b>45,713</b>
	Okeechobee*	5,926		
	Basinger	0		
<b>Osceola</b>		<b>255,815</b>	<b>346,740</b>	<b>486,922</b>
	Kissimmee*	60,894		
	St. Cloud*	24,249		

**Notes:**

\* Cities located outside of AMI

Source for city populations uses a 2006 estimated population from <http://www.city-data.com>

The 2007 estimated population of Highlands County (99,349 residents) and Polk County (574,746 residents) together comprised about 3% of Florida’s population of 2.1 million (Enterprise Florida, 2008). The three largest cities in Highlands County – Sebring, Avon Park and Lake Placid -- are located within AMI 4 of the Avon Park Air Force Range Area of Military Influence. Incorporated in 1886, Avon Park is the closest community to Avon Park Air Force

Range. Sebring is the Highlands County seat. The cities of Bartow and Frostproof are located in Polk County and also within the Area of Military Influence, see Table 5-2 above.

### 5.3 Land Use Compatibility Analysis

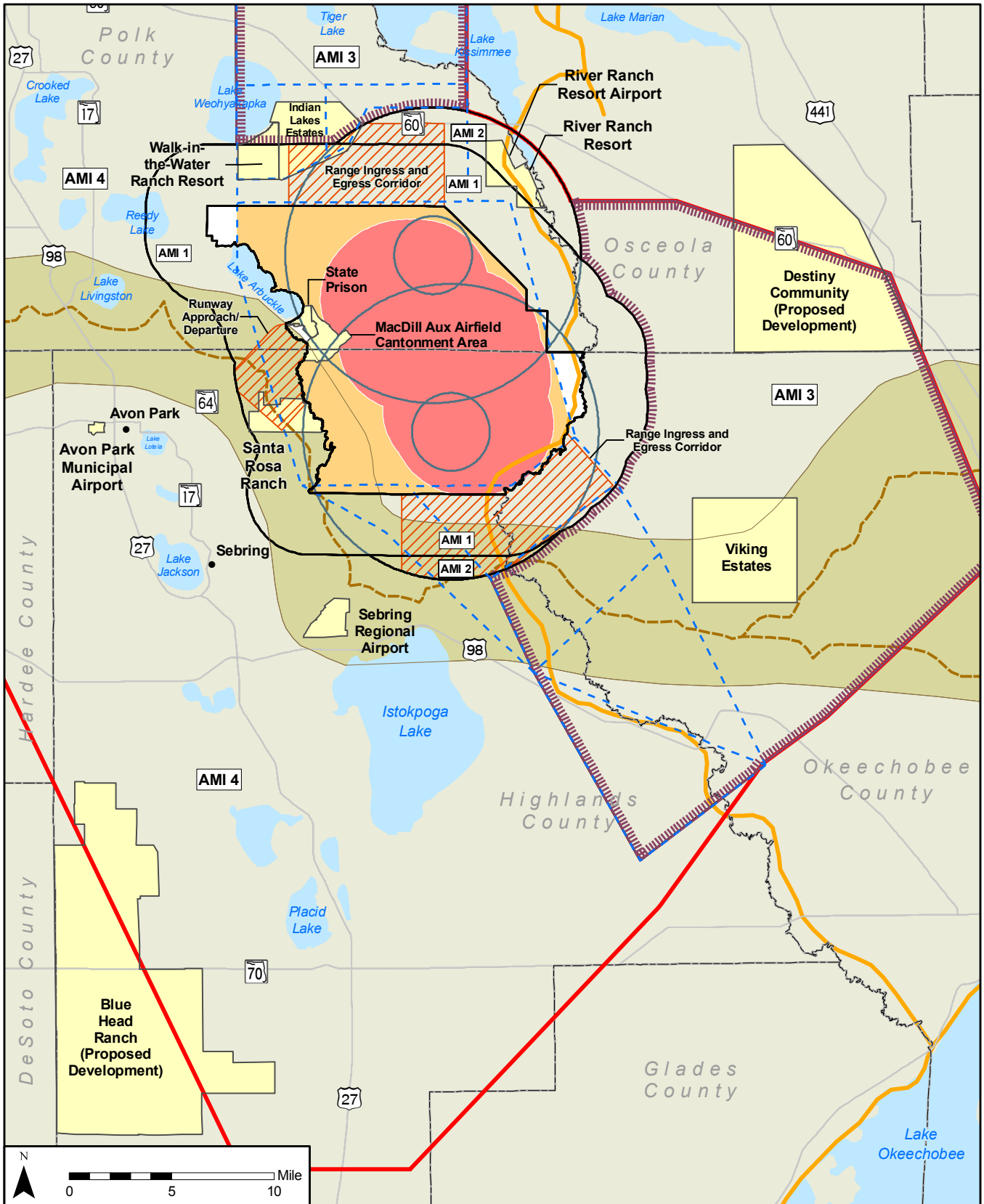
Generally, the existing and planned land uses adjacent to Avon Park Air Force Range and the land uses throughout the entire Area of Military Influence are compatible, from a land use perspective, with the military activities occurring within the range boundaries. Avon Park Air Force Range is surrounded by rural and agricultural lands as well as lands designated as conservation preserves. There are, however, a number of emerging situations that if left unabated could manifest into mission threatening concerns. The locations of some of these concerns are illustrated on Figure 5-4; specific concerns are identified and discussed in following sections.

#### 5.3.1 Areas of Future Concern

The goal of this Land Use Compatibility program is to minimize land use incompatibilities associated with military activities and operations occurring on the range with activities associated with land and airspace in the vicinity of the range. Two of the study's key objectives are to (1) preserve Avon Park Air Force Range's mission and range training capabilities, while (2) minimizing public exposure to safety hazards and noise associated with air-to-ground range training activities. From this perspective, this study identifies three examples of range activities that could cause potential compatibility conflicts, and four types of potential compatibility conflicts emanating from the surrounding community's land use and population growth demands (see Tables 5-3 and 5-4). The tables below identify the cause and effect of the potential conflict and briefly describe suggested actions to eliminate or minimize the impact to the range's mission and training requirements while preserving Avon Park Air Force Range's training assets and capabilities.

Air-to-ground training activities inherently generate hazard and noise concerns that may spill into the adjacent community. This study identifies three sources of potential compatibility conflict as bulleted below and described in Table 5-3.

