

Final



Volume I

ENVIRONMENTAL IMPACT STATEMENT

Moody Air Force Base Comprehensive Airspace Initiative

April 2023

US Air Force Air Combat Command



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**COMPREHENSIVE AIRSPACE INITIATIVE
ENVIRONMENTAL IMPACT STATEMENT
FOR
MOODY AIR FORCE BASE**



April 2023

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Cover Sheet

Final

Environmental Impact Statement for the Comprehensive Airspace Initiative for Moody Air Force Base, Georgia

April 2023

Lead Agency: US Department of the Air Force

Cooperating Agency: Federal Aviation Administration

Title of Proposed Action: Environmental Impact Statement for the Comprehensive Airspace Initiative for Moody Air Force Base

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Designation: Final Environmental Impact Statement

Affected Region: South-central Georgia and north Florida within all or parts of the following counties: Atkinson, Ben Hill, Berrien, Brooks, Clinch, Coffee, Colquitt, Cook, Crisp, Dooly, Dougherty, Echols, Irwin, Lanier, Lee, Lowndes, Mitchell, Sumter, Thomas, Tift, Turner, Ware, Wilcox, and Worth, Georgia; Columbia, Hamilton, Jefferson, and Madison, Florida

Abstract: This Environmental Impact Statement has been prepared to evaluate the potential environmental impacts from the proposal to modify and create new low-altitude Military Operations Areas within the Moody Airspace Complex. The Proposed Action would increase the capacity of current and create new low-altitude Military Operations Areas and align the Moody Airspace Complex with the objectives of training missions at Moody Air Force Base. The Preferred Alternative to implementing the Proposed Action would configure new low-altitude Military Operations Areas immediately underneath the existing Corsair North, Corsair South, Mustang, and Warhawk Military Operations Areas and Restricted Area R-3008C, and would lower the floor of the Moody 2 North Military Operations Area. Moody Air Force Base would assign and schedule the new low-altitude Military Operations Areas to provide adequate low-altitude floors for training operations at low altitude. Existing training operations at low altitudes conducted from Moody Air Force Base would be shifted to the new Military Operations Areas and no new training operations are proposed.

This Environmental Impact Statement was prepared by the Department of the Air Force in cooperation with the Federal Aviation Administration. This Environmental Impact Statement has been prepared in accordance with the National Environmental Policy Act, the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, the Air Force Environmental Impact Analysis Process promulgated at 32 Code of Federal Regulations Part 989, and Federal Aviation Administration Order 1050.1F, Environmental Impacts: Policies and Procedures.

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
%HA	percent highly annoyed
ABY	Southwest Georgia Regional Airport
AC	Advisory Circular
ACAM	Air Conformity Applicability Model
ACC	Air Combat Command
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFOSH	Air Force Occupational Safety and Health
AFPD	Air Force Policy Directive
AFSC	Air Force Safety Center
AGL	above ground level
AGOW	Air Ground Operations Wing
AICUZ	Air Installation Compatibility Use Zone
Air Force	United States Air Force
ANSI	American National Standard Institute
AOPA	Aircraft Owners and Pilots Association
APE	Area of Potential Effects
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
ARTCC	Air Route Traffic Control Center
ASH	Ashburn Sector
ASN	Aviation Safety Network
ATC	air traffic control
ATCAA	Air Traffic Control Assigned Airspace
AYS	Waycross Sector
BASH	Bird/Wildlife Aircraft Strike Hazard
BDG	Base Defense Group
BDS	Base Defense Squadron
BDU	bomb, dummy unit
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BO	Biological Opinion
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAS	close air support
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
COC	Community of Comparison
CSAR	combat search and rescue
CZ	Clear Zone
DAF	Department of the Air Force
DAFMAN	Department of the Air Force Manual
dB	decibel
dBA	A-weighted decibel

DNL	Day-Night Sound Level
DoD	Department of Defense
DODD	Department of Defense Directive
DoDI	Department of Defense Instruction
DZ	drop zone
EIAP	Environmental Impact Analysis Process
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FG	Fighter Group
FL	Flight Level
FS	Fighter Squadron
ft	foot/feet
FWC	Fish and Wildlife Conservation Commission
FY	Fiscal Year
GASF	Georgia Archaeological Site File
GDNR	Georgia Department of Natural Resources
GDOT	Georgia Department of Transportation
GDP	gross domestic product
GHG	greenhouse gas
GHPD	Georgia Historic Preservation Division
GNAHRGIS	Georgia's Natural, Archaeological, and Historic Resources Geographic Information System
HAAR	helicopter air-to-air refueling
HLZ	helicopter landing zone
IFR	instrument flight rules
IPaC	Information for Planning and Consultation
IR	Instrument Route
J-	Jet Route
L _{dnmr}	Onset-Adjusted Monthly DNL
L _{eq}	Equivalent Sound Level
L _{max}	Maximum Sound Level
LATN	low-altitude training and navigation
LOWAT	low-altitude training
LZ	landing zone
m ³	cubic meter(s)
MBTA	Migratory Bird Treaty Act
MEDEVAC	medical evacuation
MMT	million metric tons
MOA	Military Operations Area
MR_NMAP	MOA Range NOISEMAP
MSL	mean sea level
MTR	Military Training Route
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NBAA	National Business Aviation Association
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
nm	nautical mile

nm ²	square nautical miles
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOTAM	Notice to Airmen
NO _x	nitrous oxides
NPS	National Park Service
NRHP	National Register of Historic Places
NRIS	National Register of Historic Places Inventory System
NWR	National Wildlife Refuge
O ₃	ozone
OSHA	Occupational Safety and Health Administration
OSS	Operation Support Squadron
PAO	Public Affairs Office
Pb	lead
PDARS	Performance Data Analysis and Reporting System
PL	public law
PM _{2.5}	particulate matter, 2.5 microns
PM ₁₀	particulate matter, 10 microns
ppb	parts per billion
ppm	parts per million
PR	personnel recovery
PSD	Prevention of Significant Deterioration
R-	Restricted Area
RAPCON	Radar Approach Control
RNAV	Air Navigation Routes
ROD	Record of Decision
ROI	Region of Influence
RQG	Rescue Group
RQS	Rescue Squadron
S/A	similarity of appearance
SAV	Savannah/Hilton Head International Airport
SDZ	surface danger zone
SEF	Aviation Safety Division
SEL	Sound Exposure Level
SGRC	South Georgia Regional Commission
SHPO	State Historic Preservation Officer
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SUA	Special Use Airspace
TLH	Tallahassee Sector
TAY	Taylor Sector
TFW	Tactical Fighter Wing
tpy	tons per year
US	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
V-	Victor Routes
VFR	visual flight rules
VOC	volatile organic compound
VR	Visual Route
WDZ	weapons danger zone

WG	Wing
WMA	Wildlife Management Area

1.0 PURPOSE AND NEED FOR ACTION

1.1 Introduction

The United States (US) Department of the Air Force (DAF) proposes new low-altitude Military Operations Areas (MOAs) immediately underneath existing special use airspace (SUA) within the Moody Airspace Complex to increase the capacity of low-altitude MOAs and align the Moody Airspace Complex with the various aircraft training missions at Moody Air Force Base (AFB), Georgia. Aircraft and training missions at Moody AFB transitioned many times since its establishment, shifting from support of high-altitude tactical training missions to support of various low-altitude close air support (CAS) and low-altitude engagement and attack, and personnel recovery (PR)/combat search and rescue (CSAR) missions. At no point during the shift in mission training were the Moody Airspace Complex's mid-altitude SUA—which range from 8,000 feet mean sea level (MSL) to Flight Level (FL) 230 (23,000 feet)—realigned or reconfigured to more appropriately accommodate the training missions at low altitude (less than 8,000 feet MSL).

The airspace associated with the Proposed Action and alternatives lies within the jurisdiction of the Federal Aviation Administration (FAA) Jacksonville Air Route Traffic Control Center (Jacksonville Center). Therefore, the DAF is working in cooperation with the FAA for this proposal.

This Environmental Impact Statement (EIS) was prepared to evaluate the potential environmental impacts of this Proposed Action in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 US Code [U.S.C.] 4331 *et seq.*), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] 1500-1508 [the 1978 version of this rule was used because a Notice of Intent and scoping had been previously issued on this EIS prior to the 14 September 2020 implementation of the CEQ NEPA streamlining rule]), the DAF Environmental Impact Analysis Process (EIAP) promulgated at 32 CFR 989, and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* (effective 16 July 2015). This EIS was completed through the Air Force Civil Engineer Center NEPA Division in coordination with the Headquarters United States (US) Air Force Operations, Plans, and Requirements, Air Combat Command (ACC). The DAF and FAA will use this EIS, along with public and agency comments, to understand the potential environmental consequences of any decision for proposed new low-altitude MOAs.

1.2 Background

Moody AFB is located in south-central Georgia near Valdosta in Lowndes County (**Figure 1.2-1**). The Moody Airspace Complex, which overlies Moody AFB and portions of south Georgia and north Florida (**Figure 1.2-2**), supports training in the SUA associated with the Moody Airspace Complex for CAS and CSAR missions for combat support of US forces and allies. The Moody Airspace Complex overlies all or a portion of the following 28 counties in Georgia and Florida:

Georgia

Atkinson	Crisp	Sumter
Ben Hill	Dooly	Thomas
Berrien	Dougherty	Tift
Brooks	Echols	Turner
Clinch	Irwin	Ware
Coffee	Lanier	Wilcox
Colquitt	Lee	Worth
Cook	Lowndes	
	Mitchell	

Florida

Columbia	Jefferson	Madison
Hamilton		

From 1990 to 2018, the focus of US Air Force (Air Force) training operations was against low-threat enemies, which kept most aircraft training above 10,000 feet above ground level (AGL) to avoid the threat. The National Defense Strategy of 2018, however, refocused the Air Force's training to engage near-peer, high-threat enemies. This requires training at low altitudes to avoid the threat envelope of modern surface-to-air missiles. Currently, a total of 67 percent of training operations for Moody AFB units occur in low-altitude airspace (less than 8,000 feet MSL), but low-altitude airspace makes up only 17 percent of the Moody Airspace Complex. For some units, between 85 and 90 percent of their mission training requirements are conducted at altitudes too low to be accommodated by the majority of SUA in the Moody Airspace Complex. This severely limits these units' abilities to meet their proficiency requirements. To accommodate this, the various units operating at Moody AFB either vie for the opportunity to train in the limited Moody Airspace Complex low-altitude MOAs and Restricted Areas (R-) or attempt to schedule other low-altitude SUA complexes in the southeast region.

When active, the Moody Airspace Complex's low-altitude MOAs and Restricted Areas operate constantly with aircraft continually rotating into and out of the SUA to accomplish as much training as possible in a given day. When unable to operate in the Moody Airspace Complex low-altitude SUA, aircrews conduct modified training maneuvers in the mid-altitude MOAs and Restricted Areas. Although there is cost and effort expended toward this training in the mid-altitude SUA, minimal benefits are realized from these training operations in promoting mission proficiency because modified training at higher altitudes does not adequately simulate real-world combat scenarios.

The mission of the Air Force is to fly, fight, and win. To accomplish this mission, combat pilots and aircrews must adequately train to attain and sustain proficiency on tasks they must execute to survive and win during times of conflict. With sufficient low-altitude MOAs, aircrews would redistribute training operations and optimize use of its existing low- and mid-altitude MOAs and Restricted Areas more efficiently to achieve the various training objectives at the installation.

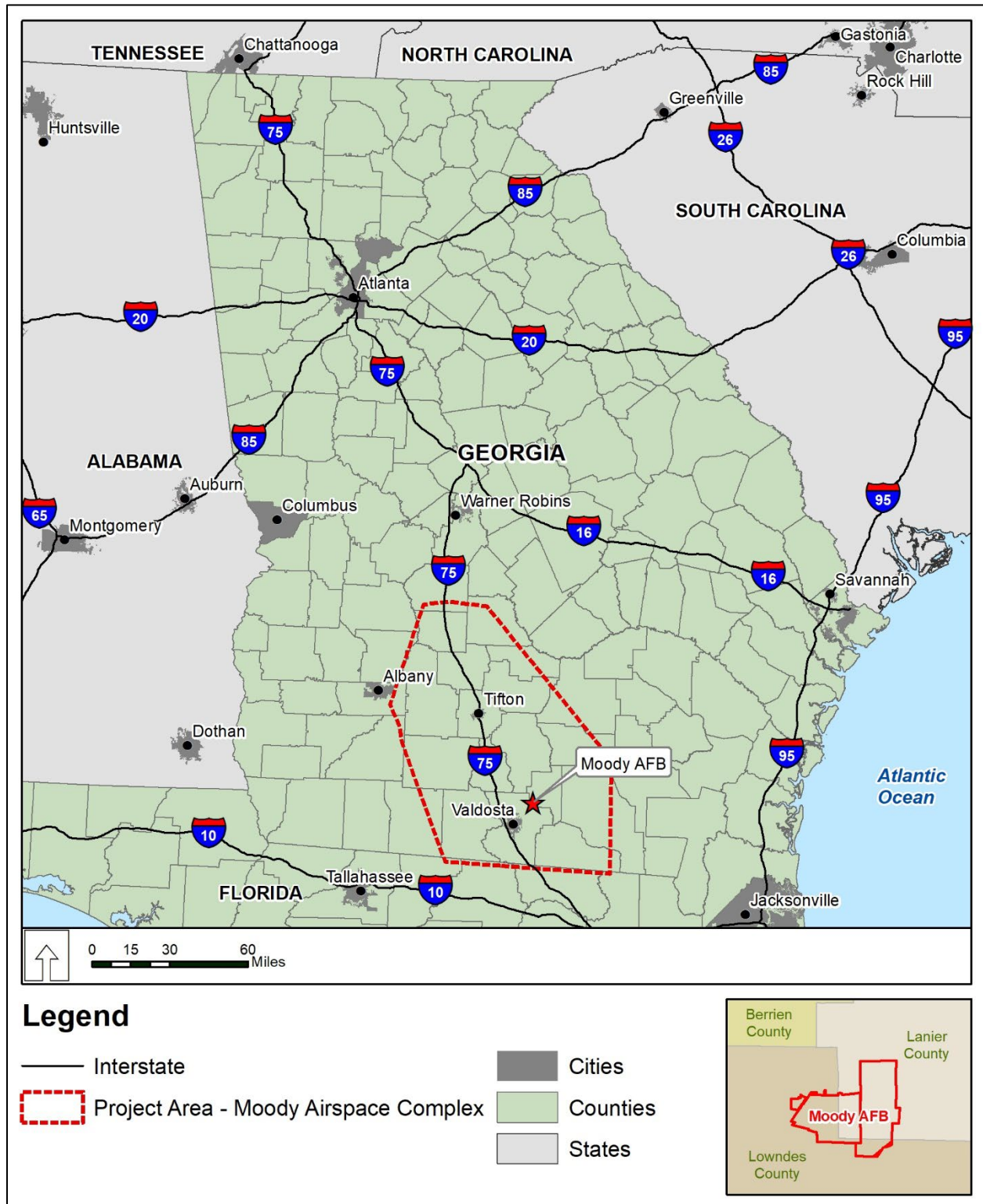


Figure 1.2-1. Location of Moody Air Force Base, Georgia

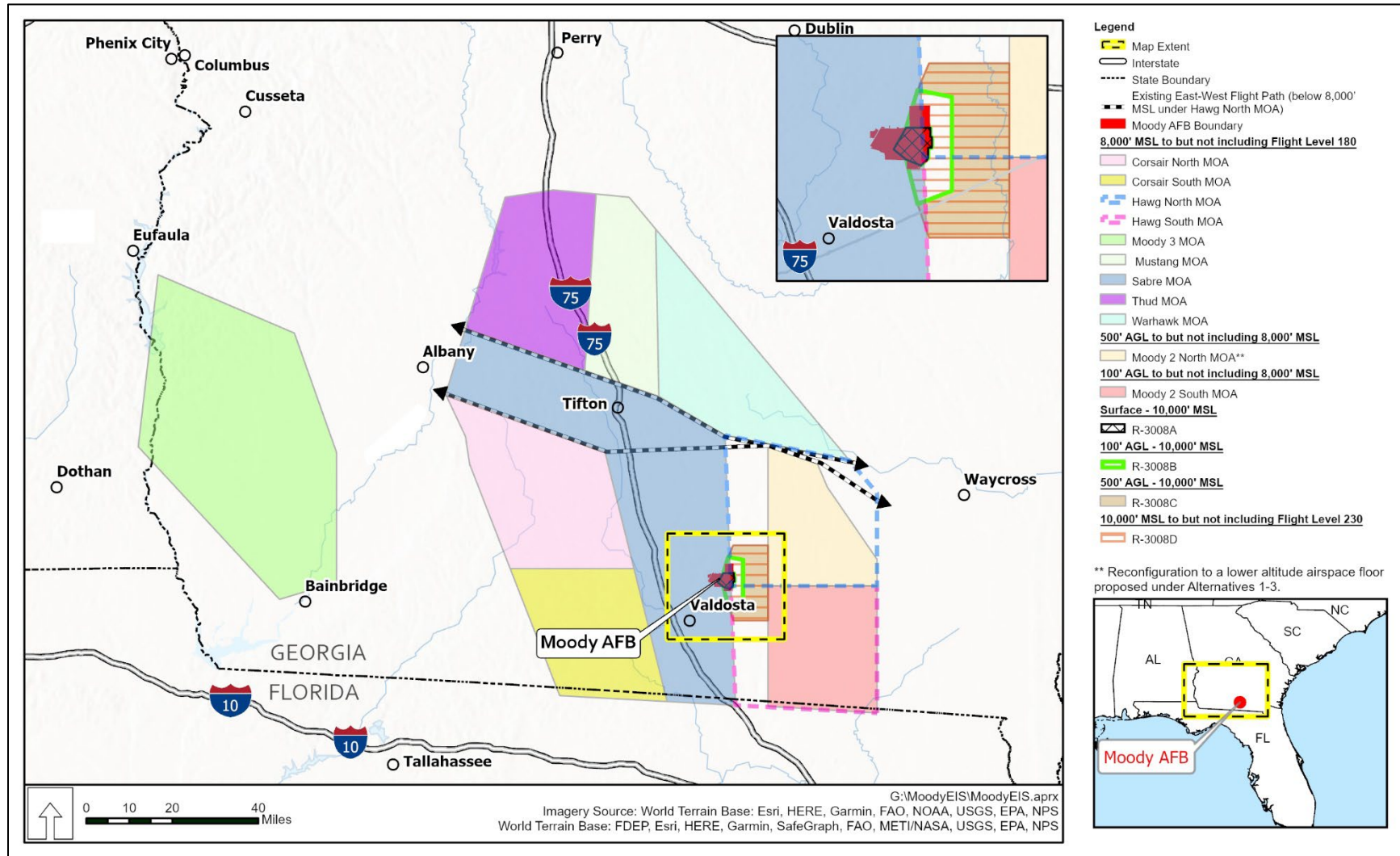


Figure 1.2-2. Moody Air Force Base-Controlled Airspace

1.2.1 **Moody Air Force Base Mission**

Moody AFB is the home for the 23d Wing (23 WG). The current mission of the 23 WG at Moody AFB is to organize, train, and equip the Flying Tigers to employ and execute the global precision attack, PR, and agile combat support service core functions to meet worldwide Combatant Commander requirements. The 23 WG organizes, trains, and employs combat-ready A-10C, HC-130J, and HH-60G aircrews and the Guardian Angel Weapons System and consists of approximately 5,500 military and civilian personnel, including a geographically separated unit in Florida. At Moody AFB, the 23 WG comprises the following five Groups located at Moody AFB, Georgia:

- The 347th Rescue Group (RQG) directs flying and maintenance of one of two active-duty Groups in the Air Force dedicated to the PR and CSAR missions.
- The 23d Fighter Group (FG) directs the flying operations for the Air Force's largest A-10C FG, consisting of two combat-ready A-10 Thunderbolt II attack aircraft flying squadrons and an operations support squadron dedicated to the CAS and low-altitude missions.
- The 23d Mission Support Group trains, equips, and deploys personnel support forces to build, protect, and sustain air bases worldwide for combat air operations.
- The 23d Medical Group provides outpatient medical, dental, occupational, environmental, and preventive healthcare services in support of installation personnel.
- The 23d Maintenance Group is responsible for the operation and quality of organization and intermediate-level maintenance and repair supporting combat-ready HC-130Js, HH-60Gs, and A-10Cs. The Maintenance Group oversees the 23 WG's maintenance training program and ensures the workforce qualifications and capability for worldwide development of personnel and cargo.

Current tenant units at Moody AFB include the 93rd Air Ground Operations Wing (AGOW), 820th Base Defense Group (BDG), 476th FG (Air Force Reserve), 81st FG, 336th Recruiting Squadron, 372nd Training Squadron –Detachment 9, Area Defense Counsel, and Air Force Office of Special Investigations –Detachment 211.

1.2.2 **Moody Air Force Base Special Use Airspace**

Moody Airspace Complex. The Moody Airspace Complex consists of 11 MOAs; Restricted Areas R-3008A, R-3008B, R-3008C, and R-3008D; and Air Traffic Control Assigned Airspace (ATCAA) above all of the MOAs. The Moody AFB-controlled airspace includes the Moody 3 MOA (see **Figure 1.2-2**). The Moody 3 MOA is located west of the Moody Airspace Complex and has a floor of 8,000 feet MSL and a ceiling of FL180 (18,000 feet). The Moody 3 MOA is located nearly 100 miles west of Moody AFB, which is too great of a distance to travel for training operations to be considered as part of the Proposed Action for potentially charting additional low-altitude MOAs.

Altogether, the MOAs, Restricted Areas, and ATCAA of the Moody Airspace Complex overlie south Georgia and north Florida and collectively support military training operations (**Table 1.2-1**). Including the ATCAA, which immediately overlies each MOA, extending the usable

airspace by an additional 5,000 feet, the airspace ceiling on the Moody Airspace Complex is up to but not including FL230 (23,000 feet).

Table 1.2-1. Existing Special Use Airspace Associated with the Moody Airspace Complex

Special Use Airspace	Altitude – Floor ¹	Altitude – Ceiling
MOAs and ATCAA		
Corsair North	8,000 feet MSL	To but not including FL180
Corsair South	8,000 feet MSL	To but not including FL180
Hawg North	8,000 feet MSL	To but not including FL180
Hawg South	8,000 feet MSL	To but not including FL180
Moody 2 North	500 feet AGL	To but not including 8,000 feet MSL
Moody 2 South	100 feet AGL	To but not including 8,000 feet MSL
Mustang	8,000 feet MSL	To but not including FL180
Sabre	8,000 feet MSL	To but not including FL180
Thud	8,000 feet MSL	To but not including FL180
Warhawk	8,000 feet MSL	To but not including FL180
ATCAA ²	18,000 feet MSL	To but not including FL230
Restricted Areas		
R-3008A (Grand Bay Range)	Surface	10,000 feet MSL
R-3008B (Grand Bay Range)	100 feet AGL	10,000 feet MSL
R-3008C (Grand Bay Range)	500 feet AGL	10,000 feet MSL
R-3008D (Grand Bay Range)	10,000 feet MSL	To but not including FL230

Source: FAA Order JO 7400.10D, *Special Use Airspace* (effective 16 February 2022)

Notes: **1** – Airspace floor refers to the lowest altitude charted for a Special Use Airspace, and airspace ceiling refers to the highest altitude charted for a Special Use Airspace. **2** – ATCAA is located immediately above and within the same lateral confines as the MOAs of the Moody Airspace Complex.

AGL – above ground level; **ATCAA** – Air Traffic Control Assigned Airspace; **FL** – flight level;

MOA – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area; **surface** – ground surface level

The MOAs, Restricted Areas, and ATCAA associated with the Moody Airspace Complex support unit-level and larger force training to provide aircrews with a training environment to improve their combat skills. In addition, surface-level mission activities such as CSAR, CAS, and urban CAS occur in land areas in the Grand Bay Range (a multipurpose, day and night use facility with the principal mission of supporting air-to-ground bombing and gunnery training with inert and training ordnance), various landing zones (LZs) and drop zones (DZs), and in public spaces within the lateral confines of the SUA. The Moody Airspace Complex supports a variety of resident and transient DAF and other Department of Defense (DoD) aircraft for their training requirements. However, the Moody Airspace Complex and Grand Bay Range primarily support units from Moody AFB.

Training operations by aircraft assigned to Moody AFB also utilize the nearby low-altitude training and navigation (LATN) area, which encompasses approximately 85,000 square nautical

miles (nm²) over most of south Georgia and parts of north Florida and southeast Alabama, including under the Moody Airspace Complex (see **Section 2.4.1**).

Typically, a LATN area is a large geographic area established for random visual flight rules for low-altitude navigation training (but not combat maneuvering). Activities are in accordance with all applicable Federal Aviation Regulations and flown at an airspeed of 250 knots or less. There is no required coordination with the FAA. The south Georgia LATN area has restrictive limitations associated with training operations, with altitude ranges from an airspace floor at 100 feet AGL up to a ceiling of 1,500 feet AGL. Aircrews training in the LATN area can operate their aircraft at airspeeds up to 250 knots without restrictions on the direction of flight, but they are precluded from flying over the same point more than once per day.

Operational Constraints. Moody AFB maintains a fly neighborly policy in the Moody Airspace Complex, which includes evaluating training operations relative to public noise complaints made to the Public Affairs Office (PAO). In addition, the following flight restrictions and operational constraints apply for aircrews operating in the Moody Airspace Complex:

- Moody AFB Instruction 11-250, *Aircrew Operational Procedures/Air Traffic Control/Airfield Operations*. All aircraft using Moody AFB are subject to the provisions of these regulations and instructions. This includes requirements to avoid direct overflight under 500 feet AGL of occupied off-base residential structures.
- Air Force Manual (AFMAN) 13-212, V1, *Range Planning and Operations*, including local supplements for Grand Bay Range, which establish procedures and protocols for all aspects of range operations and management.
- Flight proficiency training is restricted from occurring on Sundays during worship hours of local churches potentially affected by noise associated with aircraft operations at Grand Bay Range as established in the Record of Decision for the 1986 Winnersville Weapons Range EIS (Air Force 1986).
- A 1-nautical-mile (nm), 1,500-foot-AGL exclusion area has been designated around the city of Lakeland, Georgia, in the airspace associated with Grand Bay Range, Restricted Area R-3008C (FAA Order JO 7400.10D, *Special Use Airspace*, 2022).
- The Winnersville Weapons Range EIS and Record of Decision (Air Force 1986) established an exclusion zone for the Banks Lake National Wildlife Refuge (NWR). The Record of Decision for the EIS directs that no weapons range flight tracks that are below 1,500 feet AGL will be located closer than 0.25 mile south of the Banks Lake NWR southern boundary.
- Limitations on Moody AFB training activities at the Bemiss Field DZ under the terms and conditions stipulated in the 1996 Bemiss Field DZ US Fish and Wildlife Service (USFWS) Biological Opinion (BO) (USFWS 1996). The BO addresses the impacts from the construction and use of the Bemiss Field DZ on the federally endangered eastern indigo snake (*Drymarchon couperi*) and suitable habitat for this species associated with gopher tortoise (*Gopherus polyphemus*) burrows. Applicable terms and conditions for Moody AFB training under the BO include surveying gopher tortoise burrows for indigo snakes and gopher tortoises and conducting prescribed burning of sandhill areas in accordance with the specified schedule. Permissions have been granted by Moody AFB

to the Georgia Department of Natural Resources (GDNR) for use of the Grand Bay Weapons Range as part of the Grand Bay Wildlife Management Area (WMA). Applicable requirements for use of the Grand Bay Weapons Range by GDNR include not impacting cultural resources; protecting air, ground, and water from pollution; protecting the property from fire, vandalism, and soil erosion; developing land use planning documents; planning and conducting forest management activities; and performing fish and wildlife management.

- SUA exclusions below 1,500 feet AGL within a 3 nm radius of all public use airports (FAA Order JO 7400.2M CHG, 3 January 2020).
- 14 CFR 91.119, *Minimum Safe Altitudes*, parts (a) through (d) specify the areas and altitudes below which aircraft takeoff or landing would be prohibited (except in cases of emergency):
 - (a) *Anywhere*. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
 - (b) *Over congested areas*. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
 - (c) *Over other than congested areas*. An altitude of 500 feet above the surface except over open water or sparsely populated areas. In that case, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.
 - (d) *Helicopters, powered parachutes, and weight-shift-control aircraft*. If the operation is conducted without hazard to persons or property on the surface:
 - (1) A helicopter may be operated at less than the minimums prescribed in paragraph b) or c) above, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and
 - (2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph c) above.

1.3 Existing Training and Challenges

1.3.1 Low-Altitude Training Missions

The 23 FG, 476 FG, 820 BDG, 81st Fighter Squadron (FS), and 347 RQG all require low-altitude airspace to support their training missions. The following briefly states the training requirements at low altitude for each group.

1.3.1.1 23d Wing

The 23 WG A-10C, HH-60G, and HC-130J aircraft regularly train in the Moody Airspace Complex, with the training in low-altitude airspace blocks being restricted to the Moody 2 North

and Moody 2 South MOAs and Restricted Areas R-3008A, R-3008B, and R-3008C (see **Table 1.2-1**).

1.3.1.2 23d Fighter Group

The 23 FG directs the flying and maintenance operations for the Air Force's largest A-10C FG, consisting of two combat-ready A-10C squadrons (the 74 FS and 75 FS) and an operations support squadron. The A-10C CAS aircraft was designed to operate in low-altitude environments. A-10C pilots therefore routinely train at altitudes of 100 feet to 500 feet AGL.

1.3.1.3 476th Fighter Group

The 476 FG, an A-10 Air Force Reserve unit, is an associated unit of the 23 FG. The 76 FS, an Air Force Reserve Squadron, works under its own command structure but integrates its A-10 operations with the 74 FS and 75 FS.

1.3.1.4 820th Base Defense Group

The 820 BDG consists of three Base Defense Squadrons (BDSs) and one Combat Operations Squadron. Organizationally, the BDG belongs to the 93 AGOW. The 820 BDG integrates with 23 WG fixed-wing and rotary-wing aircraft during CSAR, medical evacuation (MEDEVAC), alternate infiltration/exfiltration missions, CAS, convoy support, and parachute delivery missions. The 820 BDG is also required to operate Small Unmanned Aircraft Systems. The 820 BDG is responsible for training 42 Small Unmanned Aircraft Systems operators who must stay current in the Raven B/DDL[®] system and utilize low-altitude airspace for the Small Unmanned Aircraft Systems training.

1.3.1.5 81st Fighter Squadron

Consisting of air advisor pilots and air advisor maintainers, the 81 FS (Detachment) conducts flight proficiency and combat training for Afghan Air Force pilots and maintainers in the A-29 Super Tucano. The training syllabus for this mission includes proficiency with low-altitude flight and weapons deliveries.

1.3.1.6 347th Rescue Group

The 347 RQG directs flying and maintenance of the oldest Air Force active-duty operations group dedicated to CSAR. Members assigned to the 347 RQG are responsible for training/readiness of 540 personnel, including a Guardian Angel squadron (38 RQS and associated ground crew), two flying squadrons (HC-130J aircraft of the 71 RQS, and HH-60Gs of the 41 RQS), and an operations support squadron. HH-60G aircrew train to operate across the full spectrum of conflict and must be able to recover isolated personnel anytime, anyplace, in any condition. A total of 8 percent of their effective training sorties are flown between 100 feet and 1,000 feet AGL; approximately 40 percent of sorties below 1,000 feet AGL are flown at altitudes below 500 feet AGL. The HC-130J "Combat King II" is a transport aircraft specifically designed for CSAR missions. Most of these training requirements are accomplished in low-altitude airspace (below 8,000 feet MSL). It is anticipated that the 347 RQG at Moody AFB will

transition from HH-60Gs to HH-60Ws in the next two to three years; this transition is discussed in detail in **Section 4.0**.

1.3.1.7 Low-Altitude Training Limitations within the Moody Airspace Complex

The training requirements of the A-10C, HH-60G, HC-130J, A-29, and 820 BDG personnel are not being met by the existing available airspace for Moody AFB. Considering the total of all assigned users, the Thud, Mustang, Warhawk, Hawg North, Hawg South, Sabre, Corsair North, and Corsair South MOAs lack sufficient low-altitude dimensions to efficiently and effectively support CAS and CSAR proficiency training and mission requirements. Although there are nighttime training operations at low altitude, most training operations occur during the daytime. The Moody AFB daytime flying window is defined so that all aircraft take off and land between official sunrise and official sunset. Therefore, during the winter months when there are fewer daylight hours, the flying window is significantly compressed, making effective low-altitude operations in the Moody 2 North and Moody 2 South MOAs (the only Moody AFB-controlled MOAs suitable for low-altitude operations) even more constrained.

Moody AFB's current airspace structure is insufficient to facilitate the cumulative training requirements of all 23 WG aircraft. For SUA below 8,000 feet MSL in the Moody Airspace Complex, the Moody 2 North and Moody 2 South MOAs have an 89 percent utilization rate, and the Restricted Areas R-3008A, R-3008B, and R-3008C have a utilization rate of 92 percent. Approximately 87 percent (94 of 108) of the sorties programmed by the A-10C aviation schedule in the fiscal year 2018 (AS-18) Ready Aircrew Program tasking memorandum require airspace with a floor altitude below 8,000 feet MSL, which immediately eliminates 70 percent of available local area MOAs and Restricted Areas. Further, 50 percent (2 of 4) of the familiarization/qualification events in the A-10C AS-18 Ready Aircrew Program tasking memorandum that can be accomplished outside of an air-to-ground range require airspace with a floor below 8,000 feet MSL. An appropriate combination of low-altitude (below 8,000 feet MSL) and mid-range-altitude (8,000 feet MSL to FL230 [23,000 feet]) SUA is essential so Moody AFB aircrews can train using realistic combat techniques to maintain their lethality during actual warfare.

1.4 Purpose of and Need for the Proposed Action

This section describes the needs for and purpose of the proposal to configure and establish new low-altitude MOAs to enable the airspace capacity within which the A-10C, HH-60G, HC-130J, A-29, and 820 BDG aircrews can optimize their low-altitude mission readiness training to the requirements described in **Section 1.2**.

1.4.1 Need for the Action

The Proposed Action is needed to address the inadequate Moody AFB-controlled low-altitude airspace available for training missions operating at low altitudes from Moody AFB, and to optimize the Moody Airspace Complex to enable effective training to achieve real-world combat readiness and survivability.

The Moody Airspace Complex consists primarily of mid- to higher-altitude MOAs. However, there are increased requirements for training at low altitudes due to the National Defense Strategy of 2018. Therefore, the A-10C, A-29, HH-60G, and HC-130J aircrews assigned to Moody AFB have severely constrained access to existing low-altitude MOAs and Restricted Areas wherein they can conduct required training operations at low altitude to gain operational proficiency and meet their mission objectives for combat readiness. See **Section 1.3** and **Appendix B-2** for detailed descriptions of the training and proficiency requirements at low altitude for Moody AFB-assigned aircrews. The addition of low-altitude airspace is needed to reduce the reliance on congested training airspace within Moody 2 North and Moody 2 South MOAs and R-3008A, R-3008B, and R-3008C that can support the low-altitude mission and associated proficiency training operations for CAS, PR, and CSAR aircrews. Specifically, additional low-altitude MOAs are needed to:

- **Provide reliable access to low-altitude SUA to support aircrew proficiency training to various mission objectives.** As described in **Section 1.2.2**, the 74 FS, 75 FS, and 76 FS require specific training tactics at low altitudes for A-10C aircrews at altitudes of 1,000, 2,000, and 4,000 feet AGL. MOAs with low-altitude floors are also needed to support A-10C and A-29 aircrews training in medium-altitude CAS, dive, and simulated delivery attacks; simulated high-angle strafe; and simulated dive-bombing.

These training operations at low altitudes cannot be replicated at higher altitudes. Pilot readiness is not only a function of performing the correct maneuvers for each of the required training events but is also a function of the training operations proximate to the ground surface. The visual field for pilots and aircrew during training at low altitudes is integral to their readiness and cannot be replicated by conducting these same training events at altitudes higher than 4,000 feet AGL. Training operations in MOAs with 8,000-foot MSL floors create negative training events, where effort and cost are expended towards training, but the benefits of training operations at low altitudes are not achieved.

- **Reduce airspace congestion in the Moody 2 North and Moody 2 South MOAs.** Currently all training operations at low altitudes for the 74 FS, 75 FS, 76 FS, and 81 FS occur within the Moody 2 North and Moody 2 South MOAs and Restricted Areas R-3008A, R-3008B, and R-3008C. The SUA does provide the low-altitude floors necessary to support the training requirements, but due to their limited size and high utilization rate of approximately 90 percent, scheduling conflicts limit the availability of these existing low-altitude SUA. The HC-130Js and HH-60Gs conduct helicopter air-to-air refueling (HAAR) in the existing low-altitude MOAs and access DZs and helicopter landing zones (HLZs) under the Moody Airspace Complex and at the Grand Bay Range. Currently the HAAR training operations, which are conducted at 800 feet AGL in Moody 2 North MOA, and the A-10Cs and A-29s all utilize the same available low-altitude MOAs and Restricted Areas. The HC-130Js and A-10Cs/A-29s constantly trade places during training operations within the existing limited low-altitude SUA. Additional low-altitude MOAs proximate to Moody AFB are needed to relieve the training conflicts from the lack of adequate low-altitude SUA in the Moody Airspace Complex.

Airspace conflicts also exist for training at the Grand Bay Range. HH-60Gs land at Bemiss Field on the Grand Bay Range and HC-130Js conduct personnel and equipment airdrops on the Grand Bay Range only when they have access to the Restricted Areas R-3008A, R-3008B, and R-3008C that immediately overlie it. A-10Cs cannot conduct air-to-ground training within the R-3008 at the same time that HC-130Js are operating within the Grand Bay Range; this is an example of a common scheduling issue that further constrains training in the complex. Therefore, additional low-altitude SUA are needed to align the available airspace with the mission objectives at Moody AFB.

1.4.2 Purpose of the Action

The purpose of the Proposed Action is to provide a more realistic and regularly accessible airspace training environment to meet the need for aircrew training in CAS and CSAR.

The Proposed Action would accomplish this purpose by configuring MOAs that more appropriately align with the training missions at Moody AFB. Configuring the proposed MOAs to supplement the existing airspace would ensure sufficient airspace to support the low-altitude missions required of the 23 WG by:

- Reconfiguring low-altitude airspace floors that currently prohibit realistic low-altitude training (LOWAT) certification, maintenance training, and practicing simulated employment of weapons delivery at low altitudes to improve lethality
- Providing realistic threat reaction and mitigation, increasing survivability in combat
- Increasing the opportunity for low-altitude interoperability and integration between dissimilar assets
- Providing increased flexibility for air-to-ground training to factor in weather conditions

1.5 Cooperating Agency and Intergovernmental Coordination and Consultations

1.5.1 Cooperating Agencies

The DAF is the proponent for this EIS and has identified the FAA, which is responsible for navigable airspace within the United States, as a cooperating agency on this Proposed Action. As defined in 40 CFR 1508.5, a cooperating agency

means any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment.

As the agency with jurisdiction by law and special expertise in the establishment and configuration of SUA, the FAA is participating as a cooperating agency. The DAF is required to coordinate with the FAA to approve and chart proposed airspace configurations.

The FAA cooperated with the DAF on the public review of the Draft EIS and the preparation of the Final EIS. The DAF's decision on the proposed MOA additions and modifications will be documented in a DAF Record of Decision (ROD). The FAA reviewed the airspace proposal

submitted by the DAF as required by FAA Order 1050.1F, and FAA Order JO 7400.2M, *Procedures for Handling Airspace Matters* (effective 28 February 2019); the FAA will issue its own ROD. The DAF's goal in its cooperative effort with the FAA is for this EIS to fulfill the NEPA requirements of both agencies.

1.5.2 Interagency and Intergovernmental Coordination and Consultations

During the development of this EIS, the DAF notified and consulted with federal, state, and local agencies with jurisdictions that could be affected by the alternative actions (**Appendix A**).

Agencies contacted include, but are not limited to, the USFWS Ecological Services, USFWS Refuge Division, Georgia State Historic Preservation Officer (SHPO), Florida SHPO, GDNR-Wildlife Resources Division, and Florida Fish and Wildlife Conservation Commission. **Table 1.5-1** lists the EIS consultation and coordination.

Table 1.5-1. Environmental Impact Statement Consultation and Coordination

Authority	Topics	Statutory and Regulatory Authorities	Status of Consultation and Coordination
FAA	Proposed modifications to FAA-charted airspace	49 U.S.C. Transportation Subtitle VII – Aviation Programs Part A – Air Commerce and Safety and 49 U.S.C. §§ 40101–40104	Ongoing coordination of the approval and charting of newly configured low-altitude MOAs.
USFWS	Species protected under the Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act	Endangered Species Act, 16 U.S.C. §§ 1531 <i>et seq.</i> , 50 CFR 17; Migratory Bird Treaty Act; 16 U.S.C. §§ 703–712, 50 CFR 21; and Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668–668c, 50 CFR 22	Endangered Species Act Section 7 consultation is complete.
SHPO	Buildings, sites, districts, structures, objects, or traditional cultural properties eligible for or listed on the National Register of Historic Places within the undertaking's Area of Potential Effect	National Historic Preservation Act, Title 54 U.S.C. §§ 300101 through 320303 (PL 113-287); 36 CFR 800	National Historic Preservation Act Section 106 consultation is complete.

Authority	Topics	Statutory and Regulatory Authorities	Status of Consultation and Coordination
Federally Recognized Tribes	Government-to-government coordination and consultation with federally recognized Native American tribes	Executive Order 13175; DoDI 4710.02, and AFI 90-2002 and National Historic Preservation Act, Title 54 U.S.C. (PL 113-287); 36 CFR 800	Coordination and consultation with federally recognized tribes with affiliation to the federal properties are complete.

AFI – Air Force Instruction; **CFR** – Code of Federal Regulations; **DoDI** – Department of Defense Instruction; **FAA** – Federal Aviation Administration; **MOA** – Military Operations Area; **PL** – public law; **SHPO** – State Historic Preservation Office; **U.S.C.** – United States Code; **USFWS** – US Fish and Wildlife Service

1.5.3 Government-to-Government Consultations

Consistent with National Historic Preservation Act of 1966 implementing regulations (36 CFR Part 800), DoD Instruction 4710.02, *Interactions with Federally-Recognized Tribes*, Air Force Instruction (AFI) 90-2002, *Air Force Interaction with Federally-Recognized Tribes*, and Air Force Manual 32-7003, *Environmental Conservation*, the DAF also consulted with federally recognized tribes that are historically affiliated with the geographic region being considered for the Proposed Action regarding the potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or the intergovernmental coordination processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations.

The Moody AFB point of contact for Native American tribes is the Installation Commander. The Moody AFB point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Cultural Resources Manager. **Appendix A** lists the Native American tribal governments that the DAF invited to consult regarding this action.

1.6 Public and Agency Review of the Environmental Impact Statement

1.6.1 Environmental Impact Analysis Process

NEPA requires the consideration of environmental issues in federal agency planning and decision making. Under NEPA, federal agencies must prepare an Environmental Assessment (EA) or an EIS for any major federal action except for those actions that are determined to be categorically excluded from further analysis. The requirements of NEPA (42 U.S.C. §§ 4321-4347), CEQ's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508 [CEQ 1978]), 32 CFR 989 (the DAF EIAP regulations), FAA Order 1050.1F, and FAA Order JO 7400.2M are met through the preparation of this EIS. Established by 32 CFR 989, the EIAP is the process by which the DAF facilitates compliance with environmental regulations, including NEPA.

The EIAP involves several steps including the review of all information pertinent to a proposed action and alternatives (including a “no action” alternative) and the provision of a full and

comprehensive discussion of potential consequences to the natural and human environment resulting from implementing the proposed airspace changes.

1.6.2 Scoping Process

Scoping is an early and open process for developing the breadth of issues to be addressed in the environmental impact analysis and identifying significant concerns related to a proposed action. The typical DAF public scoping period for an EIS is 30 days. However, the scoping period for this EIS began on 19 November 2019, and the typical 30-day public scoping period extended across the holiday season. Therefore, the DAF elected to hold a 45-day public scoping period, extending the scoping period through 6 January 2020. Local newspaper advertisements were run on 19 November 2019, followed by the publication of the Notice of Intent in the *Federal Register* on 29 November 2019 (**Appendix A**) announcing the intent to prepare an EIS and to hold a public scoping meeting. Local and regional newspaper advertisements were run again from 1 through 5 December 2019 to ensure a wider distribution of the public notice. Newspaper advertisements were published in the *Valdosta Daily Times*, the *Tifton Gazette*, the *Thomasville Times Enterprise*, the *Tallahassee Democrat*, and the *Lanier County News* providing information concerning the public scoping period and public scoping meeting (**Appendix A**).

The DAF held a public scoping meeting on 5 December 2019 in Tifton, Georgia, at the Tifton Campus Conference Center at the University of Georgia. The public scoping meeting was in an open-house format with a welcome table, 11 informational poster stations about the Proposed Action and alternatives, and a station to provide written or online comments through the project website on the proposal if desired. Fact sheets supplied to attendees at the public meeting discussed the Moody AFB Airspace Initiative Proposed Action, alternatives, project schedule, and methods for comment submittal. The fact sheet, posters, and comment card made available at the meeting are provided in **Appendix A**. Representatives from the DAF were available at each poster station to talk to the public about the NEPA and public scoping process, the Moody AFB airspace, the Proposed Action and alternatives, and resources to be studied in the EIS. Ten members of the public attended the meeting.

Comments and stakeholder input received within the 45-day scoping comment period were considered during the development of the alternatives and the analysis presented in this EIS. Some comments were received after the official closing of the scoping period and were also considered in determining the range of actions, alternatives, and environmental analysis of significant issues in this EIS, to the maximum extent practicable, prior to its publication. A total of 13 comment correspondences were received during the scoping period (**Appendix A**).

Substantive scoping comments are typically those that identify potential environmental impacts for analysis, identify reasonable alternatives for analysis, identify feasible mitigations for consideration, or otherwise recommend relevant information that should be considered in the development of the Draft EIS. Nonsubstantive scoping comments typically express a conclusion, an opinion, or a vote for or against the proposal itself, or some aspect of it; that state a position for or against a particular alternative; or that otherwise state a personal preference or

opinion. Normally, the DAF responds to relevant substantive comments received subsequent to Draft EIS review, consistent with 40 CFR 1503.4. However, because substantive scoping comments were submitted, the DAF elected to summarize the substantive scoping comments received and describe where the comment has been addressed in this EIS.

All comments received on this proposal are included in the Administrative Record regardless of when they were received and, regardless of their substantive or nonsubstantive nature. **Table 1.6-1** provides a summary of the substantive comments or issues received during scoping and where those comments are addressed in this EIS.

Based on the public comments received during the scoping period, the DAF ensured that the appropriate airspace exclusion zones around publicly owned public use airports proximate to the proposed low-altitude MOAs were included as part of the Proposed Action and became part of all alternatives evaluated. Further, a notification system for civil aviation providing advance information concerning whether the proposed low-altitude MOAs are activated for use in military training operations was included in the Proposed Action.

1.6.3 Draft Environmental Impact Statement Public Review Period

The Draft EIS public comment period began when the Notice of Availability of the Draft EIS was published in the *Federal Register* on 25 September 2020. Notification of the availability of the Draft EIS and of the virtual public hearing was published twice each in the *Lanier County News*, *Thomasville Times Enterprise*, *Tifton Gazette*, *Valdosta Daily Times*, and *Tallahassee Democrat* between 23 September and 30 September 2020. A news article was also posted on the Moody AFB public website announcing the availability of the Draft EIS and the public hearing date. Letters notifying the public of the availability of the Draft EIS and the virtual public hearing date were distributed to the public. **Appendix A** contains the notices of availability. A publicly accessible project website for the EIS was updated with all Draft EIS public review period information and virtual public hearing access information. Bound copies of the Draft EIS were placed in local public libraries during the public comment period and were also distributed to members of the public upon request.

Federal, state, and local stakeholders were informed about the Draft EIS availability, review period, and virtual public hearing through the NOA as published in the *Federal Register* and through direct mailings to a stakeholder mailing list developed for the Draft EIS. Direct mailings were also made to Native American tribes that had previously been invited to participate in government-to-government consultation for the EIS scoping meeting. All mailings included a letter with information about the Draft EIS review period and virtual public hearing.

Table 1.6-1. Summary of Scoping Comments and Department of the Air Force Responses

Commenter	Concern? ¹ (Yes/No)	Identified Resources of Concern ²										Addressed in EIS?	If Yes, Location in EIS	If No, Rationale for Not Addressing
		ASM	N	AQ	CUL	EJ	BIO	WR	NRG	SOC	LU			
GHPD	No											No		No concern raised
AOPA	Yes	X								X	X	Yes	Sections 3.2, 3.7, 3.8, 4.2, 4.7, and 4.8	
Mayor of Madison, FL	No											No		No concern raised.
GDOT	Yes	X	X							X		Yes	Sections 3.2, 3.3, 3.7, 4.2, 4.3, and 4.7	
Valdosta-Lowndes County Airport Authority	Yes	X										Yes	Sections 3.2 and 4.2	
SGRC	No											No		No concern raised
USEPA, Region 4	Yes		X	X		X		X	X			Yes	Sections 3.1, 3.3, 3.5, 3.10, 4.3, 4.5, and 4.10	
GDNR, Wildlife Resources Division	Yes						X					Yes	Sections 3.6 and 4.6	
Choctaw Nation of Oklahoma	No											No		No concern raised
Seminole Tribe of Florida	Yes				X							Yes	Sections 3.7 and 4.7	
Cherokee Nation of Oklahoma	No											No		No concern raised
GA Business Aviation Association	Yes	X										Yes	Sections 3.2 and 4.2	

Commenter	Concern? ¹ (Yes/No)	Identified Resources of Concern ²										Addressed in EIS?	If Yes, Location in EIS	If No, Rationale for Not Addressing
		ASM	N	AQ	CUL	EJ	BIO	WR	NRG	SOC	LU			
Okefenokee NWR	Yes						X				X	Yes	Sections 3.4, 3.6, 3.8, 4.4, 4.6, and 4.8	

¹ A comment of concern would identify issues with the Proposed Action or alternatives, typically associated with one or more specified environmental resources.

² Some comments identified concerns regarding multiple resources. **X** – Indicates resource(s) of concern per comment

ASM – Airspace Management; **N** – Noise; **AQ** – Air Quality (including climate change); **CUL** – Cultural Resources; **EJ** – Environmental Justice; **BIO** – Biological Resources; **WR** – Water Resources; **NRG** – Energy; **SOC** – Socioeconomics; **LU** – Land Use

GHPD – Georgia Historic Preservation Division; **AOPA** – Aircraft Owners and Pilots Association; **GDOT** – Georgia Department of Transportation; **FL** – Florida; **SGRC** – South Georgia Regional Commission; **USEPA** – United States Environmental Protection Agency; **GDNR** – Georgia Department of Natural Resources; **GA** – Georgia; **NWR** – National Wildlife Refuge

Although only a 45-day comment period is required for the Draft EIS, the DAF elected to have a 60-day public comment period, ending on 24 November 2020. A virtual public hearing was held on 29 October 2020. The public hearing was held virtually because of the ongoing COVID-19 pandemic and the restrictions associated with public gatherings at the time of the scheduled hearing. The hearing provided agency representatives as well as interested and affected citizens an opportunity to present oral and written comments on the content of the Draft EIS. A hearing officer (military judge) presided over the public hearing. During the public comment portion of the hearing, a court reporter transcribed oral comments verbatim. There were 57 attendees at the virtual public hearing.

The DAF received and responded to substantive comments on the Draft EIS, consistent with 40 CFR § 1503.4. Substantive comments are those that challenge the analysis, methodologies, or information in the Draft EIS as being factually inaccurate or analytically inadequate; identify impacts not analyzed or identify reasonable alternatives or feasible mitigations not considered by the agency; or offer specific information that may have a bearing on the decision such as differences in interpretations of significance, scientific data, or technical conclusions. Nonsubstantive comments are those that express a conclusion, an opinion, or a vote for or against the proposal itself, or some aspect of it; state a position for or against a particular alternative; or otherwise state a personal preference or opinion.

1.6.4 Summary of Concerns Raised during the Draft Environmental Impact Statement Public Comment Period

During the Draft EIS public comment period, verbal and written public comments were submitted to the DAF via the website, e-mail, standard mail, and at the public hearing (oral). Members of the public, organizations, and government agencies submitted a total of 95 comment letters and oral comments during the comment period. The majority of public comments received were directed at the structure of the DAF's proposal, impacts on airports and civilian aviation within and proximate to the Moody Airspace Complex, impacts on biological resources, impacts on socioeconomics from perceived changes in general aviation requirements, and noise. The most common concerns relevant to the development of the EIS are discussed below. All substantive comments received and DAF responses to those comments are in **Appendix A (Section A-7)**. Substantive public comment letters are included in their entirety in **Appendix A (Section A-8)**.

Airspace Management. Comments received on airspace dealt with potential restrictions on the civilian aircraft utilization of the proposed low-altitude MOAs and limitations on access to the underlying airports. Specifically, topics included how civilian air traffic would be accommodated when the proposed low-altitude MOAs are active, the additional time required to detour around active MOAs, limitations on instrument flight rules (IFR) approach and departure access to airports that are located beneath or proximate to the proposed low-altitude MOAs, and effects on large civilian flying events that are concentrated around specific airports underlying the proposed low-altitude MOAs.

Safety. Comments received on safety were focused on the risks for civilian aircraft traveling through the proposed low-altitude MOAs when active, including soaring (i.e., gliders), visual flight rules operations in active MOAs, safety of students and pilot instructors transiting active MOAs, and medical and emergency flights in active MOAs.

Noise. Noise topics commonly mentioned were focused on the effects of single-event noise generated from low-altitude military aircraft operations and increased noise from civilian aircraft flying at lower altitudes beneath the proposed low-altitude MOAs or as civilian aircraft detour around active MOAs.

Biological Resources. Comments on biological resources focused on the impacts from low-altitude training operations on avian species, and in particular to migratory birds, and on biological resources of the Banks Lake NWR.

Socioeconomics. Socioeconomic topics focused on the local and regional economic impacts of the proposed low-altitude MOAs on general aviation, including accessibility of public airports that are located beneath and proximate to the proposed MOAs.

1.6.5 Federal Aviation Administration Airspace Proposal Circularization

Requests made to the FAA for the establishment of SUA are processed in accordance with FAA Order JO 7400.2N, *Procedures for Handling Airspace Matters*. This process includes the public circularization of proposed SUA soliciting additional information concerning potential effects on navigable airspace. The FAA public circularization for the Moody AFB proposed low-altitude MOAs was for 60 days from 10 November 2022 to 9 January 2023. A total of 20 correspondences were received by the FAA and reviewed for substantive content. All 20 correspondences contained substantive content and **Appendix A (Section A-10)** summarizes these comments and provides the DAF's and FAA's responses.

1.6.6 Final Environmental Impact Statement

The Final EIS has been prepared following the Draft EIS public comment period, the FAA public circularization, and has been revised to reflect substantive public and agency comments. Further, the Final EIS includes the DAF's and FAA's responses to all substantive comments provided during these public and agency reviews. The Final EIS provides the DAF and FAA decision makers with a comprehensive review of the potential environmental consequences of selecting any of the alternatives for implementing the Proposed Action.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action is to configure new low-altitude Military Operations Areas (MOAs) immediately underneath and within the lateral confines of the existing Corsair North, Corsair South, Mustang, Thud, and Warhawk MOAs and Restricted Area R-3008C, and to lower the floor of Moody 2 North MOA in the Moody Airspace Complex. Moody Air Force Base (AFB) would assign and schedule the new low-altitude MOAs to provide adequate low-altitude floors for training operations at low altitude, including close air support (CAS), personnel recovery (PR), and combat search and rescue (CSAR) training mission objectives at the installation. The newly configured low-altitude MOAs and their proximity to the Grand Bay Range would allow aircrews to realistically train in executing combat maneuvers. Under the Proposed Action, the Department of the Air Force (DAF) would modify the Banks Lake National Wildlife Refuge (NWR) exclusion zone (**Figure 2.1-1**), which was created by the Record of Decision to the Winnersville Environmental Impact Statement (EIS) (United States [US] Air Force 1986), by lowering the floor of most of the exclusion zone except for the portion over the open water area (an area of approximately 900 acres that includes all of the open water and adjacent shoreline) of the Banks Lake NWR from 1,500 feet AGL to 500 feet AGL.

Under the Proposed Action, the times of use would decrease in the Corsair North, Corsair South, Moody 2 North, Mustang, Thud, and Warhawk MOAs. The times of use would change for the Corsair North, Corsair South, Hawg North, Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs from 0700 to 0200 hours Monday through Friday and all other times by notice to airmen (NOTAM) 6 hours in advance to 0800 to 0100 Monday through Thursday, 0800 to 2200 hours Friday, and all other times by NOTAM 6 hours in advance. The times of use would change for the Moody 2 North MOA from 0600 to 0200 hours Monday through Friday and all other times by NOTAM 6 hours in advance to 0800 to 0100 Monday through Thursday; 0800 to 2200 hours Friday; closed weekends and holidays; and all other times by NOTAM 6 hours in advance. The times of use for the proposed low-altitude MOAs would be 0800 to 0100 hours Monday through Thursday; 0800 to 2200 hours Friday; closed weekends and holidays; and all other times by NOTAM 6 hours in advance. All other operational restrictions as described in **Section 1.2.2** would remain unchanged.

The proposed low-altitude MOA configuration would enable optimized training in the Moody Airspace Complex and remove constraints on CAS and CSAR training in the Corsair North, Corsair South, Mustang, Thud, and Warhawk MOAs; Moody 2 North MOA; and Restricted Area R-3008C. The Proposed Action would enhance the ability of aircrews operating from Moody AFB to conduct training operations at low altitudes. The proposed MOAs would provide low-altitude airspace so that aircrews would be current, qualified, and proficient at operating at various altitudes in CAS and CSAR operations. The proposed low-altitude floors in Moody AFB-assigned MOAs would improve training and survivability of US and allied warfighters.

2.1.1 Sorties from Moody Air Force Base and Operations in the Airspace

The number of flights or sorties using the Moody Airspace Complex varies from year to year depending on aircraft assignments, missions, and deployments. The Proposed Action or alternatives do not propose changes in aircraft or increases in the number of flights or sorties from the normal year-to-year variation. No changes in airfield operations at the Moody AFB airfield would occur. However, optimizing the airspace would result in the redistribution of aircraft operations from existing low-altitude Special Use Airspace (SUA) (i.e., Moody 2 North MOA, Moody 2 South MOA, and R-3008A, R-3008B, and R-3008C) to new low-altitude MOAs. It is not anticipated that any increases in overall operations would occur as a result of this redistribution; instead, the Proposed Action would eliminate airspace scheduling conflicts, shift the timing of training operations to more daytime hours, and spread out the training requirements at low altitude over a greater area of airspace instead of being concentrated entirely in Moody 2 North and Moody 2 South MOAs and the Restricted Areas R-3008A, R-3008B, and R-3008C.

Operational activities would consist of typical flight operations to include tactical combat maneuvering by fixed-wing and rotary-wing aircraft involving abrupt, unpredictable changes in altitude, attitude, and direction of flight. Other operational activities may include nonstandard formation flights, CAS, electronic attack, and chaff and flare deployment. There would be no supersonic flight activities, no weapons firing, and no ordnance deployment (other than chaff and flares) within the proposed low-altitude MOAs. The primary users of the Moody Airspace Complex would conduct exercises with A-10C, A-29, HC-130J, and HH-60G aircraft and transient users would continue to make up approximately 15 percent of the existing usage of the airspace. Transient users would include a wide variety of both fixed-wing aircraft and rotorcraft (e.g., KC-135, C-17, RQ-11, F-35, F-18, KC-10, F-15, F-16, and C-145).

Under the Proposed Action, some of the operations within the Moody 2 North and Moody 2 South MOAs would be redistributed to the proposed new low-altitude MOAs, and some of the existing operations within the Hawg North and Hawg South MOAs would be redistributed to the existing MOAs above the proposed new low-altitude MOAs. However, the overall number of operations would remain the same with and without the Proposed Action. With this redistribution, the Proposed Action would allow for less-concentrated aircraft activities in existing low-altitude SUA. The coordinates for the boundaries of the proposed new low-altitude MOAs are provided in **Appendix B**.

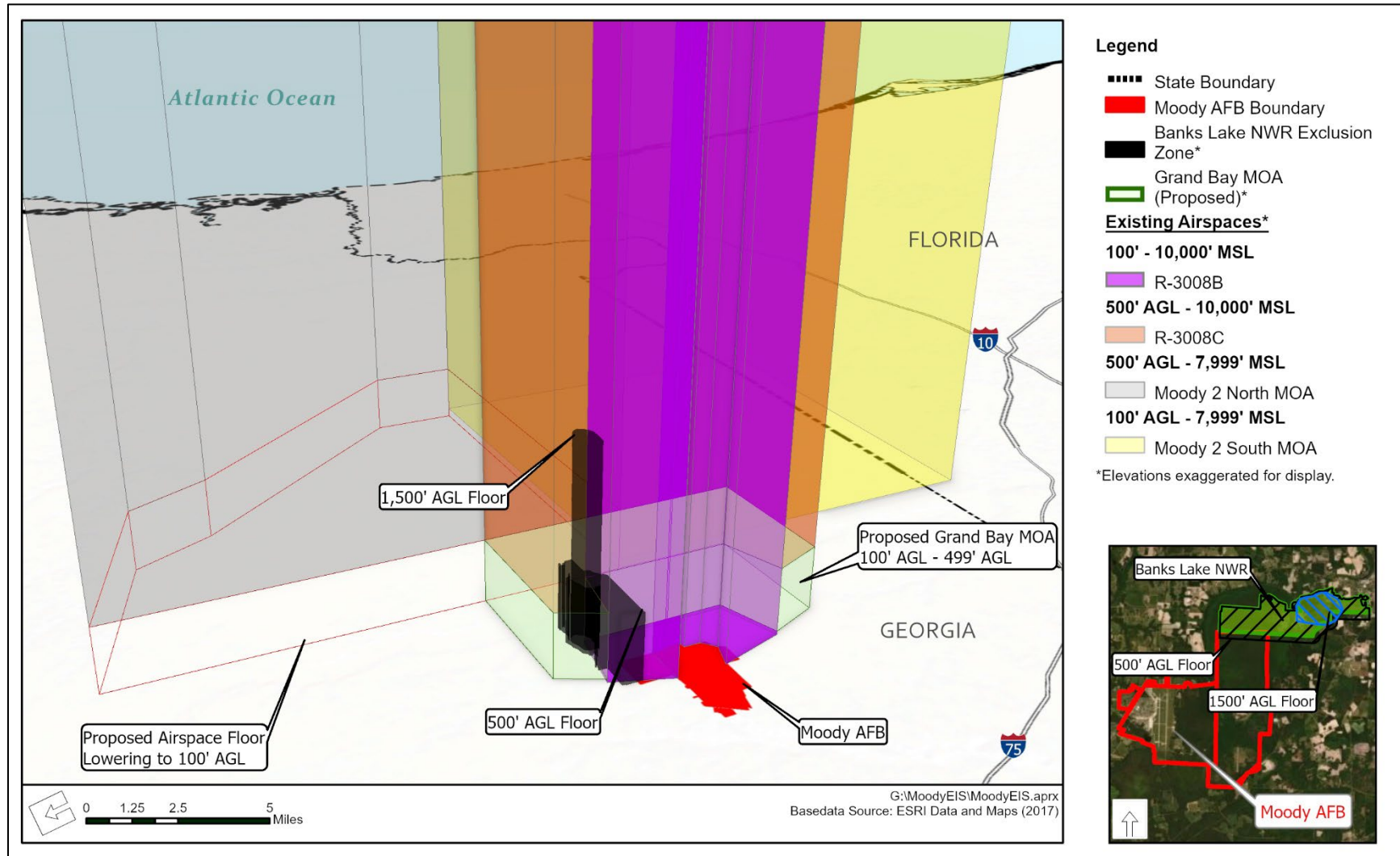


Figure 2.1-1. Modification of the Banks Land National Wildlife Refuge Exclusion Zone

Training under the Proposed Action would include the use of defensive countermeasures, which include chaff and flares. Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid successful attack by enemy air defense systems. Flares are ejected from aircraft to provide high-temperature heat sources that mislead heat-sensitive or heat-seeking targeting systems. Defensive flares are used to keep aircraft from being successfully targeted by weapons such as surface-to-air missiles, anti-aircraft artillery, or other aircraft (Moody AFB 2012). Flares burn for three to four seconds at a temperature in excess of 2,000 degrees Fahrenheit (°F) to simulate a jet exhaust. During the burn, a flare descends approximately 400 feet. The burning magnesium pellet is consumed, and four or five plastic pieces and aluminum-coated Mylar wrapping material fall to the ground (Moody AFB 2012). Chaff is an electronic countermeasure designed to reflect radar waves and obscure aircraft, ships, and other equipment from radar tracking sources. Chaff bundles consist of millions of nonhazardous aluminum-coated glass fibers. When ejected from the aircraft, these fibers disperse widely in the air, forming an electromagnetic screen that temporarily hides the aircraft from radar and forms a radar decoy, allowing the aircraft to defensively maneuver or leave the area.