- Low-level aircraft overflight
- Air-to-ground weapons delivery
- Aircraft overflight noise and weapons detonation noise



- |                               |                                     |
|-------------------------------|-------------------------------------|
| Avon Park Air Force Range     | Area of Critical Concern            |
| County Boundary               | Area of Military Influence          |
| Highway                       | Area of Primary Concern             |
| Noise Contour (dBP)           | Low-level Overflight                |
| Restricted Airspace Boundary  | Anticipated Growth Areas            |
| Weapons Impact Area           | Heartland Coast to Coast Path       |
| Armed Overflight              | Heartland Coast to Coast Study Area |
| Florida National Scenic Trail |                                     |

**Figure 5-4**

**AREAS OF FUTURE CONCERN**

**Table 5-3**  
**Internally-generated Sources of Potential Compatibility Conflict**  
**between Military Activity and Public/Private Land Use**

Internally-generated Source of Potential Compatibility Conflict	Suggested Action or Consequence
<p><b>Cause (Source)</b> Low-level aircraft overflight above private/public lands</p> <p><b>Effect</b> Public exposure to hazard (weaponized aircraft) and noise generated from low flying aircraft</p>	<p><b>Objective</b> Preserve low-level aircraft flight capability over private/public lands, specifically at points of ingress and egress to/from the range and in support of arrival and departure flight tracks to/from MacDill Auxiliary Airfield. Consider land acquisition or avigation easements.</p>
<p><b>Cause (Source)</b> Aircraft-mounted weapons and delivery</p> <p><b>Effect</b> Public exposure to hazards associated with weapons delivery, including accidental, and ricochets</p>	<p><b>Objective</b> Preserve air-to-ground weapons delivery capability. Consider the creation of adequate buffer areas between the Weapons Impact Areas and private/public lands with the intent of minimizing the public's exposure to weapons hazard safety concerns.</p>
<p><b>Cause (Source)</b> Aircraft-generated noise and weapons detonation-generated noise</p> <p><b>Effect</b> Public exposure to aircraft noise and to blast noise</p>	<p><b>Objective</b> Preserve of air-to-ground weapons training opportunities. Consider land controls to minimize proliferation of noise sensitive land uses that may be impacted by aircraft overflight noise and weapons delivery blast noise.</p>

Conversely, activities and land development occurring beyond the range boundaries may become sources of compatibility conflict to military training activities. Examples of these types of threats to continued preservation of mission requirements and training capabilities at the range include:

- Projected population growth and economic pressures
- Devaluation of rural/agricultural lands and agro economies; unsustainable farmlands
- Residential/commercial development outside of designated urban growth areas
- Expansion of infrastructure including transportation, utilities, and airspace corridors

**Table 5-4**  
**Externally-generated Sources of Potential Compatibility Conflict**  
**between Public/Private Land Use and Preservation of Mission and Training Capabilities**

<b>Externally-generated Source of Potential Compatibility Conflict</b>		<b>Suggested Action or Consequence</b>
<p><b>Cause (Source)</b> Population growth and economic pressures</p>	<p><b>Objective</b> Preserve the predominance of rural/agricultural and conservation lands within the AMI, focusing specifically on the land uses within the Area of Primary Concern surrounding the range. Discourage high density development within three miles of the range. Monitor land sales and land use designations.</p>	
<p><b>Effect</b> Population growth and urbanization increases the demands on resources and infrastructure and consequently increases the pressure to expand urbanized areas into agricultural areas.</p>		
<p><b>Cause (Source)</b> Agriculture is a high risk business often impacted by factors well beyond the control of the land owner such as weather, water supply, disease and insects. These factors sometimes cause loss of profitability and the denigration of rural/agricultural lands and industries associated with farmlands, grazing, crops, etc.</p>	<p><b>Objective</b> Preserve the predominance of rural/agricultural and conservation lands within the AMI, focusing specifically on the land uses within the Area of Primary Concern surrounding the range. Discourage high density development within three miles of the range. Monitor land sales and land use designations.</p>	
<p><b>Effect</b> Economic situations may force land owners to sell or subdivide agricultural lands</p>		
<p><b>Cause (Source)</b> Residential/commercial development outside of designated urban growth areas</p>	<p><b>Objective</b> Preserve the predominance of rural/agricultural and conservation lands within the AMI, focusing specifically on the land uses within the Area of Primary Concern surrounding the range. Discourage high density development within three miles of the range. Monitor land sales and land use designations.</p>	
<p><b>Effect</b> Compromises the sustainability of farmlands, grazing lands, and water resources</p>		
<p><b>Cause (Source)</b> Expansion of infrastructure, transportation corridors, and commercial airspace</p>	<p><b>Objective</b> Population centers tend to proliferate along transportation corridors. Discourage vehicular and commercial/general aviation traffic from the vicinity. Maintain APAFR's relative isolation from major transportation network. Monitor SUA utilization.</p>	
<p><b>Effect</b> Increased development and traffic. Increased commercial or general aviation traffic could compromise APAFR airspace.</p>		

### **5.3.2 Analysis of Land Use Compatibility within AMI Zones**

The table below describes specific areas of potential land use compatibility concern within the Area of Military Influence subzones, including a description of the situation, potential land use concerns and potential consequences. Additionally, land use compatibility guidelines as discussed in Section 4.3 are applied to each situation. Figure 5-5, following Table 5-5, is a composite depicting (1) each of the AMI subzones (as shown on Figure 5-1); (2) the future land use designations within the Area of Military Influence (as shown on Figure 5-3), and (3) the areas of future concern (as shown on Figure 5-4). Compatibility determinations shown on Table 5-5 were adjusted according to Tables 4-4, 4-5 and 4-6. Primary considerations included residential density, noise reduction and sound attenuation.

### **5.3.3 Areas of Primary Concern**

Urban growth has the potential to limit operations below restricted airspace and MOA's. Avon Park Air Force Range is a relatively isolated location but the recent residential development in the vicinity of the range signals a need on the part of the US Air Force to initiate a program to raise public awareness relative to its the training mission and the military value of the range.

Residential development to the north of the range consists of the River Ranch Estates and Indian Lakes Estates, which are two large-scale developments in the region. Currently, the low-density residential land use is compatible with the neighboring military mission. While there are no known residential developments planned for lands to the south and southwest of Avon Park Air Force Range, the region is experiencing unprecedented residential growth and the Air Force cannot assume that local land uses will not change in the near future. Avon Park Air Force Range leadership and planners need to take advantage of the current land use patterns and establish working relationships with local county officials and community representatives to make every effort to protect the installation from encroachment from incompatible land uses.

The most critical area of concern aligns the southern boundary of the range where privately-owned lands are impacted by both low-level aircraft overflight and weapons hazard safety concerns. See Figure 5-6, specifically land holdings 3, 4, 8, 17, and 18.

The rural/agricultural character of the area is beginning to erode as evidenced by the number of privately-initiated comprehensive plan amendments received by Highlands County, and indications that several large land owners are preparing to submit amendments covering vast parcels under the state's Rural Lands Stewardship Area Program. In light of this trend comes the realization that failure to proactively plan for this change in land use will result in increased residential development patterns; the loss of economically viable and productive agriculture; and the fragmentation of ecosystems and habitats in the immediate vicinity of Avon Park Air Force Range and throughout the region.

By working collaboratively with the federal, state, and local governments and aligning with the spirit of the Rural Lands Stewardship Area Program, Avon Park Air Force Range may have a role in influencing the disposition of the lands within its designated Area of Primary Concern.

# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept Working Paper

**Table 5-5  
Avon Park Air Force Range Specific Land Use Compatibility Concerns**

AMI Zone	Description and Location	Land Use Concern	Potential Consequence	Compatibility Assessment (See Table 4-6)
1	Santa Rosa Ranch Planned Development located along the western boundary of APAFR	Residential development under arrival/departure flight tracks to/from MacDill Auxiliary Airfield. Development is an APAFR Aircraft Avoidance Area.	Increased public exposure to low-level aircraft overflight	<b>Incompatible</b>
2				
1	Indian Lake Estates and Walk-in-the-Water existing single-family residential developments, including golf course, located north of APAFR	Residential land use under ingress/egress points of the range. Existing residential development has already become a designated APAFR Aircraft Avoidance Area.	Increased public exposure to low-level weaponized aircraft overflight, aircraft noise and blast noise.	<b>Incompatible</b>
2				
1	River Ranch Hunt Club (a private, unrecorded recreational camp) north of APAFR	Primitive camps and recreational use directly abutting the range's north boundary. No county land use controls.	Continued exposure to low-level weaponized aircraft overflight, aircraft noise and blast noise	<b>Compatible</b>
2				
1	Pressure to subdivide and develop agricultural lands located along the southern range boundary.	Increased residential density under critical ingress/egress point to the range. Density - one residence per 5 acres.	Increased exposure to low-level weaponized flight, aircraft noise and blast noise	<b>Incompatible</b>
2				
1	Pressure to subdivide and develop agricultural lands located along the southern range boundary.	Increased residential density and public exposure to weapons impact area. Density - one residence per 5 acres.	Increased exposure to weapons delivery safety hazard. Exposure to blast noise.	<b>Incompatible</b>
2				
1	Florida National Scenic Trail, generally located along the Kissimmee River	Approximately 11 miles of the trail is located within the range boundary and in or near the Weapons Impact Area. Approximately 39 miles of the trail underlie restricted airspace or MOAs.	Hikers exposure to weapons delivery safety hazard. Increased likelihood of unauthorized trespassing.	<b>Conditionally Compatible</b>
2				
3				
1	Proposed 130-mile, 4 lane, limited-access east/west toll road located generally between SR 60 and SR 70. Heartland Coast to Coast Turnpike Corridor extends from I-75 to the west to the Okeechobee/St. Lucie County line to the east. Proposed corridor extends along the western and southern range boundaries.	Expanded transportation network could encourage population growth and development. The turnpike would also segment existing agricultural lands. The corridor may service proposed Florida International Cargo Airport in Hardee County and the Sebring Airport in Highlands County.	Increased vehicular traffic in the vicinity. Portions of the proposed corridor are within 3 miles of the range boundary (AMI 1) and are of critical concern.	<b>Conditionally Compatible</b>
2				
3				
4				
2	River Ranch Resort and Airstrip located near the northeast corner of APAFR. Amenities include marina, equestrian trails, and residential units.	Destination resort with a general aviation airstrip located adjacent to restricted airspace. River Ranch Resort is an APAFR Aircraft Avoidance Area.	Exposure to blast noise. Potential for conflict between general aviation and military aircraft.	<b>Conditionally Compatible</b>
3	Viking Estates, a sparsely built out, 25,000-acre primitive subdivision zoned for residential and agricultural use in Okeechobee County. Potential build out - 12,500 residences.	Conversion of undisturbed lands to residential subdivision, lot sizes 1.25 acres. Located south of Kissimmee Prairie State Preserve	Potential for significant increase in density and population. Residential exposure to low-level aircraft flight	<b>Conditionally Compatible</b>

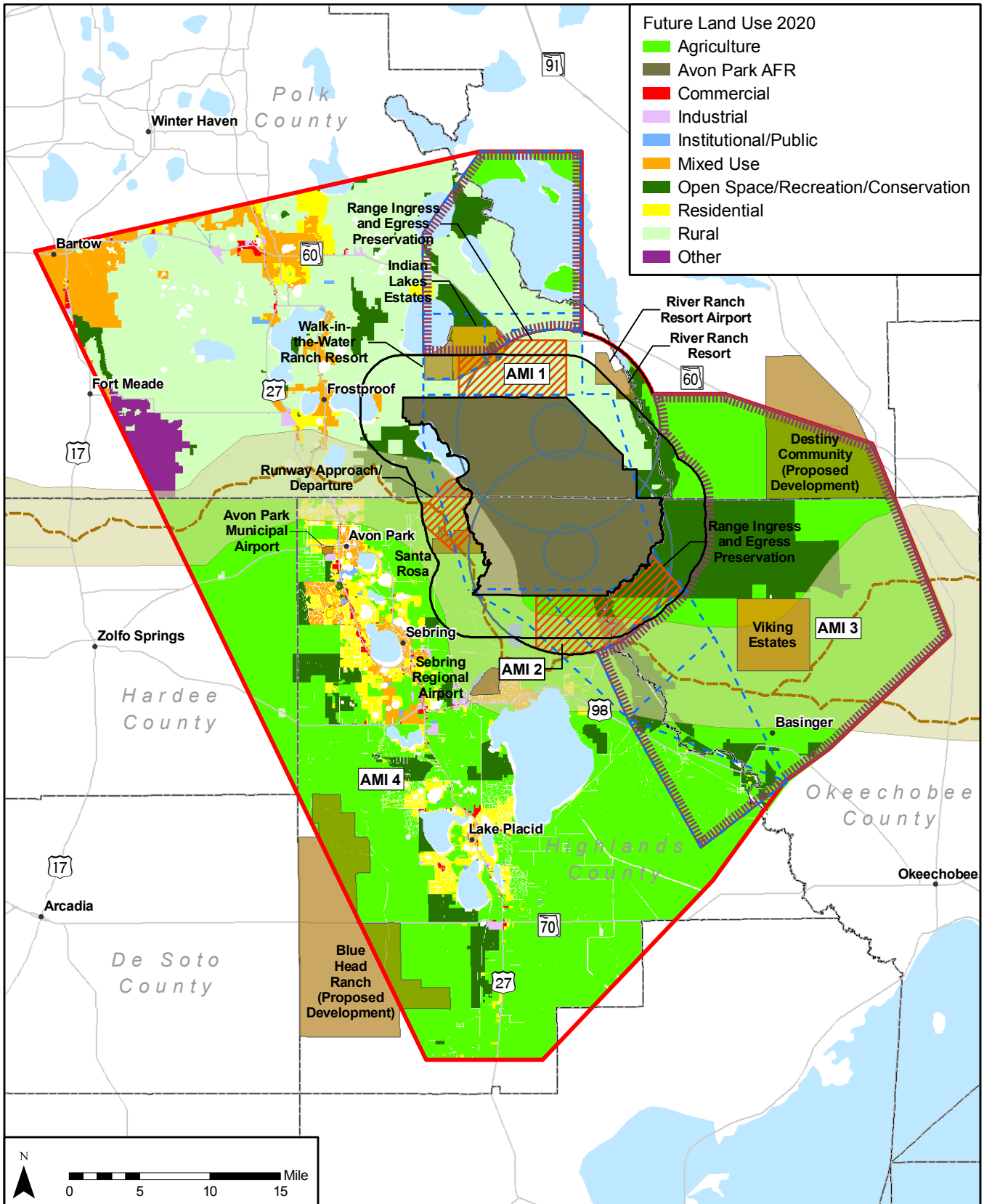
# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept Working Paper