Aircrews would train with chaff and flares as countermeasures to threat emitters and during air-to-air training. For training with countermeasure to threat emitters, ground crews would set up at various locations such as the side of roads, in cleared areas, or on landing zones (LZs). The aircrews would respond to the threats presented either with evasive maneuvers, by masking themselves below the tree line, or by ejecting chaff or flares through an aircraft warning system. Aircrews could engage threat emitters at any altitude within the Moody Airspace Complex and the use of defensive countermeasures would vary depending on the type of threat requested and the type of training needed.

The use of chaff and flares would continue in the Moody Airspace Complex under the Proposed Action. The Proposed Action would redistribute a portion of the low-altitude chaff and flare use in the Moody 2 North and Moody 2 South MOAs to the new low-altitude MOAs. Flares would be released at high enough altitudes to allow sufficient time for flare burnout before reaching the ground. Per Air Force (1997) *Environmental Effects of Chaff and Flares*, the safe release altitude is 2,000 feet. Therefore, the Proposed Action would restrict flare deployment to an altitude of 2,000 feet above ground level (AGL) in all SUA of the Moody Airspace Complex.

The Proposed Action would not change the types or quantities of training ordnance and munitions or airdrops by aircrews at the Grand Bay Range. Further, the Proposed Action would not develop new helicopter landing zones (HLZs) or drop zones (DZs) and would not change the training operations at existing HLZs and DZs. No change to urban CAS operations would occur under the Proposed Action. Additionally, the 1-nautical mile (nm), 1,500-foot-AGL Banks Lake NWR exclusion zone created by the Record of Decision to the Winnersville EIS would be modified.

2.2 Alternative Selection Standards

National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations mandate the consideration of reasonable alternatives for the Proposed Action. Reasonable alternatives are those that meet the purpose of and need for the Proposed Action. Per the requirements of 32 Code of Federal Regulations (CFR) 989, selection standards are used to identify alternatives for meeting the purpose of and need for the Proposed Action.

The selection standards used to identify alternatives for achieving the required training through airspace optimization are based on the information contained in **Sections 1.2** and **2.1** and training operations at low altitudes as described in **Appendix B**. These required selection standards are:

1. **Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.** The existing low-altitude SUA in the Moody Airspace Complex are currently saturated with training operations, which limits effective training operations. Proposed alternatives must expand low-altitude SUA proximate to Moody AFB reducing congestion from training requirements to achieve the mission training certifications and requirements.
2. **Alternatives must utilize airspace that can be scheduled by Moody AFB.** Airspace not managed by Moody AFB has priority scheduling for other unit training and is often not available for CAS and CSAR training by Moody AFB-stationed aircrews. Proposed alternatives must provide SUA that is scheduled by Moody AFB.
3. **Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.** Readiness is directly related to the amount of time aircrews have available to train for missions performed in combat. Commuting to achieve training at low altitudes increases time spent in transit and creates the requirement for necessary maintenance during time which could be spent training. For example, the nearest low-altitude SUA to the Moody Airspace Complex is the Fort Benning Complex, approximately 120 nm northeast of Moody AFB; the Fort Stewart Complex, approximately 100 nm northeast of Moody AFB; and the Bulldog Complex, approximately 125 nm northeast of Moody AFB. Commuting to distant low-altitude SUA such as these decreases overall available time for training, which can impact mission readiness. Alternatives must provide low-altitude airspace at a proximity which would substantially reduce commute time and therefore increase the opportunity for mission readiness.
4. **Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.** The approach to the Grand Bay Range is through R-3008C, which has a floor of 500 feet AGL and over the Banks Lake NWR, which has a 1,500-foot AGL exclusion zone. This creates an artificial altitude shelf that limits training options during ingress and egress. Alternatives must provide a usable airspace for ingress and egress at 100 feet AGL in order to allow for a realistic training environment for low-altitude approaches at the Grand Bay Range.

2.3 Screening of Alternatives

Other DAF scheduled MOAs in the vicinity of Moody AFB that are available for training operations at low altitude were evaluated to determine whether airspace modifications could be implemented to meet the selection standards described in **Section 2.2**. However, all available Air Force scheduled MOAs proximate to Moody AFB are located within the Moody Airspace Complex. An alternative that would chart new low-altitude MOAs over the Okefenokee Swamp in southeastern Georgia (much of which is federally managed land under the NWR system) instead of in the Moody Airspace Complex, was considered. The Okefenokee Swamp, however, is substantially smaller than the Moody Airspace Complex and could not replace more than one of the proposed low-altitude MOAs, and therefore does not meet the Selection Standard 1 requirement to reduce congestion in low-altitude airspace within the existing Moody Airspace Complex. The Okefenokee Swamp is located 51 miles southeast of the Moody AFB airfield and similar to the use of existing low-altitude SUA by Moody AFB-based aircraft, the commute distance to the Okefenokee Swamp would reduce training readiness, increase training costs, and not meet the Selection Standard 3 requirement to provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness. Further, a MOA charted over the Okefenokee Swamp would not meet the Selection Standard 4 requirement to allow for realistic exercise training options during ingress and egress out of the Grand Bay Range because it is not within the Moody Airspace Complex proximate to the Grand Bay Range and R-3008A, R-3008B, R-3008C and R-3008D. Lastly, the Okefenokee NWR is a pristine natural area where creating a new MOA for training operations could have many potential impacts on sensitive wildlife species and recreational activities. Therefore, all the potential action alternatives are limited to airspace modifications within the Moody Airspace Complex.

Three action alternatives were identified in the Draft EIS to meet the project's purpose and need. The three action alternatives provide a realistic low (i.e., 1,000 feet AGL) and high (i.e., 4,000 feet AGL) boundary for the low-altitude floors for the proposed low-altitude MOAs. In consideration of substantive comments submitted during the Draft EIS public comment period and input received from the Federal Aviation Administration (FAA) during their review of the DAF's airspace proposal, a variation of the Draft EIS Alternative 1 was developed to address concerns regarding airspace management and regional air traffic. This fourth action alternative is referred to as Modified Alternative 1. Similar to Alternative 1, Modified Alternative 1 would create new low-altitude MOAs immediately beneath the existing Moody Airspace Complex. In contrast, Modified Alternative 1 would revise the lateral boundaries of the proposed Corsair North Low, Mustang Low, and Warhawk Low MOAs to encompass smaller airspace areas, and would not create a Thud Low MOA.

The four action alternatives (**Figure 2.3-1** and **Figure 2.3-2**) and the No Action Alternative, which forms the basis for the existing conditions documented in the environmental analysis, are summarized and compared in **Table 2.3-1**. The proposed shift in training operations and associated airspace utilization for each alternative are shown in **Table 2.3-2**.

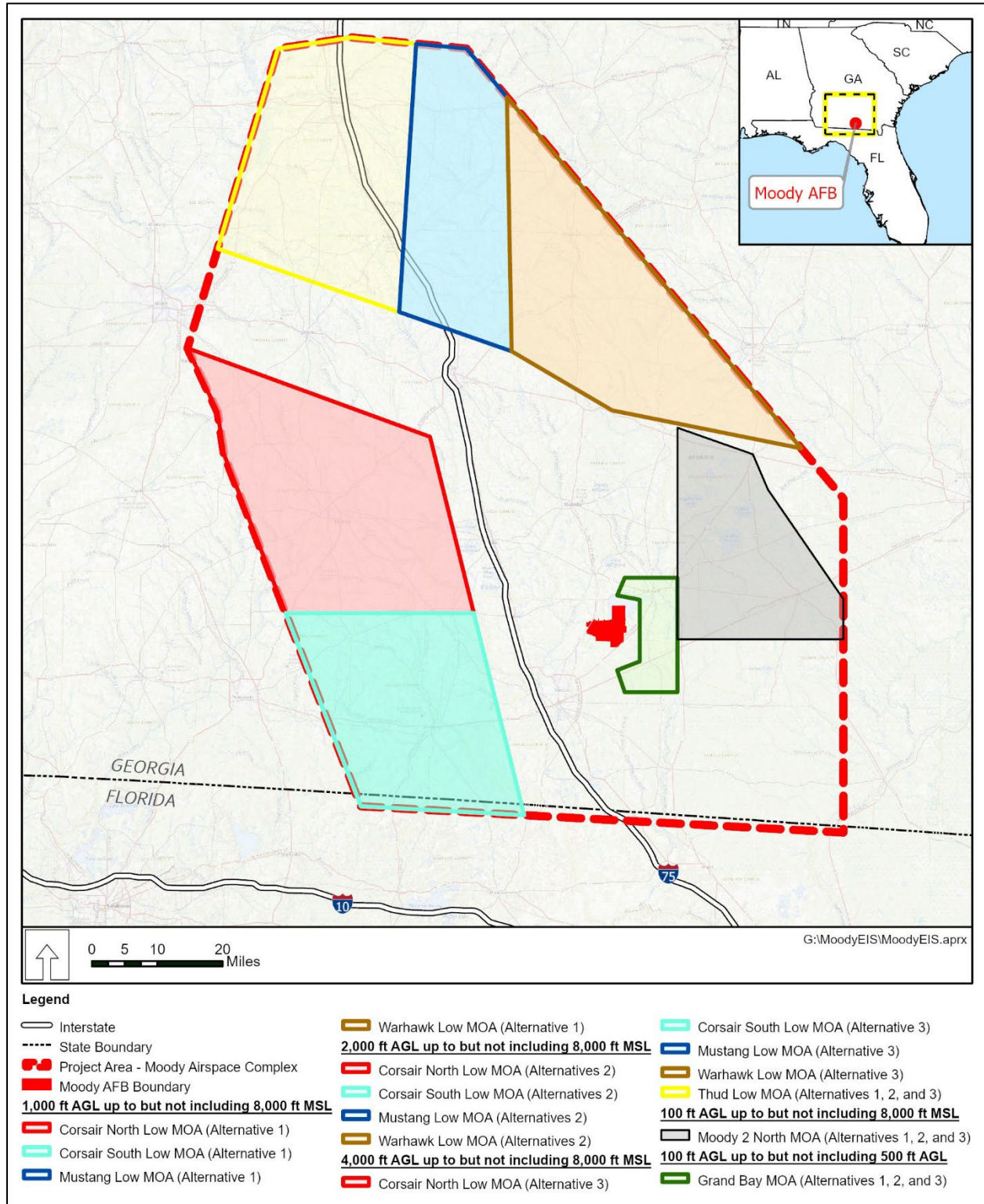


Figure 2.3-1. Lateral Boundaries of the Action Alternatives 1, 2, and 3

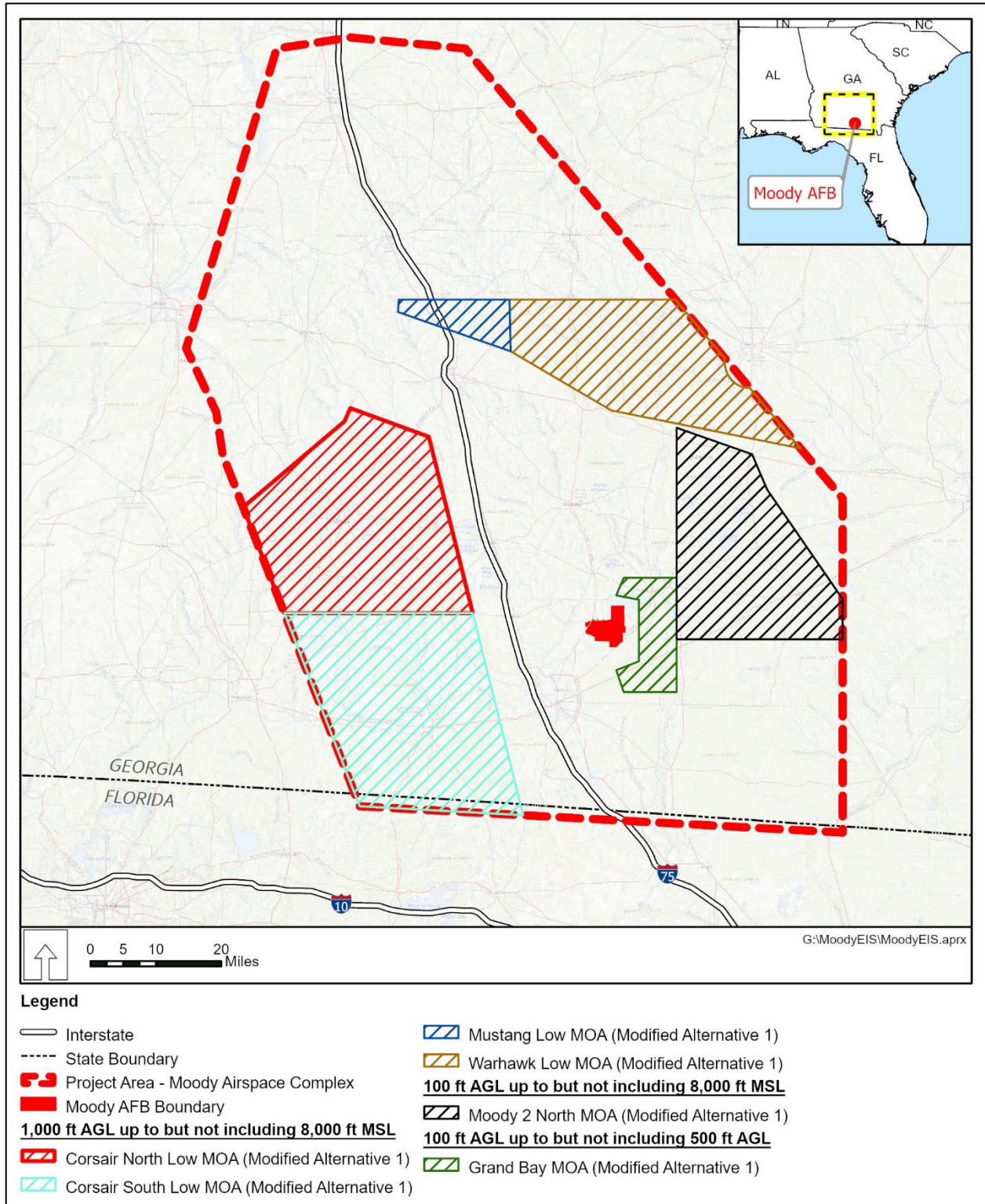


Figure 2.3-2. Lateral Boundaries of the Modified Alternative 1

Table 2.3-1. Existing and Alternative Low-Altitude Floors in the Moody Airspace Complex

Special Use Airspace	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA
Corsair North Low MOA	N/A	1,000 feet AGL	1,000 feet AGL*	2,000 feet AGL	4,000 feet AGL
Corsair South Low MOA	N/A	1,000 feet AGL	1,000 feet AGL	2,000 feet AGL	4,000 feet AGL
Mustang Low MOA	N/A	1,000 feet AGL	1,000 feet AGL*	2,000 feet AGL	4,000 feet AGL
Thud Low MOA	N/A	4,000 feet AGL	N/A	4,000 feet AGL	4,000 feet AGL
Warhawk Low MOA	N/A	1,000 feet AGL	1,000 feet AGL*	2,000 feet AGL	4,000 feet AGL
Moody 2 North MOA	500 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL
Moody 2 South MOA	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL
Grand Bay MOA	N/A	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL
R-3008A	Surface	Surface	Surface	Surface	Surface
R-3008B	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL	100 feet AGL
R-3008C	500 feet AGL	500 feet AGL	500 feet AGL	500 feet AGL	500 feet AGL

* The Corsair North Low, Mustang Low, and Warhawk Low MOAs would not have the same lateral boundaries as the existing mid-altitude overlying Corsair North, Mustang, and Warhawk MOAs.

AGL – above ground level; **MOA** – Military Operations Area; **N/A** – not applicable; **R-** - Restricted Area

Through the alternatives screening process developed for the Draft EIS, the DAF and the FAA may decide to chart the proposed low-altitude MOAs all with the same low-altitude floor, chart low-altitude MOAs with different low-altitude floors, or eliminate one or more of the proposed low-altitude MOAs, as proposed under Modified Alternative 1. Although there would be no actual change in the number of operations at Moody AFB or within the Moody Airspace Complex under any of the proposed alternatives, to capture operational variations in numbers of flying operations caused by increased or decreased pilot production/training demands, for the purposes of analysis in this EIS, estimates of operations in the proposed MOAs for Alternatives 1, 2, and 3 were increased by a third to provide operational flexibility for evolving mission needs that may increase or decrease pilot production/training demands between years, and to also account for the possibility that only part of an alternative may be selected and operations may therefore be confined to smaller or fewer MOAs. This enabled a conservative evaluation of the upper-bound levels of effects within which the required numbers of actual mission training activities could fully proceed even if confined to a reduced airspace area. Because Modified Alternative 1 proposes a reduced SUA area (at 58 percent of

Table 2.3-2. Comparison of Operations and Utilization in the Moody Airspace Complex by Alternative

Airspace	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA
Aircraft Utilization [Number of Operations^a (Annual Hours^b)] in Mid-Altitude (8,000 feet MSL up to FL230) Airspace					
Corsair North MOA	1,907 (760)	2,783 (1,085)	2,975 (1,014)	2,352 (923)	2,120 (841)
Corsair South MOA	1,751 (770)	2,627 (1,096)	2,819 (1,023)	2,196 (933)	1,965 (851)
Hawg North MOA	4,181 (1,078)	2,874 (860)	2,590 (686)	3,736 (1,147)	4,198 (1,290)
Hawg South MOA	4,204 (1,122)	2,874 (895)	2,590 (709)	3,736 (1,194)	4,198 (1,343)
Mustang MOA	906 (273)	1,782 (620)	1,204 (348)	1,351 (454)	1,120 (354)
Sabre MOA	346 (112)	346 (112)	346 (112)	346 (112)	346 (112)
Thud MOA	1,138 (374)	1,138 (374)	1,138 (374)	1,138 (374)	1,138 (374)
Warhawk MOA	941 (287)	1,817 (613)	1,711 (510)	1,386 (450)	1,155 (368)
Total Mid-Altitude Operations^c (Utilization)	15,371 (4,775)	16,240 (5,657)	15,373 (4,775)	16,240 (5,586)	16,240 (5,535)
Aircraft Utilization [Number of Operations^a (Annual Hours^b)] in Low-Altitude (below 8,000 feet MSL) Airspace					
Moody 2 North MOA ^d	5,536 (2,545)	3,597 (1,933)	3,597 (1,918)	4,532 (2,215)	5,103 (2,442)
Moody 2 South MOA	5,546 (2,506)	3,597 (1,888)	3,597 (1,892)	4,532 (2,179)	5,103 (2,396)
R-3008/Grand Bay MOA ^{d, e}	5,361 (3,472)	5,361 (3,472)	5,361 (3,480)	5,361 (3,472)	5,361 (3,472)
LATN Area	5,480 (1,134)	5,480 (1,134)	5,480 (1,137)	5,480 (1,134)	5,480 (1,134)
Proposed Corsair North Low MOA	0 (0)	1,625 (621)	1,500 (542)	1,003 (442)	376 (124)
Proposed Corsair South Low MOA	0 (0)	1,340 (439)	1,279 (400)	586 (175)	263 (51)
Proposed Mustang Low MOA	0 (0)	1,112 (293)	0 (0)	548 (150)	263 (51)

Airspace	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, New Grand Bay MOA, Lower the Floor of Moody 2 North MOA
Proposed Thud Low MOA ^f	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Proposed Warhawk Low MOA	0 (0)	1,094 (281)	0 (0)	548 (150)	263 (51)
Proposed Mustang Low / Warhawk Low MOAs	0 (0)	0 (0) ^g	1,108 (290) ^g	0 (0) ^g	0 (0) ^g
Total Low-Altitude Operations^b (Utilization)	21,924 (9,657)	23,207 (10,042)	21,922 (9,657)	22,590 (9,917)	22,212 (9,772)
Total All Operations^b (Utilization)	37,295 (14,432)	39,446 (15,698)	37,295 (14,432)	38,829 (15,503)	38,452 (15,257)

Notes: ^a For analysis purposes a "sortie" is an individual or group of aircraft training in a MOA at one time, and an "operation" is a single aircraft in a MOA for a period of time. An operation does not have a fixed period of time within a SUA.

^b Airspace utilization (in hours) includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated

^c Operations (and subsequently utilization) redistributed to the proposed low-altitude MOAs were increased by a third for Alternatives 1, 2, and 3 to provide operational flexibility and account for the possibility of different low-altitude MOAs being charted with different floors. When operations are redistributed to proposed low-altitude MOAs, partial operations result from the calculations. Therefore, operations and utilization are rounded to the nearest whole operation. Inconsistencies due to rounding may be present.

^d Under Alternatives 1, 2, and, 3, it is estimated that 134 operations would occur between 500 feet AGL and 100 feet AGL in each of the Moody 2 North and the Grand Bay MOAs.

^e The existing training operations in R-3008 would also utilize the new Grand Bay MOA, and no changes would occur in training operations in R-3008.

^f Existing operations in the Thud MOA would extend into the proposed Thud Low MOA.

^g Modified Alternative 1 combines the operations and utilization in the proposed Mustang Low and Warhawk Low MOAs because they would always be activated together and would not be utilized separately for training operations.

FL – flight level; **LATN** – low altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** - Restricted Area

Alternative 1), there was no need to increase the estimates of operations by a third and the analysis evaluates effects from the required number of mission training activities.

Alternatives that address the training requirements are defined as reasonable alternatives for analysis in this EIS. Each alternative description includes a table summarizing the applicability of each selection standard. **Section 2.4.5** provides an overall comparison of each alternative to the selection standards. Each viable alternative's potential impacts are analyzed in **Chapter 3**, with an aggregate analysis summary provided at the end of **Chapter 3** to provide context for the decision to be made. No alternatives evaluated were eliminated from further consideration.

2.4 Detailed Description of Alternatives Carried Forward for Analysis

2.4.1 No Action Alternative

CEQ's NEPA regulations require the alternatives analysis in an EIS to "include the alternative of no action"(40 CFR 1502.14(d)), which can be an example of a reasonable alternative not within the jurisdiction of the lead agency (40 CFR 1502.14(c)). Therefore, the analysis of a No Action Alternative in an EIS is provided as a benchmark and to enable decision makers to compare the magnitude of the environmental effects from a proposed action and alternatives (40 CFR 1502.14(d)). For a NEPA analysis, "no action" means that an action would not take place. There would be no changes to the existing airspace configuration under the No Action Alternative. Under the No Action Alternative, the operational floors of the Moody Airspace Complex would remain at 8,000 feet mean sea level (MSL) in the Corsair North, Corsair South, Mustang, Thud, and Warhawk MOAs and at 500 feet AGL in Moody 2 North MOA and R-3008C; the exclusion zone over the Banks Lake NWR would remain unaltered.

Under the No Action Alternative, training operations at low altitudes could occur at other airspace complexes in the region. There are other low-altitude SUA in the southeastern US; however, the 23 Wing (WG) is not the scheduling authority of the airspace and therefore cannot guarantee the airspace availability to its squadrons. The added distance would significantly increase aircraft transit time to and from the low-altitude SUA, in some cases by as much as one hour. In using distant SUA to complete required training, the 23 WG would incur higher training costs coupled with reduced aircrew training time as more of the available flight time for training would be used to transit to and from these more distant SUA.

The Fort Benning Complex is approximately 120 nm northwest of Moody AFB, the Fort Stewart Complex is approximately 100 nm northeast of Moody AFB, and the Bulldog Complex is approximately 125 nm northeast of Moody AFB (**Figure 2.4-1**). Fort Benning is the controlling authority for SUA at the Fort Benning Complex; Fort Stewart is the controlling authority for the Fort Stewart Complex; and Shaw AFB is the controlling authority for the SUA at the Bulldog Complex. All three of these SUA complexes are far removed from Moody AFB. Additionally, as Moody AFB is not the scheduling authority for these MOAs, Moody AFB-stationed aircraft do not have scheduling priority for training operations.

Aircraft would require a one-way transit time of approximately 25 minutes to reach these training complexes. For A-10Cs, the overall flying time for a training event is 1.6 to 1.8 hours. Using

other regional SUA complexes would require a 50-minute round-trip transit, allowing for only approximately 30 minutes of dedicated training time. Alternatively, if low-altitude SUA in the Moody Airspace Complex is scheduled, aircrews would achieve approximately 1.6 hours of training time.

Under the No Action Alternative, restrictive limitations associated with training in the low-altitude training and navigation (LATN) area (**Figure 2.4-1**) as described in Air Force Instruction (AFI) 11-202 would continue. Flight training in the LATN area must be nontactical, and aircraft must fly at airspeeds of 250 knots or less and are precluded from flying over the same point more than once per day. These restrictions would continue to limit training operations for A-10Cs and A-29s in the LATN area.

Chaff and flares use would continue to be limited to the Moody 2 North and Moody 2 South MOAs under the No Action Alternative. Further, there would be no change in ordnance use at the Grand Bay Range or training at existing HLZs and DZs. Urban CAS training operations would continue under the existing SUA within the Moody Airspace Complex.

Under the No Action Alternative, the current airspace constraints would continue. The No Action Alternative would not provide for realistic training within SUA associated with Moody AFB.

Table 2.4-1 presents the average time each airspace within the Moody Airspace Complex is occupied by aircraft, both annually and daily, under the No Action Alternative. The table reflects the reasonable upper bound of training within airspace; the utilization in any given year or on any given day varies. The utilization rates shown are for sorties that may contain more than one aircraft and reflect the actual time one or more aircraft operate within an airspace, as individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days annually within each airspace, accounting for weekends, holidays, deployments, and other periods when training is not taking place. However, it is likely that training operations would use other airspace within the Moody Airspace Complex during days that any given airspace is not used. **Figure 2.4-2** shows the current vertical airspace limits of the Moody Airspace Complex, which would remain unchanged under the No Action Alternative.

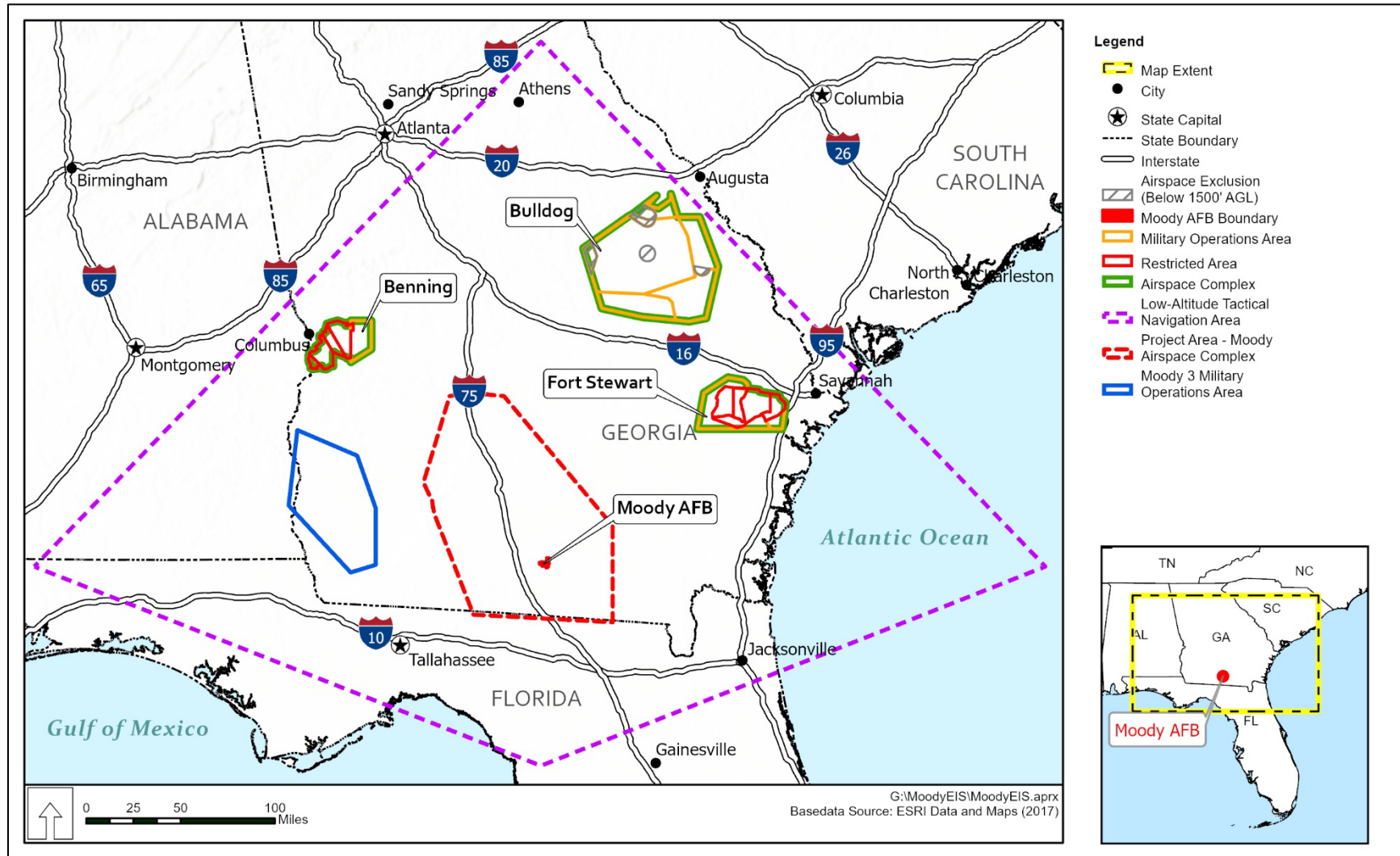


Figure 2.4-1. Existing Special Use Airspace Complexes in the Region

Table 2.4-1. No Action Alternative – Average Airspace Utilization

Airspace	Based Aircraft Annual Hours (Daily Hours)				Primary Transient Aircraft Annual Hours (Daily Hours)		Total
	A-10	A-29	HC-130	HH-60	F-18	F-35	
Mid-Altitude (8,000 feet MSL up to FL230) Airspace Utilization							
Corsair North MOA	573 (2.5)	122 (0.5)	0 (0.0)	0 (0.0)	64 (0.3)	0 (0.0)	760 (3.3)
Corsair South MOA	345 (1.5)	344 (1.5)	0 (0.0)	0 (0.0)	81 (0.4)	0 (0.0)	770 (3.3)
Hawg North MOA	1,006 (4.4)	0 (0.0)	0 (0.0)	0 (0.0)	72 (0.3)	0 (0.0)	1,078 (4.7)
Hawg South MOA	1,006 (4.4)	0 (0.0)	0 (0.0)	0 (0.0)	116 (0.5)	0 (0.0)	1,122 (4.9)
Mustang MOA	58 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	126 (0.5)	90 (0.4)	273 (1.2)
Sabre MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	106 (0.5)	6 (0.0)	112 (0.5)
Thud MOA	173 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	110 (0.5)	92 (0.4)	374 (1.6)
Warhawk MOA	58 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	140 (0.6)	89 (0.4)	287 (1.2)
Mid-Altitude Totals	3,218 (14.0)	466 (2.0)	0 (0.0)	0 (0.0)	813 (3.5)	277 (1.2)	4,775 (20.8)
Low-Altitude (below 8,000 feet MSL) Airspace Utilization							
Moody 2 North MOA	403 (1.8)	503 (2.2)	132 (0.6)	1,323 (5.8)	185 (0.8)	0 (0.0)	2,545 (11.1)
Moody 2 South MOA	403 (1.8)	465 (2.0)	132 (0.6)	1,323 (5.8)	184 (0.8)	0 (0.0)	2,506 (10.9)
R-3008	1,208 (5.3)	277 (1.2)	661 (2.9)	1,323 (5.8)	0 (0.0)	4 (0.0)	3,472 (15.1)
LATN Area	242 (1.1)	0 (0.0)	496 (2.2)	397 (1.7)	0 (0.0)	0 (0.0)	1,134 (4.9)
Low-Altitude Totals	2,254 (9.8)	1,245 (5.4)	1,422 (6.2)	4,364 (19.0)	368 (1.6)	4 (0.0)	9,657 (42.0)
Total All Operations	5,472 (23.8)	1,711 (7.4)	1,422(6.2)	4,364(19.0)	1,182(5.1)	281 (1.2)	14,432 (62.7)

Notes: The table reflects a reasonable upper bound of the average training within airspace. Some periods may have more or less utilization than shown. Airspace utilization includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated (e.g., 28 daily hours could be equivalent to 7 aircraft training for 4 hours). Individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year. Small inconsistencies due to rounding may exist. The variants of aircrafts modeled were the A-10C, HH-60G, C-130J, F18 A/C and the F-35A. The T-6 was used as a surrogate for the A-29.

FL – flight level; **LATN** – low-altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area

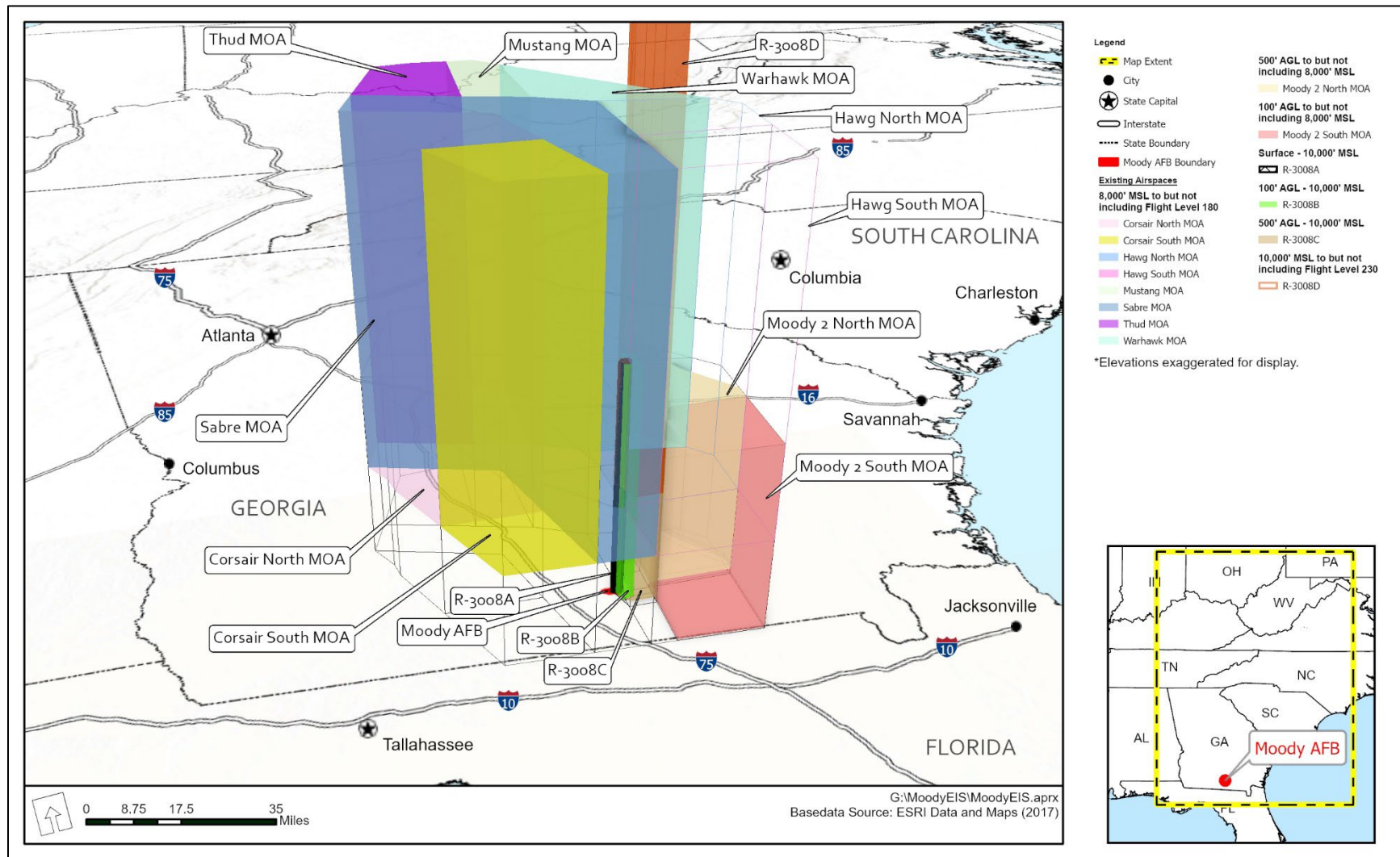


Figure 2.4-2. Special Use Airspace and Operational Altitudes in the Moody Airspace Complex under the No Action Alternative

2.4.2 *Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor, Create a New Grand Bay Military Operations Area, and Lower the Floor of Moody 2 North Military Operations Area*

Under Alternative 1, the DAF and FAA would chart new low-altitude MOAs beneath and within the lateral confines of existing MOAs and Restricted Areas of the Moody Airspace Complex (**Figure 2.4-3**):

- The DAF and FAA would create the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs with a floor of 1,000 feet AGL and a ceiling of 7,999 feet MSL. The DAF and FAA would create the new MOAs beneath and within the lateral confines of the existing Corsair North, Corsair South, Mustang Low, and Warhawk Low MOAs, respectively.
- The DAF and FAA would create the Thud Low MOA with a floor of 4,000 feet AGL and a ceiling of 7,999 feet MSL beneath and within the lateral confines of the existing Thud MOA.
- The DAF and FAA would create the Grand Bay MOA with a floor of 100 feet AGL and a ceiling of 499 feet AGL beneath and within the lateral confines of the existing Restricted Area R-3008C.
- The DAF and FAA would lower the floor of Moody 2 North MOA from 500 feet AGL to 100 feet AGL.

This action would increase the Moody Airspace Complex current low-altitude airspace by more than 146 percent and increase the options pilots and aircrews have to complete their numerous training requirements. The creation of Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs would maximize the amount of flight time to accomplish training requirements, without spending excessive flight hours traveling to more distant training areas. This ultimately increases training time and improves tactical training objectives. Currently, most aforementioned tactical training events with minimum recovery altitudes below 500 feet AGL cannot be properly performed in Moody 2 North MOA. Lowering the floor of Moody 2 North MOA from 500 feet AGL to 100 feet AGL would mirror the current altitudes of Moody 2 South MOA, consequently providing a continuous training area in which to practice low-altitude tactical formation, low-altitude navigation, and tactics for A-10C, A-29, HH-60G, and HC-130J aircrews and pilots.

Under Alternative 1 it is estimated that 134 operations that would be conducted annually between 500 feet AGL and 1,000 feet AGL in each of the Moody 2 North MOAs and Restricted Area R-3008C would now instead occur between 499 feet AGL and 100 feet AGL in the Moody 2 North MOA and the Grand Bay MOA, respectively. These training operations in the Moody 2 North and Grand Bay MOAs would average approximately one operation every three days and would utilize varying routes so that there would be no frequent overflights at the same ground location.

The proposed new Grand Bay MOA would bridge the airspace between R-3008A/R-3008B, and Moody 2 North and Moody 2 South MOAs and would provide a level of flight safety for military

operations within the lateral confines of R-3008. Currently, this block of airspace is the only unprotected airspace between R-3008 and the Moody 2 North and Moody 2 South MOAs. The creation of the Grand Bay MOA and modifying the Banks Lake NWR exclusion zone, except for the approximately 900 acres of the Banks Lake NWR that includes all the open water and adjacent shoreline within the NWR, would allow aircraft to tactically transit from Moody 2 South MOA to R-3008 at an altitude as low as 100 feet AGL (**Figure 2.4-4**) without having to climb up to 500 feet AGL (R-3008C). Comprehensive training scenarios such as large force exercises or CSAR operations would seamlessly transition between Moody 2 North MOA, Moody 2 South MOA, and R-3008 or be used as composite airspace (multiple airspace used as one).

Under Alternative 1, no changes in the number of sorties at Moody AFB airfield and no changes in the number of overall aircraft operations in the Moody Airspace Complex would occur. However, the distribution of training operations at low altitudes within the Moody Airspace Complex would change, as Moody AFB would redistribute 3,888 annual training operations currently limited to Moody 2 North and Moody 2 South MOAs to the new low-altitude MOAs.

Under Alternative 1, the quantity or type of defensive countermeasures used during training would not change. Chaff and flares would be permitted for use within the new proposed low-altitude MOAs beneath those MOAs where chaff and flare use is currently permitted. Therefore, no defensive countermeasures would be permitted in the proposed Thud Low MOA and the use of defensive countermeasures in the proposed Corsair North Low MOA would be restricted to the use of flares only. The use of flares would be limited to 2,000 feet AGL. Defensive countermeasures use would also be redistributed along with training operations in the proposed new low-altitude MOAs. **Table 2.4-2** shows the chaff and flare use in the proposed new low-altitude MOAs as well as in the Moody 2 North and Moody 2 South MOAs.

Table 2.4-2. Proposed Chaff and Flare Use in the Moody Airspace Complex under Alternative 1

Special Use Airspace	Annual Chaff Use	Annual Flare Use
Moody 2 North MOA	3,465	3,474
Moody 2 South MOA	3,466	3,474
Proposed Corsair North Low MOA	0	946
Proposed Corsair South Low MOA	693	789
Proposed Mustang Low MOA	583	664
Proposed Thud Low MOA	0	0
Proposed Warhawk Low MOA	573	653
Total	8,780	10,000

MOA – Military Operations Area

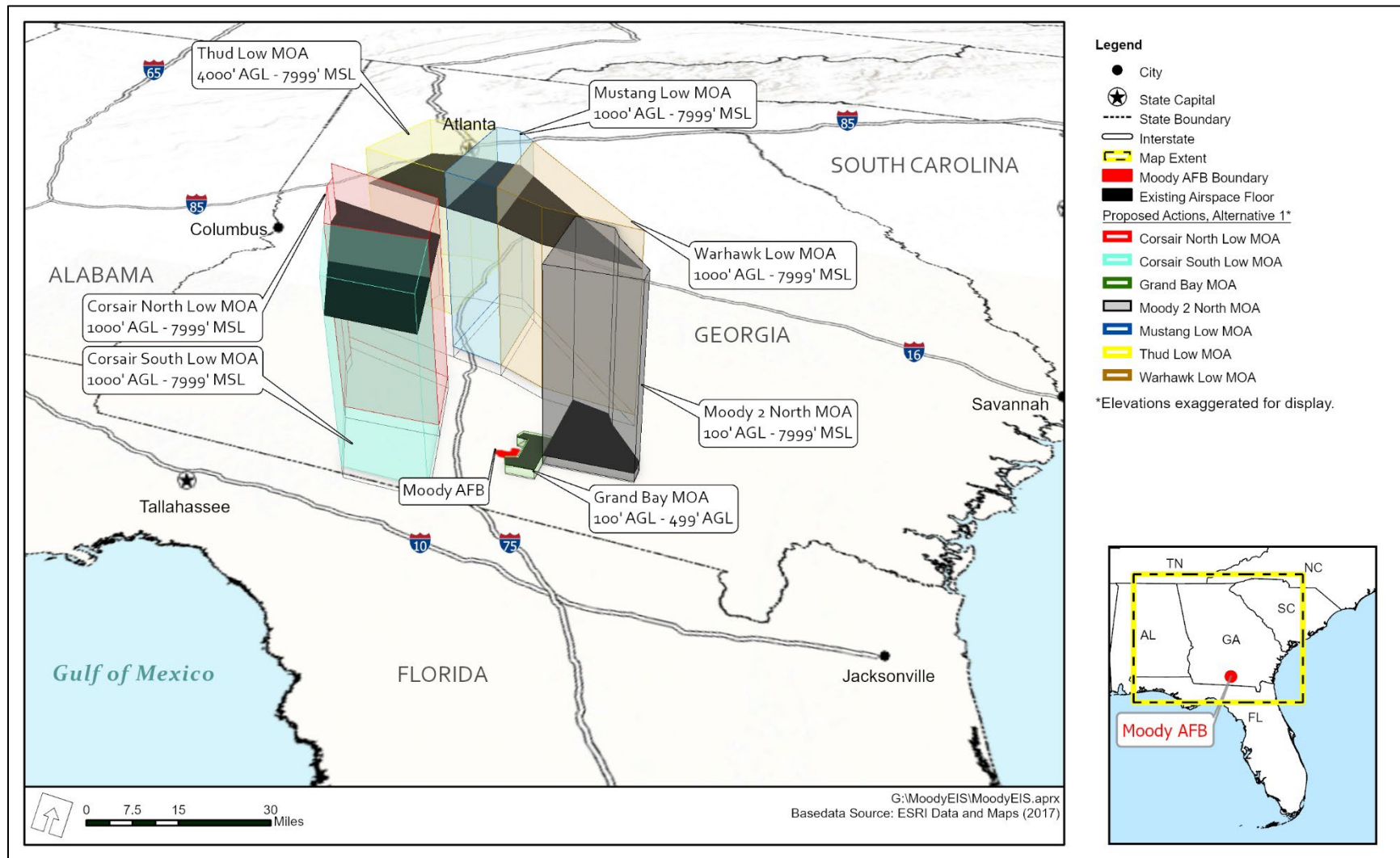


Figure 2.4-3. Alternative 1. New Military Operations Areas with a 1,000-Foot Above Ground Level Floor, a New Grand Bay Military Operations Area, and a 100-Foot Above Ground Level Floor at Moody 2 North Military Operations Area

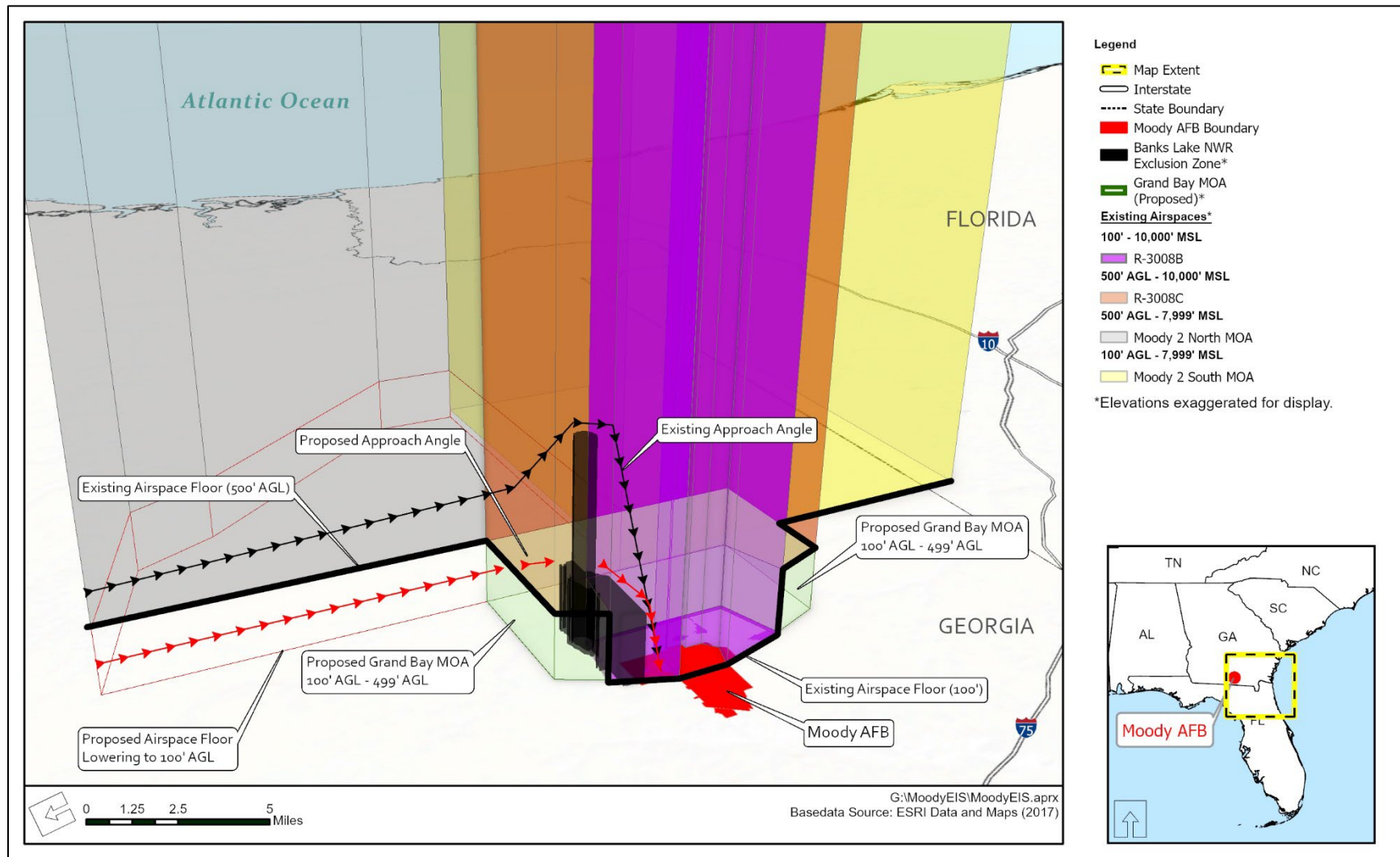


Figure 2.4-4. Change in Aircraft Approach Angle with the Creation of the Grand Bay Military Operations Area

Table 2.4-3 provides the average annual and daily airspace utilization during training operations with the implementation of Alternative 1. The table reflects the reasonable upper bound of training within airspace units; however, the utilization in any given year or on any given day would vary. The utilization rates shown are for sorties that may contain more than one aircraft, and are the actual time one or more aircraft operate within airspace, as individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year within each airspace, accounting for weekends, holidays, deployments, and other periods when training is not taking place. However, during days when one MOA is not being used in the Moody Airspace Complex, other MOAs would be used. Although no actual change in the number of overall operations at Moody AFB or within the airspace complex is proposed, estimated operations in the proposed MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Additionally, the following conditions would apply to Alternative 1:

- All operations below 1,000 feet AGL would remain unchanged within the Moody 2 North and Moody 2 South MOAs and R-3008 when compared to existing conditions.
- Operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs would decrease.
- A one-to-one increase in operations in the newly proposed airspace would offset decreases in operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs.
- SUA below 1,000 feet AGL would not change other than at Moody 2 North MOA and R-3008. This proposed change is primarily to “even out” the airspace floor of, but not increase the operations within, the SUA. It is estimated that 134 operations annually (approximately 1 operation every three days) would occur below 500 feet in each of the Moody 2 North and Grand Bay MOAs.
- The DAF would not expend ordnance other than chaff and flares in the new low-altitude MOAs.
- The types and quantities of training ordnance used at the Grand Bay Range would continue unchanged.
- The existing 0.5 nm-wide east-west corridor through Sabre MOA and its underlying airspace and under Hawg North MOA would be maintained to accommodate civilian aircraft transit of the Moody Airspace Complex (see **Figure 1.2-2**).
- The DAF would modify the Banks Lake NWR exclusion zone by lowering the floor from 1,500 feet AGL to 500 feet AGL, except for the approximately 900 acres of the Banks Lake NWR that includes all of the open water and adjacent shoreline.

Urban CAS training operations would not change under Alternative 1. Under Alternative 1, the new low-altitude MOAs would allow for more realistic urban CAS training across the entire Moody Airspace Complex with aircraft being able to operate at lower altitudes during training operations across a larger area. However, all ground operations would continue to be limited to the lateral confines of the existing Moody Airspace Complex, and no expansion of ground operations associated with urban CAS would occur.

Table 2.4-3. Alternative 1 – Average Airspace Utilization

Airspace	Based Aircraft Annual Hours (Daily Hours)				Primary Transient Aircraft Annual Hours (Daily Hours)		Total
	A-10	A-29	HC-130	HH-60	F-18	F-35	
Mid-Altitude (8,000 feet MSL – up to FL230) Airspace Utilization							
Corsair North MOA	893 (3.9)	122 (0.5)	0 (0.0)	0 (0.0)	70 (0.3)	0 (0.0)	1,085 (4.7)
Corsair South MOA	666 (2.9)	344 (1.5)	0 (0.0)	0 (0.0)	86 (0.4)	0 (0.0)	1,096 (4.8)
Hawg North MOA	803 (3.5)	0 (0.0)	0 (0.0)	0 (0.0)	57 (0.2)	0 (0.0)	860 (3.7)
Hawg South MOA	803 (3.5)	0 (0.0)	0 (0.0)	0 (0.0)	92 (0.4)	0 (0.0)	895 (3.9)
Mustang MOA	379 (1.6)	0 (0.0)	21 (0.1)	0 (0.0)	131 (0.6)	90 (0.4)	620 (2.7)
Sabre MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	106 (0.5)	6 (0.0)	112 (0.5)
Thud MOA	173 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	110 (0.5)	92 (0.4)	374 (1.6)
Warhawk MOA	379 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	145 (0.6)	89 (0.4)	613 (2.7)
Mid-Altitude Totals	4,095 (17.8)	466 (2.0)	21 (0.1)	0 (0.0)	796 (3.5)	277 (1.2)	5,657 (24.6)
Low-Altitude (below 8,000 feet MSL) Airspace Utilization							
Moody 2 North MOA	242 (1.1)	256 (1.1)	116 (0.5)	1,190 (5.2)	110 (0.5)	0 (0.0)	1,913 (8.3)
Moody 2 South MOA	242 (1.1)	229 (1.0)	116 (0.5)	1,190 (5.2)	111 (0.5)	0 (0.0)	1,888 (8.2)
R-3008/Grand Bay MOA	1,208 (5.3)	277 (1.2)	661 (2.9)	1,323 (5.8)	0 (0.0)	4 (0.0)	3,472 (15.1)
LATN Area	242 (1.1)	0 (0.0)	496 (2.2)	397 (1.7)	0 (0.0)	0 (0.0)	1,134 (4.9)
Proposed Corsair North Low MOA	107 (0.5)	365 (1.6)	46 (0.2)	54 (0.2)	49 (0.2)	0 (0.0)	621 (2.7)
Proposed Corsair South Low MOA	107 (0.5)	182 (0.8)	46 (0.2)	54 (0.2)	49 (0.2)	0 (0.0)	439 (1.9)
Proposed Mustang Low MOA	107 (0.5)	36 (0.2)	46 (0.2)	54 (0.2)	49 (0.2)	0 (0.0)	293 (1.3)
Proposed Thud Low MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Proposed Warhawk Low MOA	107 (0.5)	24 (0.1)	46 (0.2)	54 (0.2)	49 (0.2)	0 (0.0)	281 (1.2)
Low-Altitude Totals	2,360 (10.3)	1,369 (6.0)	1,573 (6.8)	4,316 (18.8)	419 (1.8)	4 (0.0)	10,042 (43.7)
Total All Operations	6,456 (28.1)	1,836 (8.0)	1,594 (6.9)	4,316 (18.8)	1,215 (5.3)	281 (1.2)	15,698 (68.3)

Notes: The table reflects a reasonable upper bound of the average training within airspace. Some periods may have more or less utilization than shown. Airspace utilization includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated (e.g., 28 daily hours could be equivalent to 7 aircraft training for 4 hours). Individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year. Operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be charted. Small inconsistencies due to rounding may exist. **FL** – flight level; **LATN** – low-altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area

Table 2.4-4 compares Alternative 1 to the selection standards (**Section 2.2**). Alternative 1 meets all of the selection standards.

**Table 2.4-4. Comparison Matrix of Alternative 1
against Selection Standards for the Purpose and Need**

Alternative Selection Standard (Section 2.2)	Applicability
1. Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.	Alternative 1 would allow for the redistribution of approximately 31 percent of the existing operations in Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Alternative 1 would reduce the utilization within Moody 2 North and South MOAs from 89 percent to 61 percent, which would relieve the congestion within the airspace.
2. Alternatives must utilize airspace that can be scheduled by Moody AFB.	Moody AFB would control and schedule the new low-altitude MOAs charted under Alternative 1.
3. Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.	Alternative 1 provides low-altitude airspace proximate to Moody AFB.
4. Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.	Alternative 1 provides for low-altitude ingress and egress to the Grand Bay Range through the new Grand Bay MOA.

AFB – Air Force Base; **MOA** – Military Operations Area

Green – Alternative meets the selection standard.

Yellow – Alternative partially meets the selection standard.

Red – Alternative does not meet the selection standard.

2.4.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay Military Operations Area, and Lower the Floor of Moody 2 North Military Operations Area

Modified Alternative 1 is a variation of Alternative 1, which was originally described in the Draft EIS. Modified Alternative 1 would be smaller than the Alternative 1 low-altitude airspace configuration based on coordination between the DAF and the FAA during the airspace proposal process. Under Modified Alternative 1, the DAF and FAA would chart new low-altitude MOAs beneath and within the lateral confines of existing MOAs and Restricted Areas of the Moody Airspace Complex similar to those described by Alternative 1, but with different (smaller) lateral boundaries (**Figure 2.4-5**):

- The DAF and FAA would create the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs with a floor of 1,000 feet AGL and a ceiling up to but not including 8,000 feet MSL. The DAF and FAA would create the new MOAs beneath the existing Corsair North, Corsair South, Mustang Low, and Warhawk Low MOAs, respectively. The Corsair South Low MOA would be within the same lateral confines as the Corsair South MOA; however, the Corsair North Low, Mustang Low, and Warhawk Low MOAs would have reduced lateral confines relative to the overlying Corsair North, Mustang, and Warhawk MOAs.

- The Warhawk Low and Mustang Low MOAs would always be activated concurrently during training operations.
- The DAF and FAA would not create the Thud Low MOA.
- The DAF and FAA would create the Grand Bay MOA with a floor of 100 feet AGL and a ceiling up to but not including 500 feet AGL beneath and within the lateral confines of the existing Restricted Area R-3008C.
- The DAF and FAA would lower the floor of Moody 2 North MOA from 500 feet AGL to 100 feet AGL.
- The controlling agency would be the FAA Jacksonville Air Route Control Center for the Corsair North Low, Corsair South Low, Moody 2 North, Mustang Low, and Warhawk Low MOAs.

Compared to Alternative 1, Modified Alternative 1 would reduce the lateral confines of the proposed action area by approximately 42 percent, but would maintain 1,000-foot AGL MOAs to support the redistribution of low-altitude training operations from Moody 2 North and Moody 2 South MOAs. Other than the changes to the lateral confines of the proposed low-altitude MOAs, all other aspects of Modified Alternative 1 are the same as described for Alternative 1.

The distribution of training in low-altitude airspace within the Moody Airspace Complex would change, as Moody AFB would redistribute 3,888 annual training operations currently limited to Moody 2 North and Moody 2 South MOAs to the new low-altitude MOAs.

Under Modified Alternative 1, the quantity or type of defensive countermeasures used during training would not change. Chaff and flares would be permitted for use within the new proposed low-altitude MOAs beneath those MOAs where chaff and flare use is currently permitted. Therefore, the use of defensive countermeasures in the proposed Corsair North Low MOA would be restricted to the use of flares only. The use of flares would be limited to 2,000 feet AGL. Defensive countermeasures use would also be redistributed along with training operations in the proposed new low-altitude MOAs. **Table 2.4-5** shows the chaff and flare use in the proposed new low-altitude MOAs as well as in the Moody 2 North and Moody 2 South MOAs.

Table 2.4-5. Proposed Chaff and Flare Use in the Moody Airspace Complex under Modified Alternative 1

Special Use Airspace	Annual Chaff Use	Annual Flare Use
Moody 2 North MOA	3,465	3,474
Moody 2 South MOA	3,466	3,474
Proposed Corsair North Low MOA	0	946
Proposed Corsair South Low MOA	693	789
Proposed Mustang Low MOA	583	664
Proposed Warhawk Low MOA	573	653
Total	8,780	10,000

MOA – Military Operations Area

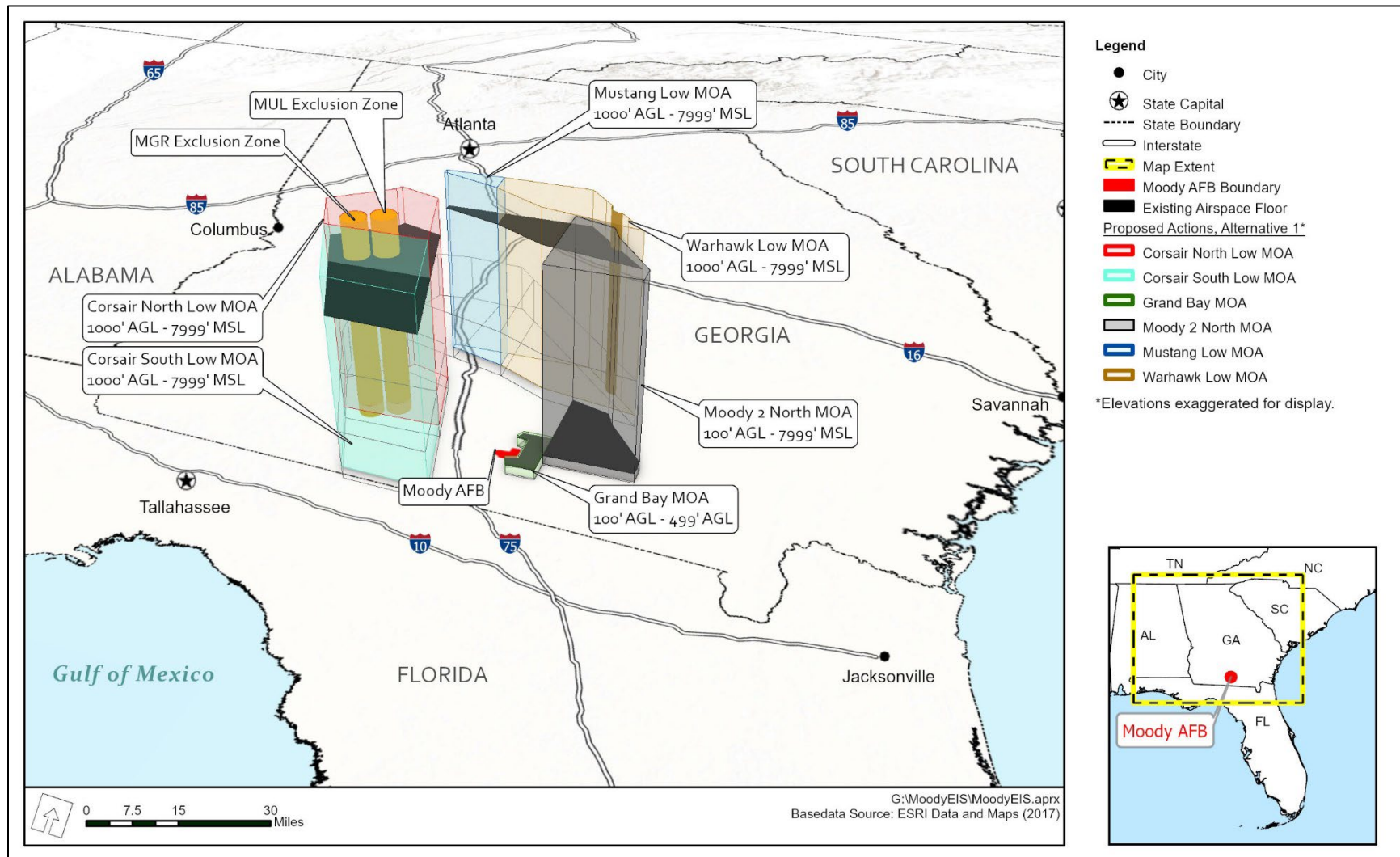


Figure 2.4-5. Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay Military Operations Area, and Lower the Floor of Moody 2 North Military Operations Area

Table 2.4-6 provides the average annual and daily airspace utilization during training operations with the implementation of Modified Alternative 1. The table reflects the reasonable upper bound of training within airspace units; however, the utilization in any given year or on any given day would vary. The utilization rates shown are for sorties that may contain more than one aircraft and represent the actual time one or more aircraft operate within airspace, as individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year within each airspace, accounting for weekends, holidays, deployments, and other periods when training is not taking place. During days when one MOA is not being used in the Moody Airspace Complex, other MOAs would be used. No change in the number of operations at Moody AFB or within the Moody Airspace Complex is proposed (see **Section 2.3**). Additionally, the following conditions would apply to Modified Alternative 1:

- All operations below 1,000 feet AGL would remain unchanged within the Moody 2 North and Moody 2 South MOAs and R-3008 when compared to existing conditions.
- Operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs would decrease.
- A one-to-one increase in operations in the newly proposed airspace would offset decreases in operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs.
- SUA below 1,000 feet AGL would not change other than at Moody 2 North MOA and R-3008. This proposed change is primarily to “even out” the airspace floor of, but not increase the operations within, the SUA. It is estimated that 134 operations annually (approximately 1 operation every three days) would occur below 500 feet in each of the Moody 2 North and Grand Bay MOAs.
- The DAF would not expend ordnance other than chaff and flares in the new low-altitude MOAs.
- The types and quantities of training ordnance used at the Grand Bay Range would continue unchanged.
- The existing 0.5 nm-wide east-west corridor through Sabre MOA and its underlying airspace and under Hawg North MOA would be maintained to accommodate civilian aircraft transit of the Moody Airspace Complex (see **Figure 1.2-2**).
- The DAF would modify the Banks Lake NWR exclusion zone by lowering the floor from 1,500 feet AGL to 500 feet AGL, except for the approximately 900 acres of the Banks Lake NWR that include all of the open water and adjacent shoreline.

Table 2.4-6. Modified Alternative 1 – Average Airspace Utilization

Airspace	Based Aircraft Annual Hours (Daily Hours)				Primary Transient Aircraft Annual Hours (Daily Hours)		Total
	A-10	A-29	HC-130	HH-60	F-18	F-35	
Mid-Altitude (8,000 feet MSL – up to FL230) Airspace Utilization							
Corsair North MOA	846 (3.7)	107 (0.5)	0 (0.0)	0 (0.0)	61 (0.3)	0 (0.0)	0 (4.4)
Corsair South MOA	647 (2.8)	301 (1.3)	0 (0.0)	0 (0.0)	75 (0.3)	0 (0.0)	0 (4.4)
Hawg North MOA	648 (2.8)	0 (0.0)	0 (0.0)	0 (0.0)	38 (0.2)	0 (0.0)	0 (3.0)
Hawg South MOA	648 (2.8)	0 (0.0)	0 (0.0)	0 (0.0)	61 (0.3)	0 (0.0)	0 (3.1)
Mustang MOA	137 (0.6)	0 (0.0)	19 (0.1)	0 (0.0)	114 (0.5)	79 (0.3)	0 (1.5)
Sabre MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	106 (0.5)	6 (0.0)	0 (0.5)
Thud MOA	173 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	110 (0.5)	92 (0.4)	0 (1.6)
Warhawk MOA	309 (1.3)	0 (0.0)	0 (0.0)	0 (0.0)	122 (0.5)	78 (0.3)	0 (2.2)
Mid-Altitude Totals	3,408 (14.8)	408 (1.8)	19 (0.1)	0 (0.0)	686 (3.0)	255 (1.1)	4,775 (20.8)
Low-Altitude (below 8,000 feet MSL) Airspace Utilization							
Moody 2 North MOA	242 (1.1)	256 (1.1)	117 (0.5)	1,193 (5.2)	110 (0.5)	0 (0.0)	1,918 (8.3)
Moody 2 South MOA	242 (1.1)	229 (1.0)	117 (0.5)	1,193 (5.2)	112 (0.5)	0 (0.0)	1,892 (8.2)
R-3008/Grand Bay MOA	1,210 (5.3)	277 (1.2)	663 (2.9)	1,325 (5.8)	0 (0.0)	4 (0.0)	3,480 (15.1)
LATN Area	242 (1.1)	0 (0.0)	497 (2.2)	398 (1.7)	0 (0.0)	0 (0.0)	1,137 (4.9)
Proposed Corsair North Low MOA	108 (0.5)	284 (1.2)	46 (0.2)	54 (0.2)	50 (0.2)	0 (0.0)	542 (2.4)
Proposed Corsair South Low MOA	108 (0.5)	142 (0.6)	46 (0.2)	54 (0.2)	50 (0.2)	0 (0.0)	400 (1.7)
Proposed Mustang Low / Warhawk Low MOA	108 (0.5)	32 (0.1)	46 (0.2)	54 (0.2)	50 (0.2)	0 (0.0)	290 (1.3)
Low-Altitude Totals	2,259 (9.8)	1,221 (5.3)	1,531 (6.7)	4,272 (18.6)	370 (1.6)	4 (0.0)	9,657 (42.0)
Total All Operations	5,667 (24.6)	1,629 (7.1)	1,549 (6.7)	4,272 (18.6)	1,057 (4.6)	259 (1.1)	14,432 (62.7)

Notes: The table reflects a reasonable upper bound of the average training within airspace. Some periods may have more or less utilization than shown. Airspace utilization includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated (e.g., 28 daily hours could be equivalent to 7 aircraft training for 4 hours). Individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year. The Mustang Low and Warhawk Low MOAs would always be activated concurrently. Small inconsistencies due to rounding may exist.

FL – flight level; **LATN** – low-altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area

Table 2.4-7 compares Modified Alternative 1 to the selection standards (**Section 2.2**). Modified Alternative 1 is a variation of Alternative 1, and therefore it also meets all of the selection standards.

Table 2.4-7. Comparison Matrix of Modified Alternative 1 against Selection Standards for the Purpose and Need

Alternative Selection Standard (Section 2.2)	Applicability
1. Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.	Modified Alternative 1 would allow for the redistribution of approximately 31 percent of the existing operations in Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Modified Alternative 1 would reduce the utilization within Moody 2 North and South MOAs from 89 percent to 61 percent, which would relieve the congestion within the airspace.
2. Alternatives must utilize airspace that can be scheduled by Moody AFB.	Moody AFB would control and schedule the new low-altitude MOAs charted under Modified Alternative 1.
3. Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.	Modified Alternative 1 provides low-altitude airspace proximate to Moody AFB.
4. Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.	Modified Alternative 1 provides for low-altitude ingress and egress to the Grand Bay Range through the new Grand Bay MOA.

AFB – Air Force Base; **MOA** – Military Operations Area

Green – Alternative meets the selection standard.

Yellow – Alternative partially meets the selection standard.

Red – Alternative does not meet the selection standard.

2.4.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor, Create a New Grand Bay Military Operations Area, and Lower the Floor of Moody 2 North Military Operations Area

Under Alternative 2, the DAF and FAA would chart new low-altitude MOAs beneath and within the lateral confines of existing MOAs and Restricted Areas of the Moody Airspace Complex (**Figure 2.4-6**):

- The DAF and FAA would create the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs with a floor of 2,000 feet AGL and a ceiling of 7,999 feet MSL. The DAF and FAA would create the new MOAs beneath and within the lateral confines of the existing Corsair North, Corsair South, Mustang Low, and Warhawk Low MOAs, respectively.
- The DAF and FAA would create the Thud Low MOA with a floor of 4,000 feet AGL and a ceiling of 7,999 feet MSL beneath and within the lateral confines of the existing Thud MOA.

- The DAF and FAA would create the Grand Bay MOA with a floor of 100 feet AGL and a ceiling of 499 feet AGL beneath and within the lateral confines of the existing Restricted Area R-3008C.
- The DAF and FAA would lower the floor of the existing Moody 2 North MOA from 500 feet AGL to 100 feet AGL.

Besides the creation of new low-altitude MOAs with an altitude floor of 2,000 feet instead of 1,000 feet, all other aspects of Alternative 2 are the same as described for Alternative 1. However, this alternative would not satisfy training requirements below 2,000 feet AGL in the new low-altitude MOAs.

The distribution of training in low-altitude airspace within the Moody Airspace Complex would change, as Moody AFB would redistribute 2,018 annual training operations currently limited to Moody 2 North and Moody 2 South MOAs to the new low-altitude MOAs.

Under Alternative 2, the quantity or type of defensive countermeasures used during training would not change. However, the DAF would permit chaff and flare use within the new proposed low-altitude MOAs except for the Thud Low MOA, where no defensive countermeasures use would be permitted, and the Corsair North Low MOA, where the DAF would restrict the use of defensive countermeasures to flares only (see **Section 2.4.2**). The DAF would limit the use of flares to above 2,000 feet AGL. Defensive countermeasures use would also be redistributed along with training operations in the proposed new low-altitude MOAs. **Table 2.4-8** shows the chaff and flare use in the proposed new low-altitude MOAs as well as in the Moody 2 North and Moody 2 South MOAs.

Table 2.4-8. Proposed Chaff and Flare Use in the Moody Airspace Complex under Alternative 2

Special Use Airspace	Annual Chaff Use	Annual Flare Use
Moody 2 North MOA	3,943	4,199
Moody 2 South MOA	3,943	4,199
Proposed Corsair North Low MOA	0	583
Proposed Corsair South Low MOA	310	353
Proposed Mustang Low MOA	291	332
Proposed Thud Low MOA	0	0
Proposed Warhawk Low MOA	292	333
Total	8,780	10,000

MOA – Military Operations Area

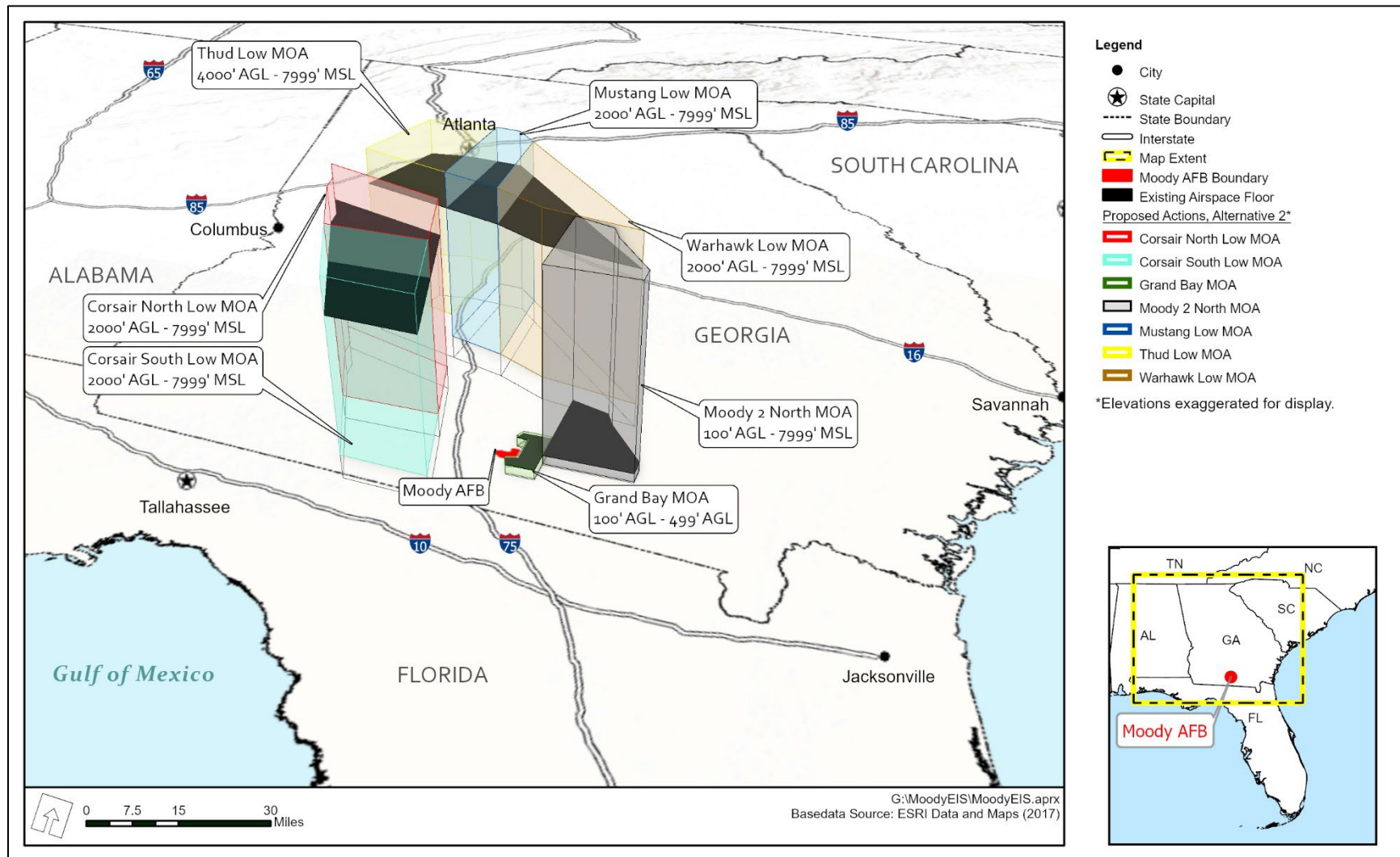


Figure 2.4-6. Alternative 2: New Military Operations Areas with a 2,000-Foot Above Ground Level Floor, a New Grand Bay Military Operations Area, and a 100-Foot Above Ground Level Floor at Moody 2 North Military Operations Area

Table 2.4-9 provides the average annual and daily airspace utilization during training operations with the implementation of Alternative 2. The table reflects the reasonable upper bound of training within airspace units; however, the utilization in any given year or on any given day would vary. The utilization rates shown are for sorties that may contain more than one aircraft and represent the actual time one or more aircraft operate within airspace, as individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year within each airspace, accounting for weekends, holidays, deployments, and other periods when training is not taking place. However, during days when one MOA is not being used in the Moody Airspace Complex, other MOAs would be used. Although no actual change in the number of operations at Moody AFB or within the airspace complex is proposed, estimated operations in the proposed MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Additionally, the following conditions would apply to Alternative 2:

- All operations below 2,000 feet AGL would remain unchanged within the Moody 2 North and Moody 2 South MOAs and R-3008 when compared to existing conditions.
- Operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs would decrease.
- A one-to-one increase in operations in the newly proposed airspace would offset decreases in operations above 2,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs.
- SUA below 1,000 feet AGL would not change other than at Moody 2 North MOA and R-3008. This proposed change is primarily to “even out” the airspace floor of, but not increase the operations within, the SUA. It is estimated that 134 operations annually (approximately 1 operation every three days) would occur below 500 feet in each of the Moody 2 North and Grand Bay MOAs.
- The DAF would not expend ordnance other than chaff and flares in the new low-altitude MOAs.
- The types and quantities of training ordnance used at the Grand Bay Range would continue unchanged.
- The existing 0.5 nm-wide east-west corridor through Sabre MOA and its underlying airspace and under Hawg North MOA would be maintained to accommodate civilian aircraft transit of the Moody Airspace Complex (see **Figure 1.2-2**).
- The DAF would modify the Banks Lake NWR exclusion zone by lowering the floor from 1,500 feet AGL to 500 feet AGL, except for the approximately 900 acres of the Banks Lake NWR that includes all of the open water and adjacent shoreline.

Table 2.4-9. Alternative 2 – Average Airspace Utilization

Airspace	Based Aircraft Annual Hours (Daily Hours)				Primary Transient Aircraft Annual Hours (Daily Hours)		Total
	A-10	A-29	HC-130	HH-60	F-18	F-35	
Mid-Altitude (8,000 feet MSL up to FL230) Airspace Utilization							
Corsair North MOA	733 (3.2)	122 (0.5)	0 (0.0)	0 (0.0)	67 (0.3)	0 (0.0)	923 (4.0)
Corsair South MOA	506 (2.2)	344 (1.5)	0 (0.0)	0 (0.0)	83 (0.4)	0 (0.0)	933 (4.1)
Hawg North MOA	1,071 (4.7)	0 (0.0)	0 (0.0)	0 (0.0)	76 (0.3)	0 (0.0)	1,147 (5.0)
Hawg South MOA	1,071 (4.7)	0 (0.0)	0 (0.0)	0 (0.0)	123 (0.5)	0 (0.0)	1,194 (5.2)
Mustang MOA	218 (0.9)	0 (0.0)	18 (0.1)	0 (0.0)	128 (0.6)	90 (0.4)	454 (2.0)
Sabre MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	106 (0.5)	6 (0.0)	112 (0.5)
Thud MOA	173 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	110 (0.5)	92 (0.4)	374 (1.6)
Warhawk MOA	218 (0.9)	0 (0.0)	0 (0.0)	0 (0.0)	143 (0.6)	89 (0.4)	450 (2.0)
Mid-Altitude Totals	3,989 (17.3)	466 (2.0)	18 (0.1)	0 (0.0)	836 (3.6)	277 (1.2)	5,586 (24.3)
Low-Altitude (below 8,000 feet MSL) Airspace Utilization							
Moody 2 North MOA	322 (1.4)	358 (1.6)	119 (0.5)	1,270 (5.5)	146 (0.6)	0 (0.0)	2,215 (9.6)
Moody 2 South MOA	322 (1.4)	320 (1.4)	119 (0.5)	1,270 (5.5)	149 (0.6)	0 (0.0)	2,179 (9.5)
R-3008/Grand Bay MOA	1,208 (5.3)	277 (1.2)	661 (2.9)	1,323 (5.8)	0 (0.0)	4 (0.0)	3,472 (15.1)
LATN Area	242 (1.1)	0 (0.0)	496 (2.2)	397 (1.7)	0 (0.0)	0 (0.0)	1,134 (4.9)
Proposed Corsair North Low MOA	54 (0.2)	304 (1.3)	38 (0.2)	22 (0.1)	25 (0.1)	0 (0.0)	442 (1.9)
Proposed Corsair South Low MOA	54 (0.2)	36 (0.2)	38 (0.2)	22 (0.1)	25 (0.1)	0 (0.0)	175 (0.8)
Proposed Mustang Low MOA	54 (0.2)	12 (0.1)	38 (0.2)	22 (0.1)	25 (0.1)	0 (0.0)	150 (0.7)
Proposed Thud Low MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Proposed Warhawk Low MOA	54 (0.2)	12 (0.1)	38 (0.2)	22 (0.1)	25 (0.1)	0 (0.0)	150 (0.7)
Low-Altitude Totals	2,307 (10.0)	1,320 (5.7)	1,548 (6.7)	4,345 (18.9)	394 (1.7)	4 (0.0)	9,917 (43.1)
Total All Operations	6,296 (27.4)	1,786 (7.8)	1,565 (6.8)	4,345 (18.9)	1,229 (5.3)	281 (1.2)	15,503 (67.4)

Notes: The table reflects a reasonable upper bound of the average training within airspace. Some periods may have more or less utilization than shown. Airspace utilization includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated (e.g., 28 daily hours could be equivalent to 7 aircraft training for 4 hours). Individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year. Operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be charted. Small inconsistencies due to rounding may exist.

FL – flight level; **LATN** – low-altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area

Table 2.4-10 compares Alternative 2 to the Selection Standards (**Section 2.2**). Alternative 2 meets or partially meets all of the selection standards.

**Table 2.4-10. Comparison Matrix of Alternative 2
against Selection Standards for the Purpose and Need**

Alternative Selection Standard (Section 2.2)	Applicability
1. Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.	Alternative 2 would allow for the redistribution of approximately 16 percent of the existing operations in Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Alternative 2 would reduce the utilization within Moody 2 North and South MOAs from 89 percent to 75 percent which would reduce, but not relieve the congestion within the airspace.
2. Alternatives must utilize airspace that can be scheduled by Moody AFB.	Moody AFB would control and schedule the new low-altitude MOAs charted under Alternative 2.
3. Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.	Alternative 2 provides low-altitude airspace proximate to Moody AFB.
4. Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.	Alternative 2 provides for low-altitude ingress and egress to the Grand Bay Range through the new Grand Bay MOA.

AFB – Air Force Base; **MOA** – Military Operations Area

Green – Alternative meets the selection standard.

Yellow – Alternative partially meets the selection standard.

Red – Alternative does not meet the selection standard.

2.4.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor, Create a New Grand Bay Military Operations Area, and Lower the Floor of Moody 2 North Military Operations Area

Under Alternative 3, the DAF and the FAA would chart new low-altitude MOAs beneath and within the lateral confines of existing MOAs and Restricted Areas of the Moody Airspace Complex (**Figure 2.4-7**):

- The DAF and FAA would create the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs with a floor of 4,000 feet AGL and a ceiling of 7,999 feet MSL. The DAF and FAA would create the new MOAs beneath and within the lateral confines of the existing Corsair North, Corsair South, Mustang Low, and Warhawk Low MOAs, respectively.
- The DAF and FAA would create the Thud Low MOA with a floor of 4,000 feet AGL and a ceiling of 7,999 feet MSL beneath and within the lateral confines of the existing Thud MOA.

- The DAF and FAA would create the Grand Bay MOA with a floor of 100 feet AGL and a ceiling of 499 feet AGL beneath and within the lateral confines of the existing Restricted Area R-3008C.
- The DAF and FAA would lower the floor of the existing Moody 2 North MOA from 500 feet AGL to 100 feet AGL.

Besides the creation of new low-altitude MOAs with an altitude floor of 4,000 feet instead of 1,000 feet, all other aspects of Alternative 3 are the same as described for Alternative 1. However, this option would not satisfy training requirements below 4,000 feet AGL in the new low-altitude MOAs.

The distribution of training operations at low altitudes within the Moody Airspace Complex would change, as the Moody AFB would redistribute 876 annual training operations currently limited to Moody 2 North and Moody 2 South MOAs to the new low-altitude MOAs.

Under Alternative 3, the quantity or type of defensive countermeasures used during training would not change. However, the DAF would permit chaff and flare use within the new proposed low-altitude MOAs except for the Thud Low MOA, where no defensive countermeasures use would be permitted, and the Corsair North Low MOA, where the DAF would restrict the use of defensive countermeasures to flares only (see **Section 2.4.2**). The DAF would limit the use of flares to altitudes above 2,000 feet AGL. Moody AFB would redistribute the use of defensive countermeasures along with training operations in the proposed new low-altitude MOAs. **Table 2.4-11** shows the chaff and flare use in the proposed new low-altitude MOAs as well as in the Moody 2 North and Moody 2 South MOAs.

Table 2.4-11. Proposed Chaff and Flare Use in the Moody Airspace Complex under Alternative 3

Special Use Airspace	Annual Chaff Use	Annual Flare Use
Moody 2 North MOA	4,200	4,679
Moody 2 South MOA	4,200	4,679
Proposed Corsair North Low MOA	0	207
Proposed Corsair South Low MOA	127	144
Proposed Mustang Low MOA	127	144
Proposed Thud Low MOA	0	0
Proposed Warhawk Low MOA	128	145
Total	8,780	10,000

MOA – Military Operations Area

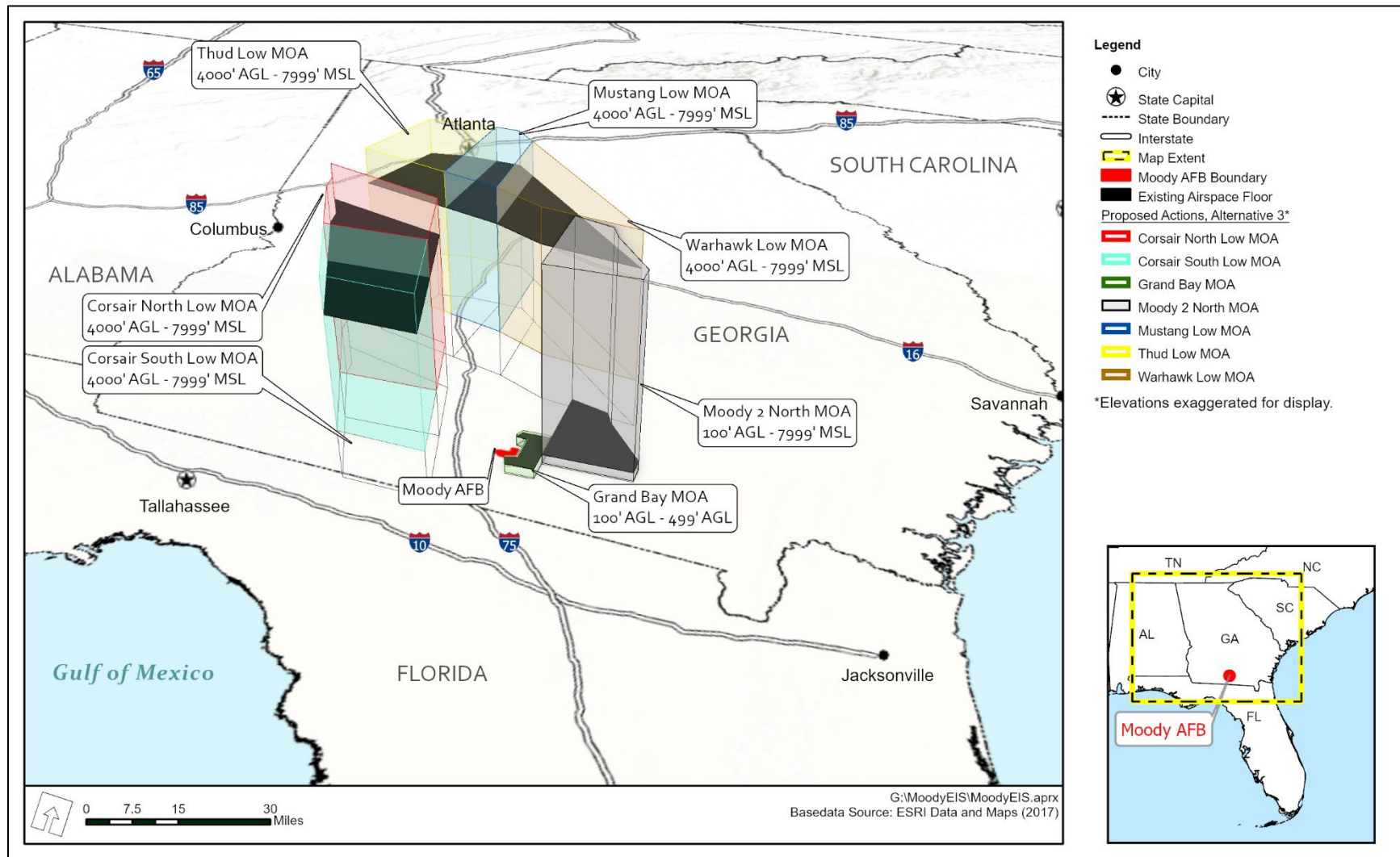


Figure 2.4-7. Alternative 3. New Military Operations Areas with a 4,000-Foot Above Ground Level Floor, a New Grand Bay Military Operations Area, and a 100-Foot Floor at Moody 2 North Military Operations Area

Table 2.4-12 provides the average annual and daily airspace utilization by aircraft during training operations with the implementation of Alternative 3. The table reflects the reasonable upper bound of training within SUA, and the utilization in any given year or on any given day would vary. The utilization rates shown are for sorties that may contain more than one aircraft and are the actual time one or more aircraft operate within airspace, as individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year within each airspace unit, accounting for weekends, holidays, deployments, and other periods when training is not taking place. However, during days when one MOA is not being used in the Moody Airspace Complex, other MOAs would be used. Although no actual change in the number of operations at Moody AFB or within the airspace complex is proposed, estimated operations in the proposed MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Additionally, the following conditions would apply to Alternative 3:

- All operations below 4,000 feet AGL would remain unchanged within the Moody 2 North and Moody 2 South MOAs and R-3008 when compared to existing conditions.
- Operations above 1,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs would decrease.
- A one-to-one increase in operations in the newly proposed airspace would offset decreases in operations above 4,000 feet AGL in Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs.
- SUA below 1,000 feet AGL would not change other than at Moody 2 North MOA and R-3008. This proposed change is primarily to “even out” the airspace floor of, but not increase the operations within, the SUA. It is estimated that 134 operations annually (approximately 1 operation every three days) would occur below 500 feet in each of the Moody 2 North and Grand Bay MOAs.
- The DAF would not expend ordnance other than chaff and flares in the new low-altitude MOAs.
- The types and quantities of training ordnance used at the Grand Bay Range would continue unchanged.
- The existing 0.5 nm-wide east-west corridor through Sabre MOA and its underlying airspace and under Hawg North MOA would be maintained to accommodate civilian aircraft transit of the Moody Airspace Complex (see **Figure 1.2-2**).
- The DAF would modify the Banks Lake NWR exclusion zone by lowering the floor from 1,500 feet AGL to 500 feet AGL, except for the approximately 900 acres of the Banks Lake NWR that includes all of the open water and adjacent shoreline.

Table 2.4-12. Alternative 3 – Average Airspace Utilization

Airspace	Based Aircraft Annual Hours (Daily Hours)				Primary Transient Aircraft Annual Hours (Daily Hours)		Total
	A-10	A-29	HC-130	HH-60	F-18	F-35	
Mid-Altitude (8,000 feet MSL up to FL230) Airspace Utilization							
Corsair North MOA	653 (2.8)	122 (0.5)	0 (0.0)	0 (0.0)	66 (0.3)	0 (0.0)	841 (3.7)
Corsair South MOA	425 (1.8)	344 (1.5)	0 (0.0)	0 (0.0)	82 (0.4)	0 (0.0)	851 (3.7)
Hawg North MOA	1,204 (5.2)	0 (0.0)	0 (0.0)	0 (0.0)	86 (0.4)	0 (0.0)	1,290 (5.6)
Hawg South MOA	1,204 (5.2)	0 (0.0)	0 (0.0)	0 (0.0)	139 (0.6)	0 (0.0)	1,343 (5.8)
Mustang MOA	138 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	127 (0.6)	90 (0.4)	354 (1.5)
Sabre MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	106 (0.5)	6 (0.0)	112 (0.5)
Thud MOA	173 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	110 (0.5)	92 (0.4)	374 (1.6)
Warhawk MOA	138 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	141 (0.6)	89 (0.4)	368 (1.6)
Mid-Altitude Totals	3,936 (17.1)	466 (2.0)	0 (0.0)	0 (0.0)	855 (3.7)	277 (1.2)	5,535 (24.1)
Low-Altitude (below 8,000 feet MSL) Airspace Utilization							
Moody 2 North MOA	362 (1.6)	460 (2.0)	132 (0.6)	1,323 (5.8)	164 (0.7)	0 (0.0)	2,442 (10.6)
Moody 2 South MOA	362 (1.6)	412 (1.8)	132 (0.6)	1,323 (5.8)	167 (0.7)	0 (0.0)	2,396 (10.4)
R-3008/Grand Bay MOA	1,208 (5.3)	277 (1.2)	661 (2.9)	1,323 (5.8)	0 (0.0)	4 (0.0)	3,472 (15.1)
LATN Area	242 (1.1)	0 (0.0)	496 (2.2)	397 (1.7)	0 (0.0)	0 (0.0)	1,134 (4.9)
Proposed Corsair North Low MOA	27 (0.1)	85 (0.4)	0 (0.0)	0 (0.0)	12 (0.1)	0 (0.0)	124 (0.5)
Proposed Corsair South Low MOA	27 (0.1)	12 (0.1)	0 (0.0)	0 (0.0)	12 (0.1)	0 (0.0)	51 (0.2)
Proposed Mustang Low MOA	27 (0.1)	12 (0.1)	0 (0.0)	0 (0.0)	12 (0.1)	0 (0.0)	51 (0.2)
Proposed Thud Low MOA	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Proposed Warhawk Low MOA	27 (0.1)	12 (0.1)	0 (0.0)	0 (0.0)	12 (0.1)	0 (0.0)	51 (0.2)
Low-Altitude Totals	2,281 (9.9)	1,271 (5.5)	1,422 (6.2)	4,364 (19.0)	381 (1.7)	4 (0.0)	9,722 (42.3)
Total All Operations	6,216 (27.0)	1,737 (7.6)	1,422 (6.2)	4,364 (19.0)	1,236 (5.4)	281 (1.2)	15,257 (66.3)

Notes: The table reflects a reasonable upper bound of the average training within airspace. Some periods may have more or less utilization than shown. Airspace utilization includes multiple aircraft training simultaneously and does not correspond directly with the length of time that an airspace is activated (e.g., 28 daily hours could be equivalent to 7 aircraft training for 4 hours). Individual airspace may be used by more than one aircraft at any given time. Daily usage assumes approximately 230 training days per year. Operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Small inconsistencies due to rounding may exist.

FL – flight level; **LATN** – low-altitude training and navigation; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area

**Table 2.4-13. Comparison Matrix of Alternative 3
against Selection Standards for the Purpose and Need**

Alternative Selection Standard (Section 2.2)	Applicability
1. Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.	Alternative 3 would allow for the redistribution of approximately 7 percent of the existing operations in Moody 2 North and South into the proposed low-altitude MOAs. Alternative 3 would reduce the utilization within Moody 2 North and South MOAs from 89 percent to 83 percent.
2. Alternatives must utilize airspace that can be scheduled by Moody AFB.	Moody AFB would control and schedule the new low-altitude MOAs charted under Alternative 3.
3. Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.	Alternative 3 provides low-altitude airspace proximate to Moody AFB.
4. Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.	Alternative 3 provides for low-altitude ingress and egress to the Grand Bay Range through the new Grand Bay MOA.

AFB – Air Force Base; **MOA** – Military Operations Area

Green – Alternative meets the selection standard.

Yellow – Alternative partially meets the selection standard.

Red – Alternative does not meet the selection standard.

2.4.6 Summary of Applicability of Selection Standards

Table 2.4-14 compares the four action alternatives and the No Action Alternative to the selection standards (**Section 2.2**). The comparison reflects the selection standards evaluated for each alternative in **Sections 2.4.1** through **2.4.5**. The current utilization rate of Moody 2 North and Moody 2 South MOAs is approximately 89 percent; this is considered fully utilized.¹ Because the current low-altitude MOAs and Restricted Areas in the Moody Airspace Complex are fully utilized, aircraft and units are forced to conduct other, less valuable activities, while waiting for a space to conduct their training in an efficient way and within a dedicated SUA. Alternative 1 substantially reduces the current utilization rate of the Moody 2 North and Moody 2 South MOAs, relieving congestion within low-altitude SUA in the Moody Airspace Complex, while Alternatives 2 and 3 provide a partial reduction in the utilization rate of the Moody 2 North and Moody 2 South MOAs.

¹ Under standard transportation engineering practices, a parking lot is considered full when 85 percent of its available parking spaces are filled; this scenario of filled capacity is analogous to the current situation wherein the Moody Airspace Complex, at 89 percent utilization, would be considered fully utilized.

Table 2.4-14. Comparison of Alternatives to the Selection Standards

Alternative Selection Standard (Section 2.2)	No Action Alternative	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
1. Alternatives must reduce congestion in low-altitude airspace within the existing Moody Airspace Complex.	No	Yes	Yes	Partially	Partially
2. Alternatives must utilize airspace that can be scheduled by Moody AFB.	No	Yes	Yes	Yes	Yes
3. Alternatives must provide required low-altitude airspace proximate to Moody AFB without substantially decreasing readiness.	No	Yes	Yes	Yes	Yes
4. Alternatives must allow for realistic exercise training options during ingress and egress out of the Grand Bay Range.	No	Yes	Yes	Yes	Yes

AFB – Air Force Base; **MOA** – Military Operations Area

Green – Alternative meets the selection standard.

Yellow – Alternative partially meets the selection standard.

Red – Alternative does not meet the selection standard.

2.5 Alternatives Considered but Not Carried Forward for Analysis in this EIS

The four action alternatives that met the screening criteria in **Section 2.3** and are considered in **Section 2.4** are being carried forward for analysis in this EIS. Consideration was given to lowering the existing mid-altitude SUA in lieu of charting new low-altitude MOAs. Lowering the floors of existing SUA in the Moody Airspace Complex however would reduce operational flexibility and place a greater burden on civilian aircraft as larger blocks of airspace would be activated during military training than if new low-altitude MOAs were charted. Because the only difference between lowering the floors of existing SUA within the Moody Airspace Complex and charting new low-altitude MOAs beneath and within the lateral confines of existing SUA would

be reduced operational flexibility, the lowering of the floors of existing SUA was dismissed as a viable alternative. No other alternatives considered were eliminated for further analysis.

2.6 Comparison of Alternatives Carried Forward for Analysis

Implementing the decision to configure additional MOAs into the Moody Airspace Complex would either provide low-altitude floors that would reduce congestion in low-altitude SUA and adequately support the existing training missions at Moody AFB or would continue with current airspace limitations to training operations at low altitudes (i.e., the No Action Alternative) and accept degraded aircrew training and mission readiness. Alternatives 1, 2, and 3 would create new low-altitude floors at 1,000 feet AGL, 2,000 feet AGL, and 4,000 feet AGL, respectively, by charting the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, and create a new 4,000-foot AGL low-altitude floor by charting the Thud Low MOA.

Alternative 1 and the variation to the Draft EIS Alternative 1, Modified Alternative 1, would provide more opportunities and the potential to shift training operations to additional low-altitude MOAs in the Moody Airspace Complex, because aircrews would no longer have scheduling conflicts in the limited low-altitude airspace in Moody 2 North and Moody 2 South MOAs. The lower floors proposed for these MOAs would permit aircrews to conduct CAS training using low-level topography across a wider area of SUA and reduce training conflicts with CSAR training requirements.

Alternative 2 would allow for the redistribution of approximately 16 percent of the existing operations in Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs, which would reduce, but not relieve, the congestion within the airspace. The Moody 2 North and Moody 2 South MOAs would remain congested as the operational headroom created by this change would quickly be filled by aircraft and units (primarily the HC-130s and HH-60s) currently displaced by the units that would benefit by the proposed new low-altitude MOAs (the A-10s and A-29s).

Alternative 3 would allow for the redistribution of approximately 7 percent of the existing operations in Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs, which would not functionally reduce or relieve the congestion within these SUA. Under Alternative 3, the change in operational congestion within Moody 2 North and Moody 2 South MOAs would be small when compared to existing conditions. Aircraft and units would continue to be forced to conduct other, less valuable activities, while waiting for a space to conduct their training in an efficient way and within a dedicated airspace.

Alternative 1, Modified Alternative 1, Alternative 2, and Alternative 3 as described in **Sections 2.4.2 through 2.4.5** have been carried forward for detailed analysis in this EIS to provide a clear description of the potential environmental effects from the Proposed Action and a reasonable upper and lower bound of these potential environmental effects. For the Draft EIS, the DAF and the FAA recognized that they may decide to chart the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs (1) all with the same floor (i.e., 1,000 feet AGL, 2,000 feet AGL, or 4,000 feet AGL), (2) with different low-altitude floors, (3) with different lateral

confines, or (4) eliminate one or more of the proposed low-altitude MOAs. For example, some may be charted with a 1,000-foot AGL floor, some with a 2,000-foot AGL floor, and some with a 4,000-foot AGL floor. Such a scenario would result in consolidation of mission-required training operations into fewer proposed low-altitude MOAs and would increase operations that would be flown in each of the implemented low-altitude MOA by up to a third. To address such a possibility, the analysis in the Draft EIS for Alternatives 1, 2, and 3 conservatively assumed the maximum number of flight operations in each proposed low-altitude MOA that could occur if fewer than the proposed five low-altitude MOAs are approved for implementation. This assumption provided the operational flexibility needed to support the range of training and mission objectives at Moody AFB and ensured appropriate analysis of the potential environmental impacts if fewer than the proposed five low-altitude MOAs are implemented.

Modified Alternative 1 is the result of the DAF and FAA proposing fewer than the five low-altitude MOAs originally described by the Draft EIS. Therefore, as described in **Section 2.3**, operations under Modified Alternative 1 were not increased by up to a third to accommodate the potential for future reductions in the number, low-altitude floors, or lateral confines of the proposed low-altitude MOAs.

2.6.1.1 Identification of the Preferred Alternative

According to CEQ NEPA guidelines, an agency's preferred alternative is the alternative that the agency believes would fulfill its statutory mission and responsibilities, considering economic, environmental, technical, and other factors (CEQ 1981). The DAF considers Modified Alternative 1 to be the preferred alternative. Modified Alternative 1 best meets the purpose and need by providing the necessary low-altitude MOAs proximate to the Moody AFB airfield to accommodate the missions' training requirements. Although Modified Alternative 1 would not provide as much new low-altitude SUA for low-altitude training redistribution as Alternative 1, Modified Alternative 1 would provide the necessary redistribution of low-altitude operations into new low-altitude MOAs, and it would be superior to Alternatives 2 and 3 because it would allow for more redistribution of existing operations into the proposed new low-altitude MOAs. This would provide benefits to aircrews operating in the Moody Airspace Complex, reduce training conflicts, provide operational improvements for the Grand Bay Range, and reduce the concentrated low-altitude training operations in Moody 2 North and Moody 2 South MOAs.

Alternatives 1, 2, and 3 would increase Moody AFB air traffic control (ATC) and Valdosta Radar Approach Control (RAPCON) efforts in coordinating civilian aircraft instrument flight rules (IFR) approaches and departures to underlying airports within the Moody Airspace Complex. Current procedures prioritizing IFR traffic would need to be expanded from the existing low-altitude MOAs to the proposed low-altitude MOAs under these three alternatives. Modified Alternative 1 would, however, substantially reduce this level of effort in coordinating civilian aircraft IFR approaches and departures, especially for Valdosta RAPCON; therefore, selecting Modified Alternative 1 as the preferred alternative provides a substantial reduction in effort for Moody AFB ATC and Valdosta RAPCON than selecting Alternatives 1, 2, or 3 as the preferred alternative.

2.7 Environmental Comparison of Alternatives

Table 2.7-1 provides a summary comparison of the environmental consequences associated with the alternatives and the No Action Alternative. Each alternative is compared for each of the environmental resources evaluated in **Chapter 3** of this EIS.

Table 2.7-1. Impact Comparison of Alternatives

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Airspace Management and Operations	<p>No change to the existing airspace operations would occur.</p> <p>The Moody Airspace Complex would be maintained in its current state and the number of flying hours and existing MOAs would remain the same, resulting in continued significant, long-term, adverse impacts on the flight training operations and training missions at Moody AFB.</p>	<p>Additional air traffic control and coordination would be required to deconflict up to 33,000 civilian flights and military training operations between 1,000 feet and 7,999 feet AGL annually, causing moderate adverse impacts.</p> <p>With an airspace floor of 4,000 feet AGL, air traffic coordination and control of military, general aviation, and airport operations within and underlying the new Thud Low MOA would be minimally affected.</p> <p>Of the estimated total 47,000 annual civilian flights operating in the Moody Airspace Complex, approximately 33,000 annual (91 daily) flights could be affected by the presence of the proposed</p>	<p>Impacts on airspace management, airspace users, air traffic control coordination, and the underlying airports would be similar to, but less than those described for Alternatives 1, 2, and 3.</p> <p>Of the estimated total 47,000 annual civilian flights operating in the Moody Airspace Complex, approximately 25,350 annual (69 daily) flights could be affected by the presence of the proposed low-altitude MOAs. This would comprise approximately 10,000 annual (27 daily) VFR flights and approximately 15,400 annual (42 daily) IFR flights.</p> <p>There would be fewer impacts on underlying</p>	<p>Impacts on airspace management, airspace users, air traffic control coordination, and the underlying airports would be similar to, but less than those described for Alternative 1.</p> <p>Of the estimated total 47,000 annual civilian flights operating in the Moody Airspace Complex, approximately 32,700 annual (90 daily) flights could be affected by the presence of the proposed low-altitude MOAs. This would be comprised of approximately 12,900 annual (35 daily) VFR flights and approximately 19,800 annual (54 daily) IFR flights.</p> <p>There would be fewer impacts on underlying airports than Alternative 1,</p>	<p>Impacts on airspace management, airspace users, air traffic control coordination, and the underlying airports would be similar to, but less than those described for Alternative 2.</p> <p>Of the estimated total 47,000 annual civilian flights operating in the Moody Airspace Complex, approximately 29,000 annual (81 daily) flights could be affected by the presence of the proposed low-altitude MOAs. This would be comprised of approximately 11,600 annual (32 daily) VFR flights and approximately 17,800 annual (49 daily) IFR flights.</p> <p>There would be fewer impacts on underlying airports than Alternative 2, because the proposed</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Airspace Management and Operations (continued)		<p>low-altitude MOAs. This would comprise approximately 13,000 annual (36 daily) VFR flights and approximately 20,000 annual (55 daily) IFR flights.</p> <p>Anticipated beneficial impacts on airspace management would occur in the Moody 2 North and Moody 2 South MOAs as Moody AFB could distribute low-altitude operations across the low-altitude MOAs and decongest the existing high concentration of training that continuously vies for access to the existing low-altitude airspace (i.e., Moody 2 North MOA, Moody 2 South MOA, and the Restricted Areas).</p> <p>There would be a minor impact on recreational soaring activities from low-altitude aircraft</p>	<p>airports than Alternative 1, because the reduction in lateral boundaries of the Corsair North Low, Mustang Low, and Warhawk Low MOAs would reduce the encroachment of exclusion zones protecting public airport approaches and departures.</p> <p>There would be a minor impact on recreational soaring activities from low-altitude aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs; however, these impacts would be reduced relative to Alternative 1 with the reduction in the lateral boundaries of charted low-altitude MOAs.</p>	<p>because the proposed low-altitude MOA floors would not encroach upon the exclusion zones protecting public airport approaches and departures.</p> <p>There would be a minor impact on recreational soaring activities from low-altitude aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.</p>	<p>MOA floors would not encroach upon the exclusion zones protecting public airport approaches and departures.</p> <p>There would be no impacts on recreational soaring activities from low-altitude aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Airspace Management and Operations (continued)		operations in the proposed MOAs.			
Acoustic Environment (Noise)	There would be no effects on the noise environment because modification to and additions of low-altitude MOAs would not occur in the Moody Airspace Complex.	<p>Onset-Adjusted Monthly DNL was determined to be the same as the estimated DNL for all proposed operations.</p> <p>The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would not change when compared to existing conditions.</p> <p>Areas beneath the Corsair North Low, Corsair South Low, Moody 2 North, Mustang Low, Thud Low, and Warhawk Low MOAs would each experience an increase in sound levels</p>	<p>Onset-Adjusted Monthly DNL was determined to be the same as the estimated DNL for all proposed operations.</p> <p>The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would not change when compared to existing conditions.</p> <p>Areas beneath the Corsair North Low, Corsair South Low, Moody 2 North, Mustang Low, and Warhawk Low MOAs would each</p>	<p>Onset-Adjusted Monthly DNL was determined to be the same as the estimated DNL for all proposed operations.</p> <p>The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would not change when compared to existing conditions.</p> <p>Areas beneath the Corsair North Low, Corsair South Low, Moody 2 North, Mustang Low, Thud Low, and Warhawk Low MOAs would each experience an increase in sound levels</p>	<p>Onset-Adjusted Monthly DNL was determined to be the same as the estimated DNL for all proposed operations.</p> <p>The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would be the same as under existing conditions.</p> <p>Areas beneath the Mustang Low, Thud Low, and Warhawk Low MOAs would each experience an increase in sound levels of up to 2.2 dBA DNL and an increase in the percent of highly annoyed persons</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Acoustic Environment (Noise) (continued)		<p>of up to 2.4 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.3 percent (up to 112 persons).</p> <p>Areas beneath the Moody 2 South MOA would experience a decrease in overall sound level of 1.1 dBA DNL and a reduction in the percent of highly annoyed persons of 0.1 percent (equivalent to 7 persons).</p> <p>Areas beneath the Sabre MOA would remain below 35 dBA DNL.</p> <p>On rare occasions overflights would peak above 75 dBA and 90 dBA SEL and have the potential to interfere with communication and disturb sleep for individuals beneath the proposed low-altitude MOAs; however, individual overflights</p>	<p>experience an increase in sound levels of up to 2.3 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.3 percent (up to 112 persons).</p> <p>Areas beneath the Moody 2 South MOA would experience a decrease in overall sound level of 1.1 dBA DNL and a reduction in the percent of highly annoyed persons of 0.1 percent (equivalent to 7 persons).</p> <p>Areas beneath the Sabre MOA would remain below 35 dBA DNL. On rare occasions overflights would peak above 75 dBA and 90 dBA SEL and have the potential to interfere with communication and disturb sleep for</p>	<p>of up to 2.2 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.5 percent (up to 112 persons).</p> <p>Areas beneath the Moody 2 South MOA would experience a decrease in overall sound level of 1.1 dBA DNL and a reduction in the percent of highly annoyed persons of 0.1 percent (equivalent to 7 persons).</p> <p>Areas beneath the Sabre MOA would remain below 35 dBA DNL.</p> <p>Unlike Alternative 1, individual overflights would be above 2,000 feet AGL and would not be peak above 75 dBA or 90 dBA SEL and would not have the potential to interfere with communication and disturb sleep for individuals beneath the</p>	<p>of up to 0.3 percent (up to 35 persons).</p> <p>Areas beneath the Moody 2 North and Moody 2 South MOAs would experience a decrease in overall sound levels but would not experience a change in the percent of highly annoyed persons.</p> <p>Areas beneath the Corsair North, Corsair South, and Sabre MOAs would remain below 35 dBA DNL.</p> <p>Unlike Alternative 1, individual overflights would be above 4,000 feet AGL and would not be peak above 75 dBA or 90 dBA SEL, and would not have the potential to interfere with communication and disturb sleep for individuals beneath the proposed low-altitude MOAs.</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Acoustic Environment (Noise) (continued)		would not be loud enough or frequent enough to create areas of incompatible land use beneath these proposed MOAs. The number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease substantially.	individuals beneath the proposed low-altitude MOAs; however, individual overflights would not be loud enough or frequent enough to create areas of incompatible land use beneath these proposed MOAs. The number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease substantially.	proposed low-altitude MOAs. The number of individual overflights in the Moody 2 North and Moody 2 South MOAs would experience a moderate decrease.	The number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease slightly.
Health and Safety	No impacts on health and safety of civilian personnel or the public would be anticipated as no changes would be made to the Moody Airspace Complex. There would be no change in the potential for bird/wildlife aircraft	There would be a slight increase in the overall annual flying time within the Moody Airspace Complex that could increase the risk of an increased mishap rate. A total of 30 percent of DAF bird/wildlife aircraft strikes occur between 1,000 feet and 7,999 feet AGL, the proposed	There would be a slight increase in the overall flying time within the Moody Airspace Complex that could increase the risk of an increased mishap rate. A total of 30 percent of DAF bird/wildlife aircraft strikes occur between 1,000 feet and 7,999 feet AGL, the	There would be a slight increase in the overall flying time; however, because an increase of 0.4 percent in total yearly flying time would be negligible, an increase in the risk of an increased mishap rate is not expected to occur. A total of 12 percent of DAF bird/wildlife aircraft strikes occur between	There would be no change in the overall flying time and no change in the risk of an increased mishap rate would be anticipated. A total of 3 percent of DAF bird/wildlife aircraft strikes occur between 4,000 feet and 7,999 feet AGL, the altitudes for the proposed Corsair North Low, Corsair South Low,

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Health and Safety (continued)	<p>strikes in the Moody 2 North and Moody 2 South MOAs. The potential for bird/wildlife aircraft strikes would remain at 70 percent because low-altitude aircraft operations would not be shifted to other low-altitude MOAs.</p> <p>There would be no reduction of safety risk through improved training opportunities at low altitudes under the No Action Alternative.</p>	<p>altitudes for the Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs. A total of 18 percent of all DAF bird/wildlife aircraft strikes occur between 100 feet and 499 feet AGL, the proposed altitudes for the proposed new Grand Bay MOA.</p> <p>Lowering the floor of Moody 2 North MOA to 100 feet AGL would slightly increase the risk of potential bird/wildlife aircraft strikes.</p> <p>Lowering the floor of Moody 2 North, creating new low-altitude MOAs, and modifying the exclusion zone over the Banks Lake NWR (except for the approximately 900 acres of the Banks Lake NWR that includes all NWR open water and</p>	<p>proposed altitudes for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. A total of 18 percent of all DAF bird/wildlife aircraft strikes occur between 100 feet and 499 feet AGL, the proposed altitudes for the proposed new Grand Bay MOA.</p> <p>Lowering the floor of Moody 2 North MOA to 100 feet AGL would slightly increase the risk of potential bird/wildlife aircraft strikes.</p> <p>Lowering the floor of Moody 2 North, creating new low-altitude MOAs, and modifying the exclusion zone over the Banks Lake NWR (except for the approximately 900 acres</p>	<p>2,000 feet and 7,999 feet AGL, the altitudes for the proposed Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs. The potential for bird/wildlife aircraft strikes for the Grand Bay and Moody 2 North MOAs would be the same as Alternative 1.</p> <p>Reduction of safety risk through improved training opportunities would be the same as Alternative 1.</p> <p>The risk of wildfires from the redistribution of flare use into new airspace would be the same as Alternative 1.</p>	<p>Mustang Low, Thud Low, and Warhawk Low MOAs. The potential for bird/wildlife aircraft strikes for the Grand Bay and Moody 2 North MOAs would be the same as Alternative 1.</p> <p>Reduction of safety risk through improved training opportunities would be the same as Alternative 1.</p> <p>Compared to Alternatives 1 and 2, the negligible risk of wildland fire in the new proposed low-altitude MOAs would be further reduced as the flares would not be released below 4,000 feet AGL.</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Health and Safety (continued)		adjacent shoreline) would allow training operations at low altitudes to be properly performed and conducted more efficiently to better prepare aircrews and pilots for real-world combat scenarios and reduce safety risks. The introduction of flares into new airspace would have a negligible increased risk of wildland fires because flare use is limited to altitudes above 2,000 feet AGL and the use of flares is suspended when conditions are conducive to wildfires.	of the Banks Lake NWR that includes all NWR open water and adjacent shoreline) would allow training operations at low altitudes to be properly performed and conducted more efficiently to better prepare aircrews and pilots for real-world combat scenarios and reduce safety risks. The introduction of flares into new airspace would have a negligible increased risk of wildland fires because flare use is limited to altitudes above 2,000 feet AGL and the use of flares is suspended when conditions are conducive to wildfires.		
Biological Resources	Existing conditions for biological resources would continue unchanged.	Impacts on wildlife from noise due to aircraft operations in the proposed low-altitude	Impacts on wildlife and threatened and endangered species for the proposed Grand Bay MOA, and the lowering	Impacts on wildlife and threatened and endangered species for the proposed Thud Low	Impacts on wildlife and threatened and endangered species for the proposed Thud Low MOA, Grand Bay MOA,

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Biological Resources (continued)	<p>Low-altitude aircraft operations would continue to be concentrated in the Moody 2 North and Moody 2 South MOAs, where the potential for bird/wildlife aircraft strike hazards would be greatest.</p> <p>The use of chaff and flares would continue to be concentrated in the Moody 2 North and Moody 2 South MOAs where large avian species could mistake small residual plastic components as prey items.</p>	<p>MOAs would be minor because the noise environment would not change substantially under Alternative 1.</p> <p>Individual overflights at altitudes of 1,000 feet AGL would disturb wildlife both through increased sound and the visibility of aircraft movement to wildlife, causing startle behavioral responses. However, the low-altitude training events would be shifted to the proposed low-altitude MOAs, increasing the available area for approximately the same number of low-altitude training events annually; it is highly unlikely that wildlife would be exposed to a single training event during critical species life-cycle events.</p>	<p>of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs would be the same as Alternative 1.</p> <p>Minor impacts on birds from noise and aircraft movement, including a slightly increased risk of bird aircraft strikes, would occur. No impacts are anticipated on mammals, reptiles, and amphibians.</p> <p>Impacts on wildlife and threatened and endangered species from the use of defensive countermeasures in the proposed low-altitude MOAs would be the same as Alternative 1.</p>	<p>MOA, Grand Bay MOA, and the lowering of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs would be the same as Alternative 1.</p> <p>Minor impacts on birds from noise and aircraft movement, including a slight increased risk of bird aircraft strikes, would occur. No impacts are anticipated on mammals, reptiles, and amphibians.</p> <p>Impacts on wildlife and threatened and endangered species from the use of defensive countermeasures in the proposed low-altitude MOAs would be the same as Alternative 1.</p>	<p>and the lowering of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs would be the same as Alternative 1.</p> <p>There would be no adverse impacts on birds from noise and aircraft movement. Further, given that training altitudes would always occur at or above 4,000 feet AGL, aircraft movement in these four proposed low-altitude MOAs would have no impacts on mammals, reptiles and amphibians.</p> <p>The use of defensive countermeasures may affect but is not likely to adversely affect wood storks. There would be no</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Biological Resources (continued)		<p>A slight increased risk of bird/wildlife aircraft strikes would occur with the redistribution of operations to the proposed low-altitude MOAs, with a higher risk to raptors and wading birds, including migrating sandhill cranes.</p> <p>No impacts would occur to wildlife from the redistribution of chaff and flares.</p> <p>Aircraft movement and noise and the use of defensive counter-measures may affect but are not likely to adversely affect listed wood storks and are not likely to jeopardize the continued existence of the tricolored bat, which is proposed for listing, and the monarch butterfly, which is a candidate species. There would be no effect on</p>	<p>Noise, aircraft movement at low altitude, and the use of defensive countermeasures may affect but are not likely to adversely affect wood storks and are not likely to jeopardize the continued existence of the tricolored bat, which is proposed for listing, and the monarch butterfly, which is a candidate species. There would be no effect on red-cockaded woodpeckers, indigo snakes, frosted flatwoods salamander, or reticulated flatwoods salamander.</p>	<p>Noise, aircraft movement at low altitude, and the use of defensive countermeasures may affect but are not likely to adversely affect wood storks and are not likely to jeopardize the continued existence of the tricolored bat, which is proposed for listing, and the monarch butterfly, which is a candidate species. There would be no effect on red-cockaded woodpeckers, indigo snakes, frosted flatwoods salamander, or reticulated flatwoods salamander.</p>	<p>effect on red-cockaded woodpeckers, tricolored bats, indigo snakes, frosted flatwoods salamander, or reticulated flatwoods salamander.</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Biological Resources (continued)		listed red-cockaded woodpeckers, indigo snakes, frosted flatwoods salamander, or reticulated flatwoods salamander.			
Cultural Resources	Existing conditions for cultural resources would continue unchanged.	<p>No impacts would occur on cultural resources as there would be no ground-disturbing activities nor alteration of existing structures.</p> <p>Impacts on historic structures could occur from vibration associated with low-altitude training operations in the Grand Bay and Moody 2 North MOAs. Given that there are no supersonic activities proposed and that only 134 flight operations below 500 feet AGL are proposed in each of the two MOAs annually, there would be no adverse effects on historic properties as a result of vibration from aircraft noise.</p>	Impacts on cultural resources would be the same as under Alternative 1.	Impacts on cultural resources would be the same as Alternative 1.	Impacts on cultural resources would be the same as Alternative 1.

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Land Use and Recreation	There would be no impacts on land use or recreation as there would be no shift in low-altitude aircraft operations to new low-altitude MOAs in the Moody Airspace Complex.	<p>There would be fewer low-altitude operations over the Moody 2 North and Moody 2 South MOAs, reducing the interactions between aircraft and recreational uses.</p> <p>Aircraft operating below 500 feet AGL could startle livestock and poultry; however, the number of operations annually are low and spread out over large areas. Aircraft movement and noise would not be incompatible with any land uses, including farmland used for domestic livestock.</p> <p>Although the modification of the Banks Lake NWR exclusion zone would increase the individual aircraft overflight noise, only a fraction of the total low-altitude operations over the Banks Lake</p>	<p>Impacts from aircraft operations on land use and recreation in the Moody 2 North, Moody 2 South, and Grand Bay MOAs would be the same as described for Alternative 1 because the proposed floor and ceiling altitudes would be the same as Alternative 1 for these MOAs.</p> <p>The noise levels for all of the proposed low-altitude MOAs would be well below the 65 dBA DNL threshold for incompatible land uses. Fewer designated recreation areas would be impacted from low-altitude operations relative to Alternative 1 as the lateral boundaries of Corsair North Low, Mustang Low, and Warhawk Low MOAs would be reduced.</p>	<p>Impacts from aircraft operations on land use and recreation in the Moody 2 North, Moody 2 South, Grand Bay, and Thud Low MOAs would be the same as described for Alternative 1 because the proposed floor and ceiling altitudes would be the same as Alternative 1 for these MOAs.</p> <p>The noise levels for all of the proposed low-altitude MOAs would be well below the 65 dBA DNL threshold for incompatible land uses.</p> <p>Impacts from the modification of the Banks Lake NWR exclusion zone would be the same as Alternative 1 and would not generate noise levels above 65 dBA DNL (i.e., the threshold for incompatible land uses).</p>	<p>Impacts from aircraft operations on land use and recreation in the Moody 2 North, Moody 2 South, Grand Bay, and Thud Low MOAs would be the same as described for Alternative 1 because the proposed floor and ceiling altitudes would be the same as Alternative 1 for these MOAs.</p> <p>The noise levels for all of the proposed low-altitude MOAs would be well below the 65 dBA DNL threshold for incompatible land uses.</p> <p>Impacts from the modification of the Banks Lake NWR exclusion zone would be the same as Alternative 1 and would not generate noise levels above 65 dBA DNL (i.e., the threshold for incompatible land uses).</p>

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Land Use and Recreation (continued)		NWR would occur below 1,500 feet annually and none of those operations would be below 500 feet AGL. These relatively infrequent, low-altitude aircraft operations over the Banks Lake NWR would not generate noise levels above 65 dBA DNL (i.e., the threshold for incompatible land uses).	Impacts from the modification of the Banks Lake NWR exclusion zone would be the same as Alternative 1 and would not generate noise levels above 65 dBA DNL (i.e., the threshold for incompatible land uses).		
Socioeconomics	There would be no change in the aircraft operations in the Moody Airspace Complex and therefore, socioeconomics would remain unchanged.	There would be no changes in population, employment, or income within the ROI. Long-term, moderate, adverse impacts would be expected on the civilian airspace users and airports underlying the proposed low-altitude MOAs or the other airports underlying the broader Moody Airspace Complex. Aircraft transiting the region to the airports	Impacts on population, housing, and land values would be the same as for Alternative 1. Short-term and long-term impacts on civilian airspace users and airports underlying the proposed low-altitude MOAs or the other airports underlying the broader Moody Airspace Complex would be less than Alternatives 1, 2, and 3. Because Modified Alternative 1 would affect	Impacts on population, housing, and land values would be the same as Alternative 1. Short-term and long-term impacts on civilian airspace users and airports underlying the proposed low-altitude MOAs or the other airports underlying the broader Moody Airspace Complex would be similar to Alternative 1. Because Alternative 2 would affect approximately 3 percent	Impacts on population, housing, and land values would be the same as Alternative 1. Short-term and long-term impacts on civilian airspace users and airports underlying the proposed low-altitude MOAs or the other airports underlying the broader Moody Airspace Complex would be similar to Alternatives 1 and 2. Because Alternative 3 would affect approximately

Resource Area	No Action Alternative (Existing)	Alternative 1. 1,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Modified Alternative 1. 1,000-Foot Floor with Modified Lateral Boundaries, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 2. 2,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA	Alternative 3. 4,000-Foot Floor, Create a New Grand Bay MOA, and Lower the Floor of Moody 2 North MOA
Socioeconomics (continued)		under the Moody Airspace Complex or other destinations may detour or be rerouted around or through Sabre MOA, resulting in increased distances flown and associated incurred costs from additional fuel and oxygen purchase requirements. No impacts on property values would be anticipated because training would not be frequent or loud enough to be incompatible with existing land uses.	approximately 29 percent fewer aircraft than Alternative 1, the lateral boundaries of the proposed low-altitude MOAs would be reduced, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex to transit the region. Use of detours or rerouting options around or through the complex would be less than Alternatives 1, 2, and 3.	fewer aircraft than Alternative 1, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex to transit the region, use of detours or rerouting options around or through the complex would be less than Alternative 1.	20 percent fewer aircraft than Alternatives 1 and 2, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex to transit the region, use of detours or rerouting options around or through the complex would be less than Alternatives 1 and 2.
Environmental Justice	There would be no changes to the Moody Airspace Complex or low-altitude aircraft operations. Therefore, there would be no disproportionate impacts on any population.	No disproportionately high or adverse human health or environmental effects on minority, low-income, youth, or elderly populations would be expected.	No disproportionately high or adverse human health or environmental effects on minority, low-income, youth, or elderly populations would be expected.	No disproportionately high or adverse human health or environmental effects on minority, low-income, youth, or elderly populations would be expected.	No disproportionately high or adverse human health or environmental effects on minority, low-income, youth, or elderly populations would be expected.

AFB – Air Force Base; **AGL** – above ground level; **DAF** – Department of the Air Force; **dBA** – A-weighted decibel; **DNL** – day-night sound level; **IFR** – instrument flight rules; **MOA** – Military Operations Area; **PSD** – Prevention of Significant Deterioration; **NAAQS** - National Ambient Air Quality Standards; **NWR** – National Wildlife Refuge; **ROI** – region of influence; **SEL** – sound exposure level; **tpy** – tons per year; **VFR** – visual flight rules

3.0 AFFECTED ENVIRONMENT

3.1 Analysis Approach

The National Environmental Policy Act (NEPA) requires a focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that an Environmental Impact Statement (EIS) should consider, but not analyze in detail, those areas or resources not potentially affected by the proposal. This EIS focuses on those resources potentially affected by the Department of the Air Force (DAF) proposal to chart new low-altitude Military Operations Areas (MOAs) beneath and within the lateral confines of existing Special Use Airspace (SUA) in the Moody Airspace Complex.

The potential impacts of the Proposed Action and its alternatives that are described in this EIS are assessed in accordance with the DAF's Environmental Impact Analysis Process (EIAP; 32 Code of Federal Regulations [CFR] 989), which requires that impacts on resources be analyzed in terms of their context, duration, and intensity. Impacts are discussed in proportion to their significance; issues that are determined not to be significant are discussed at a level warranted to demonstrate why additional study or analysis is not warranted. The affected environment for resources potentially affected by the proposal, provided in this chapter (**Chapter 3.0**), describes the existing condition against which the DAF measures the effects of the Proposed Action and alternatives. The difference between the existing conditions (i.e., affected environment) and the Proposed Action conditions for each resource affected by the proposal are the magnitude of impacts. To help the public and decision makers understand the implications of impacts, impacts are described in the short and long term, cumulatively, and within context. The expected geographic scope of any potential consequences is identified as the Region of Influence (ROI), which varies for each resource potentially affected by the proposal.