**Table 5-5  
Avon Park Air Force Range Specific Land Use Compatibility Concerns (Continued)**

AMI Zone	Description and Location	Land Use Concern	Potential Consequence	Compatibility Assessment (See Table 4-6)
3	Destiny, a proposed 41,300-acre (65 square mile) eco-sustainable mixed use community, sited in the southwest corner of Osceola County, accessible from Florida Turnpike Yeehaw Junction exit, SR 60, and Route 441.	Conversion of rural/agricultural lands to densely developed residential and commercial center. Over 50 percent of the proposed development underlies low-level airspace in the Marian MOA.	If development were to build out to its potential it would result in sufficient increase in population and commercial development, which could create another APAFR Aircraft Avoidance Area.	<b>Conditionally Compatible</b>
4	Urban Growth Areas along SR 27 including Avon Park and Sebring	Population projections suggest that communities along the SR 27 corridor will proliferate and expand.	Increased demand on agricultural lands and infrastructure. Increased number of sensitive noise receptors.	<b>Compatible</b>
4	Sebring Regional Airport located south of APAFR	Sebring Airport Master Plan includes a proposed major regional cargo transportation inter-modal transfer site which could potentially cause an economic boon for the region, resulting in additional homes and increased density. Airport is an APAFR Aircraft Avoidance Area	Increased general and commercial aviation in the existing MOAs. Increased demand for housing and other commercial services.	<b>Conditionally Compatible</b>
4	Avon Park Municipal Airport located west of APAFR	Population projections suggest that air traffic will increase. Airport is an APAFR Aircraft Avoidance Area	Increased general aviation	<b>Conditionally Compatible</b>
4	Proposed Blue Head Ranch development located on 65,000 acres in the southwest portion of Highlands County.	Master plan includes 54,600 housing units, a population of 125,000 people, 2.5 million square feet of retail shopping, 900,000 square feet of office space, 9,000 acres of long term agriculture, 31,000 acres of nature preserve	This is a substantial development. The majority of this planned development is located beyond the designated Area of Military Influence.	<b>To Be Determined</b>





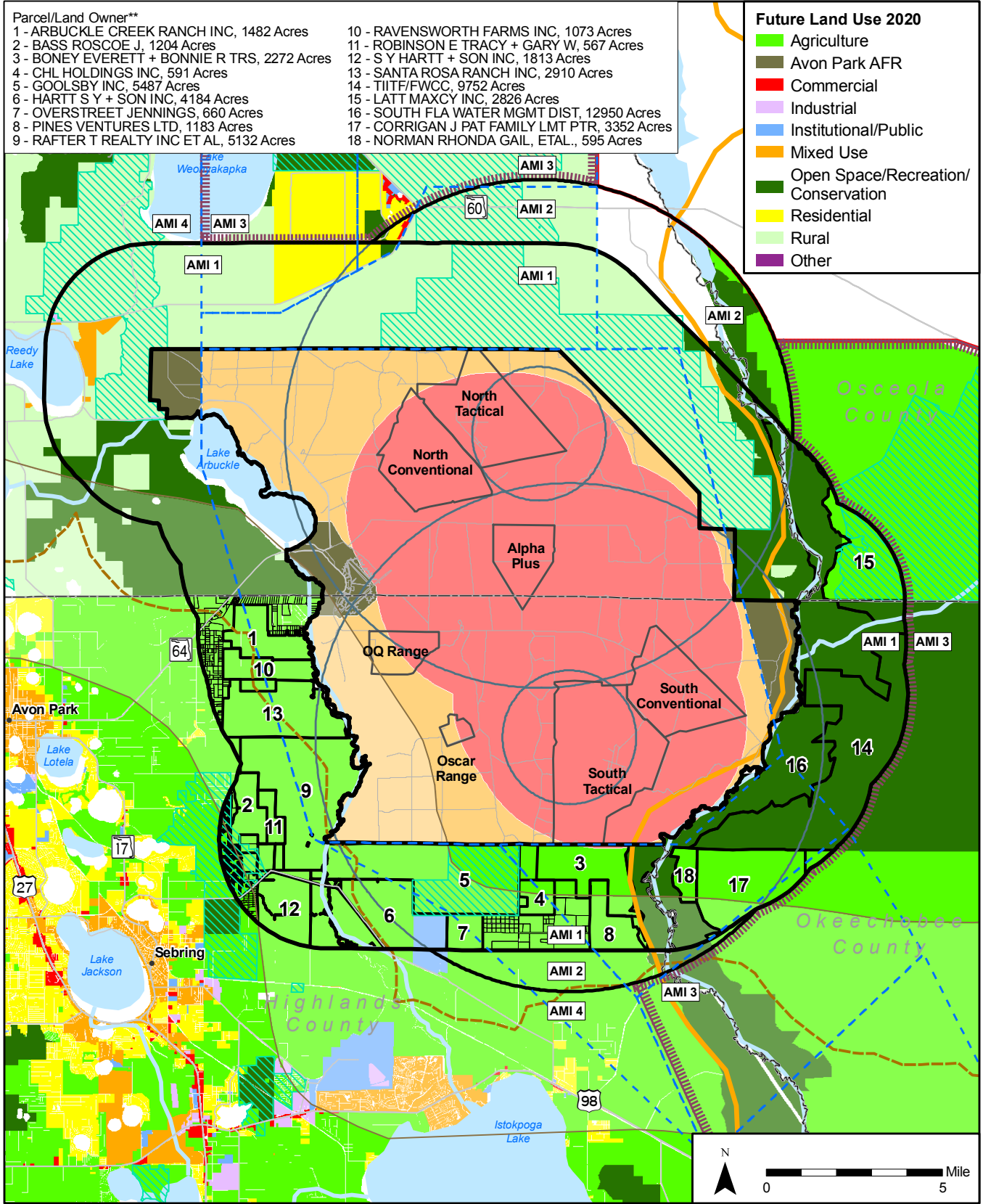
- Future Land Use 2020**
- Agriculture
  - Avon Park AFR
  - Commercial
  - Industrial
  - Institutional/Public
  - Mixed Use
  - Open Space/Recreation/Conservation
  - Residential
  - Rural
  - Other



- Avon Park Air Force Range
- County Boundary
- Highway
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Heartland Coast to Coast Path/Study Area
- Area of Military Influence
- Area of Primary Concern
- Area of Critical Concern
- Anticipated Growth Areas
- Low-level Overflight

**Figure 5-5**

**FUTURE LAND USE  
COMPATIBILITY  
COMPOSITE**



- Parcel/Land Owner\*\*
- 1 - ARBUCKLE CREEK RANCH INC, 1482 Acres
  - 2 - BASS ROSCOE J, 1204 Acres
  - 3 - BONEY EVERETT + BONNIE R TRS, 2272 Acres
  - 4 - CHL HOLDINGS INC, 591 Acres
  - 5 - GOOLSBY INC, 5487 Acres
  - 6 - HARTT S Y + SON INC, 4184 Acres
  - 7 - OVERSTREET JENNINGS, 660 Acres
  - 8 - PINES VENTURES LTD, 1183 Acres
  - 9 - RAFTER T REALTY INC ET AL, 5132 Acres

- 10 - RAVENSWORTH FARMS INC, 1073 Acres
- 11 - ROBINSON E TRACY + GARY W, 567 Acres
- 12 - S Y HARTT + SON INC, 1813 Acres
- 13 - SANTA ROSA RANCH INC, 2910 Acres
- 14 - TIITF/FWCC, 9752 Acres
- 15 - LATT MAXCY INC, 2826 Acres
- 16 - SOUTH FLA WATER MGMT DIST, 12950 Acres
- 17 - CORRIGAN J PAT FAMILY LMT PTR, 3352 Acres
- 18 - NORMAN RHONDA GAIL, ETAL., 595 Acres