3.1.1 Resources Analyzed

This EIS addresses the potential impacts of the Proposed Action and alternatives to the following resources:

- Airspace Management and Operations
- Acoustic Environment (Noise)
- Health and Safety
- Air Quality
- Biological Resources
- Cultural Resources
- Land Use and Recreation
- Socioeconomics
- Environmental Justice

This EIS was developed in compliance with 32 CFR 989 and with the current versions of the FAA Order 1050.1F (FAA 2015) and FAA Order JO 7400.2M (FAA 2022a). The FAA is a cooperating agency on this EIS (see **Section 1.4.1**), and the FAA will adopt this EIS to comply

with NEPA. **Table 3.1-1** lists those resource analysis categories, as identified in FAA Order 1050.1F and correlates them with the resources discussed in this EIS.

**Table 3.1-1. Impact Analysis Categories Identified in
Federal Aviation Administration FAA Order JO 1050.1F**

FAA Impact Analysis Category	How Addressed by This EIS Analysis (Relevant EIS Section)	Comment
Air Quality	Air Quality (Sections 3.4 and 4.4)	Redistribution of aircraft operations into the mixing zone below 3,000 feet AGL and redistribution of operations may result in new air emissions.
Biological Resources	Biological Resources (Sections 3.5 and 4.5)	Changes in the noise environment and low-altitude aircraft movement may affect wildlife, including sensitive species.
Climate	Air Quality (Sections 3.4 and 4.4)	Redistribution of aircraft operations into the mixing zone below 3,000 feet AGL and redistribution of operations may result in new air emissions.
Coastal Resources	N/A	The Moody Airspace Complex does not overlie and is not proximate to coastal resources.
Department of Transportation Act, Section 4(f)	N/A	Designation of airspace for military flight operations is not subject to Section 4(f) (49 U.S.C. § 303 note).
Farmlands	N/A	No proposed conversion of farmland to nonagricultural uses, consumptive use of soils designated as prime farmland, or expected direct or indirect farmland interactions would occur. Impacts on agricultural land uses including impacts on livestock and poultry are discussed in Land Use and Recreation (Sections 3.7 and 4.7).
Hazardous Materials, Solid Waste, and Pollution Prevention	N/A	No change in the use of hazardous materials or production of solid waste would occur.
Historic, Architectural, Archeological, and Cultural Resources	Cultural Resources (Section 3.6 and 4.6)	Change in noise environment or low-altitude aircraft movement may affect historic or tribal resources.
Land Use	Land Use and Recreation (Sections 3.7 and 4.7)	Changes in the noise environment may affect land use.
Natural Resources and Energy Supply	Irreversible and Irretrievable Commitment of Resources (Section 6.1)	No change in the use of materials or energy consumption would occur.
Noise and Compatible Land Use	Acoustic Environment (Sections 3.2 and 4.2)	Changes in the noise environment may affect the public.

FAA Impact Analysis Category	How Addressed by This EIS Analysis (Relevant EIS Section)	Comment
Socioeconomics	Health and Safety (Sections 3.3 and 4.3) and Socioeconomics (Section 3.9 and 4.9)	Changes in the noise environment and visual impacts may affect general populations.
Environmental Justice and Children's Environmental Health and Safety Risks	Health and Safety (Sections 3.3 and 4.3) and Environmental Justice (Sections 3.10 and 4.10)	Changes in the noise environment and visual impacts may affect environmental justice populations.
Visual Effects (Including Light Emissions)	N/A	There would be no change in the number of low-altitude training operations in the Moody Airspace Complex and the shift in aircraft operations and use of flares would be more greatly dispersed across the SUA. Therefore, there would be no visual effects including a change in light emissions.
Floodplains	N/A	There would be no direct or indirect impacts on floodplains from low-altitude flights under the proposed airspace action.
Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)	N/A	There would be no direct or indirect impacts on water resources from the proposed airspace action.

AGL – above ground level; **EIS** – Environmental Impact Statement; **FAA** – Federal Aviation Administration; **N/A** – not applicable; **SUA** – Special Use Airspace; **U.S.C.** – United States Code

3.1.2 Resources Not Carried Forward for Detailed Analysis

It was determined that the Proposed Action would not present potential significant environmental impacts on the following resource areas because there would be no potential for direct, indirect, or cumulative impacts. Therefore, these have not been carried forward for detailed analysis in this EIS:

- **Coastal Zone and Coastal Resources:** The proposed airspace action is not proximate to any coastal areas.
- **Earth Resources.** The Proposed Action would create new low-altitude MOAs and alter the established Moody 2 North MOA within the existing lateral confines of the Moody Airspace Complex. There are no proposed ground-disturbing activities that would interact with the local or regional geology or soils. Military aircraft would disperse chaff and flares during training operations; however, the Proposed Action would not increase any expendables used during training operations in the Moody Airspace Complex, but chaff and flare use would be redistributed. Residual materials of chaff and flares could collect on the soil surface; however, the probability of such residual materials being deposited in any one location would be minuscule due to the dispersal of chaff and flares. Therefore, impacts on soils would be insignificant. The effect of potential fires due

to the rare occurrence of still ignited flares reaching the ground are analyzed in **Sections 3.4 and 4.4, Health and Safety**. There have been no reported flare-caused fires under the existing Moody Airspace Complex as a result of training operations from Moody AFB. The toxicity of chaff and flares has been evaluated and determined to not be toxic to humans and wildlife (United States [US] Air Force [Air Force] 1997).

- **Department of Transportation Act, Section 4(f).** Section 4(f) of the US Department of Transportation Act of 1966 (49 U.S.C. § 303) protects publicly owned land including public parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, only if there is no feasible and prudent alternative to using that land and the program or project includes all possible planning to minimize harm resulting from the use. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. The Proposed Action would not require the use or modification of any publicly owned land. In addition, SUA actions are exempt from the requirements of Section 4(f) (FAA 2015).
- **Farmlands.** There are no direct or indirect ground-disturbing activities or land use changes associated with this proposed airspace action that would interact with farmlands or soils designated as such. However, the potential for noise and aircraft movement during low-altitude training operations in the proposed low-altitude MOAs to affect domestic animals and livestock is described in **Section 3.8, Land Use and Recreation**.
- **Infrastructure.** There are no proposed infrastructure changes or activities associated with this proposed airspace action that would interact with infrastructure. The use of flares during training operations have a potential to start fires that can spread, adversely and indirectly affecting many resources including infrastructure. Flare-induced fires depend on the probabilities of flare materials reaching the ground, igniting vegetation, and causing significant damage if fire spreads (Air Force 1997); however, all use of flares in the proposed low-altitude MOAs would occur above 2,000 feet above ground level (AGL) and only during times of low fire risk, greatly reducing the risk of wildland fires and subsequent impacts on infrastructure as a result of flare use.
- **Visual Effects.** FAA *NEPA Desk Reference* (FAA 2015) requires a visual effects determination for the extent in which a Proposed Action would generate light emissions creating an annoyance or that would detract or contrast with the visual character of the environment. Under the Proposed Action, low-altitude training operations that currently take place within the Moody 2 North and Moody 2 South MOAs and Restricted Area R-3008 would be redistributed into the proposed low-altitude MOAs; therefore, no substantial increase in low-altitude operations are proposed in the Moody Airspace Complex, including night operations in which safety lights from aircraft could be visible during low altitude operations. Additionally, the use of flares as defensive

countermeasures would be redistributed with the proposed shift in training operations. As such, there would be no change in the light emissions in the Moody Airspace Complex but instead a redistribution of where those light emissions would occur.

Only a small percentage of all low-altitude operations occur during environmental night (2200 hours to 0700 hours), and safety lights on aircraft would not be different from commercial and civilian aircraft that are common throughout the Moody Airspace Complex. The safety lights on military aircraft would have no effects on the visual character of the environment. Flares would be a temporary source of light emissions, typically burning for approximately 3 to 5 seconds; training operations would not use flares below an altitude of 2,000 feet AGL in the Moody Airspace Complex and there would be no additional use of flares under the Proposed Action; instead 3,052 flares currently being used in the Moody 2 North and Moody 2 South MOAs would be redistributed to the proposed low-altitude MOAs annually. The use of flares would be dispersed across large areas and would be at altitudes that would not be visible during the daytime and visible at night only with very clear night skies. Flare releases would be at very low altitudes (between 2,000 and 4,000 feet AGL) and would not be visible unless the individual observing the flare was proximate to the training event at the time of the release of defensive countermeasures. Therefore, the use of flares in the Moody Airspace Complex under the Proposed Action would not create an annoyance or detract from the visual characteristics of the environment.

- **Hazardous Materials and Hazardous or Solid Waste.** There would be no new or additional hazardous materials used under the Proposed Action, and no new or additional hazardous or solid waste would be generated.
- **Water Resources.** The Proposed Action would not change any ground operations and no on-the-ground activities associated with this proposed airspace action would interact with water resources. Potential direct impacts on water resources from the use of defensive countermeasures during training activities include the deposition of residual materials from chaff and flare use, its accumulation in sensitive areas, and the ultimate breakdown of these materials into substrate mediums. Indirect impacts include fire risk, transportation of these materials to other areas by environmental elements, and the potential for ingestion by sensitive species. Depending on the altitude of release and wind speed and direction, the chaff from a single bundle can be spread over distances ranging from less than a 0.25 mile to over 100 miles. Chaff and flares do not contain materials that would degrade water quality or pose a human health risk (Air Force 1997). See **Section 4.6.2.1** for more information on chaff and flare composition.
- **Floodplains.** There are no changes to any ground operations or any proposed ground-disturbing activities from this Proposed Action that would interact with floodplains.

3.2 Airspace Management and Operations

3.2.1 Definition of the Resource

Airspace management is the coordination, integration, and regulation of the use of airspace. Airspace management procedures assist in preventing potential conflicts or aircraft accidents

associated with aircraft using designated airspace in the United States, including restricted military airspace. The objective of military airspace management is to meet operational requirements through the safe and efficient use of available navigable airspace in a peacetime environment, while minimizing the impact on other aviation users and the public.

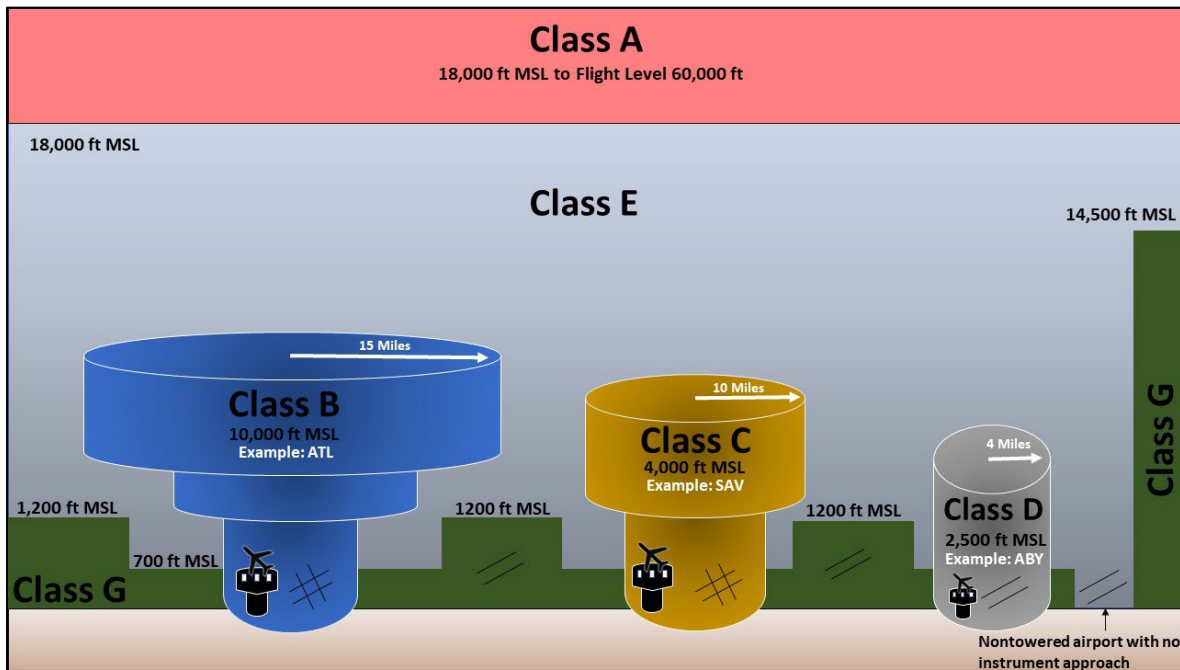
The FAA created the National Airspace System (NAS) to protect persons and property on the ground, and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is made up of a network of air navigation facilities, air traffic control (ATC) facilities, airports, technology, and appropriate rules and regulations that are needed to operate the system.

Airspace is three-dimensional and defined by latitude, longitude, and altitude. The FAA has designated US airspace into the following four types: controlled, uncontrolled, special use, and other (FAA 2019a). The categories and types of airspace are dictated by the complexity or density of aircraft movements, the nature of the operations conducted within the airspace, the level of safety requirements, and national and public interest in the airspace. The airspace within and proximate to the Moody Airspace Complex is defined as follows:

Controlled Airspace is a generic term that encompasses the different classifications (Class A, B, C, D, and E) of airspace and defines dimensions within which ATC service is provided to flights under instrument and visual meteorological conditions (**Figure 3.2-1**). All military and civilian aircraft are subject to Federal Aviation Regulations (FARs) in controlled airspace. When overlapping airspace designations apply for the same airspace, the operating rules associated with the more restrictive airspace would apply. The following airspace classes are discussed in order from most restrictive to least restrictive (FAA 2019a):

- **Class A** airspace includes airspace from 18,000 feet mean sea level (MSL) up to and including 60,000 feet MSL.
- **Class B** airspace typically extends from the surface up to 10,000 feet MSL and is often associated with major airport complexes, such as the Hartsfield-Jackson Atlanta International Airport in Atlanta, Georgia.
- **Class C** airspace generally extends from the surface up to 4,000 feet MSL. It is designed to provide additional ATC into and out of primary (i.e., commercial service airports with more than 10,000 passenger boardings each year) and military airports where aircraft operations are periodically at high-density levels. The only airport within the project area with this airspace designation is the Savannah/Hilton Head International Airport in Georgia, northeast of Moody AFB (per FAA Order JO 7400.11F, *Airspace Designations and Reporting Points*, effective 15 September 2022).
- **Class D** airspace is generally from the surface to 2,500 feet MSL. All traffic must maintain radio communication or have prior arrangements for operating within Class D airspace. The only airport within the project area with this airspace designation is the Albany Southwest Regional Airport in Georgia, northwest of Moody AFB (per FAA Order JO 7400.11F).

- **Class E** airspace, in most areas of the United States, is that which is not designated as Class A, B, C, or D. Class E airspace generally extends from 1,200 feet AGL up to but not including 18,000 feet MSL. There are areas where Class E airspace begins at either the ground surface or at 700 feet AGL. These areas are used to transition between the terminal and en route environments (e.g., typically around non-towered airports). These areas are designated on sectional charts. Most airspace in the United States is Class E. The airspace above Flight Level (FL) 600 is also Class E.



ft – feet; **MSL** – mean sea level; **ATL** – Hartsfield-Jackson Atlanta International Airport; **SAV** – Savannah/Hilton Head International Airport; **ABY** – Southwest Georgia Regional Airport

Source: FAA 2018

Figure 3.2-1. Relationship of Airspace Classes

Uncontrolled (or Class G) airspace is the portion of airspace that has not been designated as Class A, B, C, D, or E airspace and is, therefore, not subject to restrictions that apply to controlled airspace. Class G airspace extends from the surface to the floor altitude of the overlying Class E airspace. The floor altitude is dependent on the restrictions of airports and en routes and other airways in the area. Although uncontrolled airspace is not subject to FAA or ATC control, all military and civilian pilots must adhere to visual or instrument flight rules while operating in this airspace.

SUA consists of airspace within which specific activities must be confined, or wherein limitations are imposed on aircraft not participating in those activities. SUA is established in a coordinated effort with FAA to maintain safety by separating military and civilian flights. FAA Order JO 7400.10D provides a compiled list and definition of each designated SUA within the United States. SUA includes Restricted Areas (noted on aeronautical charts with “R-” designator) and MOAs.

Military missions may also use **other airspace** that is not categorized as SUA, but where limitations may still be imposed on nonparticipating aircraft. These may include military training routes (MTRs) and Air Traffic Control Assigned Airspace (ATCAA). MTRs commonly used include instrument and visual routes (IRs and VRs, respectively). **IRs** are those routes that must be flown following instrument flight rules (IFR) wherein pilots must use onboard navigation systems and coordination with air traffic controllers to avoid obstacles in the airspace. **VRs** are airspace routes (free of cloud cover) that may be flown following visual flight rules (VFR) wherein pilots would use visual cues to see and avoid obstacles. These routes are generally lower-altitude than IRs. ATCAA is not SUA but is airspace designated in a Letter of Agreement with the FAA that can be used to extend the ceiling of a MOA above FL180. ATCAA is not depicted on any chart and is usually referred to by the same name as the underlying MOA. This airspace remains under control of the FAA when not in use to support general aviation activities.

Federal En Route Flight and Airways. The en route phase of flight is defined as that segment of flight from the termination point of a departure procedure to the origination point of an arrival procedure. En route airways in the United States are at three strata within the airspace. **Victor Routes** (designated with "V-") are low-altitude en route airways. They encompass the first stratum in the en route airway airspace at altitudes ranging from approximately 1,200 feet AGL up to, but not including, FL180. **Jet Routes** (designated with "J-") are high-altitude en route airways consisting of a direct course for navigating aircraft. Where designated, J-routes encompass the second stratum of en route airway airspace at altitudes between FL180 up to FL450, inclusive, between the navigation aids and intersections specified for that route. The third stratum of en route airways are **Highest En Route Airways**, which are above FL450. This stratum supports random flight operations that are not associated with particular flight paths.

Area Navigation (RNAV) Routes. RNAV routes (designated with "T-" or "Q-") are low- to mid-altitude, stand-alone instrument routes that can be used only by aircraft equipped with an RNAV system, which is a navigation computer that allows the real-time continuous tracking of the aircraft along a prescribed flight path.

3.2.2 Regulatory Overview

The management of airspace is governed by federal legislation and military regulations and procedures. Per 49 U.S.C. § 40103, *Sovereignty and Use of Airspace*, the FAA has overall responsibility for managing airspace in such a manner that it ensures the safety of flight and that all users of the NAS can operate in a safe, secure, and efficient manner. FAA achieves this through administration of a system of flight rules and regulations (i.e., FARs), airspace management actions, and ATC procedures, and through close coordination with state aviation and airport planners, military airspace managers, and other entities to determine how airspace can be used most effectively to serve all interests. Adherence to FARs, airspace management actions, and ATC procedures allow both military and civilian aircraft to operate in shared airspace safely. The DAF manages airspace in accordance with processes and procedures detailed in Air Force Instruction (AFI) 13-201, *Airspace Management*. AFI 13-201 also provides the guidance and procedures used to develop and process SUA actions. It governs planning,

acquisition, use, and management of the airspace required to support the flight training necessary to ensure pilot proficiency.

Modification of existing airspace or configuration of new airspace is guided by the FAA through FAA Order 1050.1F and FAA Order JO 7400.2M. The Department of Defense (DoD) requests airspace from the FAA and schedules and uses airspace in accordance with the processes and procedures detailed in Department of Defense Directive (DoDD) 5030.19, *DoD Responsibilities on Federal Aviation*, and FAA regulations.

The airspace designations for all US airports are listed in FAA Order JO 7400.9Z. FAA also secures specific airspace and zones at and around airports through FAR Part 77 (14 CFR 77), *Safe, Efficient Use, and Preservation of the Navigable Airspace*, and FAA Advisory Circular (AC) 50/5300-13A, *Airport Design*. FAA Order JO 7400.2 Section 25-1-4, *MOA Floors*, mandates coordination and protection of airspace exclusion zones, which are areas below 1,500 feet AGL and within a distance of 3 nautical miles (nm) around any publicly accessible airports near or underneath existing MOAs. This exclusion may be increased if necessary based on unique circumstances. Also, provisions must be made for aerial access to private and public use land beneath the restricted area and to accommodate instrument arrivals and departures at affected airports with minimum delay. Notification requirements indicating the days, times, and hours of activation of a MOA are specified in FAA Order JO 7400.2 Chapter 21 (Section 21-2-4).

The FAA *Aeronautical Information Manual: Official Guide to Basic Flight Information and ATC Procedures* defines and provides the operational requirements for each of the various types or classes of airspace (FAA 2017). The DAF uses FAA Order JO 7110.65Z, *Air Traffic Control* (effective 17 June 2021), and FAA Order JO 7610.4W, *Special Operations* (effective 2 November 2021) to establish procedures for flying, airfield, and flightline operations at Air Force airfields. All designated SUA in the United States is listed in FAA Order JO 7400.10D, which is compiled and published annually. Per DoDI 5030.19 and AFI 13-201, airspace designated for military use is released to the FAA when the airspace is not needed for military requirements.

14 CFR 91, *FAA General Operating and Flight Rules*, and FAA Handbook 8083.16B, *Instrument Procedures Handbook*, provide the rules governing airway routing, including arrivals and departures. These published flight procedures specify altitude, airspeed, and requirements for entering and leaving the en route airways. The procedures employed in the en route phase of flight are governed by a set of specific flight standards established by 14 CFR, FAA Order 8260.3, *U.S. Standard for Terminal Instrument Procedures*, and related publications. These standards establish courses to be flown, obstacle clearance criteria, minimum altitudes, navigation performance, and communications requirements. Per FAA guidance for flight safety and safe separation of aircraft, most airways are 8 nm (14 kilometers) wide, and the airway flight levels keep aircraft separated by at least 500 vertical feet from aircraft on the flight levels above and below when operating under VFR. When operating under IFR, between the surface and an altitude of FL290, no aircraft should come closer vertically than 1,000 feet. Generally, at altitudes higher than FL290, aircraft should be vertically separated by at least 2,000 feet.

All military aircraft fly in accordance with 14 CFR 91 when flying outside SUA. Local flying rules include the use of tactical training and maintenance test flight areas, arrival and departure routes, and airspace restrictions as appropriate to control air operations. AFI 11-202V3, *General Flight Rules*, prescribes general flight rules that govern the operation of Air Force aircraft (manned and unmanned) flown by Air Force pilots, pilots of other services, foreign pilots, and civilian pilots operating in airspace designated for military flight operations. AFI 11-202V3 includes regulations regarding aircrew readiness, maximum flying time, right-of-way, minimum aircraft altitude, aircraft speed, hazard avoidance, aircraft movement on the ground, procedures for aviation safety reporting, and other health and safety regulations.

3.2.3 Region of Influence

The ROI for airspace management includes the Moody Airspace Complex and nearby associated airspace that may overlap, transect, or underlie the Moody Airspace Complex, or may otherwise have potential to be affected by the Proposed Action. Generally, this includes any SUA, VRs, IRs, V airways, T routes, the low-altitude training and navigation (LATN) area, airspace shelves (which are delegated to Moody AFB control to enable the improved capacity for air traffic control coordination and to deconflict air traffic approaching or departing from airports underlying the Moody Airspace Complex), exclusion zones, and any underlying airports that may require use of the airspace. These features are shown in **Figure 3.2-2**.

3.2.4 Existing Conditions

3.2.4.1 Moody AFB Airfield

The Moody AFB airfield has two active runways: Runways 18R/36L and 18L/36R. Flight operations out of the installation are coordinated through the Jacksonville ARTCC.

3.2.4.2 Airspace Management

Flight operations within Moody AFB's Restricted Areas (R-) are controlled by the DAF and Valdosta Radar Approach Control (RAPCON) at Moody AFB, and the MOAs are controlled by the FAA and Jacksonville ARTCC. Military training operations are coordinated with Valdosta RAPCON and the appropriate Jacksonville ARTCC Sectors (Ashburn [ASH], Waycross [AYS], Taylor [TAY], and Tallahassee [TLH]), as shown in **Figure 3.2-2**.

Users of Moody AFB-Controlled Airspace. The DAF tenants and primary users of the Moody Airspace Complex (listed in **Section 1.3**) would conduct training with A-10C, A-29, HC-130J, and HH-60G aircraft. Transient users make up approximately 15 percent of the existing usage of the airspace. Transient users use a wide variety of both fixed-wing aircraft and rotorcraft (e.g., KC-135, C-17, RQ-11, F-35, F-18, KC-10, F-15, F-16, and C-145).

Civilian flight activities that also occur in the Moody Airspace Complex include private aircraft flights, recreational soaring activities using glider aircraft, flight operations into and out of the underlying public and private airports, provision of crop-dusting services needed for the agricultural industry, provision of emergency air service (e.g., medical air lift), compassion flights

to transport individuals and families coping with medical conditions, biological surveys, and wildfire suppression throughout the region. Large, coordinated civilian flying events such as the Sunbelt Agricultural Expo and annual glider soaring competitions also use portions of the airspace encompassed by the Moody Airspace Complex.

3.2.4.3 Special Use Airspace, Military Training Routes, and Other Airspace

The Moody Airspace Complex covers approximately 6,887 square nautical miles (nm²) (see **Figure 1.2-2**). SUA associated with or located near the Moody Airspace Complex includes several MOAs, Restricted Areas, military training routes including VRs, IRs, other federal airways (i.e., V routes), and other designated airspace (e.g., ATCAA above all of the MOAs, LATN, two airspace shelves) (see **Figure 3.2-2**). Following are descriptions of the SUA:

MOAs. The MOAs and Restricted Areas that comprise the Moody Airspace Complex with associated altitude ranges and the published days and hours of operation are provided in **Table 3.2-1**. Whenever any MOAs of the Moody Airspace Complex are not active, they are yielded back to FAA to accommodate civil traffic. Activation of the MOAs outside of the published days and times of operation require Notice to Airmen (NOTAM) issuance to the Jacksonville ARTCC SUA Management System per the following parameters for daytime and nighttime operations:

- The 23d Operation Support Squadron/Air Traffic Control (23 OSS/OSA) must ensure that the schedules for MOA usage outside the times published for use are submitted to the SUA Management System, no later than 24 hours in advance of the proposed use. 23 OSS/OSA must ensure that the schedules for lights out (night) operations are submitted to Special Use Airspace Management Systems no later than 48 hours in advance of the proposed use (Jacksonville ARTCC 2017).

ATCAA. ATCAA overlies each of the Moody Airspace Complex MOAs extending from FL180 up to FL230. Military training operations are scheduled and conducted within the ATCAA as part of the complex. The ATCAA is controlled by Valdosta RAPCON at Moody AFB in coordination with the Jacksonville ARTCC.

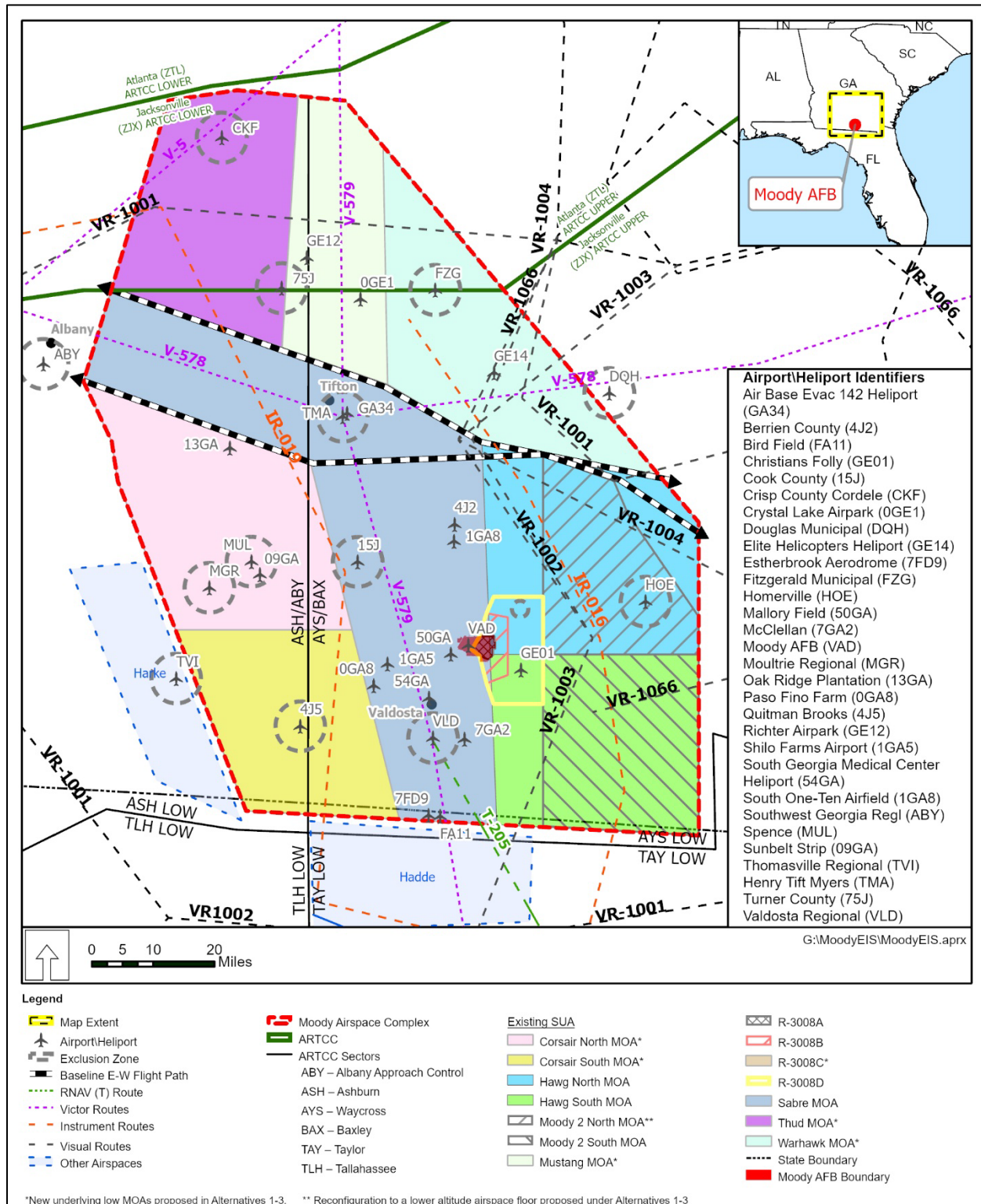


Figure 3.2-2. Airspace and Airports Proximate to the Moody Airspace Complex

Table 3.2-1. Operating Conditions for Existing Special Use Airspace in the Moody Airspace Complex

Special Use Airspace	Altitude Range	Published Hours of Use ¹		Published Days of Use
		From	To	
MOAs				
Thud MOA	8,000 feet MSL up to but not including FL180	0700	0200	Monday - Friday
Mustang MOA				
Warhawk MOA				
Sabre MOA				
Corsair North MOA				
Corsair South MOA				
Hawg North MOA				
Hawg South MOA				
Moody 2 North MOA	500 feet AGL up to but not including 8,000 feet MSL	0600	0200	Monday – Friday
Moody 2 South MOA	100 feet MSL up to but not including 8,000 feet MSL			
Restricted Areas ²				
R-3008A	Surface to 10,000 feet MSL	0700	2200	Monday - Friday
R-3008B	100 feet to 10,000 feet MSL			
R-3008C	500 feet to 10,000 feet MSL			
R-3008D	10,000 feet MSL up to but not including FL230			

Source: FAA Order JO 7400.10B

Notes: ¹Other times active by NOTAM issuance for daytime operations with 24 hours' notice, for nighttime operation with 48 hours' notice (Jacksonville ARTCC 2017). ²Restricted Areas are controlled by Valdosta RAPCON at Moody AFB; MOAs are controlled by the Jacksonville Air Route Traffic Control Center.

AGL – above ground level; **FL** – flight level; **MOA** – Military Operations Area; **MSL** – mean sea level; **R** – Restricted Area; **surface** – ground surface level

Restricted Areas (R-). R-3008A, R-3008B, R-3008C, and R-3008D (see **Table 3.2-1**) comprise the “Grand Bay Airspace” and encompass an area approximately 105 nm². These Restricted Areas are associated with the Grand Bay Range, a multiuse air-to-ground bombing and gunnery range that also encompasses designated landing and drop zones. When MOAs of the Moody Airspace Complex are not active, most of the north-south IFR traffic transits between the cities of Valdosta and Atlanta, west of the Grand Bay Airspace within the Sabre MOA “corridor.” East-west IFR traffic uses corridors north of R-3008 within the Sabre and Warhawk MOAs. Because of this, the Restricted Area R-3008 complex has little effect on the transit of civilian air traffic through this area.

VRs. Four VRs transect portions of the Moody 2 North and South MOAs in the Moody Airspace Complex (see **Figure 3.2-2**). Because this airspace is generally congested with military flight training operations, the VR segments that cross into the complex are continuously closed by

NOTAM. Aircraft must coordinate with Valdosta RAPCON to deconflict airspace and access approval to Moody 2 North and South MOAs.

- **VR-1002:** Continuously operated with an altitude range from 200 feet AGL to 1,500 feet AGL. Segments J through M cross through Moody 2 North MOA.
- **VR-1003:** Continuously operated with an altitude range from 200 feet AGL to 1,500 AGL. Segments K through N cross through Moody 2 North and South MOAs.
- **VR-1004:** Continuously operated with an altitude range from 200 feet AGL to 1,500 feet AGL. Segments B through D cross through Moody 2 North MOA.
- **VR-1066:** Operated from 0700 to 1200 hours with an altitude range of 100 feet AGL to 1,500 feet MSL. Segments A to B, and H cross portions of Moody 2 South MOA (DoD 2019).

IRs. Segments of two IRs cross portions of the Moody Airspace Complex, including IR-016 (300 feet AGL to 2,000 feet MSL; 4 nm either side of centerline), and IR-019 (400 to 700 feet MSL; 4 nm either side of centerline) (see **Figure 3.2-2**). Due to airspace congestion associated with military training operations, the segments that cross into the complex are continuously closed by NOTAM. Access to those route segments is allowed only through coordination with Valdosta RAPCON (DoD 2019).

Federal En Route Airways and RNAV Routes. Three federal (V) en route airways and one RNAV (T) route cross into or through the Moody Airspace Complex, including V-5, V-78, V-579, and T-205 (see **Figure 3.2-2**). V and T routes are flown at altitudes between 1,200 feet AGL up to but not including FL180 (FAA 2019b, 2019c). The airspace associated with RNAV T-routes is generally 10 nm on each side of the centerline or 4 nm of primary obstacle protection area plus 2 nm of secondary obstacle protection area on each side of the centerline. Aircraft must coordinate with Valdosta RAPCON and Jacksonville ARTCC prior to entering the complex along V airways or T routes.

- **V-5** transects the northwest corner of Thud MOA near the Cordele Crisp County Airport.
- **V-578** follows an east-west route through the Sabre, Hawg North, and Moody 2 North MOAs.
- **V-579** follows a north-to-south route through the Mustang and Sabre MOAs. Per operating conditions coordinated between Moody AFB and the FAA, these routes are prioritized for uninhibited civilian and commercial air traffic. By design, Moody AFB schedules training operations in the MOAs surrounding but generally not including Sabre MOA so that this area can be managed as a flight corridor for transient flights moving through the region.
- **T-205** extends northwest from Ocala International Airport in Florida into the southern portion of Sabre MOA where it terminates at the Valdosta Regional Airport.

LATN Area. Described in **Section 1.2.2**, the south Georgia LATN area altitude ranges from an airspace floor at 100 feet AGL up to a ceiling of 1,500 feet AGL. The LATN area encompasses approximately 85,000 nm² over most of south Georgia and parts of north Florida and southeast Alabama, including the airspace immediately underlying the Moody Airspace Complex. Aircrews

training in the LATN area can operate their aircraft at low altitudes and at airspeeds up to 250 knots without restrictions on the direction of flight. The LATN area is designed so that there are few or no multiple flight patterns over any one location due to LATN area operations. Currently, HH-60s and HC-130s from Moody AFB use the LATN area and fly at altitudes from 100 to 1,500 feet AGL (HH-60s) and 300 to 1,500 feet AGL (HC-130s). Restrictions to operations in the LATN area as described in AFI 11-202 limit the training operations at low altitudes that can be conducted by Moody AFB aircraft.

Other Airspace. Figure 3.2-2 shows the Hadde (surface up to 10,000 feet MSL) and Harke (surface to 7,000 feet MSL) airspace shelves that exist along the west and southern boundaries, respectively, of the Moody Airspace Complex. These are not designated as SUA, but are delegated to Moody AFB control to enable the improved capacity for ATC coordination and to deconflict air traffic approaching or departing from airports underlying the Moody Airspace Complex.

3.2.4.4 Airspace Operations

As explained in Section 2.4.5, the current utilization rate of the Moody 2 North and Moody 2 South MOAs is approximately 89 percent which is considered fully utilized. When active, the Moody Airspace Complex's low-altitude MOAs and Restricted Areas operate constantly with aircraft continually rotating into and out of the SUA to accomplish as much training as possible in a given day. Military aircraft (including those from Moody AFB and other installations) also use the airspace within the LATN area under the complex.

Table 3.2-2 presents the estimated annual civilian aircraft counts using one year of Performance Data Analysis and Reporting System (PDARS) aircraft count data for aircraft operating within the airspace of the existing Moody Airspace Complex as well as the airspaces SUA that would be encompassed by the proposed low-altitude MOAs (FAA 2020, FAA 2022b).

Table 3.2-2. Estimated Aircraft Counts in the Moody Airspace Complex and Proposed Low-Altitude Military Operations Areas

Aircraft Category		Number of Aircraft by Special Use Airspace ¹				
		Moody Airspace Complex	Alternative 1	Modified Alternative 1	Alternative 2	Alternative 3
Military Total ²		27,779	6,633	6,633	6,633	6,633
Civilian	IFR	12,175	11,816	7,267	11,417	8,648
	VFR ³	8,116	7,878	4,844	7,612	5,766
	Civilian Total ⁴	20,291	19,694	12,111	19,029	14,414
Total Aircraft		48,070	26,327	18,744	25,662	21,047

Source: FAA 2020, FAA 2022b

Note: ¹ Totals reflect the number of aircraft counted over one full year for the various airspace stratifications that extend from the lowest floor altitudes associated with the proposed low-altitude MOAs up to the Moody Airspace Complex ceiling at FL230 (FAA 2019a).

² Reflects aircraft counts for specified low and mid-altitude ranges (FAA 2019a).

³ Reflects the national average (40 percent) for civilian aircraft flying VFR at all altitudes (FAA 2019a). It is expected that for altitudes such as those associated with the proposed low-altitude MOAs that this number would be higher than indicated.

⁴ Reflects annualized aircraft counts from the 2017 training operations wherein all Moody AFB Squadrons and additional transient military aircraft were training in the Moody Airspace Complex and underlying LATN airspace (Moody AFB 2019). Totals for Alternatives 1, 2, and 3 reflect estimated numbers of military aircraft operating in the LATN area airspace.

VFR – visual flight rules; **IFR** – instrument flight rules

Based on the 2019 PDARS aircraft counts, approximately 48,070 aircraft per year are operating within the existing mid-altitude MOAs of the Moody Airspace Complex, and 26,327 aircraft are operating within the LATN area that encompasses the vast majority of airspace underneath the Moody Airspace Complex. PDARS data do not differentiate between military and civilian flight tracks. Therefore, this EIS uses Moody AFB's reported numbers of based and transient military aircraft operating in the Moody Airspace Complex to determine the total number of civilian flights described by the PDARS data. The 2019 PDARS aircraft counts do not reflect conditions since the onset of the COVID-19 pandemic in spring 2020. It is likely that civilian aircraft operations have decreased substantially relative to the PDARS aircraft counts reported in 2019 as a result of temporary flight restrictions. However, using the 2019 PDARS aircraft counts is the best available recent data and represents a conservative approach at estimating potential impacts on civilian aircraft operations from the Proposed Action.

Approximately 27,779 based and transient military aircraft are operating in the airspace complex per year, and around 6,633 based and transient military aircraft are operating within the LATN area (Moody AFB 2019). Therefore, approximately 19,694 civilian aircraft (including 8,116 VFR and 12,175 IFR aircraft) are operating in the airspace that would be encompassed by the proposed low-altitude MOAs (based on subtracting the number of military aircraft operations per airspace from the total aircraft operations per airspace as reported in PDARS). The number of VFR civilian flights reflects the 40 percent national average for VFR aircraft (FAA 2019a); the remaining aircraft are IFR. **Appendix B (Section B-3)** details the PDARS data, Moody AFB summary data, and methodology used to estimate the current number of civilian aircraft flying in the airspace.

3.2.4.5 Airspace Scheduling

Aircrews schedule airspace within the Moody Airspace Complex through Center Scheduling Enterprise, which also tracks airspace usage for the installation. Policies and procedures for flight operations, ATC, and airfield operations are established in Moody AFB Instruction 11-250, *Aircrew Operational Procedures/Air Traffic Control/Airfield Operations*. All aircraft using Moody AFB are subject to the provisions of these regulations and instructions, and scheduling requirements through Center Scheduling Enterprise.

Because the existing low-altitude MOAs and Restricted Areas in the Moody Airspace Complex are fully utilized, aircraft and units are forced to conduct other, less valuable activities while waiting for a space to conduct their training in an efficient way and within a dedicated SUA. Each week, pilots of Moody AFB's tenant squadrons participate in scheduling meetings to

review the available low-altitude airspace schedule and contend for training time. It is common to have at least three squadrons competing for the primary low-altitude airspace (i.e., Moody 2 North MOA, Moody 2 South MOA, and R-3008) and for Corsair South MOA, which is nearest to the installation for quick access to refueling or maintenance needs. Once all training time in this SUA is booked, all remaining training must be conducted in the northern mid-altitude MOAs.

These weekly scheduling meetings also often involve *ad hoc* coordination between units trying to optimize use of the MOAs so they can meet their varied training requirements. *Ad hoc* agreements can involve units agreeing to complete portions of their training and then hand off (or transition out of the airspace allowing other aircraft to enter the airspace) to other units so they may complete portions of their required training. In other cases, units may share airspace within the same MOAs. In such cases, aircrews would separate into upper and lower portions of the airspace to conduct their training operations. Helicopters can fly VFR in the active Moody 2 North MOA at 500 feet.

Because options within the complex for available low-altitude airspace are so limited, it is common that training requirements and dedicated flight operations objectives for the training units are not fully met. When unable to operate in the Moody Airspace Complex, the low-altitude Moody 2 North and Moody 2 South MOAs, and R-3008, aircrews conduct modified training maneuvers in the mid-altitude MOAs and Restricted Areas. Both the configuration and management of airspace at Moody AFB have been relatively unchanged since the late 1980s. Since that time, however, Moody AFB has coordinated management changes with the FAA to optimize coordination and air traffic flow between Valdosta RAPCON, Jacksonville ARTCC, and surrounding air traffic schedulers for scheduling efficiency and supporting improved air traffic control of civilian air traffic through the Moody Airspace Complex.

The following briefly describes the substantive changes that affect current airspace management conditions within the Moody Airspace Complex:

- During the late 1980s, the Restricted Areas R-3008A, R-3008B, R-3008C, and R-3008D were created from a portion of the Moody 1 MOA. Currently, the low-altitude airspace available for low-altitude training at the Moody Airspace Complex is limited to the Moody 2 North and Moody 2 South MOAs and the Restricted Areas R-3008A, R-3008B, and R-3008C.
- In December 2015, Moody AFB coordinated with the FAA to publish the eight subareas (i.e., Thud, Mustang, Warhawk, Corsair North, Corsair South, Sabre, Moody 2 North, and Moody 2 South MOAs) of the Moody 1 MOA as separate MOAs in the Moody Airspace Complex (Moody AFB 2015). Until 2015, whenever training was being conducted within the Moody 1 MOA (which encompassed the eight subareas), and regardless of the amount of airspace actually being used, the entire area was activated and restricted from use by civilian air traffic. This resulted in extensive rerouting of civilian air traffic and decreased the available airspace for routing aircraft transiting Moody AFB's assigned airspace. This operational construct was out of compliance with existing DoD and DAF policies which specify that military users should only schedule that airspace required for mission

accomplishment (to include weather contingency, if conditions dictate) and release the airspace to the FAA in a timely manner when not in use or no longer required. Per 32 CFR 989 Appendix B, this change in airspace charting and management to current conditions (as shown in **Figure 3.2-2**) and the associated environmental impacts were documented and addressed in a Categorical Exclusion (Moody AFB 2015). The ATC procedures for military operations in these newly charted MOAs were updated in a 2017 Letter of Agreement, *ATC Procedures for Military Operations*, between the FAA Jacksonville Center, FAA Atlanta Center, 23d Wing at Moody AFB, and the Valdosta RAPCON on 17 August 2017 (Jacksonville ARTCC 2017).

- Since 2015, the Sabre MOA has been largely managed as a flight corridor to facilitate air traffic transiting Moody AFB-assigned airspace using V-578 and V-579 routes and to facilitate approaches to the airports underlying the airspace complex.
- Per the 2017 Letter of Agreement, *ATC Procedures for Military Operations*, scheduling and usage of a designated MOA includes the associated ATCAA (e.g., Thud MOA 8,000 feet MSL up to but not including 18,000 feet MSL and Thud ATCAA FL180 up to FL230).
- Activation or deactivation of MOAs in the Moody Airspace Complex requires coordination with and prior notification to the Jacksonville ARTCC Waycross, Ashburn, Tallahassee, Taylor, and South Departure sectors.
- FAA Jacksonville Center may request use of the Thud, Mustang, and Warhawk MOAs, as needed to accommodate air traffic through those areas.
- If training is not required in any one of the remaining MOAs, the airspace is not activated. This facilitates improved coordination and a relatively unimpeded flow of civilian air traffic through the region.
- During training operations, Valdosta RAPCON and the Jacksonville ARTCC coordinate to deconflict civilian and military airspace usage within and around the complex. Whenever practicable, training operations in a given airspace may be temporarily paused to allow civilian and commercial air traffic to quickly transit that airspace. Once clear of the airspace, training operations are continued.

3.2.4.6 Other Airports and Airfields

Including Moody AFB, there are 30 operational airports (14 public and 16 private airports) that directly underlie, have designated airspace (e.g., Class E airspace) that underlies, and/or exclusion zone airspace that underlies the MOAs of the Moody Airspace Complex (**Figure 3.2-2** and **Table 3.2-3**). Of these 30 airports, the 16 (11 public and 5 private) that underlie the existing Thud, Mustang, Warhawk, Corsair North, Corsair South, and Moody 2 North MOAs would underlie the proposed low-altitude MOAs. The Class D airspace areas listed below consist of specified airspace within which all aircraft operators are subject to operating rules and equipment requirements of Part 91 of the Federal Aviation Regulations (see 14 CFR 91.129). Each Class D airspace area designated for an airport in this subpart contains at least one

primary airport around which the airspace is designated. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace is configured to contain all instrument procedures. Also in this class are federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, and en route domestic and offshore airspace areas designated below 18,000 feet MSL. Class E airspace does not include the airspace at 18,000 feet MSL or above. **Appendix B, Section B.1**, provides detailed information on airspace class designation for each facility, based aircraft, approach information, types of services provided, and exclusion zones coordinated with the FAA to protect air traffic approaching and departing from airports.

Table 3.2-3. Public and Private Airports and Associated Airspace Underlying the Moody Airspace Complex

Airport	Location	Level ¹	Public	Private
Thud MOA				
Crisp County Cordele Airport (CKF)	Cordele, Georgia	II	●	
Turner County Airport (75J) ²	Ashburn, Georgia	I	●	
Mustang MOA				
Richter Airpark Airport (GE12)	Rebecca, Georgia	NA		▣
Crystal Lake Airpark Airport (0GE1)	Tifton, Georgia	NA		▣
Turner County Airport (75J) ²	See Thud MOA			
Warhawk MOA				
Fitzgerald Municipal Airport (FZG)	Fitzgerald, Georgia	II	●	
Douglas Municipal Airport (DQH) ³	Douglas, Georgia	III	●	
Elite Helicopters Heliport (GE14)	Ocilla, Georgia	NA		▣
Corsair North MOA				
Oak Ridge Plantation Airport (13GA)	Sumner, Georgia	NA		▣
Spence Airport (MUL)	Moultrie, Georgia	I	●	
Cook County Airport (15J) ²	Adel, Georgia	I	●	
Sunbelt Strip Airport (09GA)	Moultrie, Georgia			▣
Moultrie Regional Airport (MGR)	Moultrie, Georgia	II	●	
Southwest Georgia Regional (ABY) ³	Albany, Georgia	III	●	
Corsair South MOA				
Thomasville Regional Airport (TVI)	Thomasville, Georgia	III	●	
Quitman Brooks County (4J5)	Quitman, Georgia	I	●	
Sabre MOA				
Henry Tift Myers Airport (TMA)	Tifton, Georgia	III	●	
Air Base Evac 142 Heliport (GA34)	Tifton Georgia			▣
Valdosta Regional (VLD)	Valdosta, Georgia	III	●	
Moody AFB (VAD) ⁴	Valdosta, Georgia	NA		▣
Berrien County Airport (4J2)	Nashville, Georgia	I	●	
South One-Ten Airfield (1GA8)	Nashville, Georgia	NA		▣

Airport	Location	Level ¹	Public	Private
Mallory Field (50GA)	Valdosta, Georgia	NA		▣
McClellan Airport (7GA2)	Valdosta, Georgia	NA		▣
South Georgia Medical Center Heliport (54GA)	Valdosta, Georgia	NA		▣
Paso Fino Farm Airport (0GA8)	Valdosta, Georgia	NA		▣
Shilo Farms Airport (1GA5)	Hahira, Georgia	NA		▣
Estherbrook Aerodrome Airport (7FD9)	Madison, Florida	NA		▣
Bird Field (FA11)	Jennings, Florida	NA		▣
Cook County Airport (15J) ²	See Corsair North MOA			
Hawg North MOA				
Valdosta Regional (VLD) ²	See Sabre MOA			
Hawg South MOA				
Moody AFB (VAD) ^{2,4}	See Sabre MOA			
Christians Folly Airport (GE01)	Naylor, Georgia	NA		▣
Moody 2 North MOA				
Homerville Airport (HOE)	Homerville, Georgia	II	●	

Sources: AirNav.com 2020, Georgia Department of Transportation 2018

MOA – Military Operations Area

Key: **NA** – not applicable; ● – public airport; ▣ – private airport

Notes: ¹ Level I – Airport of local significance; not sufficient to meet National Business Aviation Association (NBAA)-identified demands for business aviation (Georgia Department of Transportation 2018). Level II – Airport of regional and local significance; not sufficient to meet NBAA-identified demands for business aviation. Level III – Airport of national and regional significance, sufficient to meet the NBAA-identified demands for business aviation. ² Airport and or applicable exclusion zone partially underlies more than one MOA and is listed under each, as appropriate. ³ Only a portion of the Class E airspace and/or the exclusion zone for this airport underlies the specified MOA. The airport itself does not underlie the MOA. ⁴ Variable numbers of aircraft and flight operations annually. Reported number reflects current training operations as of 2019.

Along with the operational constraints listed in **Section 1.2.2**, ATC procedures are in place to accommodate the coordination and flow of approaches and departures to the underlying airports:

- FAA Atlanta Center currently descends aircraft landing at the Valdosta Regional Airport, Moody AFB airfield, Homerville Airport, Henry Tift Myers Airport, and the Cook County Airport to cross the associated MOA boundary at or below 7,000 feet AGL.
- Activation or deactivation of MOAs in the Moody Airspace Complex requires coordination with and prior notification to the Jacksonville ARTCC Waycross, Ashburn, Tallahassee, Taylor, and South Departure sectors.
- FAA Jacksonville Center may request use of the Thud, Mustang, and Warhawk MOAs, as needed to accommodate air traffic through those areas.

Per FAA Order JO 7400.2N, Section 25-1-4, *MOA Floor*, the MOAs exclude airspace at and below 1,500 feet AGL within a 3 nm radius of airports available for public use. Coordination with private airport operators is required for any MOA floor that extends below 1,200 feet AGL to determine whether there would be any conflict between the MOA activity and airport operations.

Moody ATC and Valdosta RAPCON operate under protocols to prioritize and accommodate unimpeded approach and departure flights to the airports beneath and proximate to the Moody Airspace Complex, including those underlying existing low-altitude MOAs such as the Moody 2 North MOA. A brief description of how IFR flights are accommodated follows.

- For all IFR traffic approaching or departing the underlying airports, Moody AFB ATC is alerted that MOA clearance will be needed approximately 30 minutes prior to an arrival or departure for an IFR civilian aircraft.
- Upon notification, ATC relocates or pauses military training activity in an active MOA, deactivates the MOA allowing for the IFR civilian aircraft to transit the airspace.
- When the civilian aircraft is clear from the airspace, ATC reactivates the MOA for military training activities following the completion of the IFR civilian flight.
- Most of the airports currently accommodated are not tower controlled, and civilian aircraft depart VFR and then call for clearance; at that time ATC clears the MOA of military training activity to provide access for the departing flight, which continues IFR according to its flight plan.
- There are also weather requirements for IFR approaches and departures that are managed in the Moody Airspace Complex. If a civilian flight needs IFR due to weather, Moody AFB ATC deactivates the MOA, moves training operations away, then after the IFR flight is complete, reactivates the MOA, and returns to training.

These protocols would continue to be followed by Moody ATC and Valdosta RAPCON no matter the alternative selected to implement the Proposed Action. Additionally, to accommodate civilian air traffic transiting the region along a general east-west flight path, the existing 0.5 nm-wide low-altitude airspace corridor through the airspace complex would be maintained (see **Figure 1.2-2**).

3.2.4.7 Exclusion Zones

Applicable exclusion zones for public airports, sensitive natural resources, and communities underlie the Moody Airspace Complex.

Public Airports. Per FAA Order JO 7400.2N, Section 25-1-4, MOA Floor, the MOAs exclude airspace 1,500 feet AGL and below within a 3 nm radius of airports available for public use. Coordination with private airport operators is required for any MOA floor that extends below 1,200 feet AGL to determine whether there would be any conflict between the MOA activity and airport operation.

Sensitive Natural Resources. The Banks Lake National Wildlife Refuge (NWR) underlies the Moody 2 North MOA within the Moody Airspace Complex. Per the FAA's Aeronautical Information Manual Part 7-4.6, *Bird Hazards and Flights Over National Refuges and Forests*, pilots are requested to maintain a minimum altitude of 2,000 feet above the surface of an NWR (FAA 2019d). Advisory Circular AC 91-36, *Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas*, defines the surface of a national park area (including parks, forests, primitive areas, wilderness areas, recreational areas, national seashores, national monuments, national

lakeshores, and national wildlife refuge and range areas) as the highest terrain within 2,000 feet laterally of the route of flight (FAA 2004). As explained in Section 2.1, the Winnersville Weapons Range EIS and Record of Decision (Air Force 1986) established an exclusion zone that specifies no weapons range flight tracks that are below 1,500 feet AGL will be located closer than 0.25 mile south of the Banks Lake NWR southern boundary.

Moody AFB also imposes exclusion zones around known sensitive bird nesting sites. These local airspace restrictions are mapped around known active bald eagle nests and wood stork rookeries underlying the Moody Airspace Complex.

Sensitive Communities. Moody AFB does not conduct training operations within 1,500 feet AGL at a radius of 1 nm that has been designated around the city of Lakeland, Georgia. This exclusion zone is excluded from the airspace associated with Grand Bay Range and Restricted Area R-3008C as specified in FAA Order JO 7400.10D.

3.2.4.8 Moody AFB Training Operations

The Moody Airspace Complex supports a variety of resident and transient Air Force and other DoD aircraft for their training requirements. However, the Moody Airspace Complex and Grand Bay Range primarily support units from Moody AFB. Currently, the missions at Moody AFB predominantly require training in low-altitude airspace. Training operations by aircraft assigned to Moody AFB also use the surrounding LATN which provides additional, but limited, airspace for low-altitude flight training. All SUA changes to low-altitude blocks occurred prior to the 2006 Base Realignment and Closure (BRAC) action that removed missions utilizing primarily mid-level and high-altitude airspace and replaced them with A-10s and their low-altitude close air support (CAS) and combat search and rescue (CSAR) mission requirements (**Appendix B**). For the 23d Wing (23 WG) and tenant commands and missions at Moody AFB, low-altitude flight training is critical to meeting mission requirements.

The number of flights or sorties using the Moody Airspace Complex varies from year to year depending on aircraft assignments, missions, and deployments. For the purposes of this discussion, a “sortie” is a military aircraft flight from initial takeoff through final landing. An operation is the single use of one SUA by one aircraft. An operation does not have a fixed length of time by aircraft within an SUA. An individual training mission or sortie may use more than one airspace, and each airspace used would be considered a separate operation.

Moody AFB currently conducts 37,295 flight operations per year within the existing mid-altitude (i.e., Corsair North, Corsair South, Hawg North, Hawg South, Mustang, Sabre, Thud, and Warhawk) MOAs and low-altitude (i.e., Moody 2 North, Moody 2 South, and R-3008/Grand Bay) MOAs of the Moody Airspace Complex (**Table 2.3-2**). A total of 67 percent of training operations occur in low-altitude airspace (less than 8,000 feet MSL) and for some units, between 85 and 90 percent of their mission training requirements must be conducted at altitudes too low to be accommodated by the majority of SUA in the Moody Airspace Complex. Operational activities at Moody AFB consist of typical flight operations for tactical combat maneuvering by fixed-wing and rotary-wing aircraft involving abrupt, unpredictable changes in

altitude, attitude, and direction of flight, which are not permissible in a LATN area. Other operational activities may include nonstandard formation flights, CAS, electronic attack, and chaff and flare deployment. The various training requirements for the operating groups at Moody AFB are discussed in more detail in **Appendix B**.

Moody AFB aircrews conduct night vision goggle/night vision device flight training with position lights and anti-collision lights off, in portions of the Moody Airspace Complex including the Moody 2 North MOA, Moody 2 South MOA, as well as in the Moody 3 MOA and the Live Oak MOA (from 8,000 feet MSL up to FL230). These lights-out training operations are conducted on an intermittent basis from Monday through Friday between the hours of sunset and 0100 hours. FAA Exemption 7960I from 14 CFR Section 91.209 (Parts [a][1] and [b]) authorizes these training times for select MOAs and specifies requirements for aircraft lighting during nighttime flight. To minimize potential impacts on the local flying community, Moody AFB provides safety and awareness briefs to the local flying community that explains lights-out training operations and issues a NOTAM at least 48 hours in advance of lights-out training.

3.3 Acoustic Environment (Noise)

3.3.1 Definition of the Resource

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's quality of life, such as aircraft operations, construction, or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighting," measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans (see **Section 10** and **Appendix C** for definitions and further information). Sounds encountered in daily life and their sound levels are provided in **Table 3.3-1**.

Table 3.3-1. Common Sounds and Their Levels

Outdoor	Sound Level (dBA)	Indoor
Jet flyover at 1,000 feet	100	Rock band
Gas lawnmower at 3 feet	90	Food blender at 3 feet
Downtown (large city)	80	Garbage disposal
Heavy traffic at 150 feet	70	Vacuum cleaner at 10 feet
Normal conversation	60	Normal speech at 3 feet

Outdoor	Sound Level (dBA)	Indoor
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room

Source: Harris 1998

dBA – A-weighted decibel

These common sounds are typically associated with steady noise levels, although few noises are, in fact, constant; therefore, additional noise metrics have been developed to describe noise, including:

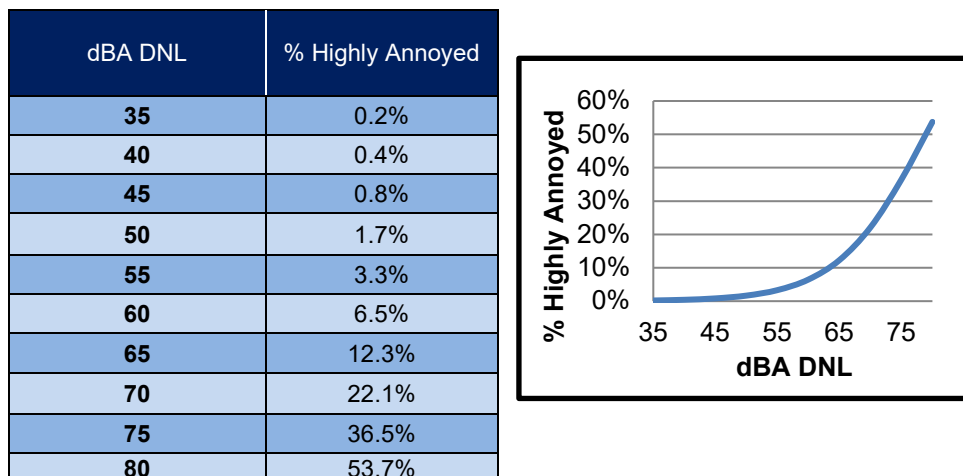
- **Sound Exposure Level (SEL)** – SEL is a measure of the total energy of an acoustic event. It represents the level of a one-second-long constant sound that would generate the same energy as the actual time-varying noise event such as an aircraft overflight. SEL provides a measure of the net effect of a single acoustic event, but it does not directly represent the sound level at any given time.
- **Day-Night Sound Level (DNL)** – DNL is the average sound energy in a 24-hour period with penalty added to the nighttime levels. Because of the potential to be particularly intrusive, noise events occurring between 10:00 p.m. and 7:00 a.m. are assessed a 10 dB penalty when calculating DNL. DNL is a useful descriptor for aircraft noise because: (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. DNL provides a measure of the overall acoustical environment, but as with SEL, it does not directly represent the sound level at any given time.
- **Maximum Sound Level (L_{\max})** – L_{\max} is the maximum sound level of an acoustic event in decibels (e.g., when an aircraft is directly overhead).
- **Equivalent Sound Level (L_{eq})** - L_{eq} is the steady-state sound level in decibels averaged over a specified period of time. L_{eq} is equivalent to the DNL without the added nighttime penalty.
- **Onset-Adjusted Monthly DNL (L_{dnmr})** is the average sound energy in a 24-hour period with a 10 dB penalty added to the nighttime levels, and up to an additional 11 dB penalty for acoustical events with onset rates greater than 15 dB per second, such as high-speed jets operating near the ground. L_{dnmr} is assessed for the month with the highest number of events, and as with DNL and SEL, it does not directly represent the sound level at any given time. Because of the penalties for rapid onset, L_{dnmr} is always equal to or greater than DNL.
- **Percent Highly Annoyed (%HA)**. The concept of long-term annoyance is used to account for all negative aspects of noise, including activity interference such as speech interference and sleep disturbance for nighttime activities, and is the basis for determining impacts due to aircraft noise associated with military and civilian aircraft operations. DNL and L_{dnmr} are highly correlated with and used to determine the %HA (see **Table 3.3-2**). It is not possible to accurately predict the exact annoyance responses to aircraft noise exposure in any specific community, and %HA is not designed to be used to determine exactly how many or which

individuals may be annoyed by aircraft noise. It is reported as the change in the percent of population expected to be highly annoyed, and individuals or populations identified as highly annoyed are for reference purposes to assist in determining the potential for effects.

3.3.2 Regulatory Overview

The Noise Control Act of 1972 directs federal agencies to comply with applicable federal, state, and local noise control regulations. The Noise Control Act specifically exempts both aircraft operations and military training activities from state and local noise ordinances. There are no federal, state, or local noise regulations directly applicable to the area under the airspace potentially affected by the Proposed Action. The DAF's land use guidelines for noise exposure are outlined in AFI 32-1015, *Integrated Installation Planning*. **Table 3.3-3** provides a general overview of recommended noise limits from aircraft operations for land use planning purposes. These recommended noise limits are consistent with FAA criteria (FAA 2015). Detailed guidelines for the compatibility of various land uses with noise exposure levels are included in **Appendix C**.

Table 3.3-2. Relationship between Annoyance and Day-Night Sound Level



Source: Air Force 2016b

Table 3.3-3. Recommended Noise Limits for Land Use Planning

General Level of Noise	Percent Highly Annoyed	Aircraft Noise (DNL)	General Recommended Uses
Low	<13%	< 65 dBA	Noise-sensitive land uses acceptable
Moderate	13%-37%	65–75 dBA	Noise-sensitive land uses normally not recommended
High	>37%	> 75 dBA	Noise-sensitive land uses not recommended

Source: Air Force 2016b, FAA 2015

DNL – day-night sound level; **dBA** – A-weighted decibel

3.3.3 Region of Influence

The ROI for noise includes all areas beneath the existing and proposed Moody Airspace Complex that may experience changes in the overall noise environment or individual aircraft overflights from the Proposed Action.

3.3.4 Existing Conditions

This section includes a discussion of the population under the Moody Airspace Complex, background noise levels without aircraft activity, and the existing noise from aircraft activity under the SUA, as well as near Moody AFB and the Grand Bay Range. Overall sound levels and noise from individual aircraft are discussed.