**Future Land Use 2020**

- Agriculture
- Avon Park AFR
- Commercial
- Industrial
- Institutional/Public
- Mixed Use
- Open Space/Recreation/Conservation
- Residential
- Rural
- Other

- Avon Park Air Force Range
- County Boundary
- Road
- Noise Contour (dBP)
- Restricted Airspace Boundary
- Heartland Coast to Coast Path/Corrdior
- Florida National Scenic Trail
- FFBOT Projects

- Area of Military Influence
- Area of Primary Concern
- Area of Critical Concern
- Low-level Overflight
- Impact Area
- Weapons Impact Area
- Armed Overflight

N

0 5 Mile

**Figure 5-6**

**AREA OF PRIMARY CONCERN**

## **5.4 Recommendations**

The Proof of Concept application for Avon Park Air Force Range has demonstrated the validity of a Land Use Compatibility Program for the US Air Force ranges. This effort has identified many unique characteristics of the range and addressed them in the context of similar Service programs. The uniqueness of the site has tested the application and to meet the demands of the range, the program has had to evolve to satisfy the needs of this very unique and critical USAF facility. The program as it now stands, demonstrates the flexibility required to address a unique site but also the consistency mandated by specific USAF and APAFR guiding principles and requirements.

The recommendations that follow are specific to Avon Park Air Force Range and require action by the Range and neighboring communities if they are to be successfully implemented.

### **5.4.1 Local Counties and Municipalities**

- Enact guidelines to guide growth in areas unprotected from growth. This includes expanding land use controls to incorporated and unincorporated areas adjacent to Avon Park Air Force Range (AMI Zone 1)
- Adopt the Area of Military Influence as a formally designated geographic planning area within the region
- Adopt and enact local policies promoting disclosure of safety and noise hazards prior to land transactions and development or sale of property in the vicinity of Avon Park Air Force Range, specifically AMI Zones 1, 2, and 3. In fact, state or local legislation may have already been enacted to promote inclusion of military activities into the planning actions of local jurisdictions.
- Adopt noise attenuation and recommendations for future development in high noise areas (AMI Zone 2)

### **5.4.2 Avon Park Air Force Range**

- Establish a position for a Land Use Compatibility Officer to interface with the local community on all related land use and development issues within the Area of Military Influence. Seek partnerships to protect Air Force interest and support DoD initiatives, such as the Readiness and Environmental Protection Initiative, and implement the items identified below.

# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept Working Paper

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- Acquire critical lands south of range in the Area of Critical Concern to establish a buffer between the weapons impact area and privately owned land (AMI Zones 1 and 2)

	<b><u>Parcel Owner</u></b>	<b><u>#</u></b>	<b><u>Area (Acres)</u></b>	<b><u>Location</u></b>
○	Boney	(3)	2,272	AMI 1
○	Chl Holdings	(4)	591	AMI 1
○	Pines Ventures	(8)	1,183	AMI 1

- Acquire lands to protect airfield approach and departure tracks (AMI Zone 1)

	<b><u>Parcel Owner</u></b>	<b><u>#</u></b>	<b><u>Area (Acres)</u></b>	<b><u>Location</u></b>
○	Arbuckle Creek	(1)	1,482	AMI 1
○	Ravensworth	(10)	1,073	AMI 1

- Acquire lands to protect range ingress and egress corridors (AMI Zone 1)

	<b><u>Parcel Owner</u></b>	<b><u>#</u></b>	<b><u>Area (Acres)</u></b>	<b><u>Location</u></b>
○	Corrigan	(17)	3,352	AMI 1
○	Norman	(18)	595	AMI 1

- Acquire other critical properties in AMI 1

	<b><u>Parcel Owner</u></b>	<b><u>#</u></b>	<b><u>Area (Acres)</u></b>	<b><u>Location</u></b>
○	Goolsby	(5)	5,487	AMI 1
○	Hartt	(6)	4,184	AMI 1

- Begin informal discussions with all 3<sup>rd</sup> party land conservation based organizations that have an interest in the acquisition and/or preservation of high value agricultural and natural resources lands located within the Area of Critical concern, (AMI Zones 1, 2, 3)

- American Farm Land Trusts
- The Conservation Fund
- The Nature Conservancy
- Trust for Public Land

- Investigate and pursue partnerships with Federal and State of Florida Conservation Programs and Sponsors (AMI)

- Farm & Ranch Protection Program
- Grassland Reserve Program
- Wetlands Reserve Program
- Conservation Reserve Program
- Florida Forever
- Florida Fish & Wildlife Conservation Commission
- Florida Communities Trust

## Avon Park Air Force Range

### Land Use Compatibility Proof of Concept Working Paper

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- Interface with the Florida Defense Alliance to improve communication between communities and the military in order to jointly pursue infrastructure grants and improvements in the vicinity of the range.
- Collaborate with state and local counties and municipalities to implement and enforce a policy of real estate disclosure for all sales and transactions within (AMI Zones 1,2, and 3)
- Work with neighboring counties to adopt the concept of the AMI as a formally designated geographic planning area within the region (AMI)
- Produce maps for public distribution depicting areas of military operations and high noise, safety concerns and other land use compatibility issues (AMI)
- Develop and maintain a user friendly web page to keep the general public aware of high noise areas, safety concerns and other land use compatibility issues (AMI)
- Form a committee with local civilian membership to discuss air operations and review quarterly any noise complaints or other concerns (AMI)

## 6 Legislative Programs and Implementation Strategies

### 6.1 Background

To encourage compatible development beyond the fence line of most military installations, military and civilian staff will need to provide substantial input to land use planning and policy decisions that are controlled by state, regional and local governments. Engaging state and local policy makers and planning officials will require a new set of skills, knowledge and strategies. Recent reforms, such as new guidance from DoD's Office of General Counsel and recent Florida State planning laws, provide a good framework for facilitating joint discussions on regional growth and military training operations.

The goal of this section is to familiarize military and civilian staff at Avon Park Air Force Range with tools and strategies available to them as they navigate the complex and often controversial land use planning process governing local development. By working and collaborating with other governmental agencies, Avon Park Air Force Range has an opportunity to shape the growth and development occurring in Central Florida. The recommendations offered in Chapter 5 become a first step in the implementation process. The strategies offered here provide a means to begin the necessary action required to preserve critical operational capabilities at the range while working hand in hand with key stakeholders in the community.

### 6.2 APAFR Land Use Compatibility

The Avon Park Air Force Range land use compatibility plan will employ strategies that fall into two categories: external actions, strategies based upon outreach and partnering principles, and internal actions, designed to mitigate impacts to military operations by adjusting training missions, where appropriate, to become more compatible with existing safety and environmental concerns.

The foundation of this program is an active local command and a regional effort aimed at partnering with local, state, and national conservators as well as local, state and federal agencies. This is necessary for two reasons: first, local land use controls adjacent to or near DoD ranges and under Military Training Routes and Special Use Airspace are often inadequate to protect the mission; and secondly, the use of installation properties are sometimes restricted by natural resource requirements, making it necessary to acquire additional property interests to protect the regulated natural resource and the military mission. Avon Park Air Force Range falls into both categories.