3.3.4.1 Population Under the Airspace

US Census block data were used to determine the population under the airspace potentially exposed to aircraft noise under the Proposed Action. Other than visual counts, census blocks are the narrowest available geo-referenced data set available. The Moody Airspace Complex is vast, covering approximately 5,800 square miles, and census block data are appropriate for this scale activity. **Table 3.3-4** outlines the population under the Moody Airspace Complex.

Table 3.3-4. Estimated Population beneath the Proposed Moody Airspace Complex

Airspace	Population	Households	Area (square miles)
Corsair North MOAs	55,803	22,750	756
Corsair South MOAs	19,633	9,349	592
Moody 2 North MOA	9,154	3,947	421
Moody 2 South MOA	2,191	1,001	517
Mustang MOAs	10,503	4,780	471
R-3008A and R-3008B	1,221	475	34
R-3008C/Grand Bay MOA	7,416	3,065	89
Sabre MOA	214,463	88,181	1,582
Thud MOAs	34,756	15,950	659
Warhawk MOAs	37,135	15,973	682
Total	392,275	165,471	5,803

Source: US Census Bureau 2019
MOA – Military Operations Area

3.3.4.2 Background Noise Levels

Background noise levels (L_{eq} and DNL) were estimated for the areas below the Moody Airspace Complex using the techniques specified in the *American National Standard Institute - Quantities*

and Procedures for Description and Measurement of Environmental Sound Part 3: Short-Term Measurements with an observer present (American National Standard Institute [ANSI] 2013). **Table 3.3-5** outlines the overall sound levels (i.e., DNL) beneath the Moody Airspace Complex without any aircraft activities. Most of the land beneath the Moody Airspace Complex is rural with several small towns and villages. These towns have relatively low levels of ambient noise, and background sound levels without aircraft normally do not exceed 52 dBA L_{eq} in the daytime, or 44 dBA L_{eq} at night. Background sound levels are typically less than this in rural areas, and appreciably less in remote areas.

Table 3.3-5. Estimated Background Sound Levels

Land Use Category	DNL [dBA]	L_{eq} [dBA]	
		Daytime	Nighttime
Normal suburban residential	52	50	44
Quiet suburban residential	47	45	39
Rural residential	42	40	34
Rural/Remote	<42	<40	<34

Source: ANSI 2013

dBA – A-weighted decibel; **DNL** – day-night sound level;

L_{eq} – equivalent sound level

3.3.4.3 Moody Airspace Complex

This section examines existing aircraft noise levels beneath the Moody Airspace Complex in terms of (1) overall average aircraft noise, and (2) noise from individual overflights. This is to provide an analysis of the overall effects from all the aircraft operations combined with the existing noise environment, as well as a reasonable description of the effects of single aircraft operations.

Overall Aircraft Noise. The MOA Range NOISEMAP (MR_NMAP) (v. 3.0) noise model, part of the Air Force NoiseMAP computer suite, was used to predict noise levels (DNL) associated with aircraft operations beneath the proposed Moody Airspace Complex (Air Force 2016a). The parameters considered in the modeling include aircraft type, airspeed, power settings, aircraft operations, vertical training profiles, and the time spent within each airspace block. MR_NMAP is the DoD- and FAA-approved noise model for aircraft operations beneath Special Use Airspace (Air Force 2016b; FAA 2015). Current data for the Moody Airspace Complex were collected during a site visit and Air Force personnel interviews in 2019. Air operational data for the proposed SUA were provided by Air Force operational personnel. The primary users of the proposed SUA would conduct exercises with A-10, A-29, HH-60, and C-130 aircraft.

Appendix C contains the operational data for the MOAs within the Moody Airspace Complex used in MR_NMAP.

L_{dnmr} is the accepted noise metric when determining noise levels from aircraft operations within SUA and has been carried forwarded for use in this analysis of potential noise effects as a conservative surrogate for DNL. Due to the onset penalty associated with the L_{dnmr} metric, L_{dnmr}

always equals or exceeds DNL; therefore, the L_{dnmr} metric used for quantifying noise levels in SUA can be compared to DNL thresholds (e.g., 65 dBA DNL) (Air Force 2016b; FAA 2015). Both DNL and L_{dnmr} were modeled and their modeled outputs were within 0.1 dBA for all airspace and all conditions.

Table 3.3-6 outlines the existing overall sound levels (i.e., DNL) beneath the Moody Airspace Complex without the Proposed Action. **Figure 3.3-1** shows the overall sound levels (i.e., DNL) beneath the existing Moody Airspace Complex with existing aircraft activities. The existing DNL ranges from less than an estimated 35 dBA DNL in rural areas to 59.7 dBA DNL at the Grand Bay Range (Air Force 2016a). In general, the aircraft operations are spread across the 5,800 square miles beneath the existing Moody Airspace Complex. Other than near Moody AFB and at the Grand Bay Range, these activities generally blend with background noise beneath the MOAs, particularly in the daytime and within the population centers; noise from existing aircraft operations does not exceed 65 dBA DNL and is fully compatible with all land uses. Beneath most of the Moody Airspace Complex, 0.7 percent or less of the overall population is highly annoyed by aircraft noise. However, it is estimated that 5.9 percent of the 1,221 persons beneath Restricted Areas R-3008A and R-3008B are highly annoyed by aircraft noise (**Table 3.3-6**).

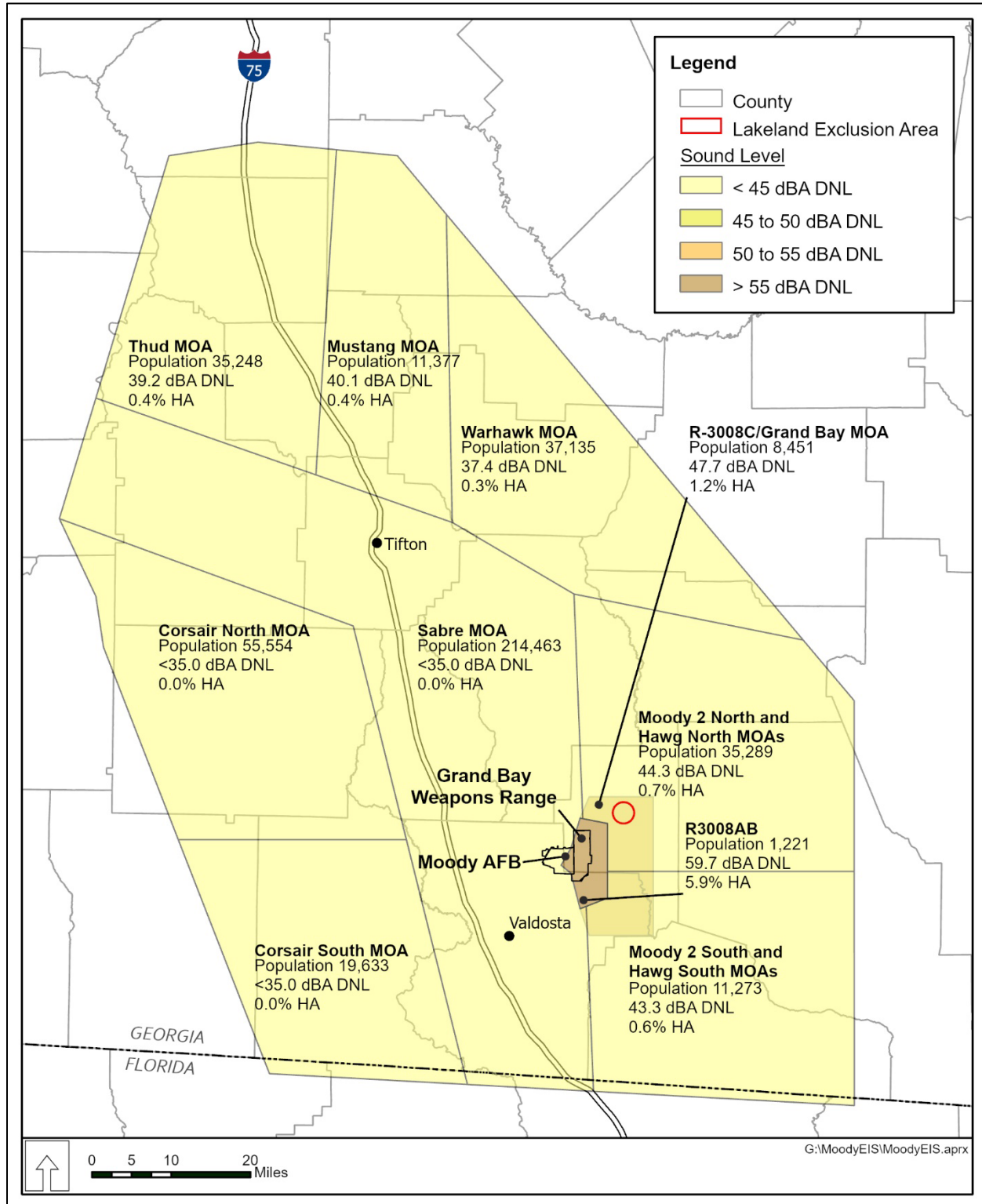
Table 3.3-6. Overall Sound Levels and Percent Highly Annoyed — Existing Conditions

Airspace	Population	Overall Sound Level (dBA DNL)	Percent Highly Annoyed (%)
Corsair North MOAs	55,803	<35.0	0.0%
Corsair South MOAs	19,633	<35.0	0.0%
Moody 2 and Hawg North MOAs	9,154	44.3	0.7%
Moody 2 and Hawg South MOAs	7,416	43.3	0.6%
Mustang MOAs	10,503	40.1	0.4%
R-3008A/B/Grand Bay Range	1,221	59.7	5.9%
R-3008C/Grand Bay MOA	7,416	47.7	1.2%
Sabre MOA	211,165	<35.0	0.0%
Thud MOAs	34,756	39.2	0.4%
Warhawk MOAs	37,135	37.4	0.3%

Sources: Air Force 2016a, US Census Bureau 2019

dBA – A-weighted decibel; **DNL** – day-night sound level; **MOA** – Military Operations Area

Individual Overflight Noise. The sole use of DNL and land use compatibility does not fully describe the nature and effects from aircraft noise because they are used for planning purposes and do not consider other effects such as hearing loss, sleep and speech interference, and structural damage. This is particularly true for airspace actions that have medium intensity effects over large geographical areas, as opposed to high intensity effects over a smaller area



Sources: Air Force 2016a, US Census Bureau 2019

Figure 3.3-1. Overall Sound Levels and Percent Highly Annoyed – Existing

(e.g., noise near an airport or air installation). Both the DAF and the FAA encourage the inclusion of supplemental noise metrics in the assessment of noise from airspace actions (Air Force 2016a; FAA 2015). MR_NMAP was also used to calculate L_{\max} and SEL for individual overflights beneath the proposed Moody Airspace Complex. These metrics were used to assess the potential for disturbance of speech and sleep in order to determine if individual acoustic events would be loud enough to damage hearing or structures and to provide the public with a better understanding of the specific effects.

Although operational noise levels are often too low to result in incompatibility with existing land uses, noise from individual overflights generate distinct acoustical events. **Table 3.3-7** outlines the L_{\max} and SEL for existing individual aircraft overflights for the primary and secondary users of the existing Moody Airspace Complex. Mid-altitude overflights above 8,000 feet AGL are similar to but somewhat louder than high-altitude commercial aircraft overflights. Civilian aircraft that typically operate at altitudes below 23,000 feet AGL (e.g., single and double piston aircrafts and small jets) are quieter than the military aircraft used at Moody AFB. Typical overflights conducted in the existing Corsair North, Corsair South, Hawg North, and Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs are audible but distant to individuals on the ground. Typical overflights in the lower-altitude portions of the existing Moody 2 North MOA, Moody 2 South MOA, and Restricted Area R-3008 are clearly audible and sometimes loud to individuals on the ground. These overflights are brief, intermittent, distributed through the Moody Airspace Complex, and normally do not occur repeatedly at any one location over a short duration other than near Moody AFB and the Grand Bay Range. Individual overflights would be neither loud enough nor frequent enough to highly annoy an appreciable percentage of the population or to generate areas of incompatible land use underneath the existing Moody Airspace Complex.

Table 3.3-7. Sound Levels for Individual Overflights

Altitude (feet)	Primary Aircraft (Typical Overflights)								Secondary Aircraft (Atypical Overflights)			
	L_{\max} (dBA) ^a				SEL (dBA) ^b				L_{\max} (dBA) ^a		SEL (dBA) ^b	
	A-29	A-10	H-60	C-130	A-29	A-10	H-60	C-130	F-18	F-35	F-18	F-35
500 ^c	82.7	96.0	84.2	91.5	84.6	94.5	90.5	96.2	98.5	114.4	100.7	119.3
1,000	75.5	87.8	77.5	84.4	79.2	88.1	85.6	90.9	91.1	107.1	95.2	113.8
2,000	68.0	77.7	70.3	76.7	73.6	79.8	80.2	85.0	83.0	99.1	88.9	107.6
4,000	60.2	64.2	62.3	68.3	67.5	68.1	74.0	78.4	73.9	90.4	81.5	100.7
8,000	51.5	48.4	53.1	59.1	60.6	54.0	66.6	71.1	63.3	80.2	72.7	92.3
23,000	37.8	34.7	38.1	45.7	49.3	42.7	54.0	60.0	46.2	62.3	58.0	76.8

Source: Air Force 2016a

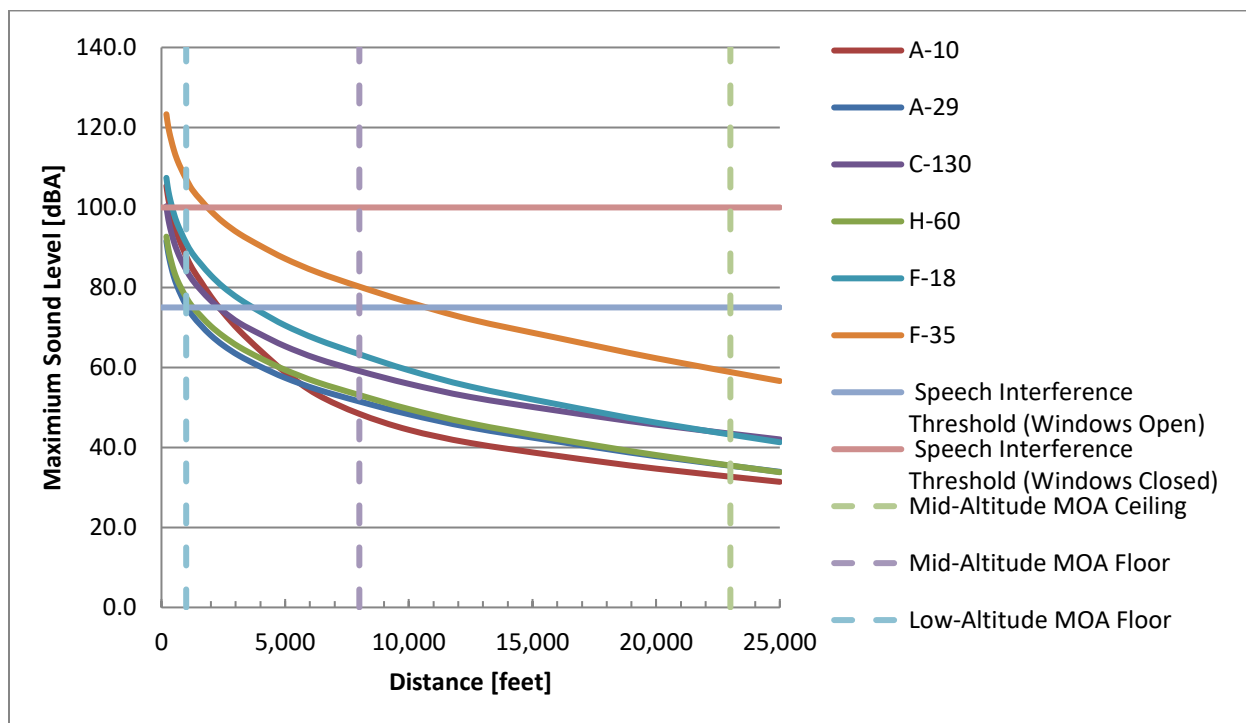
Notes: ^a L_{\max} is the maximum sound level during an individual overflight. Overflights that exceed 75 dBA L_{\max} (bolded values) could interfere with speech. ^b SEL is the sound level if the entire overflight was compressed into one second and does not represent the actual noise at any given time. Nighttime overflights that exceed 90 dBA SEL (bolded values) could interfere with sleep. ^c Noise model does not provide an output for sound levels of individual overflights at an altitude of 100 feet AGL.

dBA – A-weighted decibel; **L_{\max}** – maximum sound level; **SEL** – sound exposure level

Speech Interference. In general, low- to mid-altitude aircraft overflights can interfere with communication on the ground, and in homes, schools or other buildings directly under their flight path. The disruption of routine activities in the home, such as radio or television listening, telephone use, or family conversation, can give rise to frustration and irritation. The quality of speech communication is also important in classrooms, offices, and industrial settings and can cause fatigue and vocal strain in those who attempt to communicate over the noise. The threshold at which aircraft noise may begin to interfere with speech and communication is established at 75 dBA (DoD Noise Working Group 2013). This level is consistent with the thresholds outlined in the ANSI's *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools* (ANSI/Acoustical Society of America 2010).

Table 3.3-7 and **Figure 3.3-2** present the L_{\max} for individual aircraft overflights for the primary and secondary users of the existing Moody Airspace Complex. L_{\max} for typical aircraft overflights (A-10, A-29, C-130, and H-60) above 8,000 feet AGL do not exceed the threshold for speech interference. Overflights in the existing Corsair North, Corsair South, Hawg North, and Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs are audible to individuals on the ground, but do not normally interfere with communication at ground level. Overflights from primary aircraft in the lower portions of the existing Moody 2 North MOA, Moody 2 South MOA, and Restricted Area R-3008 (i.e., below 1,000 to 2,000 feet AGL) are sometimes loud enough to interfere with communication at ground level in outdoor areas, but not indoors. These overflights would normally not be loud enough to interfere with speech within school classrooms. Occasionally, louder aircraft, such as the F-18 or F-35, use the Moody Airspace Complex. These aircraft, and particularly the F-35s, are louder than aircraft based at Moody AFB, and exceed the threshold for speech interference when flying as high as 8,000 to 10,000 feet AGL. These same aircraft would be loud enough to interfere with speech within buildings such as schools. Individual overflights from these secondary aircraft are rare and dispersed throughout the area.

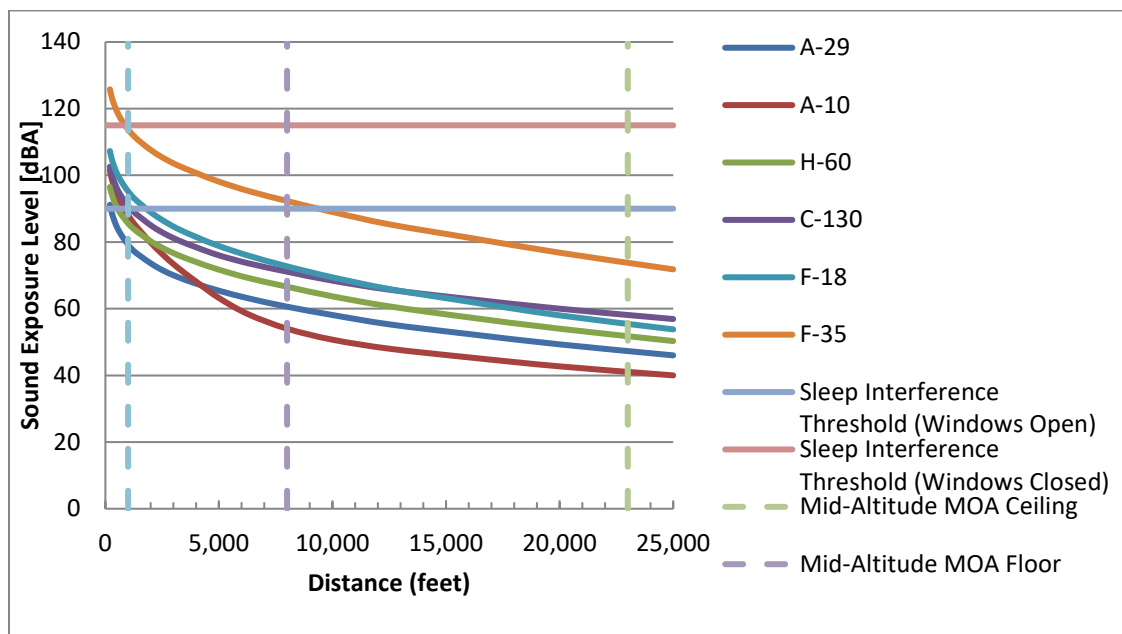
Sleep Interference. Approximately 13 percent of aircraft activities are conducted between 10:00 p.m. and 7:00 a.m.; therefore, an assessment of their potential to interfere with sleep was performed. Sleep interference is another source of annoyance associated with louder low-altitude aircraft overflights. This is especially true due to the intermittent nature of aircraft noise, which can be more disturbing than continuous noises. Sleep disturbance is not just a factor of the loudness, but also the duration, of each noise event; therefore, sleep disturbance is best reflected with the SEL metric, which captures the total energy (i.e., level and duration) of each noise event. The threshold at which aircraft noise may begin to interfere with sleep is 90 dBA SEL (DoD Noise Working Group 2013).



Source: Air Force 2016a

Figure 3.3-2. Maximum Sound Levels for Individual Overflights

Table 3.3-7 and **Figure 3.3-3** present the SEL for individual aircraft overflights for the primary and secondary users of the existing Moody Airspace Complex. None of the aircraft operating in the Moody Airspace Complex above 8,000 feet AGL is louder than 90 dBA SEL, and normally they are not loud enough to interfere with sleep. Overflights in the existing Corsair North, Corsair South, Hawg North, and Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs are audible to individuals on the ground but do not normally interfere with sleep at ground level. When operating at 1,000 feet AGL, the A-10, A-29, C-130, H-60, and F-18 can be loud enough to interfere with sleep. These low-level operations are conducted in Moody 2 North and Moody 2 South MOAs, and R-3008A, R-3008B, and R-3008C. On rare occasions, F-35 aircraft operating below 8,000 feet AGL throughout the Moody Airspace Complex can exceed 90 dBA SEL, and be loud enough to interfere with sleep; however, these are secondary aircraft having approximately 45 nighttime operations per year, with only two of these operations occurring below 8,000 feet AGL.



Source: Air Force 2016a

Figure 3.3-3. Sound Exposure Levels for Individual Overflights

Damage to Hearing. Noise-related hearing loss due to long-term exposure (over many years) to continuous noise in the workplace has been studied extensively, but there has been little research on the potential for noise-induced hearing loss on members of the community from exposure to aircraft noise. Unlike workplace noise, community exposure to aircraft overflights is not continuous, but consists of individual events where the sound level exceeds the background level for a limited time. Over 40 years, an individual would need to be exposed to average sound level of 75 dBA for 8 hours per day for 40 years to experience hearing loss (Committee on Hearing, Bioacoustics and Biomechanics Assembly of Behavioral and Social Sciences National Research Council 1977). The Occupational Safety and Health Administration (OSHA) and DAF have adopted a threshold of 80 dBA for 8 hours per day as the threshold for hearing protection (Air Force 2013). Because aircraft overflights are intermittent and not continuous, individuals are not exposed to sound levels exceeding 75 dBA for 8 hours per day beneath the Moody Airspace Complex. In addition, OSHA and the DAF have adopted a threshold of 140 dB instantaneous noise level as a threshold for short-term exposure that may induce hearing loss (Air Force 2013). Individual aircraft overflights within the Moody Airspace Complex are not supersonic and do not generate sonic booms; therefore, no individuals beneath the Moody Airspace Complex are exposed to instantaneous sound levels exceeding 140 dB.

Damage to Structures. Noise from low-level aircraft overflights can cause buildings under their flight path to vibrate, which the occupants experience as shaking of the structure and rattling of the windows. However, based on experimental data and models, noise and vibrations from subsonic aircraft overflights do not cause structural damage to buildings. An impact noise (i.e., blast noise or sonic boom) above 140 dB is required to generate sufficient energy to damage structures (Siskind 1989; Bureau of Mines 1980). Individual overflights within the Moody

Airspace Complex are not supersonic, and do not generate sonic booms; therefore, there is no potential to damage to structures.

3.3.4.4 Noise Contours at Moody Air Force Base and the Grand Bay Range

NOISEMAP Version 7.3 was used to calculate the existing DNL noise contours at Moody AFB and the Grand Bay Range. NOISEMAP accounts for all aircraft activities, including landings, take-offs, in-flight operations, maintenance activities, and engine run-ups. **Figure 3.3-4** shows the current DNL noise contours for Moody AFB and the Grand Bay Range plotted in 5 dB increments, ranging from 65 to 85 dBA DNL. The noise contours depict operational conditions as outlined in the 2015 Air Installation Compatibility Use Zone (AICUZ) Study for Moody AFB. There have been no substantial changes in operations or mission at Moody AFB since the noise contours were developed, and they have been carried forward as a comparative existing condition to determine the level of effects under NEPA. The current 65 dBA DNL noise contour extends approximately 2 miles from both ends of the primary runways at Moody AFB, and 1 mile both north and south of the Grand Bay Range. There are no schools or churches within the 65 dBA DNL contour for either Moody AFB or the Grand Bay Range. There are approximately three residences within the 65 dBA DNL contour for Moody AFB, and none within the 65 dBA DNL contour for the range.

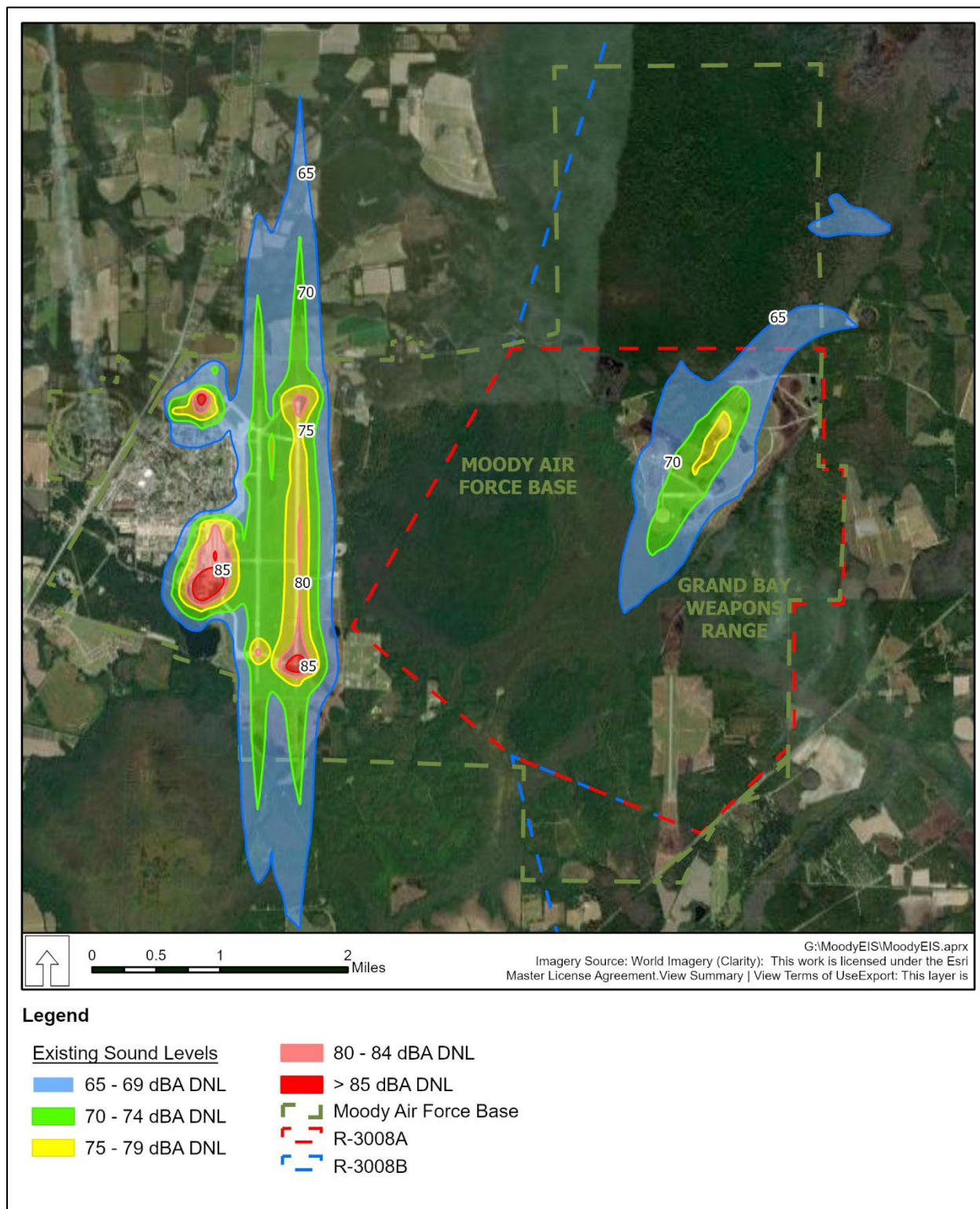


Figure 3.3-4. Noise Contours at Moody Air Force Base and the Grand Bay Range

3.4 Health and Safety

3.4.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death or serious injury. This section addresses the current conditions for military personnel and civilian safety, as well as health and safety following the implementation of the Proposed Action. The health and safety of onsite military and civilian workers are safeguarded by DoD and DAF regulations designed to comply with standards issued by OSHA, the US Environmental Protection Agency (USEPA), and state occupational safety and health agencies.

3.4.2 Regulatory Review

All military aircraft fly in accordance with 14 CFR 91, *FAA General Operating and Flight Rules*, which addresses aircraft operations that include, but are not limited to, aircraft operation near other aircraft, right-of-way rules, aircraft speed, and minimum safe altitudes when flying outside SUA. Local flying rules include the use of tactical training and maintenance test flight areas, arrival and departure routes, and airspace restrictions as appropriate to control air operations. AFI 11-202V3, *General Flight Rules*, prescribes general flight rules that govern the operation of Air Force aircraft (manned and unmanned) flown by Air Force pilots, pilots of other services, foreign pilots, and civilian pilots. AFI 11-202V3 includes regulations regarding aircrew readiness, maximum flying time, right-of-way, minimum aircraft altitude, aircraft speed, hazard avoidance, aircraft movement on the ground, procedures for aviation safety reporting, and other health and safety regulations. A number of directives, instructions, and manuals provide guidance on maintaining DAF health and safety standards including, but not limited to, the identification and mitigation of safety hazards, investigation of reportable mishaps, and required safety training.

The avoidance of obstructions and obstructions analysis are guided by 14 CFR 77 regulations. These provide for notice to the FAA of certain proposed construction, or the alteration of existing structures; the standards used to determine obstructions to air navigation, and navigational and communication facilities; the process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and the process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

AFI 91-202, *The US Air Force Mishap Prevention Program*; Department of the Air Force Manual (DAFMAN) 91-203, *Air Force Occupational Safety, Fire, and Health Standards*; DAFI 91-204, *Safety Investigation and Hazard Reporting*; DAFMAN 91-223, *Aviation Safety Investigations and Reports*; and AFMAN 91-201, *Explosives Safety Standards* implement Air Force Policy Directive (AFPD) 91-2, *Safety Programs*. AFI 91-202 establishes mishap prevention program requirements, assigns responsibilities for program elements, and contains program management information. The purpose of AFI 91-202 is to minimize loss of DAF resources and to protect DAF personnel from occupational deaths, injuries, or occupational illnesses by managing risks on and off duty. AFI 91-203 consolidates all Air Force Occupational Safety and Health (AFOSH) standards and defines the minimum safety, fire protection, and occupational

health standards; assigns responsibilities to individuals or functions to help Commanders manage their safety and health programs to ensure they comply with OSHA and DAF guidance; and applies to all DAF activities.

Potential aircraft accidents (mishaps) are unplanned occurrences, or series of occurrences, that result in damage to DoD property, occupational illness, or property damage; and may occur as the result of midair collisions, collisions with manmade structures or terrain, weather-related accidents, mechanical failure, pilot error, or bird/wildlife-aircraft strikes (AFMAN 91-223). The Air Force defines five categories of aircraft mishaps: Classes A, B, C, D, and E. The reporting criteria for each mishap classification follows (AFMAN 91-223).

- **Class A** mishaps result in a direct mishap cost totaling \$2 million or more, a fatality or permanent total disability, destruction of a DoD aircraft, or permanent loss of primary mission capability of a DoD aircraft.
- **Class B** mishaps result in a direct mishap cost totaling between \$500,000 and \$2 million, a permanent partial disability, or inpatient hospitalization of three or more personnel. This does not include individuals hospitalized for observation, diagnostic, or administrative purposes who were treated and released.
- **Class C** mishaps result in a direct mishap cost totaling between \$50,000 and \$500,000, any injury or occupational illness or disease that causes loss of one or more days away from work beyond the day or shift it occurred (lost time), or an occupational injury or illness resulting in permanent change of job.
- **Class D** mishaps result in a direct mishap cost totaling between \$20,000 and \$50,000, or a recordable injury or cost not otherwise classified as A, B, or C.
- **Class E** mishaps are those occurrences that do not meet reportable A, B, C, or D mishap classification criteria but are deemed important to investigate and report for mishap prevention. Most Class E mishap reporting is voluntary; however, discipline-specific safety manuals may require mandatory reporting.

AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*, provides policy guidance, establishes program requirements, assigns responsibilities, and contains management information for implementing an effective BASH management program for DAF activities. AFI 91-212 defines BASH as wildlife, habitat, or conservation efforts that pose a risk to flight operations, and provides a number of techniques (including radar detection, warning, and use of wildlife data) to reduce the potential for bird or wildlife strikes by allowing aircrews to schedule or maneuver to avoid wildlife concentrations. Bird and wildlife strikes are an aircraft safety concern due to the potential damage that a strike might have on the aircraft or possible injury to aircrews. There are two main factors that influence the risk or potential for damage from a bird/wildlife aircraft strike: 1) the probability of a strike relative to the number of aircraft or birds in the operating environment; and 2) the size of the bird involved in the strike (Moody AFB 2010).

AFMAN 32-7003, *Environmental Conservation*, requires that all aspects of an installation's natural resources management be reviewed for potential wildlife hazards to aircraft operations. The land adjacent to aircraft operations areas must be managed to minimize attractions to

wildlife. With respect to wetland management, AFMAN 32-7003 states that since wetland areas attract many wildlife species, thereby creating potential hazards to aircraft operations, innovative techniques to manage wildlife in wetlands should be explored and implemented.

AFMAN 13-212, V1, *Range Planning and Operations*, provides guidance to operate DAF ranges safely, effectively, and efficiently to meet training and test requirements while minimizing potential effects on the environmental and surrounding communities. AFMAN 13-212, V1 outlines procedures for the planning and management of range operations, weapons release, electronic warfare training operations, flare and chaff employment, range safety, flight safety, and occupational and explosive safety.

The following are instructions specific to Moody AFB that provide guidance on aircraft safety, range safety, safety hazards, aircraft mishaps, and safety training.

- Moody AFB Instruction 11-250, *Airfield Operations*
- Moody AFB Instruction 13-212, *Range Planning and Operations*

3.4.3 Region of Influence

The ROI for health and safety includes Moody AFB, Grand Bay Range, existing SUA in the Moody Airspace Complex, and proposed new low-altitude MOAs.

3.4.4 Existing Conditions

3.4.4.1 Flight Safety

Aircraft Mishaps. Aircraft mishap rates are based on the estimated flying time that an aircraft is expected to be in the airspace, the accident rate per 100,000 flying hours for a specific aircraft, and the annual flying hours for that aircraft. The majority of aircraft mishaps occur at takeoff or landing near the airfield. The current yearly total flying time for all aircraft in the Moody Airspace Complex is approximately 26,819 hours, which includes 4,775 hours at middle altitudes and 22,043 hours at low altitudes. Mishap data specific to Moody AFB indicates that from fiscal year (FY) 2009 to FY19, 209 mishaps in which injury and/or damage amounted to a cost greater than \$20,000 occurred. Of the total mishaps, three were Class A mishaps. Based on the data, the Class A mishap average for Moody AFB is 2 per 100,000 flying hours, and the total mishap average is 141 per 100,000 flying hours. Mishap data include all flying units stationed at Moody AFB and represent sorties in the Moody AFB local area (Milliken 2020).

The Aviation Safety Network (ASN) Safety Database contains descriptions of airliner (aircraft capable of carrying at least 12 passengers), military transport aircraft, and corporate jet aircraft safety occurrences worldwide. Aviation safety reports indicate that a total of 87 mishaps occurred in Georgia between 1935 and 2019, where 71 (82 percent) were Class A mishaps in which a total loss of the plane resulted. Of the total mishaps, 62 (71 percent) were associated with commercial and private aircraft flight activities and 25 (29 percent) were associated with military flight activities. A total of 365 mishaps occurred in Florida between 1931 and 2019, where 226 (62 percent) were Class A mishaps in which a total loss of the plane resulted.

Review of ASN Safety Database mishap records for Moody AFB showed no history of crashes (ASN 2019a, 2019b).

The ASN Wikibase is a database that contains descriptions of aircraft mishaps where each entry is submitted independently by a user and is not verified by ASN or the Flight Safety Foundation. The following is a list of Moody AFB-affiliated Class A mishaps discovered during a review of the ASN Wikibase records:

- On 25 August 1981, an A-10A Thunderbolt II traveling from England AFB, Louisiana, to Moody AFB, Georgia, crashed near Savannah, Georgia. No fatalities were recorded (ASN 2019c).
- On 10 May 2010, an A-10C Thunderbolt II was destroyed following unsuccessful takeoff abort procedure at the south end of the Moody AFB runway. No fatalities were recorded (Air Combat Command [ACC] 2010; ASN 2019d).

The following are additional Moody AFB-affiliated Class A mishaps that were not listed in the ASN Safety Database or Wikibase:

- On 4 April 2004, a military aircraft crashed during takeoff from the Savannah-Hilton Head Airport. The aircraft was headed for Moody AFB. Two members of the 39th Flying Training Squadron, based at Moody AFB at the time, were killed (Murchison 2004).
- On 3 December 2005, a T-6A Texan II assigned to the 479th Flying Training Group, stationed at Moody AFB at the time, crashed during takeoff at Savannah-Hilton Head Airport. The plane was headed for Moody AFB. Two members of the 39th Flying Training Squadron were killed (Valdosta Daily Times 2005).
- On 26 September 2011, an A-10C experienced dual engine failure and was destroyed upon impact approximately 20 miles northwest of Moody AFB. No fatalities were recorded (ACC 2012).
- On 6 March 2017, an A-29B Super Tucano assigned to the 81st Fighter Squadron crashed during a Civil Aviation Authority student flight. The aircraft crashed in a residential area approximately 35 miles northeast of Moody AFB. No military or civilian fatalities were reported (Air Education and Training Command 2017; Matthews 2017; Pawlyk 2018).

Based on historical mishap data from all military installations under all conditions of flight, DoD calculates a Class A mishap rate per 100,000 flying hours for each type of aircraft in the inventory. From FY15 to FY19, the A-10 Class A mishap rate was 0.20 per 100,000 flying hours; the HH-60 Class A mishap rate was 0.40 per 100,000 flying hours; and the C-130 Class A mishap rate was 1.20 per 100,000 flying hours. The lifetime Class A mishap rate for the A-10 aircraft is 2.21 per 100,000 flying hours; 0.68 per 100,000 flying hours for the HH-60 aircraft; and 2.49 per 100,000 flying hours for the C-130 aircraft (Air Force Safety Center [AFSC] Aviation Safety Division [SEF] 2019a, 2019b, 2019c). For comparison purposes, the overall Class A mishap rate for Air Force aircraft was 1.51 in fiscal year 2018, 0.75 in fiscal year 2017, 0.74 in fiscal year 2016, and 1.07 in fiscal year 2015 (AFSC SEF 2019c).

Bird/Wildlife Aircraft Strike Hazard (BASH). The DAF devotes considerable attention to avoiding the possibility of bird/wildlife aircraft strikes. It has conducted a worldwide program for decades to study bird migrations, bird flight patterns, and past strikes to develop predictions of where and when bird/wildlife aircraft strikes might occur so as to avoid such incidents. The DAF has developed the Avian Hazard Advisory System, which is used to mitigate in-flight bird collisions. The Avian Hazard Advisory System includes a Bird Avoidance Model to generate geospatial bird data in and around airfields, ranges, and SUA. The Moody Airspace Complex overlies areas where BASH may be increased due to the presence of wildlife, including those in wetland complexes and forested areas. Moody AFB developed a BASH Plan to control and minimize the collision potential between aircraft and wildlife in and around the immediate vicinity of Moody AFB airfield and training areas. The BASH Plan established a Bird Hazard Working Group, Wildlife Hazard Warning System, airfield management procedures, and hazard deterrent and depredation methods (Air Force Civil Engineer Center [AFCEC] 2015).

From FY2009 to FY2019, Moody AFB aircraft have been involved in an average of 42 bird strikes annually, with a range of 8 to 69 strikes per year (Milliken 2020); not all bird strikes involving Moody AFB-based aircraft occurred on Moody AFB or within the Moody Airspace Complex. Bird/wildlife strike risk increases substantially as altitude decreases. Although birds can be encountered at altitudes of 30,000 feet and higher, between FY1995 and FY2016, approximately 52 percent of recorded bird/wildlife aircraft strikes with reportable altitude data have been at altitudes lower than 400 feet and 95 percent of recorded strikes have occurred below 3,000 feet (AFSC 2017a, 2017b). **Table 3.4-1** shows the altitude ranges where reported Air Force-wide bird/wildlife strikes occurred between 1985 and 2017. Cumulative percent is included to better display bird/aircraft strikes between ground level and a certain altitude.

Table 3.4-1. United States Air Force Bird/Wildlife Aircraft Strikes by Altitude

Altitude (feet AGL)	Count (# of Strikes)	% Total	% Cumulative
0-99	14,793	36.2%	36.2%
100-199	2,662	6.5%	42.7%
200-299	1,888	4.6%	47.3%
300-399	2,044	5.0%	52.3%
400-499	756	1.8%	54.1%
500-599	4,018	9.8%	63.9%
600-699	774	1.9%	65.8%
700-799	684	1.7%	67.5%
800-899	779	1.9%	69.4%
900-999	284	0.7%	70.1%
1,000-1,499	4,820	11.8%	81.9%
1,500-1,999	2,583	6.3%	88.2%
2,000-2,499	1,852	4.5%	92.7%
2,500-2,999	806	2.0%	94.7%
3,000-3,499	912	2.2%	96.9%
3,500-3,999	205	0.5%	97.4%
≥4,000	1,052	2.6%	100%
Total	40,912	100%	100%

Source: AFSC 2017a, 2017b

Note: Data represent bird/wildlife aircraft strikes in which the altitude was reportable. Strikes in which the altitude was unknown is not included.

AGL – above ground level

Because of the presence of resident and migratory birds and other wildlife species (e.g., white-tailed deer, alligators, coyotes, and red fox), a BASH risk exists at Moody AFB and within the MOAs. In support of the mission, Moody AFB has implemented a BASH management program designed to minimize aircraft exposure to potentially hazardous wildlife strikes, especially birds, within the vicinity of the installation and MOAs.

Low-Altitude Airspace. All aircraft operations below 10,000 feet are considered low-altitude. Aircraft training operations (e.g., low-altitude training [LOWAT], low air-to-air events, low-altitude tactical formation, defensive maneuvering and CAS for ground forces) at Moody AFB utilize LATN areas as well as the Moody 2 North and Moody 2 South MOAs.

Clear Zones (CZs) and Accident Potential Zones (APZs). CZs and APZs are areas at each end of a runway that possess a high potential for aircraft accidents. The CZ begins immediately adjacent to each end of the runway and is the area of highest accident potential. There are two APZs (APZ I and APZ II) that lie beyond each CZ with reduced accident potential further from the runway, but this is still enough to warrant safety concerns. However, the Proposed Action is not anticipated to affect flight operation, increase number or sorties, or occur within any CZ or APZ and thus does not warrant further discussion (ACC 2015).

Helicopter Air-to-Air Refueling (HAAR). HAAR is the process of transferring aviation fuel from one aircraft to another during flight. At Moody AFB, the primary aircraft involved in HAAR is the HC-130J and the HH-60G. HAAR operations within the Moody Airspace Complex are conducted at 800 feet AGL in the Moody 2 North MOA. In-flight refueling is not considered a high-risk flying activity. In-flight refueling and associated flight risks are primarily associated with two or more aircraft flying in proximity to each other. There are minimum separation requirements for flying VFR in uncontrolled airspace. Since helicopter air refueling training distances are less than these requirements, the military assumes responsibility for separation of aircraft flying closer than that the FAA would approve. The Air Force has helicopter air refueling procedures that provide guidance and direction for these situations.

Fuel spills can potentially occur during in-flight refueling at 800 feet AGL. Such an event could affect public safety if large enough amount of fuel reached the ground. The Air Force has conducted in-flight refueling of helicopters for many years, and no documented fuel spills have occurred. Further, in-flight refueling systems contain mechanisms to limit the volume of fuel spilled if an aerial refueling spill were to occur. Moody AFB aircrews follow all established procedures for in-flight refueling operations, and required separation is maintained between aircraft to minimize flight risks. In addition, the number of current HC-130 HAAR operations are minimal, and associated safety risks resulting from fuel spills are low. The Proposed Action is not anticipated to increase the number of HAAR operations or relocate any HAAR operations outside of Moody 2 North MOA, and thus will not be discussed further.

3.4.4.2 Range Operations and Ordnance

Grand Bay Range is a multipurpose day and night use facility with the principal mission of supporting air-to-ground bombing and gunnery training with inert training ordnance. Activities occurring at Grand Bay Range include HH-60Gs landing at Bemiss Field, HC-130Js conducting personnel and equipment drops, and inert explosives training.

Explosive and Ordnance Safety. The type of ordnance used at Moody AFB includes training, inert bombs, and gun and cannon ammunition fire from aircraft and helicopters. Ordnance is only used at Grand Bay Range and is limited to designated impact areas. The use of live ordnance is prohibited on Grand Bay Range. The predominant training bomb used on the range is bomb, dummy unit- (BDU)-33, which is a small training bomb composed of ferrous metals and equipped with a small spotting charge that serves as an aid for visual scoring of delivery accuracy. Other training munitions used at Grand Bay Range are listed in **Section 2.1.1**. Safety standards, including those listed in AFMAN 91-201, require safeguards on weapons systems and ordnance to ensure against inadvertent releases. All munitions mounted on aircraft are equipped with mechanisms that preclude release or firing without activation of an electronic arming circuit. In accordance with AFMAN 13-212, V1, the impact area within Grand Bay Range is cleared on a regular basis. Trained explosive ordnance disposal technicians inspect all debris. If items are deemed hazardous or unknown, explosive ordnance disposal uses a small charge to eliminate the danger of the explosion.

Additionally, Grand Bay Range contains surface danger zones (SDZs) and weapons danger zones (WDZs). SDZs define the ground and airspace designated within the installation boundary for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions. WDZs identify the minimum area necessary to contain munitions and hazardous fragments within the installation boundary that results from the aviation delivered ordnance. In accordance with AFMAN 13-212, V1, a comprehensive range management plan is updated as needed to reflect live fire operations being conducted at Grand Bay Range.

There is the potential for dud flares and other falling debris to pose safety risks. Although the probability of injury from falling debris is rare, there is a risk associated with untrained civilians finding dud flares dropped over designated ranges. On 3 July 2019, a trio of BDU dummy bombs were accidentally dropped following a bird aircraft strike in northern Florida, approximately 54 miles southwest of Moody AFB (Adams 2019). Although the training bombs are inert, there is a safety risk associated with handling them as they contain a small pyrotechnic charge. Moody AFB is responsible for implementing all applicable procedures so that falling debris is managed properly.

Chaff and Flare Employment. Chaff and flare use is managed as ordnance. Use of chaff and flares during training by A-10 aircraft as well as transient aircraft occurs in the Moody 2 North and Moody 2 South MOAs. Current annual chaff and flare use in the Moody Airspace Complex is listed in **Table 2.4-2**. Annually, 8,780 chaff and 10,000 flares are used. Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid successful

attack by enemy air defensive systems. Chaff is ejected from an aircraft to reflect radar signals and consists of 0.5 to 5.6 million small fibers of aluminum-coated silica packed into 4-ounce bundles. When ejected, chaff forms a temporary electronic “cloud” that masks the aircraft from radar detection. Although the chaff may be ejected from the aircraft using a small pyrotechnic charge, the chaff itself is not explosive. Flares are ejected from aircraft to provide high-temperature heat sources that mislead heat-sensitive or heat-seeking targeting systems. Defensive flares are used to keep aircraft from being successfully targeted by weapons such as surface-to-air missiles, anti-aircraft artillery, or other aircraft. The flare consists of a pellet of magnesium and ignites upon ejection from the aircraft and burns completely within approximately 3.5 to 5 seconds, or approximately 400 feet from its release point, at a temperature in excess of 2,000 degrees Fahrenheit (°F) to simulate jet exhaust (Air Force 1997). During the burn, the magnesium pellet is consumed, and four or five pieces of plastic and aluminum-coated Mylar wrapping material falls to the ground (Moody AFB 2012).

Effective use of chaff and flares in combat requires frequent training and by aircrew to master the timing of deployment and the capabilities of the defensive countermeasure and by ground crews to ensure safe and efficient handling of chaff and flares (Moody AFB 2012). When aircrews are training with chaff and flares in MOAs, equipment is set up at various locations such as at the side of roads, in cleared areas, or in landing areas. The aircrews respond to the threats presented either with evasive maneuvers, by masking themselves below the tree line, or by ejecting chaff or flares through an aircraft warning system. Threat emitters can be engaged at any altitude within a MOA and will vary depending on the type of threat requested and the training (Moody AFB 2012).

The materials in chaff are generally nontoxic except in significantly large quantities; however, chaff material dissipates to undetectable levels before reaching the ground surface and because it greatly disperses in air upon release, it is not present in the environment in large quantities. Toxicity is not a concern with flares because the primary material in flares, magnesium, is not highly toxic, and it is highly unlikely that humans or animals would ingest flare material. The primary risk associated with flares is their potential to start fires that can cause a wide variety of impacts on military and civilian safety. Altitude restrictions on the use of flares as well as suspending the use of flares when conditions are conducive for wildfires (i.e., drought) are typically used to mitigate any concerns with the failure of flares to extinguish before reaching the ground surface.

3.4.4.3 Ground Safety

The surface-level mission activities that occur at Moody AFB include personnel recovery (PR), CSAR, CAS, urban CAS, land and drop zone training, and training in public spaces within the lateral confines of the existing SUA. All mission activities at Moody AFB follow applicable safety standards, instructions, and manuals to ensure the health and safety of military and civilian personnel, and the public.

Wildland Fire Management. Wildfires can occur in southern Georgia and at Moody AFB, with an annual average of 31.8 wildfires on the installation from 2005 to 2015, with the peak number

of fires occurring in March and November (Moody AFB 2019). In the three-year span between FY 2016 and FY 2018, there have been a total of 14 wildland fire events at Moody AFB (Moody AFB 2019). The management of wildland fires at Moody AFB is under the direction of the Air Force Civil Engineer Center Wildland Fire Management Center.

Wildland fire is the primary risk associated with flares. Flares used during training operations burn out approximately 3.5 to 5 seconds after being deployed, descending approximately 400 feet. Flare use creates a risk of ignition on the ground if the flare does not burn out prior to making contact with ignitable material. Wildfire peak danger periods occur between midwinter and early summer and then again in mid-fall. Wildfire intensity on the installation has been lessened through the reduction of fuel loads through prescribed burning, the thinning and management of commercial forest stands, and the creation and annual maintenance of permanent firebreaks throughout the installation. In accordance with AFMAN 32-7003, *Environmental Conservation*, and the *Moody Air Force Base Wildland Fire Management Plan*, prescribed burning on Moody AFB occurs on a three-year rotation and is managed by the Air Force Civil Engineer Center Wildland Fire Management Center with assistance from the Moody AFB Forester and the Georgia Department of Natural Resources (GDNR) (Moody AFB 2019).

To further reduce the risk of wildfires from the use of flares, flares associated with training operations at Moody AFB in the Moody Airspace Complex are deployed at a minimum altitude of 2,000 feet to ensure sufficient burn out before the flares reach the ground.

Personnel and Public Safety. Day-to-day operations and maintenance activities conducted at Moody AFB and training ranges follow applicable DAF safety regulations, published DAF Technical Orders, and AFOSH requirements. The AFOSH requirements apply to all DAF activities and provide guidance to minimize loss of DAF resources and protect DAF personnel from death, injury, or illness by sufficiently managing safety risks. Specific safety requirements and responses to events that may occur on Grand Bay Range are detailed in Moody AFB Instruction 13-212. DAF standards also specify fire and crash emergency service requirements associated with the type of emergency, as well as crash response equipment and the number of personnel necessary to handle an aircraft mishap. The Moody AFB fire department along with emergency services in nearby communities support each other in the event of an exceptionally severe aircraft mishap. There is also protocol in place at Moody AFB if a high fire potential is declared.

3.5 Air Quality

3.5.1 Definition of the Resource

Air pollution is the presence in the outdoor atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, or vapor) in quantities and of characteristics and duration such as to be injurious to human, plant, or animal life, or to interfere unreasonably with the comfortable enjoyment of life and property. Air quality as a resource incorporates several components that describe the levels of overall air pollution within a region, sources of air emissions, and regulations governing air emissions. The following sections include a discussion

of the existing conditions, a regulatory overview, and a summary of greenhouse gases and global warming.

3.5.2 Regulatory Review

The Clean Air Act (42 U.S.C. 7401-7671q), as amended, assigns the USEPA responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR 50) that specify acceptable concentration levels of six criteria pollutants: particulate matter (measured as both particulate matter less than 10 microns in diameter [PM₁₀] and particulate matter less than 2.5 microns in diameter [PM_{2.5}]), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead. Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. **Table 3.5-1** outlines the NAAQS for each criteria pollutant. Both Georgia and Florida have accepted the federal standards.

Table 3.5-1. National Ambient Air Quality Standards (NAAQS) for Criteria Pollutants

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead (Pb)	Primary and Secondary	Rolling 3-month average	0.15 micrograms/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1-hour	100 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Primary and Secondary	Annual	53 ppb	Annual mean
Ozone (O ₃)	Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
(PM _{2.5})	Primary	Annual	12 micrograms/m ³	Annual mean, averaged over 3 years
	Secondary	Annual	15 micrograms/m ³	Annual mean, averaged over 3 years
	Primary and Secondary	24-hour	35 micrograms/m ³	98 th percentile, averaged over 3 years
(PM ₁₀)	Primary and Secondary	24-hour	150 micrograms/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)	Primary	1-hour	75 ppb	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA 2019a

m³ – cubic meter; ppb – parts per billion; ppm – parts per million

3.5.3 Region of Influence

The ROI for air quality includes the 24 counties in Georgia and 4 counties in Florida that, at least partially, underlie the Moody Airspace Complex. **Table 3.5-2** outlines these counties and their designated air quality control region (AQCR) (40 CFR 81).

Table 3.5-2. Air Quality Control Regions beneath the Moody Airspace Complex

Air Quality Control Region (AQCR)	Counties Underlying the Moody Airspace Complex
Columbus (Georgia)-Phenix City (Alabama) Interstate Air Quality Control Region (40 CFR 81.58)	Columbia (FL), Dooly, Sumter
Jacksonville (Florida)-Brunswick (Georgia) Interstate Air Quality Control Region (40 CFR 81.91)	Atkinson, Clinch, Coffee, Hamilton (FL), Jefferson (FL), Madison (FL), Ware
Central Georgia Intrastate Air Quality Control Region (40 CFR 81.236)	Ben Hill, Wilcox
Southwest Georgia Intrastate Air Quality Control Region (40 CFR 81.238)	Berrien, Brooks, Colquitt, Cook, Crisp, Dougherty, Echols, Irwin, Lanier, Lee, Lowndes, Mitchell, Thomas, Tift, Turner, Worth

Source: 40 CFR 81

AQCR – air quality control region; **CFR** – Code of Federal Regulations

3.5.4 Existing Conditions

Federal regulations designate AQCRs, or a portion of an AQCR in violation of the NAAQS, as nonattainment areas or maintenance areas (i.e., attainment areas that were reclassified from a previous nonattainment state, which are required to prepare an air quality maintenance plan), or portions thereof with levels below the NAAQS as attainment areas. USEPA has designated all 28 counties beneath the Moody Airspace Complex as in attainment for all criteria pollutants (USEPA 2019b). Because all the counties in the ROI are in full attainment for the NAAQS, air quality general conformity regulations do not apply.

The Air Conformity Applicability Model (ACAM) is used to provide emissions estimates for aircraft flight operations in the SUA (**Appendix D**). ACAM was developed by the DAF (AFCEC 2017a); it provides estimated air emissions from proposed federal actions for each specific criteria and precursor pollutant as defined in the NAAQS. ACAM uses the procedures established by the DAF as provided in *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2017b).

ACAM was used to estimate the existing air emissions within the Moody Airspace Complex, which were then used as a comparative baseline to determine the level of effects under NEPA (see **Table 3.5-3**). Only counties beneath Moody 2 North, Moody 2 South, and R-3008 are shown because they are the only SUA with existing operations below 3,000 feet AGL. Emissions from operations above the default mixing height of 3,000 ft AGL generally do not have effects on individuals on the ground; therefore, they have not been included (40 CFR 93.153 (c) (xxii)).

Table 3.5-3. Existing Air Emissions in the Moody Airspace Complex

County/ Condition	Annual Emissions (tpy)						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Atkinson	1.1	10.2	5.6	1.0	1.7	1.3	3,054
Clinch	6.5	44.5	24.5	4.4	7.4	5.7	13,348
Columbia (FL)	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	54
Echols	3.9	26.9	14.8	2.6	4.5	3.5	8,075
Hamilton (FL)	0.2	1.3	0.7	0.1	0.2	0.2	385
Lanier	0.9	5.9	3.2	0.6	1.0	0.8	1,768
Lowndes	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1
Total	12.9	88.9	48.9	8.7	14.7	11.5	26,686

Source: US Air Force 2019

tpy – tons per year; **VOC** – volatile organic compound; **NO_x** – nitrogen oxides; **CO** – carbon monoxide; **SO_x** – sulfur oxides **PM_{2.5}** – particulate matter less than 2.5 microns; **PM₁₀** – particulate matter less than 10 microns; **CO_{2e}** – carbon dioxide equivalent

3.5.4.1 Greenhouse Gasses and Climate

Greenhouse gasses (GHGs) are gases that trap heat in the atmosphere. They contribute to an increase in the temperature of the Earth's atmosphere by allowing sunlight in, but not allowing its energy back out. Following are the primary GHGs that enter the atmosphere because of human activities:

- **Carbon Dioxide (CO₂).** CO₂ enters the atmosphere through the burning of fossil fuels (i.e., oil, natural gas, and coal), solid waste, and trees and wood products and as a result of other chemical reactions.
- **Methane.** Coal, natural gas, and oil production and transport activities emit methane. Livestock and other agricultural practices as well as the decay of organic waste in landfills also produce methane emissions.
- **Nitrous Oxide.** Agricultural and industrial activities emit nitrous oxide as does the combustion of fossil fuels and solid waste.

Carbon dioxide equivalent (CO_{2e}) is the amount of CO₂ emitted into the atmosphere that would produce the same greenhouse effects as a given amount of another GHG. CO_{2e} is computed by multiplying the weight of the gas being measured (e.g., methane) by its estimated global warming potential (which is 21 for methane). Air operations within the existing Moody Airspace Complex generate 24,260 metric tons (26,686 tons) of CO_{2e}.

Executive Order (EO) 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, specifically requires all federal agencies to review all existing regulations, orders, guidance documents, policies, and any other similar agency actions (agency actions) promulgated, issued, or adopted between 20 January 2017, and 20 January 2021, that are or may be inconsistent with, or present obstacles to reduce greenhouse gas emissions.

The climate in the region is hot during summer when temperatures tend to be in the 80s (°F) and cool during winter when temperatures tend to be in the 50s (°F). The warmest month of the year is July with an average maximum temperature of 92°F, while the coldest month of the year is January with an average minimum temperature of 38°F. The annual average precipitation is 53.1 inches. Rainfall is evenly distributed throughout the year. The wettest month of the year is July, with an average rainfall of 6.3 inches (Idcide 2019).

3.6 Biological Resources

3.6.1 Definition of the Resource

Biological resources include native or invasive plants and animals, sensitive and protected floral and faunal species, and the habitats, such as wetlands, forests, and grasslands, in which they exist. Habitat is defined as the resources and conditions in an area that support a defined suite of organisms. Although the existence and preservation of biological resources are both intrinsically valuable, these resources also provide essential aesthetic, recreational, and socioeconomic benefits to society.

Vegetation, including federally and state listed plant species, would not be affected by the Proposed Action, which would only involve changes to SUA; no on-ground activities are proposed. Therefore, vegetation will be discussed only in the context of wildlife habitat.

Aquatic and Wetland habitats are considered sensitive and subject to federal regulatory authority under Section 404 of the Clean Water Act and EO 11990, *Protection of Wetlands*. Jurisdictional wetlands are defined by the US Army Corps of Engineers (USACE) as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Areas meeting the federal wetland definition are under the jurisdiction of the USACE. Aquatic and wetland habitat would not be affected by the Proposed Action, which involves changes only to airspace and does not propose any new on-ground activities. Therefore, aquatic and wetland habitats will be discussed only in context of wildlife habitat.

Wildlife includes all vertebrate animals with the exception of those identified as threatened, endangered, or sensitive. Wildlife includes fish, amphibians, reptiles, birds, and mammals. Fully aquatic species such as fish and mollusks would not be affected by the Proposed Action, which involves changes only to airspace. No impacts from aircraft movement, sound, or the use of defensive countermeasures would impact fully aquatic species. Therefore, aquatic species such as fish and mollusks are not discussed further.

Sensitive species are defined as those animal species listed as threatened, endangered, or proposed as such, by the US Fish and Wildlife Service (USFWS), GDNR, or Florida Fish and Wildlife Conservation Commission (FWC). The Endangered Species Act (ESA) protects federally listed threatened and endangered animal species.

3.6.2 Regulatory Review

The following is a description of the primary federal statutes that form the regulatory framework for the evaluation of biological resources.

Endangered Species Act (ESA). The ESA of 1973 (16 U.S.C. § 1531 *et seq.*) established protection over and conservation of threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plant and animal species listed as threatened, endangered, or special status by the USFWS and the National Marine Fisheries Service. Under the ESA (16 U.S.C. § 1536), an “endangered species” is defined as any species in danger of extinction throughout all, or a large portion, of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. The USFWS maintains a list of species considered to be candidates for possible listing under the ESA. The Act also allows the designation of geographic areas as critical habitat for threatened or endangered species. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and may warrant protection under the Act.

Section 7 of the ESA prohibits any federal agency from engaging in any action that is likely to “jeopardize” the continued existence of listed endangered or threatened species or that destroys or adversely affects the critical habitat of such species. Any federal agency proposing an action that may adversely impact an endangered or threatened species must consult with the USFWS or National Marine Fisheries Service (on an informal or formal basis, as appropriate) before carrying out an action that would place a listed species and/or its critical habitat in jeopardy. Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective (typically 30 days after publication of the final rule in the Federal Register), the prohibitions against jeopardizing the listed species’ continued existence and “take” apply. Under the ESA, a federal agency may choose to conference on the effects of an action on species proposed for listing.

Migratory Bird Treaty Act (MBTA). The MBTA of 1918 makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations. Per the MBTA, “take” is defined as “pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 CFR 10.12). Migratory birds include nearly all species in the United States, with the exception of some upland game birds and nonnative species. The MBTA list was updated by the USFWS on 18 May 2020 and there are 1,093 species of birds in the United States protected by the MBTA (USFWS 2020).

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, requires all federal agencies undertaking activities that may negatively impact migratory birds to follow a prescribed set of actions to further implement the MBTA.

The National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314, 116 Statute 2458) provided the Secretary of the Interior the authority to prescribe regulations to exempt the Armed Forces from the incidental take of migratory birds during authorized military readiness

activities. Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.

In December 2017, the US Department of the Interior issued M-Opinion 37050, which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the underlying purpose of that activity is not the take of a migratory bird. The USFWS interprets the M-Opinion to mean that the MBTA's prohibition on take does not apply when the take of birds, eggs, or nests occurs as a result of an activity, the purpose of which is not to take birds, eggs, or nests.

On 7 January 2021, the USFWS issued Final Rule (86 FR 1134), effective 8 February 2021, that determined that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same, applies only to actions directed at migratory birds, their nests, or their eggs. The USFWS delayed the implementation of the final MBTA rule until 8 March 2021 in conformity with the Congressional Rule Act (86 FR 8715).

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. § 668-668[c]) prohibits the "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof." "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle's normal breeding, feeding or sheltering behavior, or nest abandonment by substantially interfering with the eagle's normal breeding, feeding or sheltering behavior." The Bald and Golden Eagle Protection Act also prohibits activities around an active or inactive nest site that could result in an adverse impact on the eagle.

3.6.3 Region of Influence

The ROI for biological resources consists of the land underneath the proposed low-altitude MOAs within the Moody Airspace Complex and is comprised of approximately 3,670 square miles in south Georgia and north Florida. Of this area, 99 percent is in Georgia and 1 percent is in Florida. Lands that could contain sensitive or protected biological resources managed by federal and state agencies beneath the proposed low-altitude MOAs, such as wildlife refuges or parks, are also included in the ROI.

3.6.4 Existing Conditions

3.6.4.1 Ecoregions

Ecoregions are used to describe areas of similar type, quality, and quantity of environmental and biological resources. Ecoregions are assigned hierarchical levels to delineate ecosystems spatially based on different levels of planning and reporting needs ranging from Level I

(broadest) to Level IV (USEPA 2019). The proposed low-altitude MOAs are located within two Level III ecoregions (Southeastern Plains to the west and Southern Coastal Plain to the east) and six Level IV ecoregions (see **Figure 3-6.1**). Ecoregion descriptions for the lands beneath the proposed low-altitude MOAs are directly adapted from Griffith et al. (2001).

The Southeastern Plains ecoregion consists of irregular plains with broad areas between streams having a mosaic of cropland, pasture, woodland, and forest. Native vegetation is mostly oak-hickory-pine and southern mixed forest. The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the Paleozoic limestone, shale, and sandstone and even older metamorphic and igneous rocks of other nearby ecoregions. Streams in this ecoregion are relatively low gradient and sandy bottomed (Griffith et al. 2001).

The Southern Coastal Plain ecoregion extends from south Carolina and Georgia through much of central Florida, and along the Gulf coast lowlands of the Florida Panhandle, Alabama, and Mississippi. Although it appears to be mostly flat plains, it is a diverse area containing barrier islands, coastal lagoons, marshes, and lowlands along the Gulf and Atlantic coasts. In Florida, an area of discontinuous highlands contains numerous lakes. Historically, this ecoregion was covered by a variety of forest communities dominated by longleaf pine (*Pinus palustris*), slash pine (*Pinus elliotii*), pond pine (*Pinus serotina*), beech (*Fagus grandifolia*), sweetgum (*Liquidambar styraciflua*), southern magnolia (*Magnolia grandiflora*), white oak (*Quercus alba*), and laurel oak (*Quercus hemisphaerica*). The land cover in this ecoregion is now mostly slash pine and loblolly pine (*Pinus taeda*) with oak-gum-cypress forest in some low-lying areas, row crops, and urban development (Griffith et al. 2001).

While Level III ecoregion descriptions provide a regional perspective, Level IV ecoregions are more specifically oriented for environmental monitoring, assessment and reporting, and decision making (Commission for Environmental Cooperation 1997). The Level IV ecoregions associated with each proposed low-altitude MOA are summarized in **Table 3.6-1** and shown in **Figure 3.6-1**.

Table 3-6.1. Level IV Ecoregions beneath the Proposed Low-Altitude Military Operations Areas

Proposed MOA	Atlantic Southern Loam Plains	Bacon Terraces	Dougherty Plains	Okefenokee Plains	Tifton Upland	Tallahassee Hills/Valdosta Limesink
Corsair North Low			X		X	
Corsair South Low					X	X
Grand Bay				X		
Moody 2 North				X		
Mustang Low	X				X	

Proposed MOA	Atlantic Southern Loam Plains	Bacon Terraces	Dougherty Plains	Okefenokee Plains	Tifton Upland	Tallahassee Hills/Valdosta Limesink
Thud Low	X		X		X	
Warhawk Low	X	X		X		

MOA – Military Operations Area

Atlantic Southern Loam Plains. The Atlantic Southern Loam Plains ecoregion (also called the Vidalia Upland in Georgia) is lower, flatter, and more gently rolling than adjacent lands. The Atlantic Southern Loam Plains ecoregion has more irregular topography than ecoregions to the west, substantial amounts of cropland, and fine-textured soils. Similar to the Tifton Upland ecoregion, it has an abundance of agriculturally important Tifton soils, but also contains forested areas that are more sloping or are low, flat, and poorly drained. Parallel to some of the major stream courses are some excessively drained, dunal sand ridges with xeric vegetation such as longleaf pine and turkey oak (*Quercus laevis*) forests (Griffith et al. 2001).

Bacon Terraces. The Bacon Terraces ecoregion includes several relatively flat, moderately dissected terraces with subtle east-facing scarps. The terraces, developed on Pliocene – Pleistocene sands and gravels, are dissected in a dendritic pattern by much of the upper Satilla River basin. Cropland is found mostly on the well-drained soils on the long, narrow, flat to gently sloping ridges paralleling many of the stream courses. Some excessively drained soils on these ridges are in woodland or parts are farmed; natural vegetation on these soils includes longleaf pine and turkey oak. The broad flats of the interfluvies are often poorly drained and covered in pine, while bottomland forests are found in the wet, narrow floodplains (Griffith et al. 2001).

Dougherty Plain. The Dougherty Plain ecoregion is mostly flat to gently rolling and influenced by the near-surface limestone. The karst topography contains sinkholes and springs, with few streams in the flatter parts of the ecoregion. The northwestern boundary is gradational, as more gentle slopes and lower relief are found towards the center of the ecoregion. Many shallow, flatbottomed depressions are located throughout the ecoregion; these depressions are caused by solution of the underlying limestone. Along the southeastern edge of the Dougherty Plain ecoregion, the base of the Pelham escarpment marks the boundary with the Tifton Upland ecoregion. Natural forest cover historically consisted of pines (including longleaf pine), red oak (*Quercus rubra*), and hickories (*Carya* spp.). The wetter, poorly drained depressions contained black gum (*Nyssa sylvatica*), sweetgum, water oak (*Quercus nigra*), and a few pines and cypress (*Taxodium distichum*). Many of the limesink ponds and marshes now act as biological oases in the mostly agricultural landscape. Crops such as peanuts, pecans, and cotton are common (Griffith et al. 2001).

Okefenokee Plains. The Okefenokee Plains ecoregion consists of flat plains and low terraces developed on Pleistocene – Pliocene sands and gravels. The Okefenokee Plains ecoregion has slightly higher elevations and less standing water than the Okefenokee Swamp ecoregion,



although there are numerous swamps and bays scattered throughout this ecoregion. Soils are somewhat poorly to poorly drained. The ecoregion is covered with mostly coniferous forest and young pine plantation land cover, with areas of forested wetland (Griffith et al. 2001).

Tallahassee Hills/Valdosta Limesink. The Tallahassee Hills/Valdosta Limesink ecoregion combines two slightly different areas, both influenced by underlying limestone. The Floridan aquifer is thinly confined in this region, and streams are often intermittent or in parts flow underground in the karst landscape. In the western portion of this ecoregion, the Tallahassee Hills portion has rolling, hilly topography that is more forested than the adjacent Tifton Upland ecoregion. Clayey sands have weathered to a thick, red, residual soil. Relief decreases towards the east, and the Valdosta Limesink area of the ecoregion has more solution basins with ponds, lakes, and swampy depressions. Soils in the eastern portion of the ecoregion tend to be brownish and support more cropland. Mixed hardwoods and pine are found on the clayhill upland soils, while longleaf pine and xerophytic oak species occur on the sandy, well-drained areas (Griffith et al. 2001).

Tifton Upland. The Tifton Upland ecoregion has more rolling, hilly topography compared to Dougherty Plains and the Okefenokee Plains ecoregions, with a mosaic of agriculture, pasture, and some mixed pine and hardwood forests. Soils are well drained, brownish, and loamy, often with iron-rich or plinthic layers. The soils of this ecoregion support crops of cotton, peanuts, soybeans, and corn. On the west side of the ecoregion, the Pelham Escarpment has bluffs and deep ravines with cool microclimates that support several rare plants and animals, as well as species with more northern affinities. The eastern boundary in Georgia is a transitional area to the Okefenokee Plains ecoregion where the relief diminishes, and solution basins and lower swampy areas are more common (Griffith et al. 2001).

3.6.4.2 Wildlife

Much of the undeveloped areas under the proposed low-altitude MOAs have been converted to agricultural uses. These include row crops such as cotton, corn, soybeans, and peanuts as well as pine plantations for forest products. The pine plantations are primarily dominated by loblolly and slash pine trees planted in rows with the understory cleared to reduce plant competition by hardwood tree species and shrubs. Remaining natural habitats support a more diverse assemblage of wildlife species and include pine and hardwood forests and wetlands, which primarily take the form of Carolina bay swamp complexes. Some state and federally managed lands beneath the low-altitude MOAs, such as Reed Bingham State Park, the Doerun Pitcher Plant Bog Natural Area, and the Alapaha River WMA have partially been replanted with native longleaf pine and have some ongoing management to support the growth of longleaf pine forests.

Pine Forests. Longleaf pine forests have a very diverse faunal community. Common mammals include the opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), gray squirrel (*Sciurus carolinensis*), fox squirrel (*S. niger*), eastern cottontail rabbit (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), and various small rodents. Common birds found within longleaf pine forests include

the northern bobwhite quail (*Colinus virginianus*), red-shouldered hawk (*Buteo lineatus*), yellow-billed cuckoo (*Coccyzus americanus*), ruby-throated hummingbird (*Archilochus colubris*), downy woodpecker (*Picoides pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), flicker (*Colaptes auratus*), American crow (*Corvus brachyrhynchos*), Carolina chickadee (*Parus carolinensis*), tufted titmouse (*Parus bicolor*), brown-headed nuthatch (*Sitta pusilla*), Carolina wren (*Thryothorus ludovicianus*), blue-gray gnatcatcher (*Poliophtila caerulea*), ruby-crowned kinglet (*Regulus calendula*), white-eyed (*Vireo griseus*) and red-eyed (*Vireo olivaceus*) vireos, northern parula (*Parula americana*), common grackle (*Quiscalus quiscula*), summer tanager (*Piranga rubra*), Eastern towhee (*Pipilo erythrophthalmus*), and white-throated sparrow (*Zonotrichia albicollis*). Common reptiles and amphibians include the eastern box turtle (*Terrapene carolina carolina*), eastern fence lizard (*Sceloporus undulatus*), five-lined skink (*Eumeces inexpectatus*), canebrake (timber) rattlesnake (*Crotalus horridus atricaudatus*), black racer (*Coluber constrictor*), eastern indigo snake (*Drymarchon couperi*), little grass frog (*Pseudacris ocularis*), squirrel tree frog (*Hyla squirella*), eastern spadefoot toad (*Scaphiopus holbrookii*), gopher tortoise (*Gopherus polyphemus*), and other similar lizards, frogs, and toads (Moody AFB 2018).

Longleaf pine and slash pine flatwoods also have a very diverse faunal community, including many species that are also found in longleaf pine forests. Common mammals include the opossum, raccoon, gray fox, gray squirrel, eastern cottontail rabbit, white-tailed deer, and various small rodents. Common birds include the northern bobwhite quail, red-shouldered hawk, yellow-billed cuckoo, ruby-throated hummingbird, pileated woodpecker (*Drycopus pileatus*), downy woodpecker, red-bellied woodpecker, flicker, American crow, Carolina chickadee, tufted titmouse, brown-headed nuthatch, Carolina wren, blue-gray gnatcatcher, ruby-crowned kinglet, wild turkeys (*Meleagris gallopavo*), white-eyed and red-eyed vireos, northern parula, common grackle, summer tanager, rufous-sided towhee, and white-throated sparrow. Common reptiles and amphibians include the eastern box turtle, flatwoods salamander (*Ambystoma cingulatum*), five-lined skink, canebrake (timber) rattlesnake, eastern cottonmouth (*Agkistrodon piscivorus*), eastern indigo snake, little grass frog, squirrel tree frog, eastern spadefoot toad, gopher tortoise, and other similar lizards, frogs, and toads (Moody AFB 2018).

Typically there are minimal fauna species found in loblolly pine plantations unless extensive forest management activities, primarily consisting of thinning of the forest canopy and reintroduction of fire or other disturbances, are conducted. When the canopy is thinned and the site is burned on a periodic basis, the fauna constituent resembles that of the longleaf pine and slash pine flatwoods communities, although the diversity and density are not as great, with a noticeable decrease in amphibian presence. Before canopy closure, fauna in upland hardwood forests is similar to that of other upland forest communities, although the diversity of small mammals, amphibians, and reptiles is not as great as the longleaf pine and slash pine flatwoods communities. After canopy closure, the fauna species consist primarily of canopy-dwelling avian species and midsized to larger mammals (i.e., white-tailed deer, gray fox, bobcat [*Felis rufus*], opossum, raccoon), although wild turkeys utilize these areas seasonally (Moody AFB 2018).

Wetlands. Mammal and bird species typically associated with open water areas within Carolina bays and limesink ponds include raccoons, opossums, beavers (*Castor canadensis*), round-

tailed muskrats (*Neofiber alleni*), prothonotary warblers (*Protonotaria citrea*), hooded warblers (*Wilsonia citrina*), common yellowthroats (*Geothlypis trichas*), herons, and egrets. Additionally, southern bullfrogs (*Rana catesbeiana*), pig frogs (*Rana grylio*), alligators, snapping turtles (*Chelydra serpentina*), eastern cottonmouths, southern water snakes (*Nerodia rhombifer*), and other water-dependent reptiles and amphibians can be found in these areas (Moody AFB 2018).

In scrub-shrub communities along the margins of Carolina bays, mammalian wildlife species such as white-tailed deer, eastern cottontail rabbit, raccoon, bobcat, opossum, golden mouse (*Ochrotomys nuttalli*), and other small mammals can be found. Bird species associated with this area include eastern towhee, white-eyed vireo, gray catbird (*Dumetella carolinensis*), northern cardinal (*Cardinal cardinalis*), indigo bunting (*Passerina cyanea*), hooded warbler, Swainson's warblers (*Limnothlypis swainsonii*), and other similar shrub-dwelling birds. Reptiles and amphibians that utilize the scrub-shrub communities are similar to both the open water and the bay swamp community types. Fauna associated with bay swamps include mammals such as the opossum, raccoon, gray fox, gray squirrel, eastern cottontail rabbits, and white-tailed deer. Birds commonly found include the red-shouldered hawk, downy woodpecker, red-bellied woodpecker, pileated woodpecker, yellow-bellied sapsucker (*Sphryapicus varius*), northern flicker, great-crested flycatcher (*Myiarchus crinitus*), blue jay (*Cyanocitta cristata*), Carolina chickadee, tufted titmouse, Carolina wren, blue-gray gnatcatcher, ruby-crowned kinglet, brown thrasher (*Toxostoma rufum*), gray catbird, white-eyed and red-eyed vireos, northern parula, common grackle, northern cardinal, hooded warblers, and prothonotary warblers. Common reptiles and amphibians include the rainbow snake (*Farancia erythrogramma erythrogramma*), eastern box turtle, spotted salamander (*Ambystoma maculatum*), green tree frog (*Hyla cinerea*), southern toad (*Bufo terrestris*), eastern cottonmouth, and southern water snake.

Fauna associated with cypress domes include mammals such as the opossum, raccoon, and beaver. Common birds include the wood duck (*Aix sponsa*), herons and egrets, red-shouldered hawk, belted kingfisher (*Ceryle alcyon*), downy woodpecker, red-bellied woodpecker, red-headed woodpecker (*Melanerpes erythrocephalus*), northern flicker, pileated woodpecker, great-crested flycatcher, eastern kingbird (*Tyrannus tyrannus*), swallows, Carolina chickadee, tufted titmouse, Carolina wren, gray catbird, white-eyed and red-eyed vireos, common yellowthroat, and northern cardinal. Common reptiles and amphibians include the common snapping turtle, sliders, eastern cottonmouth, salamanders, green tree frog, and pig frog. Small shallow ponds and depressions are typically used by reptiles and amphibians as opportunistic breeding sites. Examples of fauna species found in these areas would include flatwoods salamander, striped newt (*Notophthalmus viridescens*), tiger salamander (*Ambystoma tigrinum*), eastern spadefoot toad, southern toad, eastern mud snake (*Farancia abacura*), and eastern cottonmouth. Common gallinules (*Gallinula chloropus*), least bitterns (*Ixobrychus exilis*), wood ducks, wood storks (*Mycteria americana*), common snipe (*Gallinago gallinago*), killdeer (*Charadrius vociferus*), sandpipers, and other shorebirds utilize cypress domes during migration along with migrating waterfowl such as ringed-neck duck (*Aythya collaris*), mallard (*Anas platyrhynchos*), blue-winged teal (*A. discors*), and green-winged teal (*A. crecca*). Florida sandhill cranes (*Grus canadensis pratensis*) are year-round residents of some bays in the region, while other migratory sandhills (*G. canadensis*) occur transiently during migration periods.

3.6.4.3 Special Status Species and Habitats

Federally Listed Species. A list of federally listed species that could potentially be found in the action area was obtained from the USFWS Information for Planning and Consultation website (**Table 3-6.2** and **Appendix E**). The Proposed Action would be limited to activities in the proposed SUA and no on-ground activities are proposed. Therefore, federally listed fully aquatic species (i.e., fishes and mussels) and plants would not be affected by the proposal and are not discussed further. No designated critical habitat for listed birds, mammals, reptiles, or amphibians occurs beneath the proposed low-altitude MOAs.

Table 3-6.2. Federally Listed Threatened and Endangered Species with the Potential to Occur beneath the Proposed Low-Altitude Military Operations Areas

Common Name	Scientific Name	Federal Legal Status	Potential to Occur beneath the Low MOAs
Birds			
Eastern Black Rail	<i>Laterallus jamaicensis</i> spp. <i>jamaicensis</i>	Proposed Threatened	Limited
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	Endangered	No reported occurrences
Wood Stork	<i>Mycteria americana</i>	Threatened	Documented occurrences
Amphibians			
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	Threatened	Likely
Reticulated Flatwoods Salamander	<i>Ambystoma bishop</i>	Endangered	None
Reptiles			
American Alligator	<i>Alligator mississippiensis</i>	Threatened (S/A)	Documented occurrences
Eastern Indigo Snake	<i>Drymarchon couperi</i>	Threatened	Documented occurrences
Mammals			
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered	Documented occurrences
Invertebrates			
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	Likely

Source: USFWS 2019

MOA – Military Operations Area **S/A** –similarity of appearance

Eastern Black Rail. The Eastern black rail (*Laterallus jamaicensis* spp. *jamaicensis*) is listed as proposed as threatened. It is a small, secretive marsh bird that is broadly distributed. It lives in fresh and saltwater marshes in portions of the United States, Central America, and South America. Eastern black rail habitat can range in salinity from salt to brackish to fresh water. There is potential for this species to be found in wetlands beneath the proposed low-altitude

MOAs; however, the species range is primarily coastal and suitable habitat for this species is extremely limited under all of the proposed low-altitude MOAs. No observations or detections of the Eastern black rail occurred during surveys of Moody AFB and the Grand Bay Range by Georgia DNR in 2018 (Watts et al. 2018).

Red-Cockaded Woodpecker. The red-cockaded woodpecker (*Picoides borealis*) is federally listed as endangered and could potentially occur in low numbers within mature pine forest habitat with sparse understory vegetation beneath the proposed low-altitude MOAs. However, there is very little mature pine forest habitat beneath the proposed low-altitude MOAs and most pine forest is managed for timber and is harvested before it can reach a size and age class suitable to support the red-cockaded woodpecker. The closest documented populations of red-cockaded woodpeckers to the proposed low-altitude MOAs are in the Okefenokee NWR.

Wood Stork. The wood stork (*Mycteria americana*) is a federally threatened wading bird that occurs in the southeastern United States and across the Caribbean and into South America. Wood storks are mostly white with a head and neck lacking feathers. They nest colonially in rookeries. Wood storks forage fish, frogs, crabs, and crustaceans in shallow water. Wood storks are known to occur throughout southern Georgia, including in the Carolina bay habitats proximate to Moody AFB. The GDNR Wildlife Resources Division completed an aerial survey of the Grand Bay-Banks Lake ecosystem, including Moody AFB and the Grand Bay Range, for the presence of wood stork nesting locations on 24 May 2020. No wood storks were located within the surveyed areas; therefore, there are no active wood stork rookeries on or near Moody AFB. Wood storks may still occasionally forage on the installation when environmental conditions are suitable, but they are not nesting or foraging on the installation on a regular basis (G. Lee, personal communication 2020). However, nine wood stork rookeries are known to exist beneath the proposed Corsair North Low and Corsair South Low MOAs. No other wood stork rookeries have been recorded beneath the other proposed low-altitude MOAs.

Frosted Flatwoods Salamander. The frosted flatwoods salamander (*Ambystoma cingulatum*) is a federally threatened amphibian with a grey or black body having white spots. Its distribution is limited to longleaf and slash pine flatwoods with sandy soils east of the Apalachicola River – Flint River system. Its diet primarily consists of earthworms and spiders. There is limited suitable habitat beneath the proposed low-altitude MOAs for the frosted flatwoods salamander, but it is assumed to be present in mature flatwoods.

Reticulated Flatwoods Salamander. The reticulated flatwoods salamander (*Ambystoma bishopi*) is a federally endangered amphibian that is similar in appearance to the frosted flatwoods salamander, but there are more distinct white spots on the reticulated flatwoods salamander. Its distribution is also limited to longleaf and slash pine flatwoods with sandy soils and primarily feeds on earthworms and spiders. The distribution of the reticulated flatwoods salamander is limited to suitable habitat west of the Apalachicola River – Flint River system; therefore, this species would not occur beneath the proposed low-altitude MOAs.

American Alligator. The American alligator (*Alligator mississippiensis*) is federally listed as threatened due to its similarity in appearance to the American crocodile (*Crocodylus acutus*).

The American alligator was officially removed from the federal list of endangered species in 1987. This classification of the alligator in the ESA allows the USFWS to regulate the harvest and legal trade in the animals, their skins, and products made from them, as part of efforts to prevent the illegal take and trafficking of endangered “look alike” reptiles. Beyond harvest and legal trade regulations, there are no other regulatory requirements for this species under the ESA, and alligators are not recognized as an endangered or threatened species and are not typically considered in Section 7 ESA consultations with the USFWS for installation activities (Moody AFB 2018). The American alligator is a common reptile found throughout south Georgia and north Florida and is known to occur beneath all of the proposed low-altitude MOAs.

Eastern Indigo Snake. The Eastern indigo snake (*Drymarchon corais couperi*) is a federally threatened reptile and a nonvenomous snake. It can grow to a length of approximately 8 feet. This snake primarily feeds on small mammals, birds, amphibians, and reptiles, as well as the eggs of amphibians and reptiles. Indigo snakes typically deposit their eggs in gopher tortoise (*Gopherus polyphemus*) burrows and are associated in distribution with gopher tortoises. They occur in pine flatwoods, hardwood forests, and areas around cypress (*Taxodium distichum*) swamps. Eastern indigo snakes are known to occur on the Grand Bay Range at Moody AFB and are expected to occur in suitable habitats beneath all of the proposed low-altitude MOAs.

Tricolored Bat. The tricolored bat (*Perimyotis subflavus*) occurs in forested habitats across the eastern US and roosts in trees, primarily among leaves, during the spring, summer, and fall. In winter, tricolored bats roost in caves and mines, or in human-made structures such as culverts. Tricolored bats are one of the smallest bats in North America, and populations have declined dramatically as a result of white-nose syndrome, a disease caused by a fungal pathogen. The tricolored bat has been documented at Moody AFB and in the Moody Airspace Complex and is likely to occur beneath all the proposed low-altitude MOAs.

Monarch Butterfly. The monarch butterfly (*Danaus plexippus*) is a species with a broad global distribution and extensive migratory pathways in North American populations. The eastern North American population of the monarch butterfly overwinters in Mexico. The monarch butterfly is dependent on milkweed plant species as its larval host plant. The monarch butterfly is expected to occur in suitable habitats beneath all the proposed low-altitude MOAs.

Bald Eagle. Bald eagles are known to nest in trees within and near Carolina bays beneath the proposed low-altitude MOAs. A total of 13 bald eagle nests have been documented beneath the proposed low-altitude MOAs; except for the Moody 2 North MOA, all of the proposed low-altitude MOAs are located over at least one recorded bald eagle nest.

State Listed Species. The GDNR and FWC have identified numerous species as threatened or endangered within the counties associated with the proposed low-altitude MOAs. The state-listed mammal, bird, reptile, and amphibian species that may occur beneath or near the proposed low-altitude MOAs that could potentially be affected by changes in sound levels, aircraft movement, and the use of defensive countermeasures are provided in **Table 3.6-3**

Table 3.6-3. State-Listed Threatened and Endangered Species with the Potential to Occur beneath the Proposed Low-Altitude Military Operations Areas

Common Name	Scientific Name	State Legal Status	Potential to Occur beneath the Low MOAs
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened (GA)/BGEPA	Documented occurrences
Little Blue Heron	<i>Egretta caerulea</i>	Threatened (FL)	Likely
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	Endangered (GA)	No reported occurrences
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	Threatened (FL)	Likely
Wood Stork	<i>Mycteria americana</i>	Endangered (GA)	Documented occurrences
Amphibians			
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	Threatened (GA)	Likely
Striped Newt	<i>Notophthalmus perstriatus</i>	Threatened (GA)	Likely
Georgia Blind Salamander	<i>Eurycea wallacei</i>	Threatened (GA and FL)	Likely
Reptiles			
American Alligator	<i>Alligator mississippiensis</i>	Threatened (GA)	Documented occurrences
Eastern Indigo Snake	<i>Drymarchon couperi</i>	Threatened (GA)	Documented occurrences
Gopher Tortoise	<i>Gopherus polyphemus</i>	Threatened (GA and FL)	Documented occurrences
Southern Hognose Snake	<i>Heterodon simus</i>	Threatened (GA)	Likely
Suwanee Alligator Snapping Turtle	<i>Macrochelys suwanniensis</i>	Threatened (GA and FL)	Likely
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Threatened (GA)	Likely
Barbour's Map Turtle	<i>Graptemys barbouri</i>	Threatened (GA and FL)	Likely
Mammals			
Round-Tailed Muskrat	<i>Neofiber alleni</i>	Threatened (GA)	Documented occurrences
Southeastern Pocket Gopher	<i>Geomys pinetis</i>	Threatened (GA)	Likely

Source: GDNR, Wildlife Resources Division 2019; Florida FWC 2018

BGEPA – Bald and Golden Eagle Protection Act; **MOA** – Military Operations Area

3.7 Cultural Resources

3.7.1 Definition of the Resource

Cultural resources are historic sites, buildings, structures, objects or districts considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes. They include archaeological resources, historic architectural or engineering resources, and traditional cultural resources.

The National Historic Preservation Act (NHPA) defines historic properties as buildings, structures, sites, districts, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP). Historic properties are generally 50 years of age or older, are historically significant, and retain sufficient integrity to convey their historic significance. Archaeological resources comprise areas where human activity has measurably altered the earth or where deposits of physical remains are found (e.g., projectile points and bottles) but standing structures do not remain. Architectural resources include standing buildings, structures (such as bridges and dams), landscapes, and districts composed of one or more of those resource types.

Generally, architectural resources are more than 50 years old when they warrant consideration for the NRHP; resources constructed more recently may meet the criteria for designation if they are of exceptional importance. Resources of traditional, religious, or cultural significance can include archaeological resources, sacred sites, structures, districts, prominent topographic features, habitat, plants, animals, or minerals considered essential for the preservation of traditional culture (National Park Service 2019).

Moody AFB completed consultation with the Florida and Georgia State Historic Preservation Officers (SHPOs) and other identified consulting parties regarding compliance with Section 106 of the NHPA for this Proposed Action (see **Appendix F**).

Moody AFB is conducting government-to-government consultation with 15 federally recognized tribes with a historic or cultural affiliation to the lands covered by the existing Moody Airspace Complex:

- Muscogee (Creek) Nation
- Coushatta Tribe of Louisiana
- Alabama-Quassarte Tribal Town
- Mississippi Band of Choctaw Indians
- Choctaw Nation of Oklahoma
- Poarch Band of Creek Indians of Alabama
- Thlopthlocco Tribal Town
- Seminole Nation of Oklahoma
- Kialegee Tribal Town
- Muscogee Nation of Florida
- Seminole Tribe of Florida

- Caddo Nation
- United Keetoowah Band of Cherokee Indians
- Alabama-Coushatta Tribe of Texas
- Cherokee Nation

Should these consultations identify any resources of traditional, religious, or cultural significance to one or more Tribes, Moody AFB will continue consultation regarding potential effects from the Proposed Action on those resources.

3.7.2 Regulatory Review

Several federal laws and regulations govern protection of cultural resources, including the NHPA (1966), the Archeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990). In addition, Moody AFB is required to comply with DAF regulations and instructions, including the 2018 Integrated Cultural Resources Management Plan for Moody Air Force Base; AFMAN 32-7003, *Environmental Conservation*; and DAFI 90-2002, *Interactions with Federally Recognized Tribes*.

3.7.3 Region of Influence

The ROI for this resource includes portions of 24 counties in Georgia and 2 counties in Florida that underlie the proposed new MOAs within the Moody Airspace Complex. A study area that includes a 1-mile buffer around the boundaries of the proposed low-altitude MOAs was applied during the background investigation for previously recorded cultural resources. Upon examining the Proposed Action and alternatives, an Area of Potential Effects (APE) was delineated that was refined from the overall ROI and study area to include only those areas where the potential for effects could occur.

Under Section 106 of the NHPA, an APE is delineated to encompass the area where the undertaking or Proposed Action has the potential to affect historic properties, if they exist. Due to a limited increase in the number of flights over the five proposed new low-altitude MOAs (Corsair North Low, Corsair South Low, Mustang Low, Warhawk Low, and Thud Low), the potential for effects in these areas was determined to be negligible to nonexistent. Considering that potential impacts on archaeological deposits would be limited to vibration, the APE for the archaeological sites review was limited to areas that underlie the proposed new Grand Bay MOA and the Moody 2 North MOA (i.e., areas in which the floor for training operations would be lowered to 100 feet AGL from the current floor of 500 feet AGL and potential vibration effects from louder overflights would be greater as a result). Similarly, the APE for the aboveground resources is limited to the Grand Bay and Moody 2 North MOAs. The overflights in those two MOAs, though fewer in number, would have a higher potential for visual and noise effects on historic properties. Therefore, the APE for the cultural resources analysis comprises portions of Atkinson, Clinch, Lanier, and Lowndes counties beneath the Moody 2 North and Grand Bay MOAs, where the proposed low-altitude training floor would lower from 500 feet AGL to 100 feet AGL under all four alternatives. Moody AFB itself is not located within the APE.

3.7.4 Existing Conditions

To identify known cultural resources within the APE, a review of Georgia's Natural, Archaeological, and Historic Resources Geographic Information System (GNAHRGIS) database; Georgia Archaeological Site File (GASF) records; and the National Park Service's NRHP Database was conducted.

A total of 336 previously recorded architectural/aboveground resources (**Table 3.7-1**) and four NRHP-listed properties are located within the refined APE (**Table 3.7-2**). The majority of the known historic-age aboveground resources in the APE, built c. 1860 through c. 1940, are concentrated in the local population centers of Lakeland in Lanier County; Naylor in Lowndes County; Homerville and DuPont in Clinch County; and Pearson in Atkinson County. Of the four counties within the APE, Lanier County is the only one that has no records in the GNAHRGIS database, but Lakeland (the county seat) and Naylor are both located within the APE where record occurrences are found.

Table 3.7-1. Previously Recorded Aboveground Resource Totals in the Area of Potential Effects

County	MOA	GNAHRGIS-Recorded Resources	NRHP-Listed Properties
Atkinson County	Moody 2 North	91	1
Clinch County	Moody 2 North	184	2
Lanier County	Moody 2 North and Grand Bay	--	1
Lowndes County	Grand Bay	61	--
Total		336	4

Source: GNAHRGIS 2019, National Park Service 2019

GNAHRGIS - Georgia's Natural, Archaeological, and Historic Resources Geographic Information System; **MOA** – Military Operations Area; **NRHP** – National Register of Historic Places

Table 3.7-2. National Register of Historic Places-Listed Properties within the Area of Potential Effects

NRIS No.	Name	Type	County	City/Town	MOA
86000743	Lanier County Auditorium and Grammar School	Building	Lanier	Lakeland	Grand Bay
80000966	Atkinson County Courthouse	Building	Atkinson	Pearson	Moody 2 North
80000993	Clinch County Courthouse	Building	Clinch	Homerville	Moody 2 North
80000994	Clinch County Jail	Building	Clinch	Homerville	Moody 2 North

Source: National Park Service 2019

MOA – Military Operations Area; **NRIS** – National Register of Historic Places Inventory System

The GASF records revealed 56 archaeological surveys have taken place in the archaeological study area, and 106 archaeological sites have been recorded within the APE (**Table 3.7-3**). Of the previously recorded archaeological sites in Georgia, four were recommended eligible for listing in the NRHP, three of which are located in Lanier County and one in Clinch County (GASF 2020). Records of the SHPO's eligibility determinations based on the survey recommendations were not provided in the GASF data.

Table 3.7-3. Previously Recorded Archaeological Site Totals in Georgia

County	Number of Known Archaeological Sites	Number of Known Sites Recommended Eligible for the NRHP
Atkinson County	16	0
Clinch County	54	1
Lanier County	35	3
Lowndes County	1	0
Total	106	4

Source: GASF 2020

NRHP – National Register of Historic Places

Within the APE, which lies entirely within the state of Georgia, the historic properties assessed for effects included NRHP-listed and NRHP-eligible properties. All of the GNAHRGIS records for architectural resources within the APE in Georgia were recorded in surveys that predate the GNAHRGIS system, and the records do not include NRHP-eligibility information. Similarly, GASF records do not include information regarding the SHPO's NRHP-eligibility evaluations. For the purposes of an assessment of effects under Section 106, resources that have not been evaluated for eligibility are assumed eligible for listing in the NRHP. A cursory review of local tax assessor's records and maps reveals the presence of properties in the aforementioned towns in Atkinson, Clinch, Lanier, and Lowndes counties that are 50 years of age or older (constructed in 1969 or before) that have not yet been recorded in GNAHRGIS. Rather than conducting an intensive survey and evaluation over large geographical extents where most of the properties are privately owned with potentially limited access, those unevaluated resources in the portions of Atkinson, Clinch, Lanier, and Lowndes counties that are located beneath the proposed Grand Bay and Moody 2 North MOAs are considered eligible for listing in the NRHP for the purpose of assessing effects under Section 106 of the NHPA and in this document.

3.8 Land Use and Recreation

3.8.1 Definition of the Resource

3.8.1.1 Land Use

For this analysis, land use describes ownership and management of land that underlies the airspace affected by the Proposed Action and alternatives. This section examines any conflicts that may exist between the Proposed Action and land use plans and policies for the area potentially affected. The compatibility of existing and planned land use with aviation is usually

associated with the acoustic environment (noise), which is described in **Sections 3.2** and **4.2** (Acoustic Environment).

3.8.1.2 Recreation

Common types of recreation that occur on the land beneath all the proposed airspace areas include hiking; viewing natural features, wildlife, and historic sites; camping; fishing; hunting; driving for pleasure; bicycling; horseback riding; and water activities. Recreational activities that occur within the airspace include soaring and model rocketry. Recreational activities can occur on both public and private lands. The majority of lands under the proposed airspace are private; however, a small portion of land management is undertaken by multiple federal and state agencies. The recreation analysis focuses on public lands and major areas of outdoor recreation beneath the affected airspace.

3.8.2 Regulatory Review

Land use planning ensures orderly growth and compatibility between nearby property parcels or land areas. Land use planning in the DAF is guided by AFI 32-1015, *Integrated Installation Planning*. This document sets forth the responsibilities and requirements for comprehensive planning and describes procedures for developing, implementing, and integrating an Installation Development Plan with Activity Management Plans. In addition, land use guidelines are established by the US Department of Housing and Urban Development and are based on findings of the Federal Interagency Committee on Urban Noise.

In accordance with AFI 32-7062, land use can be deemed incompatible with an installation if it adversely affects the utility of training and readiness missions of a military installation, thereby affecting the ability of an installation to fulfill its mission. In order to foster a relationship between local governments and Moody AFB and to encourage compatible land use development, a Joint Land Use Study was prepared in 2008 in cooperation with the South Georgia Regional Development Center, and Berrien, Lanier, Lowndes, Clinch, and Echols counties (South Georgia Regional Development Center 2009). The Moody AFB Joint Land Use Study identified incompatibilities in terms of land use and growth trends for the five-county region immediately surrounding the installation. It included recommended policies and actions that Moody AFB and surrounding local governments should consider adopting as useful tools to manage the growth of their communities and Moody AFB in a sound and sustainable manner (South Georgia Regional Development Center 2009). The Joint Land Use Study also indicated that previously adopted land use regulations have been effective in minimizing incompatible development within Moody AFB's mission area. Since the study's completion, the South Georgia Regional Development Center and Moody AFB have been working together to implement a series of recommendations regarding future land use planning, zoning ordinances, communication tower locations and height restrictions, building codes, and other development issues.

The South Georgia Regional Commission has developed zoning overlays for Berrien and Lanier counties to improve zoning regulations to limit development in Moody AFB flight zones. Although most counties beneath the Moody Airspace Complex have some zoning regulations, Echols and Atkinson counties currently have no land development regulations.

3.8.3 Region of Influence

The ROI for this resource is the land underneath the proposed low-altitude MOAs, and is located in south Georgia and north Florida (see **Figure 1.2-2**). The ROI includes the land, land managers, and land users under the SUA. Of this land, approximately 98 percent is in Georgia and 2 percent is in Florida. Sensitive land uses beneath the airspace, such as wildlife refuges or parks, are also in the ROI.

3.8.4 Existing Conditions

3.8.4.1 Land Use

The majority (97 percent) of the land underlying the Moody Airspace Complex is owned and managed by private individuals. **Table 3.8-1** and **Figure 3.8-1** present the area of land owned or managed by private individuals; land trusts such the Nature Conservancy; universities; and local, county, state, and federal governments beneath the existing and proposed configurations of the Moody Airspace Complex.

Most of the land underlying the proposed low-altitude MOAs is undeveloped and is classified as forested or agricultural with some woody wetlands (National Land Cover Database 2016; see **Table 3.8-2** and **Figure 3.8-2**). A total of seven urban clusters (i.e., areas with populations between 2,500 and 50,000) underlie the proposed low-altitude MOAs (see **Table 3.8-3**).

Table 3.8-1. Land Ownership and Management Underlying the Proposed Low-Altitude Military Operations Areas

MOA	Land Ownership and Management (acres)						
	Private	Land Trust/Private Conservation Easement	University Board of Regents	County/Local Government	State	Federal	Total
Corsair North Low	469,496	11,141	0	0	2,333	888	483,859
Thud Low	414,766	3,045	2,032	0	1,652	206	419,669
Mustang Low	297,760	2,900	0	20	515	0	301,195
Warhawk Low	426,990	986	0	85	7,205	1,427	436,699
Grand Bay	54,436	1,223	0	0	456	3,559	59,674
Moody 2 North	259,989	2	0	0	0	8,792	268,783
Corsair South Low	359,648	17,275	0	0	1,041	572	378,536
Total	2,283,085	36,572	2,032	105	13,202	15,444	2,348,415

Source: Georgia DNR 2019
MOA – Military Operations Area

Table 3.8-2. Land Uses Underlying the Proposed Low-Altitude Military Operations Areas

Land Use Category	Proposed Military Operations Area (Acres)						
	Corsair North Low	Corsair South Low	Grand Bay	Moody 2 North	Mustang Low	Thud Low	Warhawk Low
Open Water	7,359	2,517	855	1,043	5,270	8,752	7,729
Developed, Open Space	18,303	12,586	2,284	8,888	9,936	15,737	18,827
Developed, Low Intensity	8,371	2,713	757	4,152	3,757	8,500	5,366
Developed, Medium Intensity	1,904	455	157	488	432	1,897	1,031
Developed, High Intensity	919	133	46	138	81	913	506
Barren Land	177	89	16	92	144	158	166
Deciduous Forest	3,282	3,134	253	1,986	2,525	5,043	3,671
Evergreen Forest	100,776	96,795	21,033	95,347	68,238	89,671	110,412
Mixed Forest	10,433	15,617	1,134	717	7,908	17,047	6,319
Shrub/Scrub	1,657	10,005	1,677	16,373	3,460	3,748	4,429
Herbaceous	8,924	10,348	1,954	21,915	9,419	12,068	13,960
Hay/Pasture	4,515	5,238	314	2,785	3,410	2,635	7,495
Cultivated Crops	204,745	127,119	7,460	14,994	118,127	170,641	155,104
Woody Wetlands	109,198	88,049	18,394	95,403	66,915	82,194	98,323
Emergent Herbaceous Wetlands	3,249	4,091	756	4,909	1,560	2,634	3,353

Source: National Land Cover Database 2016

Table 3.8-3. Population Centers and Urban Clusters¹ Underlying the Proposed Low-Altitude Military Operations Areas

Census Statistical Location	Population Estimate	County (Georgia)	Proposed MOAs
Moultrie	14,268	Colquitt	Corsair North Low
Cordele	11,147	Crisp	Thud Low
Fitzgerald	9,053	Ben Hill	Warhawk Low
Ashburn	4,152	Turner	Thud Low
Quitman	3,850	Brooks	Corsair South Low
Ocilla	3,414	Irwin	Warhawk Low
Lakeland	3,366	Lanier	Grand Bay

Sources: ESRI 2017, US National Atlas 2017

Note: ¹ An urban cluster is a US Census Bureau statistical geographic entity consisting of a central core and adjacent densely settled territory that together contains between 2,500 and 49,999 people.

MOA – Military Operations Area

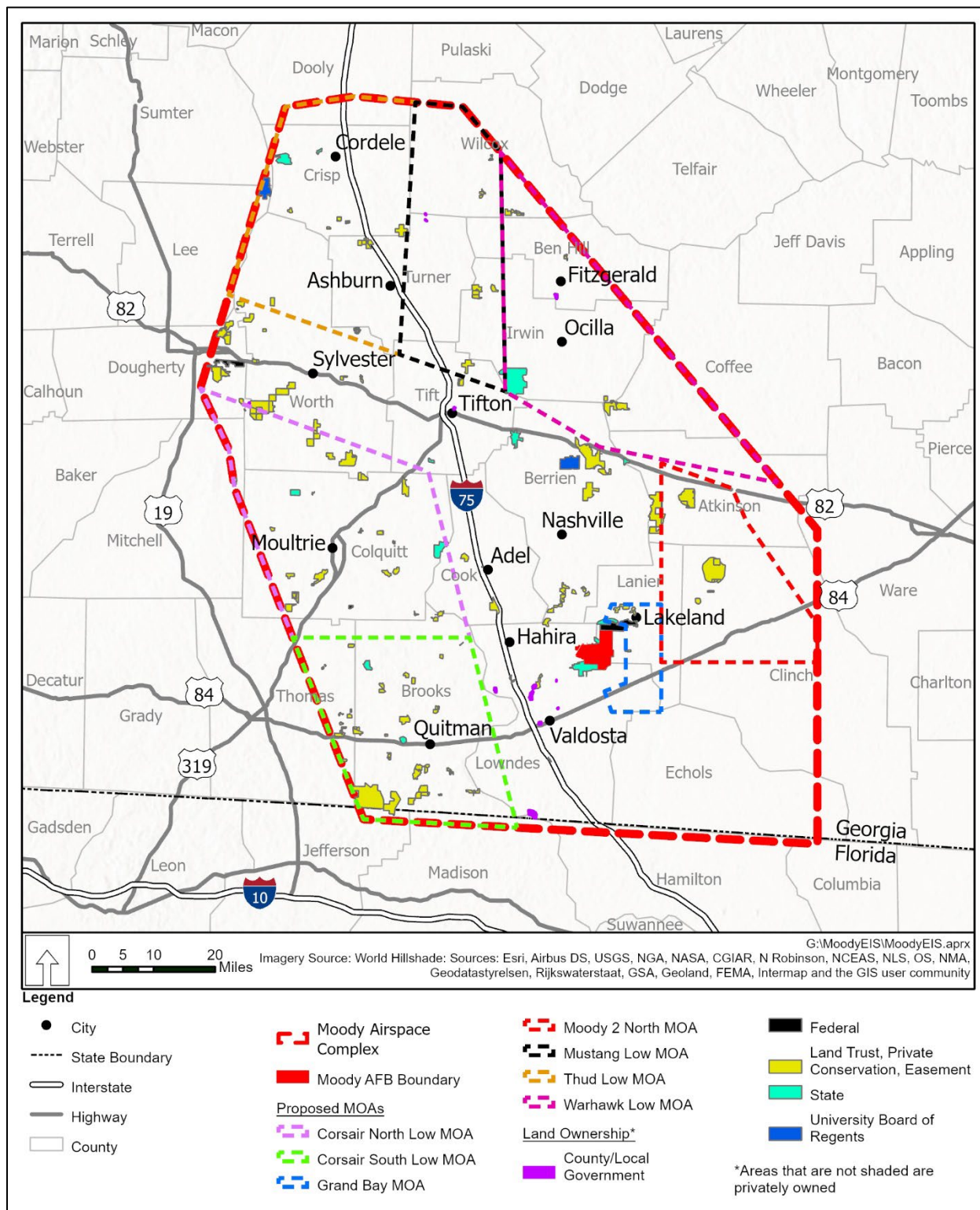


Figure 3.8-1. Land Ownership beneath the Proposed Low-Altitude Military Operations Areas

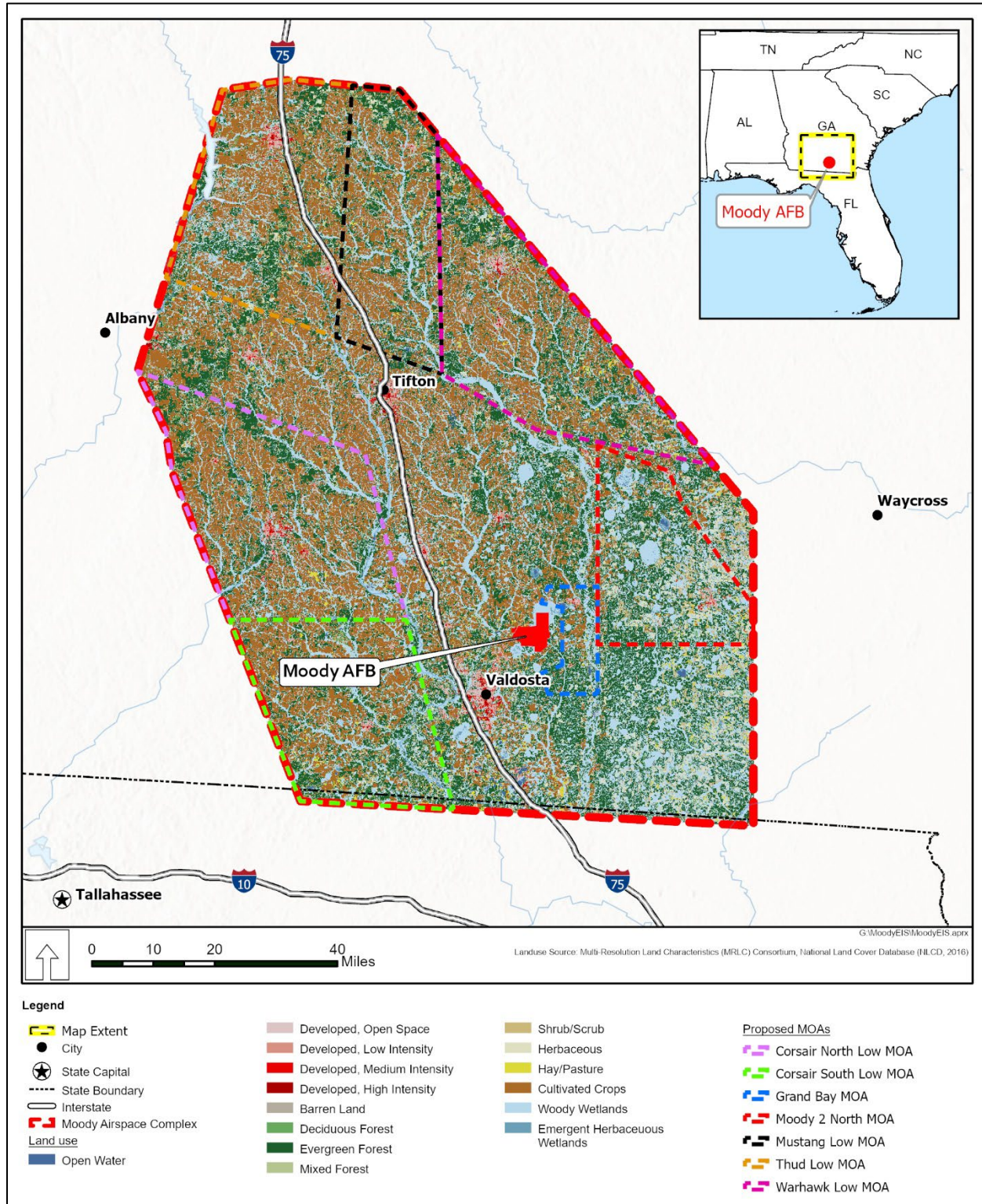


Figure 3.8-2. Land Uses within the Moody Airspace Complex and Proposed Low-Altitude Military Operations Areas

3.8.4.2 Recreation and Recreational Areas

In addition to the urban land areas discussed above, there are 13 recreational areas that underlie the Moody Airspace Complex. Recreational areas include state parks, areas, natural areas, national forests, NWRs, and WMAs and are listed in **Table 3.8-4**. As previously noted, permissions have been granted by Moody AFB to the GDNR for use of the Grand Bay Weapons Range as part of the Grand Bay WMA. Applicable requirements for use by the GDNR include not impacting cultural resources; protecting air, ground, and water from pollution; protecting the property from fire, vandalism, and soil erosion; developing land use planning documents; planning and conducting forest management activities; and performing fish and wildlife management.

The Banks Lake NWR is located within the Moody Airspace Complex beneath the proposed Grand Bay MOA. The Banks Lake NWR (3,559 acres) is located in Lanier County near Lakeland, Georgia. Bank Lake NWR's most notable feature is Banks Lake, a shallow blackwater lake studded with cypress trees. The refuge has one public access area approximately 1 mile south of Lakeland on State Highway 122. The 17-acre public access area offers a two-lane boat ramp, fully accessible fishing piers facility with a small picnic area, parking for approximately 35 vehicles with boat trailers and 15 single vehicles, a concession operation, and a wildlife observation trail. The public access area is well used, and almost any time during the day and evening people are fishing from the pier, walking the wildlife observation trail, watching wildlife, or admiring the natural beauty of the cypress stands in the lake. Anglers use canoes, kayaks, and boats with small outboard or electric motors. Large boats capable of high speeds can only be safely operated at trolling speeds due to the large number of submerged snags, stumps, and logs that occur in the lake.

Recreational soaring activities using glider aircraft occurs within the Moody Airspace Complex. Soaring activities are described in Section 3.2.4.2.

Table 3.8-4. Recreational Areas Underlying the Proposed Low-Altitude Military Operations Areas

Special Use Area	City	Military Operations Area
Alapaha River WMA	Ocilla, Georgia	Mustang Low and Warhawk Low
Alapaha River Plantation Easement	N/A	Moody 2 North
Athens Land Trust (Various Parcels)	N/A	Mustang Low, Thud Low
Banks Lake NWR	Lakeland, Georgia	Grand Bay
Cordele Hatchery	Cordele, Georgia	Thud Low
Crisp County Recreation Department	Cordele, Georgia	Thud Low
Doerun Pitcher Plant Bog WMA	Doerun, Georgia	Corsair North Low
Ellis T. Paul Park	Fitzgerald, Georgia	Warhawk Low
Eufaula NWR (Various Easements)	N/A	Thud Low
Georgia Veterans Memorial State Park	Cordele, Georgia	Thud Low

Special Use Area	City	Military Operations Area
Georgia-Alabama Land Trust (Various Parcels)	N/A	Corsair North Low, Corsair South Low, Grand Bay, Mustang Low, Thud Low, Warhawk Low
Georgia Land Trust (Various Parcels)	N/A	Corsair North Low, Corsair South Low, Grand Bay, Mustang Low, Thud Low, Warhawk Low
Jefferson Davis Memorial Park	Fitzgerald, Georgia	Mustang Low and Warhawk Low
Natural Resources Conservation Service (Various Parcels)	N/A	Corsair North, Corsair, South, Moody 2 North, Warhawk Low
North American Land Trust (Various Parcels)	N/A	Mustang Low
Reed Bingham State Park	Adel, Georgia	Corsair North Low
Tall Timbers Land Conservancy (Various Parcels)	N/A	Corsair North Low, Corsair South Low
The Nature Conservancy (Various Parcels)	N/A	Corsair North, Grand Bay
St. Mark's NWR (Various Easements)	N/A	Corsair South Low
US Army Corps of Engineers Bowen's Millpond	Quitman, Georgia	Corsair South Low
Wheatley Forest (University of Georgia)	N/A	Thud Low
William's Field	Cordele, Georgia	Thud Low

N/A – not applicable; **NWR** – National Wildlife Refuge; **WMA** – Wildlife Management Area

Source: Georgia DNR 2019

3.9 Socioeconomics

CEQ regulations implementing NEPA state that when economic or social effects and natural or physical environmental effects are interrelated, the EIS will discuss these effects on the human environment (40 CFR § 1508.14). Specifically, CEQ regulations state that the “human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment.” Thus, the socioeconomic assessment for the Proposed Action also addresses the extent to which the creation and use of the proposed low-altitude MOAs within the natural or physical environment could also affect elements of the human economic (employment, income, or revenue) and social conditions (e.g., enjoyment and quality of life).

3.9.1 Definition of the Resource

Socioeconomic resources are defined as the basic elements associated with the human environment, generally including factors associated with regional demographics and economic activity. Demographics can be described by the number, distribution, and composition of population and households. Economic activity is represented by the region's major industries, employment, and income characteristics. Direct impacts on either of these two fundamental socioeconomic indicators are typically accompanied by changes in other components, such as altered housing availability, property values, demand for public services, local and regional trends in economy and industry (Moody AFB 2006).

Population. Population size and demographics identify the population levels and changes to population levels of a region. Demographics data might also identify a region's characteristics in terms of race, ethnicity, poverty status, and other broad indicators. Data on employment might identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region can be used to compare the "before" and "after" effects of any jobs created or lost as a result of a project.

Economic Activity. Economic activity is the production, distribution, and sale of goods and services at all levels of society. Data on employment, personal income, and growth of economic sectors (e.g., air travel and transport) provide existing and trendline information about the economic health of a region.

Because the proposed SUA would encompass airspace commonly used by local and transiting civilian aircraft, and local and transiting commercial aircraft in the southeast region, and would immediately overlie 16 airports (11 public and 5 private) in Georgia, this analysis includes an assessment on the following key environmentally based economic sector:

Air Travel and Transport. As discussed in this section, this may include the use (involving purchase and sale of airfare and fuel) of aircraft to transport passengers or cargo to arrive in, fly within or depart from airports in Georgia. Air travel may also involve private aircraft owner flights, recreational soaring activities using glider aircraft, flight operations into and out of public and private airports, provision of crop dusting services needed for the agricultural industry, provision of emergency air service (e.g., medical air lift), biological surveys, and wildfire suppression throughout the region.

Socioeconomic data represented in this chapter are presented at county and state levels to characterize existing socioeconomic conditions in the context of regional and state trends. Data has been collected from previously published documents issued by federal, state, and local agencies and from state and national databases also will be used for analysis.

3.9.2 Regulatory Review

There are no specific regulations for managing or evaluating socioeconomic effects. However, social and economic sustainability is considered an important factor in federal decisions. Not only does socioeconomics cover characteristics that can directly impact citizens in an affected area, but the capacities of the community structures and the local economy are connected with the military mission and quality of life. Enhancing military capabilities can stimulate a local economy, but related activities may affect certain industries and qualities of an area that indirectly impact the economy.

3.9.3 Region of Influence

The geographic area in which a majority of the socioeconomic effects of a proposed action and alternatives would occur is defined as the socioeconomic ROI. The ROI is considered a primary effect area because it receives direct and indirect, adverse and beneficial, economic impacts from a proposed action due to residency distribution of employees, commuting distances and

times, and the location of businesses providing goods and services during construction and operation of the action.

For the socioeconomic analysis, the ROI includes the land area spanning the counties identified in **Section 1.2** that immediately underlie the Moody Airspace Complex (**Figure 3.9-1**). The Moody Airspace Complex overlies all or a portion of 28 counties in southern Georgia and northern Florida.

3.9.4 Existing Conditions

3.9.4.1 Population and Housing

The following information highlights the existing conditions in each county that could be affected by activation of the proposed low-altitude MOAs under the Proposed Action.

County population data for areas under the proposed MOAs are presented in **Table 3.9-1**. **Figure 3.9-1** displays the county areas that underlie each MOA of the Moody Airspace Complex. Population estimates for the ROI are considerate of both the Georgia and Florida state populations, because the Moody Airspace Complex spans counties in both states. In 2017 the population for the ROI was estimated at 796,013 persons, representing 2.6 percent of the total Georgia and Florida populations. The ROI population decreased by 5,138 persons between 2010 and 2017 as a result of the 2010 BRAC and changed mission at Moody AFB. This population decrease represents a 0.6 percent decrease in the population since 2010.

Population change from 2010 to 2017 varied greatly across the affected counties. The populations in several of the counties decreased during that time period (see **Table 3.9-1**). Turner County, Georgia, showed the lowest growth rate with a 10.0 percent decrease and Lowndes County, Georgia, showed the highest growth rate and increased by 4.3 percent.

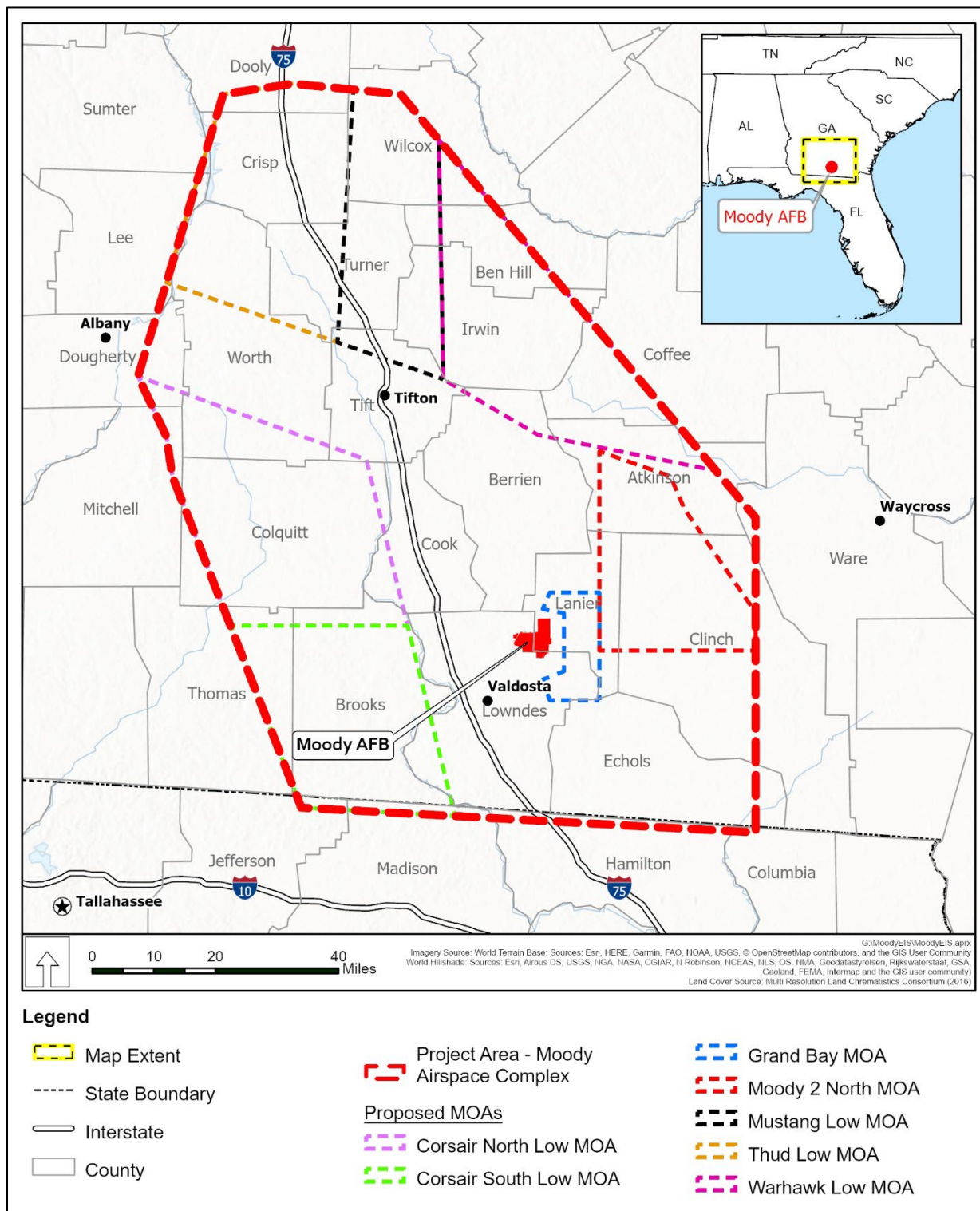


Figure 3.9-1. Counties beneath the Moody Airspace Complex

Table 3.9-1. Existing Populations within the Region of Influence by County

County	Population Data		
	2010 ^a	2017 ^b	Percent Change
Georgia			
Atkinson	8,375	8,313	-0.75%
Ben Hill	17,634	17,272	-2.05%
Berrien	19,286	19,014	-1.41%
Brooks	16,243	15,629	-3.78%
Clinch	6,798	6,788	-0.15%
Coffee	42,356	43,048	+1.63%
Colquitt	45,498	45,890	+0.86%
Cook	17,212	17,190	-0.13%
Crisp	23,439	23,005	-1.85%
Dooly	14,918	14,053	-5.8%
Dougherty	94,565	91,522	-3.22%
Echols	4,034	4,011	-0.57%
Irwin	9,538	9,278	-2.73%
Lanier	10,078	10,388	+3.01%
Lee	28,298	29,216	+3.24%
Lowndes	109,233	113,941	+4.31%
Mitchell	23,498	22,574	-3.93%
Sumter	32,819	30,687	-6.50%
Thomas	44,720	44,909	+0.42%
Tift	40,118	40,531	+1.03%
Turner	8,930	8,036	-10.0%
Ware	36,312	35,688	-1.72%
Wilcox	9,255	8,896	-3.88%
Worth	21,679	20,809	-4.01%
Florida			
Hamilton	14,799	14,238	-3.79%
Jefferson	14,761	14,085	-4.58%
Madison	19,224	18,518	-3.67%
Columbia	67,531	68,484	+1.41%
Project ROI	801,151	796,013	-0.64%
State of Georgia	9,687,653	10,201,635	+5.31%
State of Florida	18,801,310	20,278,447	+7.86%

Sources: ^a US Census 2010 Total Population Data; ^b US Census 2018

Several factors can affect the market value of property, and ambient noise levels could play a role in determining that value. **Section 3.3** provides detailed information on existing noise conditions in the vicinity of the proposed low-altitude MOAs. Factors directly related to the property, such as the size, improvements, and location of the property, as well as current

conditions in the real estate market, interest rates, and housing sales in the area, are more likely to have a direct adverse impact on property values (Air Force 2018).

Table 3.9-2 provides further data on the housing characteristics. There were approximately 52,138 vacant housing units in the project ROI, versus 540,184 in the state of Georgia and 1,748,802 in the state of Florida. The overall homeowner vacancy rate for housing was 1.9 percent in the ROI and 2.1 percent in the state of Georgia and 2.4 percent in the state of Florida.

In Georgia, property is required to be assessed at 40 percent of the fair market value unless otherwise specified by law. Property is assessed at the county level by the Board of Tax Assessors. Tax bills received by property owners from the counties will include both the fair market value and the assessed value of the property. Fair market value meaning “the amount a knowledgeable buyer would pay for the property and a willing seller would accept for the property” (Georgia Department of Revenue, Property Tax Evaluations 2019).

Several studies have analyzed property values as they relate to military and civilian aircraft noise. In one study, a regression analysis of property values as they relate to aircraft noise at two military installations was conducted (Fidell et al. 1996). This study found that, while aircraft noise at installations may have had minor impacts on property values, it was difficult to quantify that impact. Other factors, such as the quality of the housing near the installations and the local real estate market, had a larger impact on property values. Therefore, the regression analysis was not able to predict the impact of aircraft noise on the property values of two comparable properties (Air Force 2018).