Avon Park Air Force Range managers should continue discussions with conservation organizations such as the Nature Conservancy and the Farm Land Trust as well as local, state and federal agencies that are interested in partnering with an aim toward acquiring buffers that move incompatible development further from the range and away from critical mission elements.

Land use compatibility can most effectively be accomplished by active participation of all stakeholders, including the US Air Force, local governments, private citizens, real estate professionals, developers and conservation based organizations. Land use compatibility between the range and the surrounding communities becomes a shared responsibility between the range and local and state government to protect the public health, safety and to preserve the public's investment in Avon Park Air Force Range by safeguarding its operational capability and sustaining the mission.

A successful implementation of the program and the application of existing land use controls like, zoning, building codes, subdivision regulations and potentially even disclosure, depends upon a close working relationship between Avon Park Air Force Range and community leaders. Avon Park Air Force Range should continually inform local governments, the state, federal agencies, citizen groups and the general public on:

- Requirements of military aircraft overflight
- Range operations
- Efforts to reduce noise and other potential off range impacts
- Avon Park Air Force Range's Command position on specific land use issues such as rezoning, infrastructure improvements, and public utility sitings within the AMI

The Avon Park Air Force Range Proof of Concept is primarily focused on areas within the AMI. Nevertheless, the US Air Force and Avon Park Air Force Range management staff can and should take positions and comment on land use issues outside the AMI that could lead to incompatible development. For example, large scale developments well beyond the range boundary could endanger critical MTR's or MOA's and jeopardize critical training events and ingress and egress corridors. At some point the potential for mission changes or expansion opportunities may also be at risk. The Avon Park Air Force Range managers and staff should monitor all proposed development beyond the AMI that has the slightest potential to inhibit military operations in the future and present their concerns and issues in appropriate forums. Given the magnitude of this effort and the risk to the sustainability of the Avon Park Air Force Range, if a proactive program is initiated, the need for a dedicated staff member to manage this program cannot be overstated.

### **6.3 State of Florida Legislative Guidance and Initiatives**

Through the adoption of Section 163.3175, FS, the Florida Legislature determined that incompatible development of land near military installations can adversely affect the ability of an installation to carry out its mission and that such development also threatens the public safety because of the possibility of accidents occurring within the areas surrounding a military

installation. In addition, the economic viability of a community is affected when military operations and missions must relocate because of incompatible urban encroachment. Therefore, the Legislature has directed local governments in the state to cooperate with military installations to encourage compatible use, help prevent incompatible encroachment, and facilitate the continued presence of major military installations throughout the state. Through the adoption of this statute, local governments adjacent to military installations must update their comprehensive plans to address compatibility issues.

Without good planning and vigilance to changing conditions, the specialized mission of the particular military installation can often be threatened as a result of impacts from adjacent land uses. To balance the needs of military operations and community concerns the Florida Legislature has directed local governments to cooperate with military installations to encourage compatible land use, help prevent incompatible encroachment, and facilitate the continued presence of major military installations in the state.

In 2004, the Florida Legislature enacted SB 1604 that amended Florida's Growth Management Act to require more active communication between local governments and military bases to avoid potential conflicts between future developments and military installations. The act requires that each county in which a military base is located and each affected municipality notify a military base's commanding officer of a proposed change to the government's comprehensive plan and land development regulations that would affect the land use adjacent to the military base. It also required that local governments amend their comprehensive plans to include criteria that would call for compatible uses of land adjacent or located close to lands with military installations, and created a defense infrastructure grant program coordinated by the Florida Office of Tourism, Trade and Economic Development. The Florida Department of Community Affairs (DCA) has been assisting communities surrounding military bases and the Florida Defense Alliance (FDA) with planning strategies and land acquisition to protect military bases. The FDA is an initiative of Enterprise Florida, which was created in 1998 to ensure that Florida, along with its military bases and their host communities is best positioned to support and enhance transformational initiatives of the DoD.

## **6.4 Existing APAFR Intergovernmental and Other Agreements**

Intergovernmental and private party coordination involves the evaluation of relationships between the proposed action and the objectives of federal, state, and local land use plans, policies, and controls, including required permits and approvals.

Aircrew weapons training is the primary purpose of Avon Park Air Force Range; however, a variety of other activities occur on the range. Avon Park Air Force Range has several cooperative agreements with state and federal agencies, which are mutually beneficial to all parties. For example, fish and wildlife management activities and support agreements are developed to ensure appropriate resource stewardship while not interfering with the weapons training mission. No direct habitat improvements are carried out on active ranges or in areas where the result could increase the hazard to aircraft flying operational missions.



The following intergovernmental agreements with federal and state governments as well as individuals are in place at Avon Park Air Force Range:

- **Wildlife Management Area.** Avon Park Air Force Range has a cooperative agreement with the Florida Fish and Wildlife Conservation Commission (FWWCC) and the U.S. Fish and Wildlife Service (USFWS) to manage a portion of the range as a State of Florida Wildlife Management Area. All forms of legal game may be taken during established seasons, and fishermen are permitted access to Avon Park Air Force Range whenever the mission permits. In accordance with this tripartite agreement, the Air Force is not responsible for hunter education, but does issue permits.
- **Mutual Aid (Forest Fire) Agreement.** This is a mutual aid agreement for firefighting support between the Air Force and the Florida Division of Forestry that permits either agency to request firefighting equipment when required. Additionally, under an agreement with the State of Florida, the Avon Park Correctional Institution provides firefighting personnel primarily to be used for structural fire protection, but they can also provide augmenters for range wildfire suppression.
- **Conservation District.** Avon Park Air Force Range has an agreement with the Highlands Soil and Water Conservation District. A member of the District, the Air Force can obtain technical services from the local Natural Resources Conservation Service (NRCS) office to protect the soils of the range under the establishment of a conservation district.
- **AVPCI Agreement.** Incineration of solid waste and treatment of sewage is accomplished by AVPCI facilities. The present agreement with the State of Florida allows Avon Park Air Force Range to purchase water waste disposal from the AVPCI facilities at the “fair market rate.” The AVPCI also provides electricity to the range under contract. The Air Force at Avon Park Air Force Range is under contract with the AVPCI for all its utilities. The AVPCI purchases electricity from the Peace River Electrical Cooperative and resells a portion of it to Avon Park Air Force Range at the same purchase price rate. Consequently, all utilities (water, waste, electric power) are purchased by Avon Park Air Force Range at the fair market rate. The AVPCI is also under contract to the Air Force to provide entry gate security personnel to man the only entry gate to Avon Park Air Force Range. As a part of the AVPCI complex, the entry gate would only be manned during the day; therefore, the Air Force has a contract with the AVPCI to man the security gate 24-hours per day. This contract pays one-half of the security personnel’s total salary in order to keep the gate open around the clock.
- **Fort Kissimmee Cemetery.** A plot of land deeded to the Fort Kissimmee Cemetery Association exists on the western shore side of the Kissimmee Rive, within the confines of the Range. The Association has been granted access through Avon Park Air Force Range lands for the purposes of visiting and maintaining the gravesites. Cemetery access is coordinated through Operations rather than Outdoor Recreation.