**Table 3.9-2. Existing Housing Demographics for Each County
within the Region of Influence**

Location	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Homeowner Vacancy	Rental Vacancy Rate (Percent)
Georgia					
Atkinson	3,502	2,835	667	1.4%	9.3%
Ben Hill	7,948	6,361	1,587	0.8%	2.0%
Berrien	8,759	7,420	1,519	0.6%	2.3%
Brooks	7,767	6,337	1,430	1.5%	10.9%
Clinch	3,003	2,576	427	1.1%	4.5%
Coffee	17,184	14,329	2,855	1.2%	5.0%
Colquitt	18,510	15,599	2,911	3.1%	7.1%
Cook	7,354	6,065	1,289	0.5%	4.0%
Crisp	10,781	8,312	2,469	3.6%	8.6%
Dooly	6,263	5,171	1,092	1.6%	6.1%
Dougherty	40,702	34,842	5,860	2.8%	9.5%
Echols	1,727	1,502	225	0.8%	6.6%
Irwin	4,060	3,323	737	1.5%	0.0%
Lanier	4,384	3,744	640	0.0%	10.2%
Lee	10,877	10,292	585	1.3%	3.4%
Lowndes	46,358	40,318	6,040	3.5%	8.2%

Location	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Homeowner Vacancy	Rental Vacancy Rate (Percent)
Mitchell	9,036	7,991	1,045	1.3%	1.9%
Sumter	13,888	11,871	2,017	2.9%	5.8%
Thomas	20,546	17,254	3,292	3.5%	5.8%
Tift	16,608	14,999	1,609	0.4%	0.0%
Turner	3,901	3,103	798	6.3%	1.9%
Ware	16,552	13,903	2,649	2.8%	3.1%
Wilcox	3,520	2,676	844	0.0%	4.7%
Worth	9,316	7,899	1,417	1.9%	3.9%
Florida					
Columbia	28,806	24,722	4,084	2.8%	7.8%
Hamilton	5,795	4,551	1,244	1.4%	14.6%
Jefferson	6,680	5,720	978	1.0%	4.6%
Madison	8,571	6,743	1,828	3.5%	14.3%
Region of Influence					
Total ROI	342,398	290,458	52,138	1.9%	5.9%
State					
Georgia	4,203,288	3,663,104	540,184	2.1%	7.4%
Florida	9,259,684	7,510,882	1,748,802	2.4%	8.5%

Source: US Census Bureau 2018

ROI – Region of Influence

3.9.4.2 Economic Activity

Employment and Income. The 2018 census data used for employment and income estimates do not reflect conditions since the onset of the COVID-19 pandemic in spring 2020. It is likely that income has decreased and the unemployment rate has risen at least temporarily relative to the census data reported in 2018. However, 2018 census estimates are the best available recent data for income and employment and are used in this analysis.

The labor force in the ROI includes 340,704 employable persons, of whom 305,493 are employed. The unemployment rate is 9.4 percent. Median household income in the ROI in 2018 was \$37,002, with a per capita income of \$19,519. Lee County had the highest median income of \$65,018, and Clinch County had the lowest median income of \$21,838 within the ROI. Dougherty County had the highest unemployment rate of 15.8 percent (US Census Bureau 2018). **Table 3.9-3** provides employment and income data for the state of Georgia, the state of Florida, and the 28 counties within the ROI.

Moody AFB directly employs more than 5,230 personnel and has a total population of 10,914, including military dependents. The annual payroll of the installation is over \$300 million. As a result of payroll expenditures and the estimated value of indirect jobs in the local area, Moody AFB has an estimated total economic impact of nearly \$448 million on the local economy (Moody AFB 2015).

**Table 3.9-3 Existing Employment and Income of County Populations
within the Region of Influence**

Location	Median Household Income	Per Capita Income	Number in Labor Force	Number Employed	Number Unemployed	Unemployment Rate (Percent)
Georgia						
Atkinson	\$33,063	\$19,904	3,592	3,289	303	8.4%
Ben Hill	\$32,344	\$16,635	6,465	6,132	333	5.2%
Berrien	\$38,297	\$18,064	7,689	7,062	731	9.4%
Brooks	\$34,890	\$20,964	6,787	5,865	922	13.6%
Clinch	\$21,838	\$17,145	2,380	2,163	217	9.1%
Coffee	\$36,572	\$18,945	17,250	16,232	975	5.7%
Colquitt	\$34,503	\$18,121	20,269	18,771	1,464	7.2%
Cook	\$35,539	\$17,587	7,327	6,902	425	5.8%
Crisp	\$33,194	\$21,225	9,953	8,481	1,472	14.8%
Dooley	\$33,289	\$16,867	5,506	4,929	577	10.5%
Dougherty	\$34,541	\$20,292	41,208	34,494	6,461	15.8%
Echols	\$34,315	\$20,589	1,752	1,656	96	5.5%
Irwin	\$34,677	\$19,429	3,565	3,301	264	7.4%
Lanier	\$31,109	\$17,739	4,252	3,551	420	10.6%
Lee	\$65,018	\$28,061	14,569	13,503	1,039	7.1%
Lowndes	\$39,911	\$21,199	53,789	46,445	4,687	9.2%
Mitchell	\$34,122	\$16,088	9,346	7,927	1,419	15.2%
Sumter	\$34,219	\$18,785	12,935	11,558	1,370	10.6%
Thomas	\$41,336	\$24,047	20,673	18,686	1,917	9.3%
Tift	\$38,728	\$20,800	17,629	16,935	694	3.9%
Turner	\$42,622	\$20,302	3,414	3,191	223	6.5%
Ware	\$36,962	\$19,246	13,840	13,208	632	4.6%
Wilcox	\$35,457	\$15,119	2,589	2,392	197	7.6%
Worth	\$40,369	\$20,783	9,031	8,153	873	9.7%
Florida						
Columbia	\$43,504	\$22,855	28,655	25,911	2,727	9.5%
Hamilton	\$36,209	\$16,109	4,411	3,849	562	12.7%
Jefferson	\$47,599	\$22,452	5,315	4,922	384	7.2%
Madison	\$31,816	\$17,192	6,513	5,985	528	8.1%
Region of Influence						
Total ROI	\$37,002	\$19,519	340,704	305,493	31,912	9.4
State						
Georgia	\$52,977	\$28,015	5,026,306	4,606,329	372,581	7.5
Florida	\$50,883	\$28,774	9,772,762	9,018,570	699,117	7.2

Source: US Census Bureau 2018

ROI – Region of Influence

Air Travel and Transport. Georgia's aviation industry comprises 103 public airports, including 9 commercial and 94 general aviation airport facilities (Georgia Department of Transportation 2018a). Prior to the COVID-19 pandemic in early 2020, the commercial airports enplaned more than 1.5 million passengers, annually and supported more than 48,000 annual takeoffs and landings by various US and international commercial airlines. In total, Georgia's airports accommodated more than 4,900 based aircraft. Additionally, Georgia's airports served

approximately 1.5 million takeoffs and landings by general aviation aircraft, annually. Data for the Georgia aviation industry following the COVID-19 pandemic are not yet available.

Recent economic impact studies indicated that Georgia's aviation industry accounts for 5.4 percent of the state's gross domestic product (GDP), has an overall economic output of approximately \$47 billion, and provides approximately \$12 billion in payroll to support nearly 307,000 jobs (FAA 2017 and Georgia Department of Transportation 2018a). Georgia Department of Transportation's *2018 Statewide Aviation System Plan* reported that:

- The Hartsfield-Jackson International Airport represented 92 percent of the state's aviation industry jobs and payroll and 93 percent of its overall economic output.
- The remaining eight commercial airports accounted for 6 percent of Georgia's aviation industry jobs and payroll and 5 percent of its overall economic output.
- Georgia's 94 smaller general aviation airports accounted for approximately 2 percent of the industry's jobs, payroll, and overall economic output (Georgia Department of Transportation 2018a)

In addition to air transport of passengers and cargo in the region, several soaring clubs are located at regional airports near central Georgia to take advantage of the meteorological conditions that make central Georgia a soaring destination. Soaring is primarily recreational and generates regional economic activity, including within the Moody Airspace Complex, through local expenditures at airports for hanger space, fuel for tow planes, and soaring lessons. Expenditures in the region also come from recreationists that travel from locations such as metropolitan Atlanta and Columbus, Georgia, and Montgomery, Alabama, to central Georgia to take advantage of the infrastructure, open space, atmospheric conditions, and soaring clubs in the area. Central Georgia, and especially the area near Cordele, Georgia, is frequently used by the soaring community for inland thermal flying.

Although prepared before the 2020 COVID-19 pandemic which impacted commercial air traffic at least in the short-term, the 20-year (2016 through 2035) growth projections for Georgia's commercial airports (not including Hartsfield-Jackson International Airport projections) and general aviation airports indicated flight operations will increase by approximately 32 percent and 11 percent, respectively (Georgia Department of Transportation 2018a).

Few airports are positioned to deal effectively with the future requirements of both the passenger and cargo segments of their business (Georgia Department of Transportation 2016). The predominant constraints affecting airport capacities to sufficiently support the cargo/freight transport industry include lack of parking space at airports, lack of vertical and modernized storage spaces, and the overall higher costs of air transport when compared with truck transport. Georgia's three main air cargo destinations are the Hartsfield-Jackson International Airport (located approximately 130 miles north of the Moody Airspace Complex), Savannah/Hilton-Head International Airport (located approximately 130 miles east of the complex), and the Southwest Georgia Regional Airport (located in Albany, Georgia, adjacent to the western boundary of the complex) (see **Section 3.2, Airspace**) (Georgia Department of Transportation 2016). Currently the Hartsfield-Jackson International Airport handles

approximately 95 percent of the state's freight cargo transport. The Southwest Georgia Regional Airport primarily handles local cargo transport.

According to the National Business Aviation Association (NBAA), the capacity for an airport to sufficiently support the current and projected demand for business operations is directly related to features such as runway length, weather forecasting capability, services provided, and available parking and storage facilities. Applying the NBAA's standards, the Georgia Department of Transportation assessed its public airports as follows:

- *Level I Airports* are those of local significance, with a 4,000-foot-long-by-75-foot-wide runway, no weather service, nonprecision runway approach, and limited storage, parking, and service capacities that are not sufficient to meet NBAA-identified demands for business aviation.
- *Level II Airports* are those of regional and local significance, with 5,500-foot-long-by-100-foot-wide runway, weather service, nonprecision runway approach, with limited storage, parking, and service capacities that are not sufficient to meet NBAA-identified demands for business aviation.
- *Level III Airports* are those of national and regional significance, with a 5,500-foot-long-by-100-foot-wide runway, weather service, precision runway approach, with storage, parking, and service capacities sufficient to meet the NBAA-identified demands for business aviation.

As indicated in **Section 3.2, Airspace Management, Table 3.2-3**, the Moody Airspace Complex overlies airports and/or associated exclusion zones for 29 civilian airports (14 public and 15 private). Of the 14 public airports, 5 are designated Level I, 4 are designated Level II, and 5 are designated Level III.

Two commercial airports underlie the Moody Airspace Complex, the Valdosta Regional Airport (underlies the Sabre MOA) and Southwest Georgia Regional Airport (the eastern portion of the exclusion zone for this airport underlies Corsair North MOA). The remaining 12 public airports underlying the complex are considered general aviation airports (Georgia Department of Transportation 2018b). Services provided by these airports include local and regional passenger and cargo transport, medical support, glider services, pilot training, crop dusting, and varied capacities for accommodating (with fuel, oxygen, and parking) aircraft transiting the region (see **Table 3.2-3**). The 15 private airports and heliports underlying the complex provide varied services such as runway and parking for private aircraft owners, crop dusting, medical emergency support, pilot training, private transport, sightseeing, and local travel.

3.10 Environmental Justice

3.10.1 Definition of the Resource

Analysis of environmental justice in minority and low-income populations focuses on the potential impacts of the Proposed Action on a particular section of the affected population,

specifically, persons who belong to an ethnic or racial minority, low-income persons, children (youths), or elderly. When there would be potential for human populations to be adversely impacted by a Proposed Action, the percentage of low-income and minority populations in the affected areas are compared to a reference population (Communities of Comparison [COCs]), to determine if disproportionate impacts on environmental justice would occur. For the purpose of this environmental justice analysis, census tract populations are compared with the larger county-level populations (i.e., COCs), also known as a reference population.

Environmental justice communities are defined as follows:

Minority Populations. Minority populations are defined by the US Census Bureau to be of Hispanic or Latino origin, regardless of race, plus non-Hispanic persons who are Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, or members of some other (i.e., non-white) race or two or more races (US Census Bureau 2019).

CEQ guidance states that minority populations should be identified by one or both of the following thresholds. These thresholds were conservatively applied to identify minority, low-income, youth, and elderly communities in this EIS.

- *Fifty-Percent Analysis.* There is a majority-minority population of the affected areas where more than half of the residents are defined as minorities
- *Meaningfully Greater Analysis.* There are more people in the affected area that are minorities than in the general population of the COCs by a percentage threshold of 10 percent.

Low-Income Populations – Low-income populations include all persons who fall within the statistical poverty thresholds established by the US Census Bureau. For the purposes of this analysis, low-income populations are defined as persons living below the poverty level. The percentage of low-income persons is calculated as the percentage of all persons for whom the US Census Bureau determines poverty status, which is generally a different number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 18 years of age (US Census Bureau 2019).

Elderly – Elderly populations are defined as all persons identified by the Census of Population and Housing to be over the age of 65 years.

Youth – Youth populations are defined as all persons identified by the Census of Population and Housing to be under the age of 18 years.

3.10.2 Regulatory Review

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, was issued to focus the attention of federal agencies on how their actions affect the human health and environmental conditions to which minority and low-income populations are exposed. This EO was also established to ensure that, if there were

disproportionately high and adverse human health or environmental effects of federal actions on these populations, those effects would be identified and addressed. The environmental justice analysis addresses the characteristics of race, ethnicity, and poverty status for populations residing in areas potentially affected by the implementation of the proposed action.

Accompanying EO 12898 was a Presidential Transmittal Memorandum that referenced existing federal statutes and regulations, including NEPA, to be used in conjunction with the EO (Presidential Memorandum EO 12898). The CEQ issued environmental justice guidelines under NEPA in December 1997 (CEQ 1997). DAF guidance for implementation of the EO facilitating government-to-government consultation is contained in the *Guide for Environmental Justice Analysis with the EIAP*, dated November 1997 (Air Force 1997).

In 1997, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was issued to identify and address anticipated health or safety issues that affect children. The protection-of-children analysis addresses the distribution of population by age in areas potentially affected by the implementation of the proposed action.

The DAF conducts analysis of impacts on environmental justice populations through its EIAP.

3.10.3 Region of Influence

The ROI for environmental justice and protection of youth and elderly is defined as the region in which there is the potential for adverse impacts on human populations from the Proposed Action. The ROI consists of the 28 counties across Georgia and Florida wherein all or portions of those counties underlie the Moody Airspace Complex. This analysis reviews the population demographics for each census tract to identify environmental justice communities within each county that may be affected by the Proposed Action (**Figure 3.10-1**).

3.10.4 Existing Conditions

Of the 28 counties potentially affected by the Proposed Action, 22 counties are located below the proposed low-altitude MOAs, and 14 of those 22 counties encompass land that would be overlain by more than 90 percent by the proposed low-altitude MOAs. As shown in **Figure 3.10-1**, 113 census tracts would underlie (at least partially) the proposed low-altitude MOAs.

Table 3.10-1 presents the environmental justice data for land areas under or partially under the proposed Moody Airspace Complex. Within the table, cells with text in **bold red** indicate the associated census tract that was identified as a community or population that is potentially subject to environmental justice concerns, defined as having a meaningfully (i.e., 10 percent) higher percentage of the population identifying as minority, low income, youth, or elderly than those same populations in the COC. The following summarizes the community assessments for the census tracts within the ROI:

- *Minority*. A total of 25 census tracts were identified as having populations that have a meaningfully higher percentage of minorities when compared with the COC populations
- *Low Income*. A total of 16 census tracts were identified as having low-income populations at a meaningfully greater percentage than those of the COC population.

- *Youth*. One census tract was identified as having youth populations at a meaningfully greater percentage than those of the COC population.
- *Elderly*. Two census tracts were identified as having elderly populations at a meaningfully greater percentage than the COC population.

Table 3.10-2 lists the identified communities subject to environmental justice concerns and indicates the associated county and the Moody Airspace Complex SUA which overlies the communities.



Figure 3.10-1. Associated Census Tracts Underlying the Moody Airspace Complex

Table 3.10-1. Total Population and Census Tract Data

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
Georgia									
Atkinson (COC)	8,313	3,605	43.3%	2,262	27.4%	2,319	27.9%	1,038	12.5%
9601	2,106	1,063	50.5%	565	26.8%	545	25.9%	369	17.5%
9602	4,744	2,231	47.0%	1,139	24.2%	1,322	27.9%	518	10.9%
9603	1,463	311	21.3%	558	38.2%	452	30.9%	151	10.3%
Ben Hill (COC)	17,272	7,512	43.5%	5,139	30.4%	4,407	25.5%	2,730	15.8%
9602	1,449	325	22.4%	277	19.2%	300	20.7%	192	13.3%
9603	3,443	1,483	43.1%	949	27.6%	910	26.4%	485	14.1%
9604*	4,129	3,157*	76.5%*	1,527	37.6%	1,323	32.0%	323	7.8%
9605	5,581	2,249	40.3%	1,697	32.1%	1,235	22.1%	1,380	24.7%
Berrien (COC)	19,014	3,362	17.7%	4,445	23.7%	4,565	24.0%	3,127	16.4%
9701	1,940	681	35.1%	385	20.2%	473	24.4%	402	20.7%
9702	3,934	827	21.0%	1,044	26.5%	1,073	27.3%	371	9.4%
9703	2,913	231	7.9%	414	14.6%	730	25.1%	545	18.7%
9704	3,048	709	23.3%	928	30.4%	537	17.6%	746	24.5%
9705	3,595	241	6.7%	571	16.5%	752	20.9%	708	19.7%
9706	3,584	673	18.8%	1,103	30.8%	1,000	27.9%	355	9.90%
Brooks (COC)	15,629	6,756	43.1%	3,641	23.6%	3,397	21.7%	2,960	17.2%
9602	1,543	615	39.9%	279	18.1%	275	17.8%	319	20.7%
9603	5,752	1,535	26.7%	1,250	22.0%	1,189	20.7%	1,014	17.6%
9604*	3,309	1,882*	56.9%*	936	28.7%	826	25.0%	586	17.7%
9605*	2,704	1,869*	69.2%*	609	22.6%	666	24.3%	614	22.7%
9606	2,285	855	37.4%	567	24.8%	441	19.3%	427	18.7%
Clinch (COC)	6,788	2,328	34.4%	2,641	39.5%	1,808	26.6%	1,033	15.2%
9701	5,341	1,459	27.3%	1,907	36.4%	1,360	25.5%	749	14.0%
9702*	1,447	869*	60.1%*	734*	50.7%*	448	31.0%	284	19.6%
Coffee (COC)	43,048	17,828	41.4%	9,348	23.9%	10,586	24.6%	5,581	12.9%
105*	3,693	1,786	48.4%	1,497*	38.2%*	1,058	26.7%	745*	20.2%*

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
106	5,399	1,031	19.1%	742	13.7%	1,391	25.8%	776	14.4%
107	6,607	3,049	46.1%	1,241	21.0%	1,750	26.5%	526	8.0%
Colquitt (COC)	45,890	19,961	43.4%	11,444	25.4%	12,219	26.6%	6,530	14.2%
9701	5,487	2,013	36.7%	852	15.5%	1,060	19.3%	721	13.1%
9702	2,850	665	23.3%	698	24.5%	838	29.4%	496	17.4%
9703*	5,340	3,682*	68.9%*	2,160*	41.6%*	1,586	29.7%	866	16.2%
9704	3,411	1,704	50.0%	937	30.4%	950	27.9%	338	9.90%
9705	3,226	941	29.2%	392	12.2%	609	18.9%	623	19.3%
9706	6,190	1,559	25.2%	1,525	25.0%	1,801	29.2%	718	11.6%
9707.01	7,144	2,874	40.2%	1,764	25.3%	1,984	27.8%	1,188	16.6%
9707.02*	2,460	1,883*	76.5%*	985	10.0%	518	21.1%	261	10.6%
9708*	3,198	2,303*	72.0%*	870	27.2%	932	29.1%	322	10.1%
9709	6,584	2,337	35.5%	1,261	19.2%	1,934	29.4%	997	15.1%
Cook (COC)	17,190	6,028	35.0%	4,099	24.2%	4,479	26.1%	2,601	15.1%
9601	2,092	436	20.8%	491	23.6%	566	27.1%	379	18.1%
9602*	3,786	1,838*	48.5%*	1,051	27.9%	682	18.0%	706	18.6%
9603	6,194	2,096	33.8%	1,308	21.4%	1,757	28.4%	920	14.9%
9604	5,118	1,658	32.4%	1,249	24.9%	1,474	28.8%	596	11.6%
Crisp (COC)	23,005	11,362	49.3%	7,025	31.2%	5,705	24.8%	3,881	16.9%
101*	3,936	1,637	41.6%	1,575*	41.9%*	874	22.2%	799	20.3%
102.01	4,689	2,355	50.2%	998	22.5%	1,215	25.9%	806	17.2%
102.02	3,054	1,738	56.9%	786	25.7%	654	21.4%	690	22.6%
103	3,713	1,509	40.6%	922	24.9%	946	25.5%	623	16.8%
104*	6,025	3,798*	63.0%*	2,409	40.1%	1,820	30.2%	600	9.96%
105	1,588	325	20.5%	335	21.1%	196	12.3%	363	22.9%
Dooly (COC)	14,053	8,072	57.4%	2,837	23.2%	2,622	18.7%	2,459	17.5%
9703	6,588	3,517	53.4%	1,344	20.5%	1,353	20.5%	1,145	17.4%
Dougherty (COC)	91,522	67,546	73.7%	26,759	30.5%	22,599	24.7%	12,970	14.2%
1*	4,466	3,787*	87.8%*	1,535	34.4%	1,292	28.9%	479	10.7%

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
107*	6,141	5,694*	92.7%*	2,712*	55.9%*	1,618	26.3%	413	6.73%
109	1,798	1,381	76.8%	314	17.6%	382	21.2%	228	12.7%
110	2,254	871	38.6%	266	11.9%	383	17.0%	525	23.3%
112*	3,971	2,593	65.3%	1,736*	44.8%*	668	16.8%	524	13.2%
116	1,943	889	45.8%	387	20.7%	494	25.4%	341	17.5%
Echols (COC)	4,011	1,403	35.0%	1,130	28.2%	1,140	28.4%	437	10.9%
8801	1,469	504	34.3%	418	28.5%	381	25.9%	193	13.1%
8802	2,542	899	35.4%	712	28.1%	759	29.9%	244	9.60%
Irwin (COC)	9,278	3,003	32.4%	2,204	24.5%	2,047	22.1%	1,687	18.2%
9501	2,201	216	9.81%	570	27.9%	559	25.4%	487	22.1%
9502	7,077	2,787	39.4%	1,634	24.1%	1,488	21.0%	1,200	16.9%
Lanier (COC)	10,388	3,251	31.4%	2,875	28.7%	2,645	25.5%	1,311	12.6%
9501	2,101	288	13.7%	612	29.1%	496	23.6%	403	19.2%
9502	8,287	2,963	35.8%	2,263	28.6%	2,149	25.9%	908	10.9%
Lee (COC)	29,216	7,948	27.1%	3,281	11.6%	7,828	26.8%	3,281	11.2%
201	6,359	1,139	17.9%	773	12.3%	1,558	24.5%	827	13.0%
Lowndes (COC)	113,941	51,818	45.4%	27,410	25.0%	27,298	24.0%	12,619	11.1%
101.01	4,057	1,792	44.2%	954	23.8%	1,287	31.7%	339	8.36%
101.02	5,737	2,273	39.6%	784	15.3%	1,485	25.9%	320	5.58%
101.03	3,635	1,511	41.6%	426	11.7%	1,087	29.9%	239	6.57%
102.01	3,511	1,344	38.3%	316	12.6%	590	16.8%	359	10.2%
102.02	12,723	2,648	20.8%	787	6.2%	3,526	27.7%	1,602	12.6%
103.01	4,927	1,607	32.6%	893	18.1%	998	20.3%	756	15.3%
103.02	2,415	232	9.60%	54	2.2%	481	19.9%	588	9.6%
104.01	1,518	207	13.6%	135	9.0%	249	16.4%	298	19.6%
104.02*	7,300	5,597*	76.7%*	1,356	19.2%	1,519	20.8%	732	10.0%
105*	4,282	3,689*	86.2%*	1,702*	39.7%*	1,284	30.0%	244	5.7%
106.01*	6,598	3,511	53.2%	2,356*	36.2%*	1,595	23.7%	603	9.14%
106.04	5,477	2,570	46.9%	638	11.7%	1,679	30.7%	400	7.30%
107	3,948	1,302	33.0%	791	20.2%	793	20.1%	531	13.5%

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
108*	5,798	5,201*	89.7%*	2,499*	43.6%*	1,640	28.3%	695	11.9%
109*	1,612	1,271*	78.8%*	655*	40.6%*	484	30.0%	231	14.3%
110*	3,353	2,936*	87.6%*	1,792*	53.7%*	878	26.2%	392	11.7%
111	2,848	911	32.0%	681	32.4%	260	9.1%	198	6.95%
112	5,472	1,578	28.8%	1,728	31.7%	846	15.5%	623	11.4%
113.01*	4,813	2,988*	62.1%*	2,824*	58.7%*	846	17.6%	262	5.44%
113.02*	2,295	1,722*	75.0%*	863*	37.9%*	359	15.6%	342	14.9%
114.01	2,412	1,155	47.9%	647	26.9%	617	25.6%	296	12.3%
114.02*	2,958	1,740*	58.8%*	662	33.8%	593	20.0%	268	9.06%
114.03	8,245	2,793	33.9%	2,338	28.4%	2,215	26.9%	1,068	12.9%
115	4,164	680	16.3%	728	17.8%	1,058	25.4%	525	12.6%
116	3,843	560	14.6%	801	20.9%	959	25.0%	708	18.4%
Mitchell (COC)	22,574	12,132	53.8%	5,438	27.1%	5,311	23.5%	3,439	15.2%
90100	3,317	1,174	35.4%	721	21.8%	891	26.9%	447	13.5%
Sumter (COC)	30,687	18,477	60.1%	9,560	33.4%	7,212	23.5%	4,761	15.5%
950800	2,594	1,132	43.6%	481	19.1%	584	22.5%	541	20.9%
Thomas (COC)	44,909	19,011	42.3%	8,580	19.5%	10,858	24.2%	7,500	16.7%
9603*	2,204	651	29.5%	382	17.3%	530	24.0%	375*	29.5%*
9604	2,097	560	26.7%	361	17.2%	372	17.7%	403	19.2%
9611*	2,671	1,416*	53.0%*	590	22.1%	644	24.1%	501	18.8%
Tift (COC)	40,531	17,695	43.6%	10,725	27.8%	10,111	24.9%	5,683	14.0%
9601	2,617	623	23.8%	261	10.0%	510	19.5%	568	21.7%
9602	2,732	590	21.6%	457	16.8%	617	22.6%	412	15.1%
9603	7,911	2,052	25.9%	1,534	24.3%	1,399	17.7%	1,097	13.9%
9604	6,261	2,345	37.5%	1,675	27.1%	1,589	25.4%	1,034	16.5%
9605	4,269	487	11.4%	432	10.1%	952	22.3%	641	15.0%
9606*	6,351	5,591*	88.0%*	3,026*	48.0%*	2,287*	36.0%*	572	9.00%
9607*	4,602	3,322*	72.2%*	1,677*	38.2%*	1,312	28.5%	505	11.0%
9608	2,459	1,347	52.8%	838	34.2%	722	29.4%	238	9.68%
9609	3,329	1,338	40.2%	825	24.8%	723	21.7%	616	18.5%

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
Turner (COC)	8,036	3,643	45.3%	2,137	27.9%	1,998	24.9%	1,517	18.9%
9702*	5,112	2,996*	58.6%*	1,414	28.2%	1,397	27.3%	1,048	20.5%
9703	2,924	647	22.1%	723	27.4%	601	20.6%	469	16.0%
Ware (COC)	35,688	12,917	36.1%	8,240	24.8%	8,514	23.9%	5,879	16.5%
9502	7,920	1,871	23.6%	1,159	20.2%	1,487	18.8%	1,167	14.7%
Wilcox (COC)	8,896	3,693	41.5%	1,491	21.8%	1,722	19.4%	1,449	16.3%
9602	1,320	485	36.7%	336	26.4%	371	28.1%	246	18.6%
9603	1,489	322	21.6%	171	11.5%	314	21.1%	246	16.5%
9604	2,071	655	31.6%	274	13.2%	466	22.5%	414	20.0%
Worth (COC)	20,809	6,789	32.6%	4,447	21.5%	4,869	23.4%	3,674	17.7%
9501	3,028	800	26.4%	781	25.8%	585	19.3%	662	21.9%
9502	7,097	2,252	31.7%	1,663	23.9%	1,941	27.3%	1,106	15.6%
9504	4,393	1,033	23.5%	868	19.8%	1,151	26.2%	746	16.9%
9505*	4,027	2,185*	54.3%*	780	19.5%	717	17.8%	701	17.4%
9506	2,264	519	22.9%	355	15.7%	475	21.0%	459	20.3%
Florida									
Columbia (COC)	68,484	18,456	26.9%	10,649	16.8%	14,993	21.9%	12,036	17.6%
1103*	9,210	4,630*	50.3%*	1,520*	28.4%*	1,185	12.9%	1,228	13.3%
Hamilton (COC)	14,238	6,425	45.1%	2,896	26.6%	2,721	19.1%	2,309	16.2%
9601	8,242	4,418	53.6%	1,230	25.1%	1,149	13.9%	1,136	13.8%
9602	4,417	1,384	31.3%	1,257	28.5%	1,258	28.5%	694	15.7%
Jefferson (COC)	14,085	5,885	41.7%	1,601	13.9%	2,306	16.4%	2,988	21.2%
2501.02	3,879	1,189	30.7%	299	7.9%	909	23.4%	1,118	28.8%
Madison (COC)	18,518	8,445	45.7%	5,241	31.9%	3,551	19.2%	3,542	19.1%
1101	2,779	544	19.6%	563	20.5%	481	17.3%	715	25.7%
1102	3,766	1,672	44.4%	1,428	39.3%	844	22.4%	786	20.9%
Region of Influence									
ROI	796,013	355,351	44.6%	187,545	23.6%	189,830	23.8%	119,022	14.9%

Location (County)	Population	Minority Population		Low-Income Populations		Youth Populations (18 years and under)		Elderly Populations (65 years and older)	
		Number	Percent	Number (below poverty level)	Percent	Number	Percent	Number	Percent
States									
Georgia	10,201,635	4,732,189	46.4%	1,679,030	16.9%	2,499,203	24.5%	1,300,430	12.7%
Florida	20,278,447	9,153,496	45.1%	3,070,972	15.5%	4,111,582	20.3%	3,926,889	19.4%

COC – community of comparison; **ROI** – Region of Influence

Source: US Census 2018a, US Census 2018b

* Numbers underneath each county (Community of Comparison) represent census tracts to identify environmental justice populations. Cells with numbers that are in **bold red** represent census tract populations subject to environmental justice concerns where the environmental justice population is meaningfully greater than that same population within the community of comparison.

Table 3.10-2. Communities Subject to Environmental Justice Concerns Underlying the Moody Airspace Complex

Census Tract	Community of Comparison	Community Type				Overlying Special Use Airspace								
		M	LI	Y	E	Thud	Mustang	Warhawk	Sabre	Corsair North	Corsair South	Moody 2 North	Moody 2 South	R-3008
Georgia														
9602	Atkinson	+										X		
9603	Atkinson		+	+								X		
9604	Ben Hill	+	+	+				X						
9605	Ben Hill				+			X						
9701	Berrien	+					X		X					
9604	Brooks	+	+	+							X			
9605	Brooks	+									X			
9702	Clinch	+	+	+	+							X	X	
105	Coffee	+	+					X						
9703	Colquitt	+	+							X				
9707.02	Colquitt	+								X				
9708	Colquitt	+								X				
101	Crisp		+			X								
104	Crisp	+	+	+		X								
9703	Dooly			+		X								
1	Dougherty	+							X					
107	Dougherty	+	+						X					
112	Dougherty		+						X					
8802	Echols	+		+									X	
9502	Irwin	+						X						
9502	Lanier	+							X			X		X
104.02	Lowndes	+							X					
105	Lowndes	+	+						X					
106.01	Lowndes	+	+						X					
108	Lowndes	+	+						X					
109	Lowndes	+	+						X					
110	Lowndes	+	+						X					
113.01	Lowndes	+	+						X					
113.02	Lowndes	+	+						X					
114.02	Lowndes	+							X					
9606	Tift	+	+	+					X					
9607	Tift	+	+						X					
9603	Thomas			+						X	X			
9611	Thomas	+									X			
9702	Turner	+	+	+	+	X	X							
9505	Worth	+							X					
Florida														
1103	Columbia	+	+										X	
9601	Hamilton	+											X	

M – minority, **LI** – low income, **E** – elderly, **Y** – youth

Notes: + – The census tract is identified as the indicated community type.; X – The census tract is overlain (at least partially) by the indicated MOA.

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The following presents an assessment of the potential environmental consequences of the Proposed Action and alternatives, including the No Action Alternative, involving the relevant resources and significant issues identified in comments from the public and federal and state agencies during scoping. Each of the environmental resources described in Chapter 3 is affected to a different degree and has a different method of analysis. In compliance with National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) guidelines, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact. “Significantly,” as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a Proposed Action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, a more intense potential impact would be expected to be significant.

Impacts may be direct or indirect and are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. “Direct effects” are caused by an action and occur at the same time and place as the action. “Indirect effects” are caused by the action and occur later in time or are farther removed from the place of impact but are reasonably foreseeable. Impacts are defined as:

- Negligible, the impact is localized and not measurable or at the lowest level of detection;
- Minor, the impact is localized and slight but detectable;
- Moderate, the impact is readily apparent and appreciable; or
- Major, the impact is severely adverse or highly noticeable and considered to be significant.

Major impacts are considered significant and receive the greatest attention in the decision-making process. The significance of an impact is assessed based on the relationship between context and intensity. Major impacts would require the application of mitigation measure(s) to achieve a less than significant impact. Moderate impacts may not meet the criteria to be classified as significant, but the degree of change is noticeable and has the potential to become significant if not effectively mitigated. Minor impacts have little to no effect on the environment and are not easily detected; impacts defined as negligible are the lowest level of detection and generally not measurable. Beneficial impacts provide desirable situations or outcomes.

This section describes the potential impacts on the following resources: airspace management and operations, acoustic environment (noise), health and safety, air quality, biological resources, cultural resources, land use and recreation, socioeconomics, and environmental justice. **Section 7** provides a listing of avoidance, minimization, and mitigation measures that would be implemented to reduce the impacts identified.

4.2 Airspace Management

4.2.1 Evaluation Criteria

Any impact on airspace management would be considered significant if implementation of the Proposed Action were to substantially increase risks associated with flying activities, safety of personnel, contractors, military personnel, or the local community; hinder the ability to respond to an emergency; or introduce new health or safety risk for which the Department of the Air Force (DAF) or the surrounding community is not prepared or does not have adequate management and response plans in place.

4.2.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

4.2.2.1 Moody AFB Airfield

No impacts on airfield management at Moody Air Force Base (AFB) would be anticipated because the Proposed Action would not entail changing the numbers of personnel, aircraft, aircraft operations, airfield facilities, or numbers of flight operations.

4.2.2.2 Airspace Management and Operations

Long-term, minor to moderate, adverse impacts and long-term, beneficial impacts on airspace management would be expected for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low Military Operations Areas (MOAs) and the newly configured low-altitude Moody 2 North MOA. Adverse impacts would include the requirement for added air traffic control to deconflict civilian flights and military training operations between 1,000 feet and 7,999 feet above ground level (AGL). With an airspace floor of 4,000 feet AGL, air traffic coordination and control of military, general aviation, and airport operations within and underlying the Thud Low MOA (i.e., Crisp County-Cordele Airport) would be minimally affected. Anticipated beneficial impacts on airspace management would occur in the Moody 2 North and Moody 2 South MOAs as Moody AFB could redistribute low-altitude operations across the new low-altitude MOAs and decongest the existing high concentration of training that continuously vies for access to the existing low-altitude SUA (i.e., Moody 2 North MOA, Moody 2 South MOA, and the Restricted Areas).

Airspace controlling agencies for the Restricted Areas and MOAs would be unchanged from existing conditions. Airspace users and levels of training operations within the Moody Airspace Complex would also be unchanged from existing conditions. Coordination with the Jacksonville Air Route Traffic Control Center (ARTCC) Special Use Airspace Management Systems for

daytime and nighttime training operations (including lights-out training operations) would continue as identified in **Section 3.2.4.8** to avoid or minimize impacts on airport access.

Impacts, such as the requirement for increased air traffic control (ATC) coordination and airspace deconfliction, would be greatest in areas where there would be consistent air traffic (daily operations) approaching or departing from the public airports that underlie the proposed low-altitude MOAs. To minimize these impacts, Moody AFB is coordinating with Jacksonville ARTCC and all potentially affected airports to determine impacts and establish new and appropriate ATC and approach procedures to ensure safe entry into and exit out of the MOAs and to avoid or minimize impacts on arrivals and departures for each. Requirements for ATC coordination of military training operations within the existing mid-altitude MOAs within the complex with appropriate ARTCC sectors would be modified to accommodate the revised ATC procedures for underlying airport traffic. As explained in **Section 3.2.4.6**, civilian aircraft approaches and departures to underlying public airports would continue to receive priority and be routed similarly to the existing conditions with the mid-altitude MOAs and the low-altitude Moody 2 North MOA.

Airspace and Airports. Table 4.2-1 describes impacts on airport traffic relative to each proposed low-altitude MOA or lowered altitude airspace (i.e., Moody 2 North MOA floor lowered from 500 feet AGL to 100 feet AGL). With airspace floors of 1,000 feet AGL, active Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, would incur moderate increases in air traffic planning, coordination, and control (including deconfliction) of military flight operations, general aviation civilian flight operations (visual flight rules [VFR] and instrument flight rules [IFR]), and approach/departure operations associated with the underlying airports.

Of the 29 civilian airports underlying the complex, 16 airports (11 public and 5 private) would underlie (at least partially) the proposed low-altitude MOAs. Under Alternative 1, the 1,000-foot AGL MOA floors would affect approach and missed-approach paths for several of these airports, requiring coordination between Moody AFB, the affected airports, and the Jacksonville ARTCC to develop new procedures for accessing or departing from these facilities. Moody AFB would coordinate with Jacksonville ARTCC and all potentially affected public and private airports to determine impacts and establish new and appropriate ATC and approach procedures to ensure safe entry into and exit out of the MOAs and to avoid or minimize impacts on arrivals and departures for each.

Table 4.2-1. Anticipated Impacts on Airports Underlying the Proposed Low-Altitude Military Operations Areas under Alternative 1

Airport (FAA Identifier)	Description of Impacts		
	Approaches	Airspace	Impact
Thud Low MOA			
Crisp County-Cordele Airport (CKF)	No impact on arrival/departure procedures	Overlaps the Class E airspace	Negligible
Turner County Airport (75J)	No impact on arrival/departure procedures	Overlaps the Class E airspace	Negligible
Mustang Low MOA			
Richter Airpark Airport (GE12)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Crystal Lake Airpark Airport (0GE1)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Warhawk Low MOA			
Fitzgerald Municipal Airport (FZG)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate
Douglas Municipal Airport (DQH)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate
Elite Helicopters Heliport (GE14)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Corsair North Low MOA			
Oak Ridge Plantation Airport (13GA)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Spence Airport (MUL)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Cook County Airport (15J)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor

Airport (FAA Identifier)	Description of Impacts		
	Approaches	Airspace	Impact
Sunbelt Strip Airport (09GA)	Potentially affects arrivals/departures; services	Extends below 1,200 feet AGL above a private airport. Requires additional coordination per FAA Order JO 7400.2 (Section 25-1-4).	Minor
Moultrie Regional Airport (MGR)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate
Southwest Georgia Regional (ABY)	No impact on arrival/departure procedures	Partially overlaps the western boundary of Class E airspace	Minor
Corsair South Low MOA			
Thomasville Regional Airport (TVI)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate
Quitman Brooks County (4J5)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate
Moody 2 North MOA (Reconfigured)			
Homerville Airport (HOE)	Overlaps all IFR approaches requiring revised arrival/departure procedures	Overlaps the Class E airspace	Minor to moderate

AGL – above ground level; **FAA** – Federal Aviation Administration; **IFR** – instrument flight rules; **MOA** – Military Operations Area

Although individual flight plans may be modified slightly to include delays or deviations from course, the published arrival and departure procedures for the airports underlying the complex (such as Homerville Airport) and the IFR procedures followed by Moody AFB and Valdosta Radar Approach Control (RAPCON) to prioritize and ensure unimpeded civilian access to airports would be unchanged. Per these procedures, IFR traffic has priority over military training operations and for all IFR approach and departure flights, military training would be paused and associated military aircraft would be moved out of the airspace, the low-altitude MOAs would be deactivated, and IFR traffic would be routed through the deactivated MOA. These existing procedures would continue to be followed whenever necessary to allow IFR aircraft access to and from public-use airports.

The published days and times of MOA activation are in the FAA Order JO 7400.10. Additionally, information concerning active MOAs would continue to be disseminated to civil aircraft to the maximum extent practicable. Moody AFB would not issue Notices to Airmen (NOTAMs) for MOA activation and deactivation during regularly scheduled hours for the proposed low-altitude MOAs. However, the general aviation community would be able to receive information on active MOAs:

- Online at <https://sua.faa.gov>, <https://www.1800wxbrief.com>, or at <https://pilotweb.nas.faa.gov>;

- By phone at 1-800-WXBRIEF; and
- In flight by contacting Flight Service.

Airspace and redistribution of low-altitude training operations into the proposed low-altitude MOAs would not affect IFR flight operations along V-578, which would transit airspace encompassed within the complex along a generally east-west route through the Sabre, Mustang, Mustang Low, Warhawk, and Warhawk Low MOAs. ATC procedures would be coordinated with Jacksonville ARTCC to maintain an unimpeded flow of air traffic along this airway and minimize the potential for impacts. Also, as noted in **Section 2.4**, the existing east-west, low-altitude flight corridor through Sabre MOA and under Hawg North MOA (between the Moody 2 North and Warhawk Low MOAs) would be maintained to accommodate civilian flights transiting the complex (see **Figure 1.2.2**).

Similarly, IFR flights along V-579 that commonly transit the existing Sabre MOA or the airspace underlying it would not be affected by the Proposed Action. The current 8,000-foot floor of the Sabre MOA would not be changed under the Proposed Action, and no new low-altitude MOAs would be established under the Sabre MOA. During periods when the Sabre MOA is active, air traffic would be shifted to lower altitudes to fly under the Sabre MOA toward their destinations along V-579. Moody AFB would coordinate with Jacksonville ARTCC to prioritize civilian air traffic along the V-578 and V-579 routes and to minimize transit delays for aircraft on approach to or departure from the airports underlying the Moody Airspace Complex.

There would be no impact on the visual route (VR) and instrument route (IR) segments that transect portions of the Moody Airspace Complex because these are already continuously closed through NOTAM to accommodate military training.

Table 4.2-2 summarizes the anticipated numbers of civilian aircraft that would be affected by the establishment of active military training within the proposed low-altitude MOAs. Performance Data Analysis and Reporting System (PDARS) data used in this analysis reflect flight operations from 2019 and are not reflective of the current or future reductions in air traffic that resulted from flight restrictions to slow the global COVID-19 pandemic. Therefore, the estimated magnitude and intensity of impacts from establishing the proposed low-altitude MOAs on flights and the numbers of affected aircraft in the region are likely potentially overstated.

Impacts on civilian flights would only occur when the military is conducting training operations (estimated to be 230 training days annually). Under Alternative 1, approximately 47,000 civilian flights would operate in the existing Moody Airspace Complex. These flights originate from a number of airports in the region including those that underlie the Moody Airspace Complex. Of that total, it was estimated that around 33,000 annual (91 daily) flights would be affected by the presence of the newly established low-altitude MOAs under Alternative 1. This total number of affected flights would be comprised of around 13,000 annual (36 daily) VFR flights and around 20,000 annual (55 daily) IFR flights.

Table 4.2-2. Civilian Aircraft Potentially Affected by the Proposed Action

Airspace Utilization ^{a, b}		Factors			
Annual Number of Hours MOAs Would Be Active		4,959			
Actual Utilization Rate		57 percent			
Effective Utilization Rate		72 percent			
Aircraft Breakdown		Annual (Daily) Number of Aircraft ^c			
Airspace	Existing Mid-Altitude MOAs, Moody Airspace Complex ^d	Alternative 1	Modified Alternative 1 ^e	Alternative 2	Alternative 3
Affected Civilian Aircraft per Airspace Area ^f	14,438 (40)	19,158 (52)	8,618 (24)	13,540 (37)	10,256 (28)
Affected VFR Aircraft	5,681 (16)	5,514 (15)	3,391 (10)	5,328 (15)	4,036 (11)
Affected IFR Aircraft	8,757 (24)	8,499 (23)	5,227 (14)	8,212 (22)	6,221 (17)
Overall Total Affected Aircraft ^g		33,172 (91)	27,616 (76)	32,699 (90)	29,415 (81)
Overall Total Affected VFR		13,053 (36)	10,950 (30)	12,867 (35)	11,575 (32)
Overall Total Affected IFR		20,119 (55)	16,666 (46)	19,832 (54)	17,840 (49)

Table Notes: ^a Assumes all MOAs associated with the Proposed Action would be activated simultaneously for concurrent use for 19 hours per day, 230 days per year (0700 to 0200 hours Monday through Friday).

^b Actual Utilization Rate reflects the assumed utilization of the airspace for training during the hours of Special Use Airspace activation. Effective utilization rate accounts for the 90 percent of aircraft operating during the 17 peak flying hours of the day.

^c PDARS-reported numbers reflect only civilian aircraft counts for one year (FAA 2020, FAA 2022b). It is assumed that all individual aircraft use each altitude block once.

^d Numbers reflect civilian aircraft operating in the existing Thud, Mustang, Warhawk, Corsair North, Corsair South, and Moody 2 North MOAs and Restricted Areas R-3008 of the Moody Airspace Complex.

^e Totals reflect the Modified Alternative 1 reduced proposed low-altitude MOA airspace area and the corresponding numbers of affected civilian aircraft operations by approximately 16 percent compared with Alternative 1.

^f **Appendix B** details the methodology used to determine the numbers of affected VFR and IFR flights. Numbers assume 70 percent of VFR aircraft would detour or reroute to avoid flying through special use airspace (Aircraft Owners and Pilots Association 2005).

^g Overall totals reflect the summed numbers of aircraft operating in the existing MOAs of the Moody Airspace Complex with the numbers of aircraft operating in the low altitude airspace that would be encompassed by the proposed low-altitude MOAs for each alternative.

MOA – Military Operations Area; **VFR** – Visual Flight Rules; **IFR** – Instrument Flight Rules

Table 4.2-3 presents the impacts that would be experienced by affected aircraft and airport operations in the area following activation of these MOAs on airspace in the region. These impacts would range from minor to moderate depending upon the type of operation, the airspace areas, and altitudes within the complex where civilian flights would be occurring.

**Table 4.2-3. Potential Effects on Aircraft and Airports
near Civilian Aircraft Flight Routes in the Region of Influence**

Low-Altitude En Routes and MTRs		
IFR Aircraft (8,500 affected)	VFR Aircraft (5,500 affected)	Airports (29 Public Airports)
<p>Pilots would require additional flight planning to determine activation status of MOAs.</p> <p>Pilots in transit would require additional in-flight communication requirements to determine activation status of MOAs.</p> <p>Aircraft may need to accomplish minor speed or altitude deviations to avoid military training operations in the proposed low-altitude MOAs when active.</p> <p>Pilots would have potential conflict to flight plans while in transit due to unanticipated activations of MOAs.</p>	<p>Pilots would require additional flight planning to determine activation status of MOAs.</p> <p>Pilots in transit would require additional in-flight communication requirements to determine activation status of MOAs.</p> <p>Pilots are not required to but may opt to detour around or below the proposed low-altitude MOAs when active to avoid flying through SUA.</p> <p>Pilots would have potential conflict to flight plans while in transit due to unanticipated activations of MOAs.</p> <p>Pilots would have to operate with an elevated risk of conflict with military training operations—particularly at very low altitudes.</p> <p>Pilots would have to operate see-and-avoid at elevated awareness levels.</p>	<p>Airports would require additional coordination and communication with pilots of aircraft utilizing their facilities.</p> <p>The 11 public airports immediately underlying the proposed low-altitude MOAs may require additional coordination with Moody AFB and Jacksonville ARTCC to establish new ATC procedures for approaches/missed approaches. Impacts would be minimized through Moody AFB ATC and Valdosta RAPCON continued adherence to existing IFR procedures to accommodate approaches and departures, and maintained access to east-west and north-south corridors that use the Sabre MOA.</p>
High Altitude En Routes MOAs		
IFR Aircraft (5,700 affected)	VFR Aircraft (8,800 affected)	Airports (14 Private Airports)
<p>All effects listed above.</p> <p>Potential for departures into activated airspace requiring closed pattern operations until deconfliction may be required.</p> <p>Aircraft on approach or departure may need to accomplish minor speed or altitude deviations to avoid training activities in the proposed low-altitude MOAs when active.</p>	<p>All effects listed above.</p> <p>There would be a potential decrease in communication and safety at higher altitudes.</p> <p>Pilots may display an unwillingness to take off or land from airports or airfield surrounded by low-altitude MOAs.</p> <p>Pilots may operate at times with the potential for limited line-of-sight from mountainous terrain.</p>	<p>Same as for public airports.</p> <p>Airports may experience potential interference with radar and radio communication with aircraft, particularly at very low altitudes.</p> <p>The five private airports immediately underlying the proposed low-altitude MOAs may require additional coordination with Moody AFB and Jacksonville ARTCC to establish new ATC procedures for approaches/missed approaches.</p>

AFB – Air Force Base; **ARTCC** – Air Route Traffic Control Center; **ATC**– Air Traffic Control; **IFR** – instrument flight rules; **MOA** – Military Operations Area; **RAPCON** – Radar Approach Control; **SUA** – Special Use Airspace; **VFR** – visual flight rules

Of the civilian aircraft affected, some VFR and IFR aircraft would be transiting to or from airports underlying the Moody Airspace Complex and could experience delays or be required to deviate

slightly from their course to avoid active military training operations. As previously indicated, IFR flights on V-578 and V-579, and IFR aircraft on approach to or departing from airports underlying the Moody Airspace Complex, would be prioritized by the FAA. Military training would be controlled to avoid any impediments on those aircraft operations. As explained in **Section 3.2.4.6**, IFR aircraft on approach to or departure from airports underlying the Moody Airspace Complex would be given priority over military training to ensure unimpeded access to airports underlying the airspace complex. Additionally, civilian pilots would continue to use the flight corridors for V-578 and V-579, and the low-altitude, east-west corridor through Sabre MOA that extends under the 8,000 ft AGL airspace floor of Hawg North MOA between the proposed reconfigured Moody 2 North and proposed Warhawk Low MOA would remain available to accommodate flights transiting through the complex. Some pilots of VFR aircraft transiting the region to other destinations may choose (as indicated in Aircraft Owners and Pilots Association [AOPA] 2005) to detour around the Moody Airspace Complex to avoid the low-altitude MOAs proposed under Alternative 1. One report estimated that up to 70 percent of VFR pilots operating in the airspace may choose to detour around active low-altitude MOAs rather than flying through it (AOPA 2005). Detours would not be required under DAF or FAA policy, and measures would be implemented to minimize impacts on civilian flights. Despite maintained availability of airspace corridors through the complex, detours around the complex to avoid the may still be flown at the pilot's discretion. Because the FAA has limited ability to track origin, intended flight path, and destination for all aircraft flying in the ROI, the number of aircraft that may detour around active proposed low-altitude MOAs cannot be estimated. Under the Proposed Action, the requirement for ATC coordination to pause and clear military training activities from active low-altitude MOAs and accommodate approaching and departing civilian aircraft from the underlying airports would be increased from existing conditions because more IFR flights would need to be accommodated than are currently.

Glider tow and soaring activities would require additional coordination with ATC, and although VFR flights in active MOAs are permitted, some glider users may choose not to launch when the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs are active. Moody AFB ATC and Valdosta RAPCON would give priority to IFR aircraft approaches and departures by pausing military training activities and temporarily deactivating MOAs; however, gliders may continue to transit these active MOAs via VFR.

To provide an upper-bound assessment of potential effects and present the maximum added flight distance and duration from detours, VFR aircraft were assumed to adjust course to fly around the active low-altitude MOAs at the point when VFR aircraft reached the boundary of the Moody Airspace Complex. VFR aircraft flying east-west may fly up to an estimated additional 34 nautical miles (nm), on average, to detour around the Moody Airspace Complex or through the Sabre MOA and underlying airspace to totally avoid an active low-altitude MOA. VFR aircraft flying north-south may fly up to an estimated additional 45 nm, on average, to detour (or reroute) around an active low-altitude MOA or through the Sabre MOA and underlying airspace. **Appendix B, Section B-3**, provides details on the methodology used to determine the numbers of affected aircraft, impacts analysis, and identification of the potential detours aircraft may use

to avoid the Moody Airspace Complex under this alternative. Discussion on potential incurred costs for civilian aircraft detours are provided in **Section 4.9.2**.

VFR traffic would also be allowed to transit the MOAs at the pilot's discretion. This would require additional coordination by VFR aircraft, depending upon the number of military aircraft actively training in the area. Other risk factors for VFR aircraft include high-speed altitude transitions and maneuvers by military aircraft that would limit visibility and response time and options. Appropriate coordination with the Jacksonville ARTCC would be required to maintain safe separation of flight activities until the airspace is cleared for training to continue. Civilian aircraft utilize awareness systems such as Automatic Dependent Surveillance-Broadcast, which is an element of the Next Generation Air Transportation System. US Air Force (Air Force) combat aircraft pilots however specifically avoid operating in a manner that allows the awareness of their position in order to meet their mission requirements. Therefore, Air Force combat aircraft would not utilize Next Generation Air Transportation System awareness surveillance technology during training activities in MOAs. Moody AFB ATC issues traffic advisories daily. It is encouraged that civilian pilots contact ATC for information and updates on military flights in active MOAs.

Outside of any regularly scheduled large training exercises, it is unlikely that all Special Use Airspace (SUA) in the Moody Airspace Complex would operate concurrently. Furthermore, whenever any MOAs of the Moody Airspace Complex are not active, they are yielded back to FAA to accommodate civil traffic. Therefore, civilian air traffic would still be able to use the airspace areas that are not actively being used. It is also likely that some portion of aircraft would continue to fly underneath the airspace floor of the proposed low-altitude MOAs to transit the region. Having access to yielded inactive MOAs, the Sabre MOA, airspace underlying the Sabre MOA, the airspace corridor underlying the Hawg North MOA between the Moody 2 North and Warhawk Low MOAs, IFR approaches and departures being given priority over military training operations, and the airspace underlying the new low-altitude floors of the Moody Airspace Complex would reduce anticipated impacts on aircraft transiting the Moody Airspace Complex.

Exclusion Zones. In addition to coordination with the potentially affected public and private airports to determine procedures to be established as necessary to avoid or minimize those effects, the proposed low-altitude MOAs would exclude the 1,500-foot AGL, 3 nm radius for the public airports in accordance with existing regulations. The existing exclusion zone over the Lakeland community would remain in effect and pilots would continue to avoid this area during training. The DAF would modify the existing 1,500-foot AGL, 0.25-mile exclusion zone from the southern boundary of the Banks Lake National Wildlife Refuge (NWR; described in **Section 1.2-2**) to enable low-altitude training operations in that area. Once established, the Valdosta RAPCON would control and deconflict the military air traffic in this area. Potential impacts relating to bird/wildlife aircraft strike hazards (BASH) are discussed in **Section 3.4, Health and Safety**, and potential impacts on biological resources in the Banks Lake NWR are addressed in **Section 3.6, Biological Resources**. Expansion of flight training operations into the lower altitudes of the MOA would beneficially impact airspace management because the existing

congestion of flight training operations at Moody AFB would be redistributed across the newly available low-altitude MOAs.

Moody AFB Training Operations. No matter the alternative selected, some of the training operations within the Moody 2 North and Moody 2 South MOAs would be redistributed to the proposed new low-altitude MOAs, and some of the existing operations within the Hawg North and Hawg South MOAs would be redistributed to the existing MOAs above the proposed new low-altitude MOAs. As shown in **Table 2.3-2**, the operational alternatives considered for the Environmental Impact Statement (EIS) were assessed at a slight increase from the existing condition to accommodate natural fluctuations in training at the installations. Because it is common for flight operations to vary annually based upon the training mission, assets and personnel available for training, and funding available to support the training activities, it is expected that impacts from these slight increases in operations would remain comparable to the existing levels of operational activity out of the installation. With this redistribution, the Proposed Action would allow for less-concentrated aircraft activities in the existing Moody 2 North and Moody 2 South MOAs and Restricted Area R-3008. The coordinates for the boundaries of the proposed low-altitude MOAs, designated altitudes, time of use, and controlling agency are provided in **Appendix B**. A detailed breakdown of primary aircraft utilization within the proposed MOAs, time in each SUA, and annual sorties for all alternatives is presented in **Appendix B**.

Under Alternative 1, the DAF would redistribute approximately 35 percent, or 3,878 flight training operations from the Moody 2 North and Moody 2 South MOAs as defined in **Table 2.3-2** into the proposed low-altitude MOAs. This change would shift approximately 10 percent of the overall flight operations at Moody AFB into the proposed low-altitude MOAs. Additionally, establishment of the new Grand Bay MOA would support R-3008 flight operations that would now extend to the floor of the MOA. Typically, a total of 268 flight operations below 500 feet would occur annually in the Moody 2 North and Grand Bay MOAs. These 268 operations account for approximately 4 percent of the training operations planned in those two MOAs, and less than 1 percent of the total flight operations out of the installation. This would increase the presence of lower-flying military aircraft over the Banks Lake NWR and would increase the requirement for airspace management and coordination of flight operations within that airspace.

Rerouted civilian flights could be transitioned up and over the low-altitude MOAs through the Sabre MOA corridor or deviate to the east or west around the newly configured low-altitude airspace blocks of the complex when the low-altitude MOAs are active. Moody AFB would coordinate with all underlying airports to determine the potential for effects on their flight operations and would establish operational letters of agreement that would ensure appropriate coordination with the Jacksonville ARTCC and Moody AFB ATC and Valdosta RAPCON to deconflict airspace and maintain safe flow of air traffic to and from those facilities. Moody AFB would continue to fly according to Federal Aviation Administration (FAA) and DAF regulations that require avoidance of airport exclusion zones and the yielding of inactive military training SUA to the FAA to facilitate the coordination and flow of air traffic through the region. The proposed low-altitude MOAs would continue to follow the protocol to exclude areas from the surface up to 1,500 feet AGL within a radius of 3 nm of any public airport in accordance with FAA Order JO 7400.2. Training operations would avoid these airport exclusion zones.

Per FAA Order 710.65, *Air Traffic Control*, prioritized access to the proposed low-altitude MOAs by emergency response and medical aircraft would be maintained no matter the alternative selected; this would be documented in the Letter of Agreement between the FAA and Moody AFB. Compassion flights are not considered to be medical flights under FAA Order JO 7110.65, *Air Traffic Control*. FAA prioritizes and provides special handling for compassion flights when the CMF identifier is provided along with its radiotelephony call sign "COMPASSION" in filing flight plans with the FAA.

Under all four alternatives, it is expected that the existing low-altitude air traffic associated with the underlying airports, seasonal crop-dusting services, and emergency helicopter transportation services within this area would continue to be able to fly through this area through coordinated agreements with Moody AFB and appropriate coordination with the air traffic controlling agencies. Additionally, Moody AFB and Valdosta RAPCON would develop operational agreements with event organizers to accommodate large civilian flying events (such as the Sunbelt Agricultural Expo and annual soaring events). Most civilian air operations events occur at least partially during weekends, when there would be little to no military training activity in the proposed low-altitude MOAs. Additionally, under the operational agreements, Moody AFB would deactivate the proposed low-altitude MOAs to ensure the civilian air operations events would have unimpeded airspace access. Therefore, no adverse impacts on special civilian air operations events are anticipated.

NOTAMs are issued 6 hours in advance of the activation of MOAs outside of the published times of use, providing pilots an early option of rerouting. Schedules activating MOAs outside of the published days/times are provided to FAA at least 24 hours in advance of the activation and at least 48 hours in advance for night operations. Civilian traffic could also opt to fly VFR through the active MOAs as rerouting around an active MOA is not a DAF requirement. Given the types and required levels of training proposed in the low-altitude airspace, such an option would be taken at a considerable safety risk for both the civilian and military operators who would be sharing the airspace. Appropriate coordination with the Jacksonville ARTCC would be required to maintain safe separation of flight activities until the airspace is cleared for training to continue.

Jet traffic would continue to fly over the Moody Airspace Complex using common jet routes, and commercial traffic approaching the complex would follow the same flight deviations that they currently use. It is possible that air traffic along these routes may increase if aircraft are detoured to higher altitudes to avoid the airspace complex. If not already equipped, the transition to higher-altitude flights would incur added costs for additional fuel and oxygen. Discussion of the potential added costs is provided in **Section 4.9**; and the methodology is provided in **Appendix B, Section B-3**.

Measures to Avoid or Minimize Impacts on Airspace Users, Underlying Communities, and Airports. The following are the measures that the DAF will implement to avoid or minimize impacts on airspace users, airports, and the associated communities.

- Moody AFB, in coordination with Valdosta RAPCON and the Jacksonville ARTCC, would establish Letters of Authorization with affected public and private airports, as appropriate, to establish ATC procedures for approaches and departures when a low-altitude MOA is active.
- Moody AFB would continue to issue a NOTAM for lights-out training at least 48 hours in advance of the start of training. This training would continue to be conducted on an intermittent basis, Monday through Friday between the hours of sunset and 0100 hours.
- Moody AFB would provide a 6-hour advance notice prior to activation of a low-altitude MOA.
- The proposed low-altitude MOAs would continue to follow the protocol to exclude areas from the surface up to 1,500 feet AGL within a radius of 3 nm of any public airport in accordance with FAA Order JO 7400.2. Training operations would avoid these airport exclusion zones.
- The proposed low-altitude MOAs would continue to follow the protocol to exclude the 1 nm, 1,500-foot-AGL exclusion area around the city of Lakeland, Georgia, in the airspace associated with Grand Bay Range.
- Jacksonville ARTCC can request use of the Thud, Mustang, and Warhawk MOAs to accommodate air traffic through these areas. Additionally, air traffic along V routes (V-5, V-578, and V-579) transiting the Moody Airspace Complex would be prioritized by the Jacksonville ARTCC and Valdosta RAPCON to maintain an unimpeded and safe flow of aircraft between Valdosta and Atlanta.
- Coordination of military training operations within the Moody Airspace Complex with the appropriate ARTCC sectors would continue to minimize impacts on civilian air traffic approaching or departing from airports underlying the new low-altitude MOAs and reconfigured Moody 2 North MOA.
- Moody ATC and Valdosta RAPCON would continue to operate under protocols to prioritize and accommodate unimpeded approach and departure flights to the airports beneath and proximate to the Moody Airspace Complex, including those underlying low-altitude MOAs. IFR flights would be accommodated by the following:
 - For all IFR traffic approaching or departing the underlying airports, Moody AFB ATC is alerted that MOA clearance will be needed approximately 30 minutes prior to an arrival or departure for an IFR civilian aircraft.
 - Upon notification, ATC relocates or pauses military training activity in an active MOA, deactivates the MOA allowing for the IFR civilian aircraft to transit the airspace.
 - When the civilian aircraft is clear from the airspace, ATC reactivates the MOA for military training activities following the completion of the IFR civilian flight.
 - Most of the airports currently accommodated are not tower controlled, and civilian aircraft depart VFR and then call for clearance; at that time ATC clears the MOA of military training activity to provide access for the departing flight, which continues IFR according to its flight plan.
 - There are also weather requirements for IFR approaches and departures that are managed in the Moody Airspace Complex. If a civilian flight needs IFR due to

- weather, Moody AFB ATC deactivates the MOA, moves training operations away, then after the IFR flight is complete, reactivates the MOA, and returns to training.
- Additionally, to accommodate civilian air traffic transiting the region along a general east-west flight path, the existing 0.5 nm-wide low-altitude airspace corridor through the airspace complex (see **Figure 1.2.2**).
 - When inactive, Moody AFB would continue to turn over inactive MOAs to the FAA to accommodate civilian flight operations, per Department of Defense (DoD) and DAF policies.
 - Moody AFB would use FAA-established Flight Service frequencies, phone lines, websites, and mobile applications to communicate information to the general aviation community concerning MOA activation and deactivation. The general aviation community would be able to receive information on active MOAs:
 - Online at <https://sua.faa.gov>, <https://www.1800wxbrief.com>, or at <https://pilotweb.nas.faa.gov>
 - By phone at 1-800-WXBRIEF
 - In flight by contacting Flight Service
 - When Valdosta RAPCON activates or deactivates the MOAs, all surrounding air traffic control facilities would be notified to alleviate delays for subsequent arriving and transient aircraft. This real-time coordination between agencies is key to managing operations within the Moody Airspace Complex.
 - ATC shall ensure military aircraft operating in a MOA in which an IFR aircraft will depart from or land at an airport underlying the Moody Airspace Complex are separated in accordance with IFR procedures at all times.
 - Mid-air collision avoidance brochures would be updated to reflect changes to the Moody Airspace Complex and distributed to airports underlying and proximate to the Moody Airspace Complex.
 - For special civilian air operational events, such as the annual Glider Soaring Expo, Lakeland Fun and Sun, annual Sunbelt Agricultural Expo, and the rocketry organizations that sometimes require the use of lower-altitude airspace, Moody AFB and Valdosta RAPCON would develop operational agreements with the users to accommodate their periodic events and avoid conflicts between civilian aircraft operations during these events and military training activities in the proposed low-altitude MOAs.