- **Grazing Leases.** Large herds of cattle graze on 96,000 acres (38,850 ha) of Avon Park Air Force Range under a mutual advantageous economic arrangement for the government and the cattlemen. The U.S. Army Corps of Engineers (USACE) (Mobile office) secures the leases with private individuals, with the local USACE office managing the leasing and coordinating the program with the Natural Resources Section at Avon Park.
- **Timber Sales.** The Natural Resources Section administers commercial contracts with private timber businesses for the sale and removal of timber stands.

## 6.5 Program Implementation

There are a variety of the tools that can aid in implementing a land use compatibility program; examples are provided for all levels of government as well as key stakeholder groups. Knowledge of these tools will help the range manager to better understand the key differences between land use planning on a military installation to the more rigorous planning process imposed upon local governments. Local governments are subject to state laws, and formulate most land use policies and enact different types of land use regulations. Land use plans, building codes and zoning regulations form the basic ground rules for developing private property. These regulations differ from state to state and city to city. The variety of rules and processes means that no two local governments will approach land use planning in exactly the same way.

### 6.5.1 Federal Level

- **Executive Order 12372, Intergovernmental Review of Federal Programs.** As a result of the Intergovernmental Cooperation Act of 1968, the Office of Management and Budget requires, through Circular A-95, that all federal aid development projects must be coordinated with and reinforce state, regional, and local planning. As such, if land use compatibility suggestions as set forth in this Proof of Concept, or any other military land use compatibility study adopted by local government agencies, the A-95 review process can divert federal monies away from any projects that support incompatible development.
- **National Environmental Policy Act (NEPA) of 1969.** NEPA mandates full disclosure of environmental effects resulting from proposed federal actions. An environmental impact statement disclosure provides a public open forum for review and for negotiating changes to federal actions of other agencies that would be incompatible with local range planning goals and objectives. An environmental assessment (EA) is less detailed than an EIS. The EA discusses impact and alternative measure of a proposed action, but has no public open forum for review.

- **Readiness and Environmental Protection Initiative 2002.** In 2002 as part of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2003, Congress authorized Section 2684a of Title 10 United States Code (10 U.S.C. § 2684a), which allows the Military Services to enter into agreements with private conservation organizations or with state and local governments. These agreements allow the Services to cost-share the acquisition of conservation/restrictive-use easements and other interests in land from willing sellers - a way to preserve high-value habitat and limit incompatible development around military ranges and installations.

### 6.5.2 Local Government

The AMI footprint affects a portion of Highlands, Polk, Okeechobee and Osceola Counties, Florida. County officials have several approaches at their disposal to promote compatible land use and limit incompatibilities and conflicts within the AMI footprint.

- **Zoning** is an exercise of the police powers of state and local governments that designates the uses permitted on each parcel of land. It normally consists of a zoning ordinance that delineates the various use districts and includes a zoning map based on the community's vision of the future. As this vision changes over time, the zoning can be changed to suit new ideas. Hence, for zoning to be an effective control against incompatible land uses, it must be monitored over time. Zoning can and should be used constructively to increase the value and productivity of land within the AMI footprint. Used within its limitations, zoning is the preferred method of controlling land use in AMI affected areas.
- **Comprehensive Planning Programs** create plans for the future development or redevelopment of a community. Comprehensive plans or policy guides for physical development and land management practices within a local jurisdiction, consist of smaller master plans relating to the various elements of a community (e.g., land use plan, transportation plan, public utilities plan, and housing plan). A comprehensive plan coordinated with the Avon Park Air Force Range land use objectives will reinforce the overall vision and objectives of the county, help potential developers to stay in tune with the long-range goals for the county, and help promote compatible uses in the areas impacted by range operations.
- **Subdivision Regulations** are a means by which local government can ensure that proper density, lot layout, design, and improvements are included in new residential developments. These regulations specifically set guidelines that developers must follow when constructing their subdivisions, including minimum requirements for road widths, lot arrangements, allocation of facilities, the relationship of the subdivision to the surrounding area, and the dedication of property. Subdivision regulations are used to ensure that the health and habitability of each new residential development is maintained. All subdivision reviews should include an analysis of the potential effect military operations would have on the proposed development and conversely, the impact the

subdivision has on training operations. Modifications could then be instituted in the development plan to minimize any potentially adverse effects.

- **Capital Improvements Programming** is the multiyear scheduling of physical upgrades to public property. A capital improvements program (CIP) is a planning tool used by local jurisdictions to phase the installation of needed public facilities (e.g., water and sewer, roads, schools) on a priority basis. A CIP projects three to six years into the future. It specifies what public improvements will be constructed. Scheduling is based on studies of fiscal resources available and improvements needed. Usually development occurs where capital improvements are located. Extension of municipal services into an area makes that area more attractive to developers than sites without the improvements. Local governments should avoid extending capital improvements into the AMI footprint whenever possible and limit development within AMI Zone 1 to only compatible land uses.
- **Real Estate Disclosure** can be approached as a voluntary or regulatory practice. These provisions require that developers or landowners who own property within the AMI must notify any prospective purchaser of such property of the noise and safety considerations. This concept could be strengthened by having each buyer or renter execute a “disclosure statement” that contains the acknowledgment that the buyer or renter has been advised that the property is near a military installation and its location has noise or safety concerns associated with military operations conducted on the range. Examples of disclosure statements are provided in Appendix A.
- **Public Purchase of Land** can work toward land use compatibility objectives if the community’s intention is to leave the land undeveloped or open space.
- **Property and Property Rights Acquisition.** The acquisition of property or property rights may be exercised to achieve compatible uses in locations where other measures have failed, or are not feasible. Acquisition may take on several forms, including easements, leaseholds, and fee simple purchase. The first priority for acquisition is the land within the weapons impact area. The second priority for acquisition would be lands underlying the area of armed overflight. Noise zones that are located outside the range may be considered for acquisition only when the operational integrity of the range is manifestly threatened.
- **Emphasis on Public Outreach** promotes close working relationships between the range, community leaders and citizens. A carefully designed program of public relations and education can promote community awareness of the importance of the range and the US Air Force’s desire to be a good neighbor. The Avon Park Air Force Range can use community forums, brochures, and local speaking engagements (e.g., Rotary Club, Lions Club etc.) to inform the general public about the Land Use Compatibility Program and the need for compatible development around the range. Commanding Officers and their

staff should take every opportunity to meet with and make presentations to the local governments, particularly the planning and zoning agencies.

### **6.5.3 Private Citizens, Real Estate Professionals, and Businesses**

- **Private Citizens** have the ability to not purchase property within areas of high noise exposure and/or areas of elevated safety concerns.
- **Real Estate Professionals** have the ability to ensure that prospective buyers or lease holders/renters are fully aware of what it means to be within high noise zones and/or safety concerns.
- **Acquisition, Development, and Construction Loan Review to Private Contractors** works to encourage a review of noise and safety hazards as part of a lender's investigation of potential loans to private interests for real estate acquisition and development. Diligent lending practices will promote compatible development and protect lenders and developers alike. Local banking and financial institutions should be encouraged to incorporate a "due diligence review" of all loan applications, for any property within the AMI zones 1, 2 and 3.

## **APPENDIX A**

### **EXAMPLE DISCLOSURE STATEMENTS**

- (1)** Sample - Real Estate General Disclosure Form
- (2)** Sample - Memorandum of Understanding

***Example: - Sample Real Estate General Disclosure Form***

**Area of Military Influence  
Avon Park Air Force Range**

Property at the following location is situated in the vicinity of Avon Park Air Force Range. The subject property therefore may currently or in the future be exposed to periodic low-level military aircraft over-flights, large artillery noise, small arms noise and impacts associated with other such military training operations.

**Parcel #** \_\_\_\_\_ **Deed Book #** \_\_\_\_\_ **Page #** \_\_\_\_\_

**Address** \_\_\_\_\_

I, \_\_\_\_\_, owner of the subject property, hereby certify that I have informed, \_\_\_\_\_, the prospective purchaser/lessee/renter, that the subject property is located in the vicinity of Avon Park Air Force Range and may therefore be currently or in the future exposed to periodic low-level military aircraft over-flights, large artillery noise, small arms noise and impacts associated with other such military training operations.

\_\_\_\_\_  
**Owner/Date**

I, \_\_\_\_\_, prospective purchaser, of the subject property, hereby certify that I have informed by, \_\_\_\_\_, owner, that the subject property is located in the vicinity of Avon Park Air Force Range and may therefore be currently or in the future exposed to periodic low-level military aircraft over-flights, large artillery noise, small arms noise and impacts associated with other such military training operations.

\_\_\_\_\_  
**Purchaser/Lessee/Renter/Date**

Signed before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2008, in the County of \_\_\_\_\_, Florida

\_\_\_\_\_, Notary Public, State of Florida

My commission Expires on \_\_\_\_\_ (SEAL)

***Example: - Sample Memorandum of Understanding***

**MEMORANDUM OF UNDERSTANDING**

Between Avon Park Air Force Range and  
The Counties of \_\_\_\_\_ and  
The Cities of \_\_\_\_\_

This Memorandum of Understanding between Avon Park Air Force Range and the County of \_\_\_\_\_, and the Cities of \_\_\_\_\_, is enacted to establish a mutually beneficial process that will ensure timely and consistent notification and cooperation between the parties on projects, policies, and activities. These parties have a mutual interest in the cooperative evaluation, review and coordination of local plans, programs and projects in the Counties of \_\_\_\_\_,

The Cities of, \_\_\_\_\_ and, the Avon Park Air Force Range.

The Cities of, \_\_\_\_\_ and the Counties of \_\_\_\_\_ agree to:

1. Submit information to APAFR on plans, programs, actions, and projects that may affect APAFR. This may include the following:
  - Development proposals in the Military Area of Influence
  - Transportation improvements
  - Sanitary waste facilities and any other infrastructure improvements necessary to support development
  - Open space and recreation
  - Public works projects
  - Land use plans and ordinances
  - Rezoning and variances
2. Submit to APAFR for review and comment, project notification, policies, plans, reports, studies and similar information on development, infrastructure and environmental activities within the APAFR Area of Influence.
3. Consider APAFR responses and comments as part of local responses or reports.
4. Include APAFR in the distribution of meeting agendas for , but not limited to:
  - City Council or County Commission Meetings
  - Planning Commission Meetings
  - Zoning Board Meetings



# Avon Park Air Force Range

## Land Use Compatibility Proof of Concept Working Paper

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Avon Park Air Force Range agrees to:

1. Submit to City and County representatives on plans, programs, actions and projects which may affect the city or county. These may include the following:
  - Installation Master Plan
  - Air Installation compatible Use Zone Study
  - Noise Studies
  - Changes in existing installation use patterns that may impact areas outside of the installation boundary
  
2. Submit to city and County representatives for review and comment, project notification, policies, plans, reports, studies and similar information on development, infrastructure and environmental activities at Avon Park Air Force Range.

This agreement will remain in effect until terminated by any of the parties. Amendments to this memorandum may be made by mutual agreement of all parties. Review process details and appropriate forms may be developed to facilitate uniform and efficient exchanges of comments.

This understanding will not be constructed to obligate the APAFR, the Cities and counties to violate existing or future laws or regulations.

This agreement is approved by:

\_\_\_\_\_  
County

\_\_\_\_\_  
City

\_\_\_\_\_  
Avon Park Air Force Range

**APPENDIX B**

**LIST OF ACRONYMS**

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3-116 <sup>th</sup>	116 <sup>th</sup> Field Artillery Regiment
AAGTC	Avon Park Air Ground Training Complex
ACC	Air Combat Command
AFBs	Air Force Bases
AFSOC	Air Force Special Operations Command
AGL	Above Ground Level
AICUZ	Air Installation Compatible Use Zone
AMI	Area of Military Influence
APAFR	Avon Park Air Force Range
ARB	Air Reserve Base
ARTCC	Air Route Traffic Control Center
ASOG	18 <sup>th</sup> Air Support Operations Group
ATC	Air Traffic Control
ATCAAs	Air Traffic Control Assigned Air Spaces
ALTRV	Altitude Reservations
AVPCI	Avon Park Correctional Institution
CAS	Close Air Support
CATEX	Categorical Exclusion
CFRPC	Central Florida Regional Planning Council
CIP	Capital Improvements Program
CSAR	Combat Search and Rescue
DbP	Blast Noise
DCA	Department of Community Affairs
DNL	Aircraft Noise
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
EW	Electronic Warfare
FAA	Federal Aviation Administration
FDA	Florida Defense Alliance
FDEP	Florida Department of Environmental Protection
FFBOT	Florida Forever Board of Trustees
FFWCC	Florida Fish and Wildlife Conservation Commission
FLARNG	Florida Army National Guard
FNAI	Florida Natural Areas Inventory
FO	Forward Observing
FOD	Foreign Object Damage
FRTTP	Fleet Readiness Training Plan
HE	High Explosive
HE UXO	High Explosive Unexploded Ordnance

IFR	Instrument Flight Rule
JDAM	Joint Direct Attack Munition
$L_{dnmr}$	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
LGB	Laser-Guided Bomb
LRMS	Laser Range Management Software
LUCP	Land Use Compatibility Program
LWL	Lake Wales Ridge
MA	Maneuvering Areas
MLRS	Multiple Launch Rocket System
mm	millimeter
MOAs	Military Operations Areas
MSL	Mean Sea Level
MTRs	Military Training Routes
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NVG	Night Vision Goggles
PLASI	Pulse Light Approach Stop Indicator
RAICUZ	Range Air Installations Compatible Use Zones
RCO	Range Control Officer
ROD	Record of Decision
SFWMD	South Florida Water Management District
SUA	Special Use Airspace
TACs	Terminal Air Controllers
TFR	Temporary Flight Restriction
UAS	Unmanned Aircraft Systems
UAV	Unmanned Aerial Vehicles
UCAVs	Unmanned Combat Aerial Vehicles
UDAM	Joint Direct Attack Munition
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USFWS	United States Fish and Wildlife Service
VFR	Visual Flight Rule
WSZ	Weapons Safety Zones

**APPENDIX C**

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# AVON PARK AIR FORCE RANGE