4.2.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

Under Modified Alternative 1, the DAF would redistribute approximately 3,878 flight training operations (approximately 35 percent) from the Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Additionally, establishment of the new Grand Bay MOA would support R-3008 flight operations that would now extend to the floor of the MOA. As described under Alternative 1, a total of 268 flight operations below 500 feet are anticipated annually in the Moody 2 North and Grand Bay MOAs. These 268 operations account for approximately 4

percent of the operations planned in those two MOAs, and less than 1 percent of the total flight operations out of the installation.

Impacts on airspace management, airspace users, civilian flight operations along V-578 and V-579, and the underlying airports would be similar to, but less than, those described for Alternative 1. Further, Modified Alternative 1 is anticipated to accommodate more air traffic flying under the Moody Airspace Complex to transit the region because it would create fewer low-altitude MOAs, and the airspace encompassed by the Corsair North Low, Mustang Low, and Warhawk Low MOAs would be smaller than those proposed under Alternative 1.

Impacts on civilian flights would only occur when the military is conducting training operations (estimated to be 230 training days annually). Similar to Alternative 1, under Modified Alternative 1, approximately 47,000 civilian flights operate in the airspace of the existing Moody Airspace Complex. Of that total, approximately 8,618 annual (24 daily) civilian flights would be affected by the presence of the new low-altitude MOAs. This would mean approximately 3,391 annual (10 daily) VFR flights and approximately 5,227 annual (14 daily) IFR flights would be affected.

The types of impacts anticipated for affected flights are described in **Table 4.2-3**. These impacts may be minor to moderate depending upon the type of aircraft operation (VFR or IFR) and numbers of aircraft being delayed or rerouted. Aircraft transiting to and from airports underlying the airspace complex may experience minor flight delays, or may need to accomplish minor deviations from their course to avoid active training. Because Modified Alternative 1 would affect seven fewer airports than Alternative 1, anticipated minor flight delays for airport traffic in the region would be reduced by comparison. As explained in **Sections 3.2.4.6** and **4.2.2.2**, existing procedures followed by Moody AFB ATC and Valdosta RAPCON ensure that civilian IFR traffic has priority over military training operations for all approach and departure flights. Per these procedures, military training would be paused and associated military aircraft would be moved out of the airspace, the low-altitude MOAs would be deactivated, and IFR traffic would be routed through the deactivated MOA. These existing procedures would continue to be followed whenever necessary to allow IFR aircraft access to and from public-use airports.

Some aircraft transiting the region to reach other destinations may detour or would be rerouted around the active low-altitude MOAs (**Appendix B-3**). For a detouring aircraft, the estimated added flight distances would be as described for Alternative 1. Because civilian aircraft would continue to have access to the airspace underlying the Moody Airspace Complex up to the 1,000-foot AGL altitude floor of the proposed low-altitude MOAs, the airspace underlying the Thud MOA and the northern portions of the Mustang and Warhawk MOAs, and the existing east-west flight corridor through Sabre MOA and under Hawg North MOA (between the Moody 2 North and Warhawk Low MOAs; see **Figure 1.2-2**), it is expected that use of the detours would be minimized.

Impacts on airports in the region would be less under Modified Alternative 1 because the proposed low-altitude MOAs would overlies six fewer civilian airports (CKF, 75J, GE12, 0GE1, FZG, and 13GA) and the low-altitude floors of the proposed low MOAs would avoid

encroachment into underlying airport exclusion zones. Impacts on the Homerville Airport would be the same as described under Alternative 1. The same minimization measures identified for Alternative 1 to avoid or reduce impacts on flight operations would be implemented under Modified Alternative 1.

4.2.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

Under Alternative 2, the DAF would redistribute approximately 2,378 flight training operations (approximately 21 percent) from the Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Additionally, establishment of the new Grand Bay MOA would support R-3008 flight operations that would now extend to the floor of the MOA. As described under Alternative 1, a total of 268 flight operations below 500 feet are anticipated annually in the Moody 2 North and Grand Bay MOAs. These 268 operations account for approximately 4 percent of the operations planned in those two MOAs, and less than 1 percent of the total flight operations out of the installation.

Impacts on airspace management, airspace users, civilian flight operations along V-578 and V-579, and the underlying airports would be similar to, but slightly less than, those described for Alternative 1 because around 500 fewer aircraft would be affected under Alternative 2.

Impacts on civilian flights would only occur when the military is conducting training operations (estimated to be 230 training days annually). Similar to Alternative 1, under Alternative 2, approximately 47,000 civilian flights operate in the airspace of the existing Moody Airspace Complex. Of that total, around 32,700 annual (90 daily) civilian flights would be affected by the presence of the new low-altitude MOAs (see **Table 4.2-2**). This would mean around 12,900 annual (35 daily) VFR flights and around 19,800 annual (54 daily) IFR flights would be affected.

The types of impacts anticipated for affected flights are described in **Table 4.2-3**. These impacts may be minor to moderate depending upon the type of aircraft operation (VFR or IFR) and numbers of aircraft being delayed or rerouted. Aircraft transiting to and from airports underlying the airspace complex may experience minor flight delays, or may need to accomplish minor deviations from their course to avoid active training. As explained in **Sections 3.2.4.6 and 4.2.2.2**, existing procedures followed by Moody AFB ATC and Valdosta RAPCON ensure that civilian IFR traffic has priority over military training operations and for all approach and departure flights. Per these procedures, military training would be paused and associated military aircraft would be moved out of the airspace, the low-altitude MOAs would be deactivated, and IFR traffic would be routed through the deactivated MOA. These existing procedures would continue to be followed whenever necessary to allow IFR aircraft access to and from public-use airports.

Some aircraft transiting the region to reach other destinations may detour or would be rerouted around the active low-altitude MOAs (**Appendix B-3**). For a detouring aircraft, the estimated added flight distances would be as described for Alternative 1. Because aircraft would continue to have access to the airspace underlying the Moody Airspace Complex up to the 2,000-foot AGL altitude floor of the proposed low-altitude MOAs, and the existing east-west flight corridor

through Sabre MOA and under Hawg North MOA (between the Moody 2 North and Warhawk Low MOAs; see **Figure 1.2.2**), it is expected that use of the detours would be minimized.

Under Alternative 2, there would be fewer impacts on underlying airports than Alternative 1, because the proposed low-altitude MOA floors would not encroach upon the exclusion zones protecting public airport approaches and departures. Impacts on the Homerville Airport would be the same as described under Alternative 1. The same minimization measures identified for Alternative 1 to avoid or reduce impacts on flight operations would be implemented under Alternative 2.

4.2.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Under Alternative 3, the DAF would redistribute approximately 876 military flight operations (approximately 8 percent) from the Moody 2 North and Moody 2 South MOAs into the proposed low-altitude MOAs. Additionally, establishment of the new Grand Bay MOA would support R-3008 flight operations that would now extend to the floor of the MOA. As described under Alternative 1, a total of 268 flight operations below 500 feet are anticipated annually in the Moody 2 North and Grand Bay MOAs. These 268 operations account for approximately 4 percent of the operations planned in those two MOAs, and less than 1 percent of the total flight operations out of the installation.

Impacts on airspace management, airspace users, civilian flight operations along V-578 and V-579, and the underlying airports would be similar to, but less than, those described for Alternative 2. It is anticipated that the proposed low-altitude MOA floors under Alternative 3 would accommodate more air traffic flying under the Moody Airspace Complex to transit the region.

Under Alternative 3, an estimated total 41,000 civilian flights operate in the airspace of the existing Moody Airspace Complex (see **Table 4.2-2**). Of that total, it was estimated that around 29,000 annual (81 daily) civilian flights would be affected by the presence and activation of the proposed low-altitude MOAs. This would mean around 11,600 annual (32 daily) VFR flights and 17,800 annual (49 daily) IFR annual flights would be affected.

The types of impacts anticipated for affected flights are described in **Table 4.2-3**. Estimated added flight distances for aircraft that would detour or be rerouted around or through the complex to avoid active SUA would be as described for Alternative 1. Because Alternative 3 would affect around 3,800 (15 percent) fewer aircraft than Alternatives 1 and 2, IFR approaches and departures at underlying airports would be prioritized as detailed in **Section 4.2.2.2**, aircraft would still be able to use the airspace underlying the Moody Airspace Complex (up to the floor of the proposed 4,000-foot low-altitude MOAs), the east-west flight corridor extending through Sabre MOA and under Hawg North MOA (between the Moody 2 North and Warhawk Low MOAs; see **Figure 1.2.2**), it is expected that use of the detours or rerouting options around or through the Moody Airspace Complex would be minimized.

Under Alternative 3, there would be fewer impacts on underlying airports than Alternative 2, because the proposed low-altitude MOA floors would not encroach upon the exclusion zones

protecting public airport approaches and departures. Impacts on the Homerville Airport would be the same as described under Alternative 1. The same minimization measures identified for Alternative 1 to avoid or reduce impacts on flight operations would be implemented under Alternative 3.

4.2.6 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and the proposed new low-altitude MOAs would not be created. The Moody Airspace Complex would be maintained in its current state and the number of flying hours and existing MOAs would remain the same resulting in continued significant, long-term, adverse impacts on the flight training operations and training missions at Moody AFB. Utilization of the existing low-altitude airspace would continue to be highly congested and the operational and scheduling constraints noted in **Section 3.2.4.5, *Airspace Scheduling***, would remain unchanged. No new impacts on airspace management of military and civilian personnel, or the public would be anticipated.

4.3 Acoustic Environment (Noise)

4.3.1 Evaluation Criteria

Any impact from noise would be considered significant if implementation of the Proposed Action were to substantially increase noise levels in a noise-sensitive area, increase noise levels over large geographic areas or populations, substantially increase the percentage or number of people highly annoyed by aircraft noise, or generate individual acoustic events loud enough to damage hearing or structures.

4.3.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

Alternative 1 would have less than significant effects on the noise environment. This alternative would introduce incremental changes to the overall noise environment (i.e., Day-Night Sound Level [DNL]) within the Moody Airspace Complex and adjacent to the Grand Bay Range; however, changes in the overall noise environment in any area would not be distinguishable when compared to existing conditions. Alternative 1 would introduce individual aircraft overflights into the areas beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs that would be both louder and more frequent than existing conditions. Conversely, the number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease; however, on rare occasions overflights in the Moody 2 North MOA would be slightly lower when compared to existing conditions. Aircraft operations and associated noise at Moody AFB itself would remain unchanged when compared to existing conditions, but arrival and departure flight tracks north of the Grand Bay Range would be extended to enhance flight safety.

Alternative 1 would not (1) increase noise levels in a noise-sensitive area exposed to noise above 65 A-weighted decibels (dBA) DNL, (2) substantially increase noise levels over large geographic areas or populations, (3) substantially increase the percentage or number of people

highly annoyed by aircraft noise, or (4) generate individual acoustic events loud enough to damage hearing or structures.

4.3.2.1 Moody Airspace Complex

This section examines the aircraft noise beneath the Moody Airspace Complex with the implementation of Alternative 1 in terms of (1) overall average aircraft noise and (2) noise from individual overflights. This is to provide a sense of the overall effects from all the aircraft operations combined on the noise environment, as well as a reasonable description of the effects of single aircraft operations. As indicated in **Section 2.1.1**, the primary users of the Moody Airspace Complex would conduct training using A-10C, A-29, HC-130J, and HH-60G aircraft, and transient users would continue to makeup approximately 15 percent of the airspace usage. Transient users would include a wide variety of both fixed-wing and rotary wing aircraft (e.g., KC-135, C-17, RQ-11, F-35, F-18, KC-10, F-15, F-16, and C-145). The noise analysis considered all military aircraft operations in the complex, including based and transient aircraft, for each of the proposed aircraft alternatives.

Overall Aircraft Noise. Because the action encompasses an area that is larger than the immediate vicinity of an airport and activities above 3,000 feet AGL, the noise analysis includes an analysis of changes in noise levels and exposure using population and demographic information from Census blocks. The assessment includes depictions of (1) the population within areas exposed at or above DNL 65 dBA, at or above DNL 60 dBA but less than DNL 65 dBA, and at or above DNL 45 dBA but less than DNL 60 dBA (FAA 2015). Because the study encompasses a large geographical area, the effects are expected to be of medium intensity over a large area as opposed to of high intensity over a smaller area (e.g., noise near an air installation). Change-of-exposure tables were developed to identify where noise will change by 1.5, 3, and 5 dBA. The FAA refers to noise changes of 5 dBA DNL as “reportable” (FAA 2015).

Table 4.3-1 and **Figure 4.3-1** summarize the overall noise levels (i.e., DNL) and their change when compared to existing conditions beneath the Moody Airspace Complex with the implementation of Alternative 1. The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would not change when compared to existing conditions. Areas beneath the MOAs would experience an increase in sound levels of up to 3.3 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.7 percent; the increase of up to 3.3 dBA DNL would not be in a noise-sensitive areas exposed to noise above 65 dBA DNL. Areas beneath the Moody 2 South and Hawg South MOAs would experience a decrease in overall sound level of 1.1 dBA DNL and a reduction in the percent of highly annoyed persons of 0.1 percent. Areas beneath the Sabre MOA would remain below 35 dBA DNL.

These changes beneath all existing SUA and the proposed low-altitude MOAs would be incremental, and the overall noise environment would be comparable to existing conditions. As with existing conditions, aircraft operations would be spread out throughout the entire Moody Airspace Complex with noise from aircraft activities focused in areas with heavy use and low-

altitude access. Noise from aircraft operations under Alternative 1 would continue to not exceed 65 dBA DNL beyond of the immediate vicinity of Moody AFB and the Grand Bay Range and would remain fully compatible with all land uses. These effects would be considered minor.

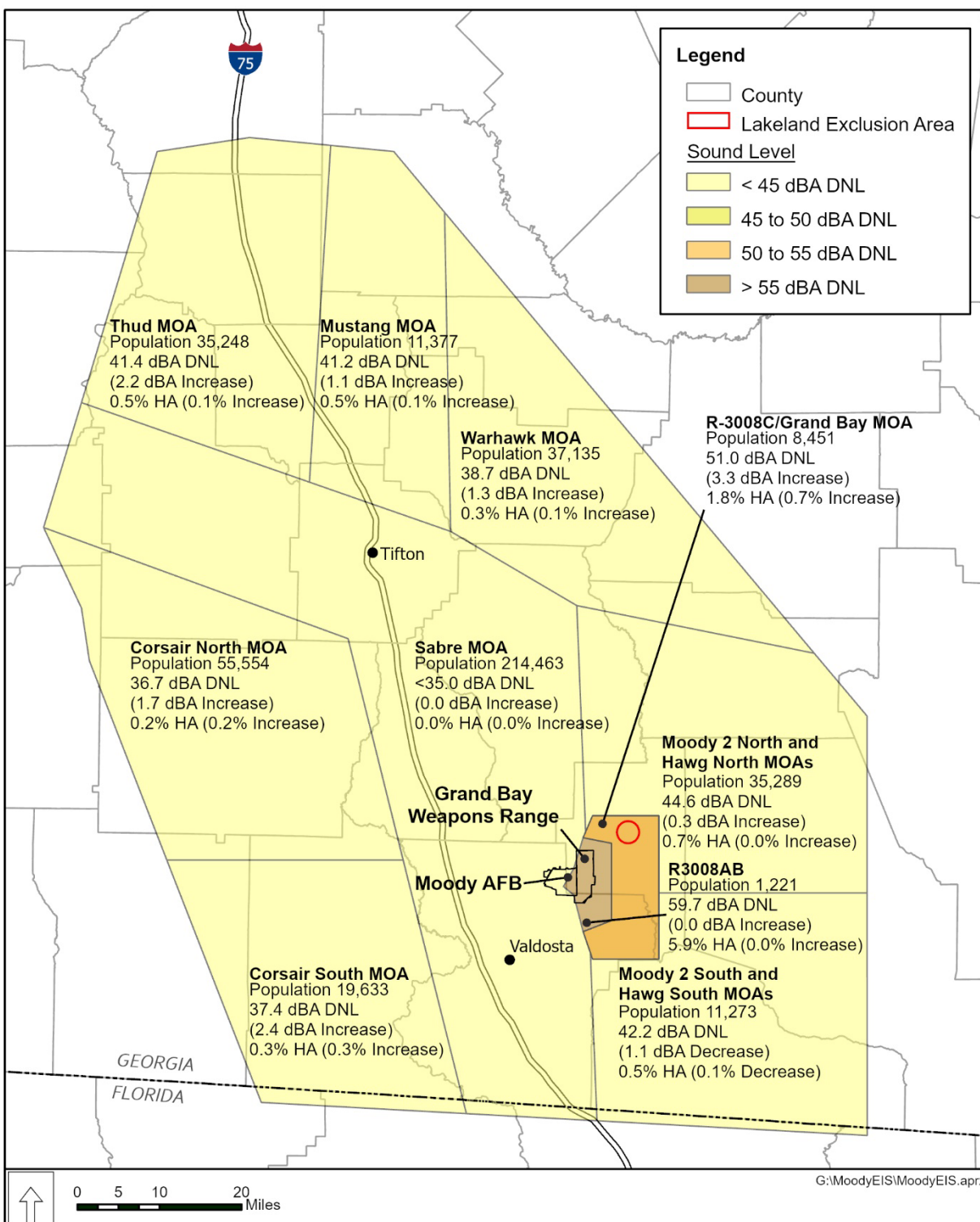
Table 4.3-1. Overall Sound Levels and Percent Highly Annoyed - Alternative 1

Airspace	Popula- tion	Existing		Alternative 1			
		Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Overall Sound Level (dBA DNL)	Change in Overall Sound Level (dBA DNL)	Percent Highly Annoyed (Population)	Change in Percent Highly Annoyed (Population)
Corsair North MOAs	55,803	<35.0	0.0%	36.7	1.7	0.2% (112)	0.2% (112)
Corsair South MOAs	19,633	<35.0	0.0%	37.4	2.4	0.3% (59)	0.3% (59)
Moody 2 North and Hawg North MOAs	9,154	44.3	0.7%	44.6	0.3	0.7% (64)	0.0% (0)
Moody 2 South and Hawg South MOAs	7,416	43.3	0.6%	42.2	-1.1	0.5% (37)	-0.1% (7)
Mustang MOAs	10,503	40.1	0.4%	41.2	1.1	0.5% (53)	0.1% (11)
R-3008A/B	1,221	59.7	5.9%	59.7	0.0	5.9% (72)	0.0% (0)
R-3008C/Grand Bay MOA	7,416	47.7	1.2%	51.0	3.3	1.8% (133)	0.7% (52)
Sabre MOA	211,165	<35.0	0.0%	<35.0	0.0	0.0% (0)	0.0% (0)
Thud MOAs	34,756	39.2	0.4%	41.4	2.2	0.5% (174)	0.1% (35)
Warhawk MOAs	37,135	37.4	0.3%	38.7	1.3	0.3% (111)	0.1% (37)

Sources: Air Force 2016, US Census Bureau 2019

dBA – A-weighted decibel; **DNL** – day-night sound level; **MOA** – Military Operations Area; % – percent

Individual Overflight Noise. The primary and secondary users of the Moody Airspace Complex would not change under Alternative 1. **Table 3.2-7, Figure 3.2-2, and Figure 3.2-3** present the maximum sound level (L_{max}) and sound exposure level (SEL) for individual aircraft overflights that would continue to be conducted in the complex. L_{max} for typical aircraft overflights (A-10, A-29, C-130, and H-60) above 8,000 feet AGL would continue to not exceed the 75 dBA threshold for speech interference. Overflights in the existing Corsair North, Corsair South, Hawg North, Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs would continue to be audible to individuals on the ground but would not normally interfere with communication or learning in school classroom settings. Individual overflights in the lower portions of the existing Moody 2 North and Moody 2 South MOAs and Restricted Area R-3008 (i.e., below



Sources: Air Force 2016, US Census Bureau 2019

Figure 4.3-1. Overall Sound Levels and Percent Highly Annoyed (HA) – Alternative 1

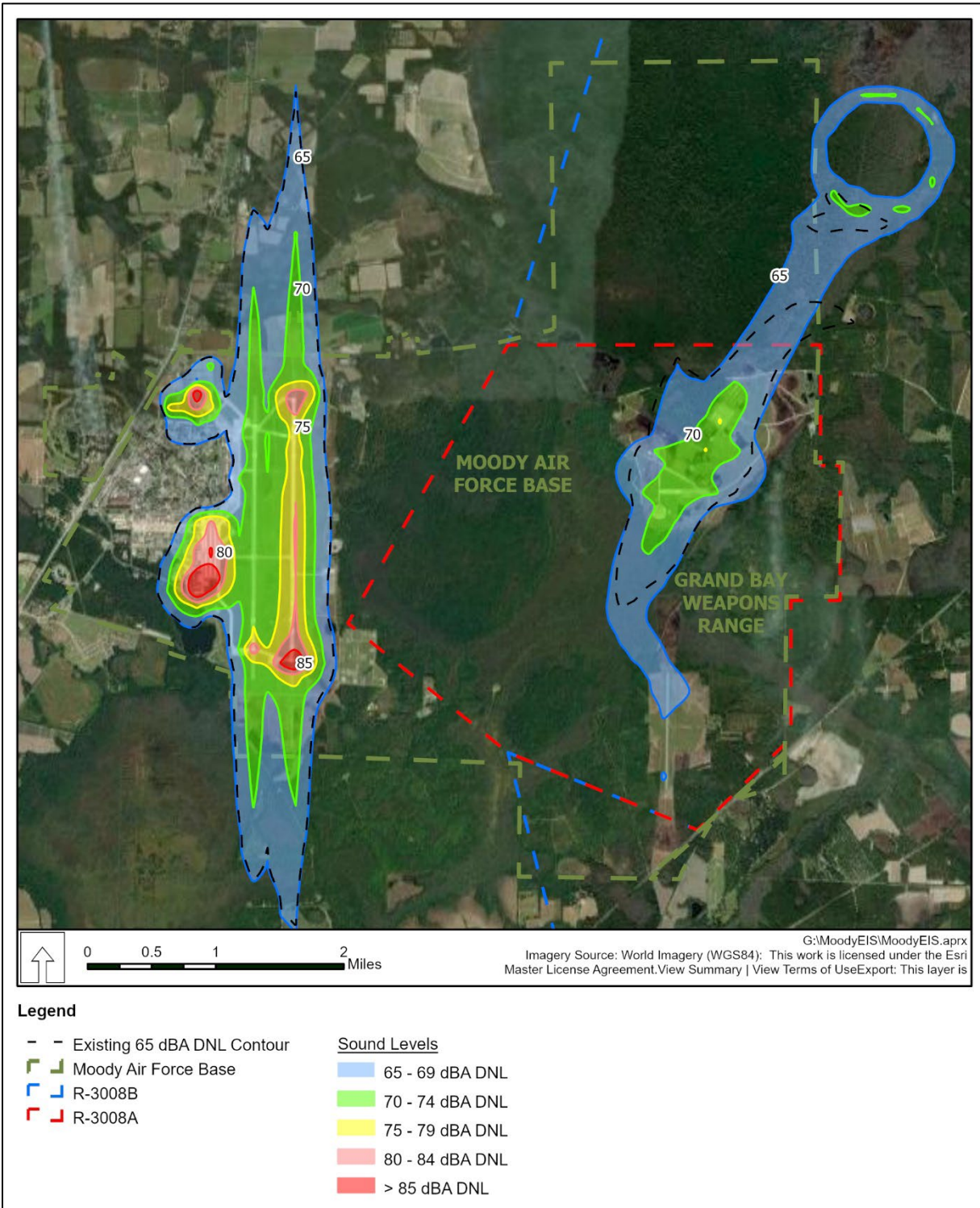
1,000 to 2,000 feet AGL) would continue to be loud enough to interfere with communication at ground level; however, the total number of these overflights would be 31 percent less than existing conditions due to the redistribution of operations into the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs.

With the implementation of Alternative 1, noise levels from individual overflights would be higher than existing conditions for areas beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. Areas beneath these proposed MOAs would experience individual aircraft overflights ranging from audible to loud. On rare occasions overflights would peak at 75 dBA and 90 dBA SEL and would have the potential to interfere with communication, affect learning in school classroom settings, and disturb sleep for individuals beneath the proposed low-altitude MOAs. There would be approximately 12,365 individual sorties within these proposed low-altitude MOAs each year, which would average to about 33 operations per day within the proposed low-altitude MOAs. Approximately 10 percent of these overflights (three operations per day) would be flown at altitudes where they would be loud enough to interfere with speech on the ground, and less than 1 percent of these overflights (less than three operations every 10 days) would be flown at night at altitudes where they would be loud enough to interfere with sleep. These limited number of overflights would be intermittent and spread throughout the proposed five low-altitude MOAs with some locations experiencing these events more often; however, events would be offset with a one-to-one reduction in overflights within the Moody 2 North and Moody 2 South MOAs. As outlined above, individual overflights would not be loud enough or frequent enough to create areas of incompatible land use beneath these proposed MOAs. These effects would be considered less than significant.

As with existing conditions, and for similar reasons, aircraft overflights in the Moody Airspace Complex would not generate individual acoustic events loud enough to damage hearing or structures. However, some individual low-level overflights would be loud and abrupt enough to startle individuals and cause readily perceptible vibrations in homes and buildings directly under their flight paths. Although some individual low-level overflights could cause startle effects and temporary vibrations to structures, the L_{dnmr} for the overflights was determined to be equivalent to the DNL and would not exceed the 65 dBA threshold for any of the MOAs in the Moody Airspace Complex.

4.3.2.2 Noise Contours at Moody Air Force Base and the Grand Bay Range

Figure 4.3-2 shows the DNL noise contours surrounding Moody AFB and the Grand Bay Range both with and without Alternative 1. The number and types of aircraft operations at Moody AFB itself and associated noise would remain unchanged when compared to existing conditions. The number and types of aircraft operations at the Grand Bay Range would remain unchanged; however, to eliminate the "hard bank" approach and departures, flight tracks on the north side of the range would be extended. This would elongate the 65 dBA DNL contour approximately 1.5 miles north when compared to existing conditions. Alternative 1 would introduce individual overflights and associated acoustical events into areas further north of the range than are experienced under existing conditions. As outlined above, these overflights would not be loud



Source: Air Force 2016

Figure 4.3-2. Noise Contours for Moody Air Force Base and the Grand Bay Range – All Alternatives

enough or frequent enough to introduce areas of incompatible land use associated with aircraft operations at the Grand Bay Range. These effects would be less than significant.

4.3.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

Modified Alternative 1 would have less than significant effects on the noise environment. Noise from aircraft operations as described under Alternative 1 would not be appreciably different for Modified Alternative 1. With the total number of proposed low-altitude MOAs being reduced by one-third, the reduction in footprint and subsequent compression of aircraft operations is completely offset by removal of the one-third increase in operations initially analyzed for Alternative 1 in the Draft EIS. This increase in the Draft EIS was included specifically to account for a reduced number of proposed low-altitude MOAs, and remains valid with the proposed reduced footprint under Modified Alternative 1. In addition, with the lateral boundaries of the proposed low-altitude MOAs being reduced, individual low-flying military overflights and associated acoustical events under Modified Alternative 1 would not occur in Crisp, Dooly, Daugherty, Lee, Turner, Ware, or Wilcox counties. Under Modified Alternative 1, sound levels under the proposed low-altitude MOAs would not be substantively greater than what was described in the Draft EIS Alternative 1, would continue to not exceed 65 dBA DNL beyond the immediate vicinity of Moody AFB and the Grand Bay Range, and would remain fully compatible with all land uses (Table 4.3-2 and Figure 4.3-3).

Table 4.3-2. Overall Sound Levels and Percent Highly Annoyed – Modified Alternative 1

Airspace	Population	Existing		Modified Alternative 1			
		Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Overall Sound Level (dBA DNL)	Change in Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Change in Percent Highly Annoyed
Corsair North MOAs	55,803	<35.0	0.0%	37.2	2.2	0.3%	0.3%
Corsair South MOAs	19,633	<35.0	0.0%	37.3	2.3	0.3%	0.3%
Moody 2 North and Hawg North MOAs	9,154	44.3	0.7%	44.6	0.3	0.7%	0.0%
Moody 2 South and Hawg South MOAs	7,416	43.3	0.6%	42.2	1.1	0.5%	-0.1%
Mustang MOAs	10,503	40.1	0.4%	39.8	-0.3	0.4%	0.0%

Airspace	Population	Existing		Modified Alternative 1			
		Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Overall Sound Level (dBA DNL)	Change in Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Change in Percent Highly Annoyed
R-3008A/B	1,221	59.7	5.9%	59.7	0.0	5.9%	0.0%
R-3008C/Grand Bay MOA	7,416	47.7	1.2%	51	3.3	1.8%	0.7%
Sabre MOA	211,165	<35.0	0.0%	<35.0	0.0	0.0%	0.0%
Thud MOAs	34,756	39.2	0.4%	39.2	0.0	0.4%	0.0%
Warhawk MOAs – Including Mustang Low	37,135	37.4	0.3%	39	1.6	0.3%	0.1%

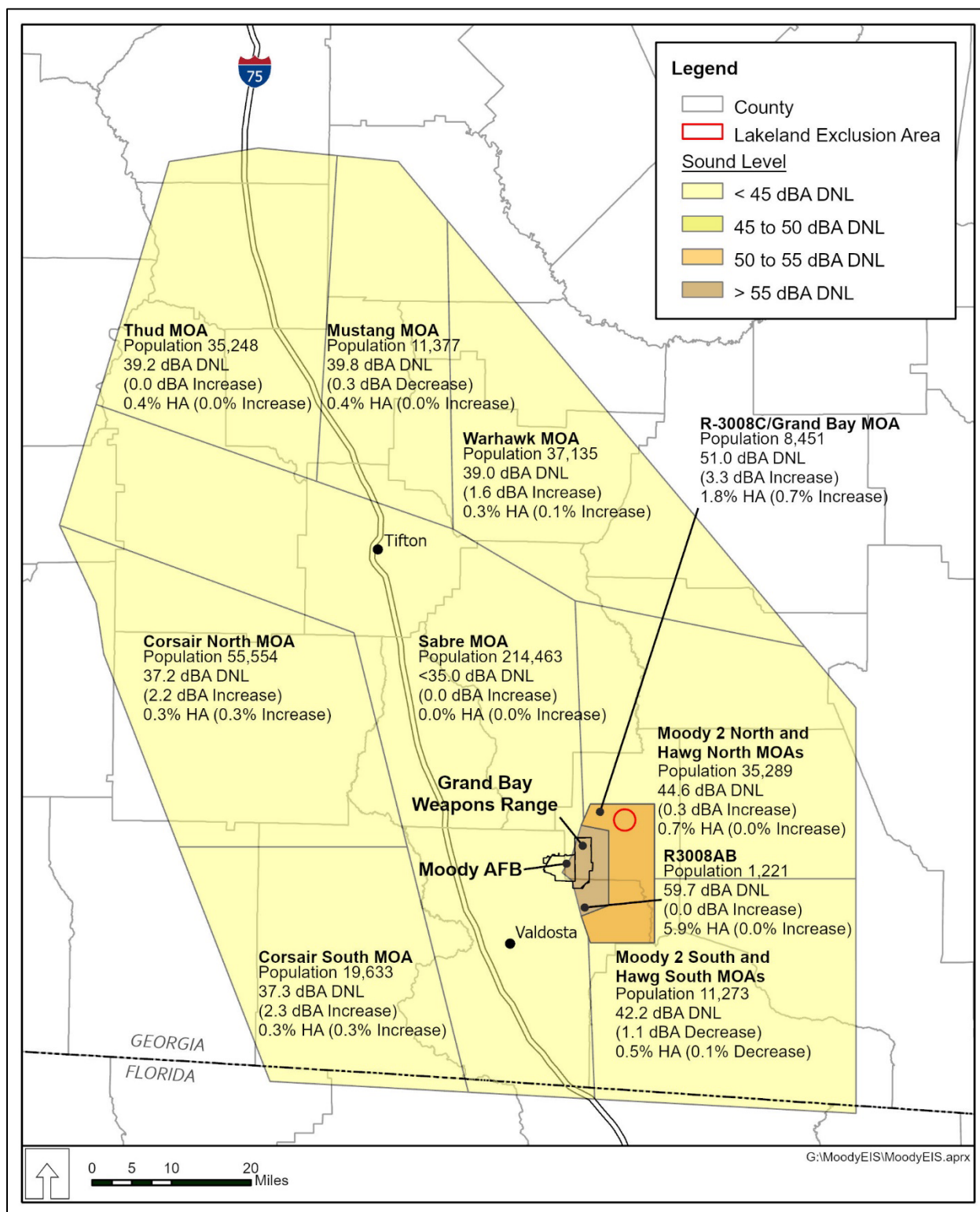
Sources: Air Force 2016, US Census Bureau 2019

dBA – A-weighted decibel; **DNL** – day-night sound level; **MOA** – Military Operations Area

4.3.1 *Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor*

Alternative 2 would have less than significant effects on the noise environment. This alternative would introduce incremental changes to the overall noise environment (i.e., DNL) within the Moody Airspace Complex and adjacent to the Grand Bay Range. Alternative 2 would introduce individual aircraft overflights but would be comparable to existing conditions in areas beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. Individual overflights in these areas would be both louder and more frequent than existing conditions. Conversely, the number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease; however, on rare occasions overflights in Moody 2 North MOA would be slightly lower when compared to existing conditions. Aircraft operations and associated noise at Moody AFB itself would remain unchanged when compared to existing conditions, but arrival and departure flight tracks north of the Grand Bay Range would be extended to enhance flight safety.

Alternative 2 would not (1) increase noise levels in a noise-sensitive area exposed to noise above 65 A-weighted decibels (dBA) DNL, (2) substantially increase noise levels over large geographic areas or populations, (3) substantially increase the percentage or number of people highly annoyed by aircraft noise, or (4) generate individual acoustic events loud enough to damage hearing or structures.



Sources: Air Force 2016, US Census Bureau 2019

Figure 4.3-3. Overall Sound Levels and Percent Highly Annoyed (HA) – Modified Alternative 1

4.3.1.1 Moody Airspace Complex

This section examines the aircraft noise beneath the Moody Airspace Complex with the implementation of Alternative 2 in terms of (1) overall average aircraft noise and (2) noise from individual overflights. This is to provide a sense of the overall effects from all the aircraft operations combined on the noise environment, as well as a reasonable description of the effects of single aircraft operations.

Overall Aircraft Noise. Table 4.3-3 and Figure 4.3-4 summarize the overall noise levels (i.e., DNL) and their change when compared to existing conditions beneath the Moody Airspace Complex with the implementation of Alternative 2. The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would not change when compared to existing conditions. Areas beneath the MOAs would experience an increase in sound levels of up to 2.4 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.5 percent; the increases of up to 2.4 dBA DNL would not be in noise-sensitive areas exposed to noise above 65 dBA DNL. Areas beneath the Moody 2 South and Hawg South MOAs would experience a decrease in overall sound level of 1.1 dBA DNL and a reduction in the percent of highly annoyed persons of 0.1 percent. Areas beneath the Sabre MOA would remain below 35 dBA DNL.

These changes beneath all existing MOAs and Restricted Area R-3008 and proposed low-altitude MOAs would be incremental, and the overall noise environment would be comparable to existing conditions. As with existing conditions, aircraft operations would be spread out throughout the entire Moody Airspace Complex with noise from aircraft activities focused in areas with heavy use and low-altitude access. Noise from aircraft operations under Alternative 2 would continue to not exceed 65 dBA DNL beyond the immediate vicinity of Moody AFB and the Grand Bay Range, and would remain fully compatible with all land uses. These effects would be considered minor.

Individual Overflight Noise. The primary and secondary users of the Moody Airspace Complex would not change under Alternative 2. Table 3.2-7, Figure 3.2-2, and Figure 3.2-3 present the L_{max} and SEL for individual aircraft overflights that would continue to be conducted in the complex. L_{max} for typical aircraft overflights (A-10, A-29, C-130, and H-60) above 8,000 feet AGL would continue not to exceed the 75 dBA threshold for speech interference. Overflights in the existing Corsair North, Corsair South, Hawg North, and Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs would continue to be audible to individuals on the ground, but not normally interfere with communication or learning in school classroom settings. Individual overflights in the lower portions of the existing Moody 2 North MOA, Moody 2 South MOA, and Restricted Area R-3008 (i.e., below 1,000 to 2,000 feet AGL) would continue to be loud enough to interfere with communication at ground level; however, the total number of these overflights would be 16 percent less than existing conditions due to the redistribution of operations into the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs.

Table 4.3-3. Overall Sound Levels and Percent Highly Annoyed - Alternative 2

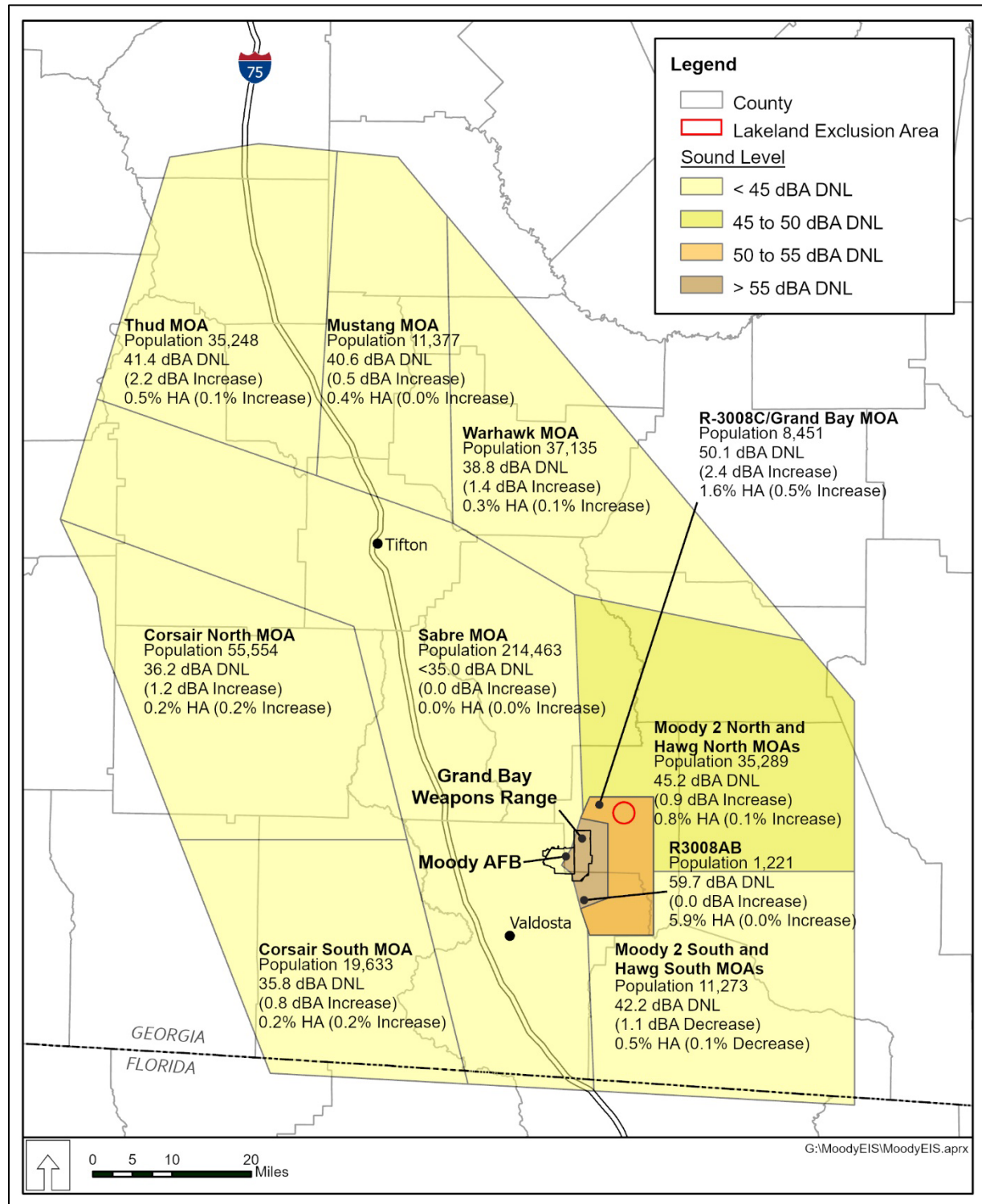
Airspace	Population	Existing		Alternative 2			
		Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Overall Sound Level (dBA DNL)	Change in Overall Sound Level (dBA DNL)	Percent Highly Annoyed (Population)	Change in Highly Annoyed (Population)
Corsair North MOAs	55,803	<35.0	0.0%	36.2	1.2	0.2% (112)	0.2% (112)
Corsair South MOAs	19,633	<35.0	0.0%	35.8	0.8	0.2% (40)	0.2% (40)
Moody 2 North and Hawg North MOAs	9,154	44.3	0.7%	45.2	0.9	0.8% (73)	0.1% (9)
Moody 2 South and Hawg South MOAs	7,416	43.3	0.6%	42.2	-1.1	0.5% (37)	-0.1% (7)
Mustang MOAs	10,503	40.1	0.4%	40.6	0.5	0.4% (42)	0.0% (0)
R-3008A/B	1,221	59.7	5.9%	59.7	0.0	5.9% (72)	0.0% (0)
R-3008C/Grand Bay MOA	7,416	47.7	1.2%	50.1	2.4	1.6% (118)	0.5% (37)
Sabre MOA	211,165	<35.0	0.0%	<35.0	0.0	0.0% (0)	0.0% (0)
Thud MOAs	34,756	39.2	0.4%	41.4	2.2	0.5% (174)	0.1% (35)
Warhawk MOAs	37,135	37.4	0.3%	38.8	1.4	0.3% (111)	0.1% (37)

Sources: Air Force 2016, US Census Bureau 2019

dBA- A-weighted decibel; **DNL** – day-night sound level; **MOA** – Military Operations Area; % – percent

With the implementation of Alternative 2, noise levels from individual overflights would be appreciably higher for areas beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. Areas beneath these proposed MOAs would experience individual aircraft overflights ranging from audible to loud. Unlike Alternative 1, individual overflights would be above 2,000 feet AGL and would not be louder than 75 dBA or 90 dBA SEL and would not have the potential to interfere with communication, affect learning in school classroom settings, and disturb sleep for individuals beneath the proposed low-altitude MOAs. Individual overflights would not be loud enough or frequent enough to create areas of incompatible land use beneath these proposed MOAs. These effects would be considered minor.

As with existing conditions, and for similar reasons, aircraft overflights in the Moody Airspace Complex would not generate individual acoustic events loud enough to damage hearing or structures. However, individual low-level overflights would be loud and abrupt enough to startle individuals and cause readily perceptible vibrations in homes and buildings directly under their flight paths. Although some individual low-level overflights could cause startle effects and temporary vibrations to structures, the L_{dnmr} for the overflights was determined to be equivalent



Sources: Air Force 2016, US Census Bureau 2019

Figure 4.3-4. Overall Sound Levels and Percent Highly Annoyed (HA) – Alternative 2

to the DNL and would not exceed the 65 dBA threshold for any of the MOAs in the Moody Airspace Complex.

4.3.1.2 Noise Contours for the Moody Air Force Base and the Grand Bay Range

The nature and overall level of effects at Moody AFB and the Grand Bay Range would be identical to those outlined under Alternative 1. **Figure 4.3-2** shows the DNL noise contours surrounding Moody AFB and the Grand Bay Range both with and without Alternative 2. Aircraft operations and associated noise at Moody AFB itself would remain unchanged when compared to existing conditions, but arrival and departure flight tracks north of the Grand Bay Range would be extended to enhance flight safety. This would introduce individual overflights and associated acoustical events into areas further north of the range than are experienced under existing conditions. As outlined under Alternative 1 and for similar reasons, these overflights would not be loud enough or frequent enough to introduce areas of incompatible land use associated with aircraft operations at the Grand Bay Range. These effects would be considered minor.

4.3.2 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Alternative 3 would have less than significant effects on the noise environment. This alternative would introduce incremental changes to the overall noise environment (i.e., DNL) within the Moody Airspace Complex and adjacent to the Grand Bay Range; however, the overall noise environment in any area would be comparable to existing conditions. Alternative 3 would introduce individual aircraft overflights into the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs that would be both louder and more frequent than existing conditions. Conversely, the number of individual overflights in the Moody 2 North and Moody 2 South MOAs would decrease; however, on rare occasions overflights in Moody 2 North would be slightly lower when compared to existing conditions. Aircraft operations and associated noise at Moody AFB itself would remain unchanged when compared to existing conditions, but arrival and departure flight tracks north of the Grand Bay Range would be extended to enhance flight safety.

Alternative 3 would not (1) increase noise levels in a noise-sensitive area exposed to noise above 65 A-weighted decibels (dBA) DNL, (2) substantially increase noise levels over large geographic areas or populations, (3) substantially increase the percentage or number of people highly annoyed by aircraft noise, or (4) generate individual acoustic events loud enough to damage hearing or structures.

4.3.2.1 Moody Airspace Complex

This section examines the aircraft noise beneath the Moody Airspace Complex with the implementation of Alternative 3 in terms of (1) overall average aircraft noise, and (2) noise from individual overflights. This is to provide a sense of the overall effects from all the aircraft operations combined on the noise environment, as well as a reasonable description of the effects of single aircraft operations.

Overall Aircraft Noise. Table 4.3-4 and Figure 4.3-5 summarize the overall noise levels (i.e., DNL) and their change when compared to existing conditions beneath the Moody Airspace Complex with the implementation of Alternative 3. The estimated DNL would range from less than 35.0 dBA in areas beneath mid-altitude MOAs or areas with limited air operations up to 59.7 dBA in the low-altitude training areas surrounding the Grand Bay Range, which would be the same as under existing conditions. Areas beneath the MOAs would experience an increase in sound levels of up to 2.2 dBA DNL and an increase in the percent of highly annoyed persons of up to 0.3 percent; the increase of up to 2.2 dBA DNL would not be in noise-sensitive areas exposed to noise above 65 dBA DNL. Areas beneath the Moody 2 North, Moody 2 South, Hawg North, and Hawg South MOAs would experience a decrease in overall sound levels but no change in the percent of highly annoyed persons. Areas beneath the Corsair North, Corsair South, and Sabre MOAs would remain below 35 dBA DNL.

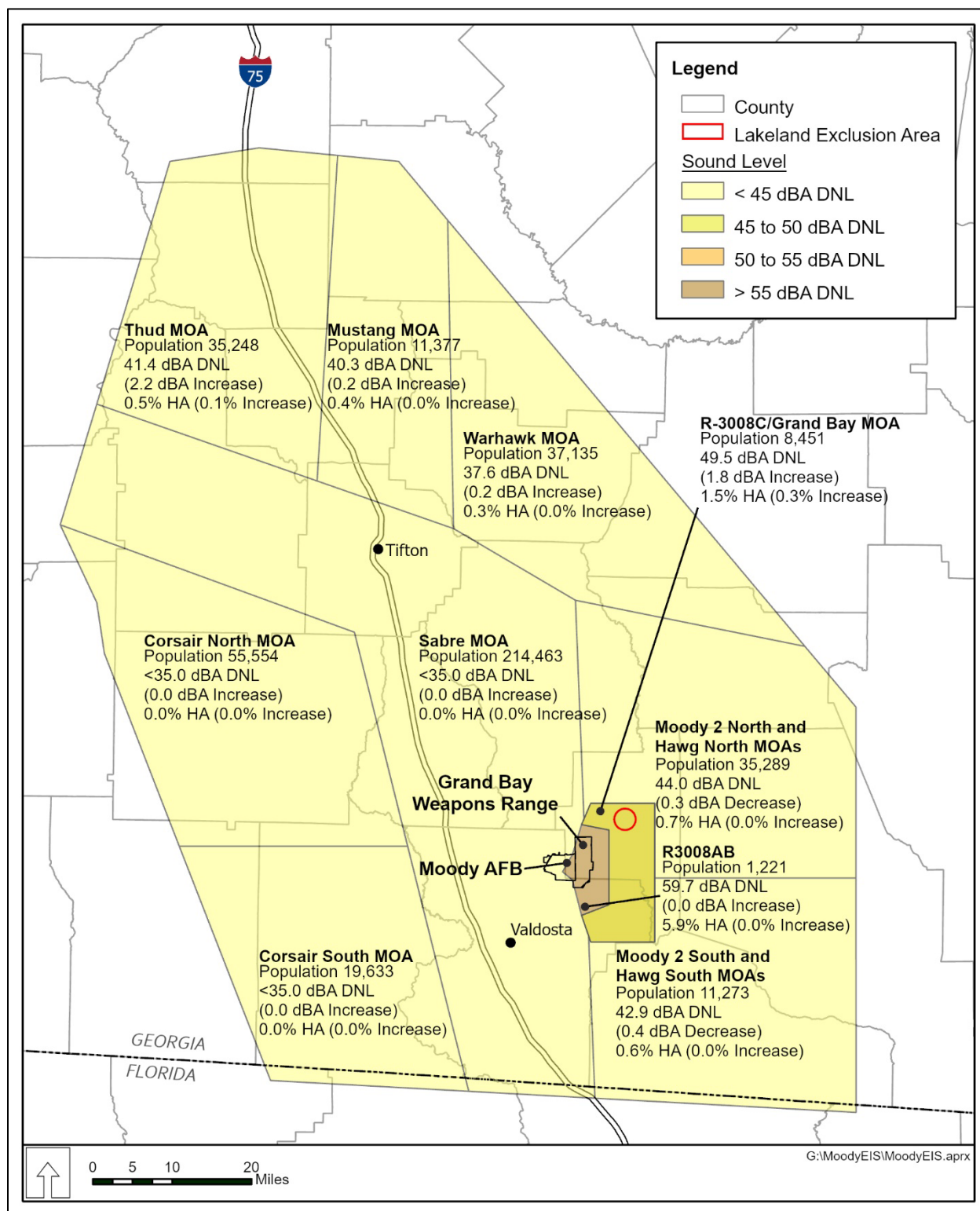
These changes would be incremental, and the overall noise environment would be comparable to existing conditions. As with existing conditions, aircraft operations would be spread out throughout the entire Moody Airspace Complex with noise from aircraft activities focused in areas with heavy use and low-altitude access. Noise from aircraft operations under Alternative 3 would continue to not exceed 65 dBA DNL beyond the immediate vicinity of Moody AFB and the Grand Bay Range, and would remain fully compatible with all land uses. These effects would be considered minor.

Table 4.3-4. Overall Sound Levels and Percent Highly Annoyed – Alternative 3

Airspace	Popula-tion	Existing		Alternative 3			
		Overall Sound Level (dBA DNL)	Percent Highly Annoyed	Overall Sound Level (dBA DNL)	Change in Overall Sound Level (dBA DNL)	Percent Highly Annoyed (Population)	Change in Percent Highly Annoyed (Population)
Corsair North MOAs	55,803	<35.0	0.0%	<35.0	0.0	0.0% (0)	0.0% (0)
Corsair South MOAs	19,633	<35.0	0.0%	<35.0	0.0	0.0% (0)	0.0% (0)
Moody 2 North and Hawg North MOAs	9,154	44.3	0.7%	44.0	-0.3	0.7% (64)	0.0% (0)
Moody 2 South and Hawg South MOAs	7,416	43.3	0.6%	42.9	-0.4	0.6% (45)	0.0% (0)
Mustang MOAs	10,503	40.1	0.4%	40.3	0.2	0.4% (42)	0.0% (0)
R-3008A/B	1,221	59.7	5.9%	59.7	0.0	5.9% (72)	0.0% (0)
R-3008C/Grand Bay MOA	7,416	47.7	1.2%	49.5	1.8	1.5% (111)	0.3% (22)
Sabre MOA	211,165	<35.0	0.0%	<35.0	0.0	0.0% (0)	0.0% (0)
Thud MOAs	34,756	39.2	0.4%	41.4	2.2	0.5% (174)	0.1% (35)
Warhawk MOAs	37,135	37.4	0.3%	37.6	0.2	0.2% (74)	0.0% (0)

Sources: Air Force 2016, US Census Bureau 2019

dBA – A-weighted decibel; **DNL** – day-night sound level; **MOA** – Military Operations Area



Sources: Air Force 2016, US Census Bureau 2019

Figure 4.3-5. Overall Sound Levels and Percent Highly Annoyed (HA) – Alternative 3

Individual Overflight Noise. The primary and secondary users of the Moody Airspace Complex would not change under Alternative 3. **Table 3.2-7**, **Figure 3.2-2**, and **Figure 3.2-3** present the L_{max} and SEL for individual aircraft overflights that would continue to be conducted in the complex. L_{max} for typical aircraft overflights (A-10, A-29, C-130, and H-60) above 8,000 feet AGL would continue not to exceed the 75 dBA threshold for speech interference. Overflights in the existing Corsair North, Corsair South, Hawg North, and Hawg South, Mustang, Thud, Sabre, and Warhawk MOAs would continue to be audible to individuals on the ground, but do not normally interfere with communication or learning in school classroom settings. Individual overflights in the lower portions of the existing Moody 2 North MOA, Moody 2 South MOA, and Restricted Area R-3008 (i.e., below 1,000 to 2,000 feet AGL) would continue to be loud enough to interfere with communication at ground level; however, the total number of these overflights would be 7 percent less than existing conditions due to the redistribution of operations into the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs.

With the implementation of Alternative 3, noise levels from individual overflights would be slightly higher for areas beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. Areas beneath these proposed low-altitude MOAs would experience individual aircraft overflights ranging from distant to clearly audible. Unlike Alternative 1, individual overflights would be above 4,000 feet AGL and would not be louder than 75 dBA or 90 dBA SEL and would not have the potential to interfere with communication, affect learning in school classroom settings, and disturb sleep for individuals beneath the proposed low-altitude MOAs. Individual overflights would not be loud enough or frequent enough to create areas of incompatible land use beneath these proposed MOAs. These effects would be considered minor.

As with existing conditions, and for similar reasons, aircraft overflights in the Moody Airspace Complex would not generate individual acoustic events loud enough to damage hearing or structures or cause readily perceptible vibrations in homes and buildings directly under their flight paths. Although some individual low-level overflights could cause startle effects and temporary vibrations to structures, the L_{dnmr} for the overflights was determined to be equivalent to the DNL and would not exceed the 65 dBA threshold for any of the MOAs in the Moody Airspace Complex.

4.3.2.2 Noise Contours at Moody Air Force Base and the Grand Bay Range

The nature and overall level of effects at Moody AFB and the Grand Bay Range would be identical to those outlined under Alternatives 1 and 2. **Figure 4.3-2** shows the DNL noise contours surrounding Moody AFB and the Grand Bay Range both with and without Alternative 3. Aircraft operations and associated noise at Moody AFB itself would remain unchanged when compared to existing conditions, but arrival and departure flight tracks north of the Grand Bay Range would be extended to enhance flight safety. This would introduce individual overflights and associated acoustical events into areas further north of the range than are experienced under existing conditions. As outlined under Alternatives 1 and 2, and for similar reasons, these overflights would not be loud enough or frequent enough to introduce

areas of incompatible land use associated with aircraft operations at the Grand Bay Range. These effects would be considered minor.

4.3.3 No Action Alternative

Selecting the No Action Alternative would result in no new effects on the noise environment. The modification to and addition of low-altitude MOAs in the Moody Airspace Complex would not occur. There would be no changes at Moody AFB and the Grand Bay Range, and the flight track extensions would not occur under the No Action Alternative. The noise environment would remain unchanged when compared to existing conditions.

4.4 Health and Safety

4.4.1 Evaluation Criteria

Any impact on health and safety would be considered significant if implementation of the Proposed Action were to substantially increase risks associated with flying activities, safety of personnel, contractors, military personnel, or the local community; hinder the ability to respond to an emergency; or introduce new health or safety risk for which the DAF or the surrounding community is not prepared or does not have adequate management and response plans in place.

4.4.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

4.4.2.1 Flight Safety

Although no new training operations from Moody AFB are proposed, for the purposes of analysis of potential impacts, operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Therefore, long-term, minor, adverse impacts on flight safety would be expected under Alternative 1 as a result of increased total yearly flying time and use of additional low-altitude MOAs, which would increase the risk for mishaps and bird/wildlife aircraft strikes.

Aircraft Mishaps. Under Alternative 1, the total annual flying time within the Moody Airspace Complex would increase from 26,819 hours to 26,998 hours, an increase of 179 hours or 0.7 percent, because more low-altitude airspace would be available for the same number of training operations. Flying times at middle altitudes would increase by 204 hours (approximately 4 percent) annually, from 4,775 hours to 4,979 hours; however, yearly flying time at low altitudes would decrease by 25 hours (approximately 0.1 percent), from 22,043 hours to 22,018 hours. It is expected that the increase in total annual flying time would increase the risk of an increased mishap rate. However, the increase in flying time is miniscule compared to the total number of flying hours and any increase in mishap occurrence would be negligible. The measures outlined in **Section 4.2.2** and BMPs identified in **Section 7.2** would be implemented to avoid or minimize to the extent practicable potential safety impacts on the flying community.

Bird/Wildlife Strike Hazard (BASH). There is always a possibility of bird and wildlife strikes whenever aircraft operate, especially when operating at low-altitudes. The region of influence (ROI) includes several wildlife areas which attract large-bodied bird species and pose a risk to low-flying aircraft. Under Alternative 1, new low-altitude MOAs as low as 100 feet would be established. As shown in **Table 3.4-1**, 63.8 percent of Air Force bird/wildlife aircraft strikes reported by the DAF over a 22-year period have occurred above 100 feet AGL. Therefore, the table can be used to predict the potential of a bird/wildlife aircraft strike occurring at certain altitudes. The proposed Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs would have a 1,000-foot AGL floor and 7,999-foot AGL ceiling. Based on the Air Force's overall data on bird/wildlife aircraft strikes, approximately 29.9 percent of all bird/wildlife aircraft strikes occur between these altitudes. For the proposed Grand Bay MOA (100 to 499 feet AGL), 17.9 percent of all bird/wildlife aircraft strikes would occur between these altitudes. Lowering the floor of Moody 2 North MOA to 100 feet AGL would slightly increase the potential of a bird/wildlife aircraft strike from 45.9 percent to 63.8 percent. This calculated increase in potential for a strike does not equate to actual increases in the numbers of bird/wildlife strikes; rather, awareness of the slightly increased risk would guide the planning for operational activities and the measures implemented to avoid strikes.

Under Alternative 1, the number of low-altitude airspace operations would not increase; however, there would be a greater risk of encountering birds and wildlife because aircraft operations would be introduced in low-altitude areas where regular aircraft operations are not currently conducted. Conversely, there would be a substantially reduced risk of encountering birds and wildlife in the Moody 2 North and Moody 2 South MOAs as 35 percent of the low-altitude training operations would be shifted from these two MOAs under Alternative 1.

Low-Altitude Airspace. With the addition of new low-altitude MOAs, airspace to accommodate low-altitude operations would increase by more than 146 percent. A total of 268 low-altitude operations that currently take place between 500 feet and 1,000 feet AGL in the Moody 2 North MOA and R-3008C would occur between 100 feet and 499 feet AGL in the Moody 2 North and Grand Bay MOAs. Additionally, the Grand Bay MOA would be protected to allow aircraft to safely move between restricted airspace R-3008A/R-3008B, and Moody 2 North and Moody 2 South MOAs. Lowering the floor of Moody 2 North, creating new low-altitude MOAs, and modifying the exclusion zone over the Banks Lake NWR would reduce airspace congestion, improve temporal flight scheduling, increase the physical distance between training flights, and allow for closer supervision by air traffic controllers facilitated by less traffic to better prepare aircrews and pilots for real-world combat scenarios and reduce safety risks. Impacts on ground safety are discussed in **Section 4.4.2.3**.

Obstructions. An analysis of potential obstructions into the proposed low-altitude MOAs and reconfigured Moody 2 North MOA is presented in **Appendix G**. The Federal Communications Commission antenna database was queried to determine the heights of structures that would intrude into the low-altitude floors of the proposed MOA. Any tower that was equal to or above the floor of the proposed low-altitude MOAs was considered a potential obstruction. A total of 24 towers would penetrate the proposed low-altitude MOAs in the Moody Airspace Complex under

Alternative 1. Tower intrusions into the proposed low-altitude MOAs are briefly explained as follows:

- One 1,000-foot-high tower would meet and be considered an intrusion into the new 1,000-foot AGL floor of the Corsair North Low MOA. This tower is marked with a navigation beacon in accordance with existing regulations.
- Four structures would intrude into the new 100-foot AGL floor Grand Bay MOA. All these towers are marked with navigation beacons in accordance with existing regulations.
- Nineteen structures would intrude into the new 100-foot AGL floor of the Moody 2 North MOAs. Sixteen of these towers are marked with navigation beacons per existing regulations for structures with heights at or greater than 200 feet. The remaining three, with heights less than 200 feet, are not required to have navigational beacons under the existing regulations.

4.4.2.2 Range Operations and Ordnance

Under Alternative 1, long-term, negligible to minor, adverse impacts on range and ordnance safety would occur because although there would be no change in the quantity or type of ordnance used, chaff and flare would be introduced and used in areas where previously no chaff or flare employment occurred. Grand Bay Range would continue to be monitored and managed using the same processes and procedures as under current conditions.

Explosive and Ordnance Safety. It is not anticipated that the Proposed Action would increase the total ordnance used at Grand Bay Range. No explosives or ordnance (other than chaff and flares) would be used in the proposed new low-altitude MOAs.

Chaff and Flare Employment. Chaff and flares would continue to be used as defensive countermeasures in the Moody 2 North and Moody 2 South MOAs. Under Alternative 1, there would be no change in the type or quantity of chaff and flare employment; however, chaff and flare employment would be redistributed throughout the Moody 2 North and Moody 2 South MOAs and within the proposed new low-altitude MOAs, including Corsair South Low, Grand Bay, Mustang Low, and Warhawk Low MOAs (**Table 2.4-2**). The use of chaff would not occur in the proposed Corsair North Low MOA or Thud Low MOA. The use of flares in all existing and proposed MOAs, except the Thud Low MOA, would be limited to 2,000 feet AGL and the majority of chaff use (79 percent) and flare use (69 percent) would occur in the Moody 2 North and Moody 2 South MOAs.

4.4.2.3 Ground Safety

Under Alternative 1, long-term, negligible, adverse impacts on ground safety would occur because the introduction of flares into new airspace would, to a degree, increase the risk of wildland fires. There would be no change in ground safety procedures and activities at Moody AFB. Surface-level mission activities would be accomplished by technically qualified personnel and would be conducted in accordance with applicable DAF safety requirements, approved technical data, and standards.

Wildland Fire Management. The implementation of Alternative 1 would not change how Moody AFB responds to wildland fire. Flares would be employed in all of the proposed new low-altitude MOAs except the Corsair North Low MOA and the Thud Low MOA. Because of this, there would be an introduced risk in areas where there is currently no risk of wildland fires from flares. Because the occurrence of wildfire associated with flares is inherently low, the use of flares would be limited to altitudes above 2,000 feet AGL, the use of flares is suspended when conditions are conducive to wildfires (i.e., drought periods), and Moody AFB has never had a fire caused by flares and has never had a fire outside a training area on the installation, the increase in risk would be negligible.

Personnel and Public Safety. Moody AFB emergency services and emergency response personnel would continue to monitor the airspace and regional area. Plans and programs implemented by DAF and Moody AFB associated with ground operations would continue to minimize health and safety risks of military and civilian personnel and the public following the implementation of Alternative 1.

Best Management Practices Implementation. To reduce the potential for aircraft mishaps, bird/wildlife aircraft strikes, explosives or ordnance mishap, or wildland fires; and to ensure the health and safety of military and civilian personnel, and the public, the impacts avoidance and minimization measures identified in **Section 4.2.2**, and the following best management practices (BMPs) would be implemented:

- All applicable safety regulations, DAF Occupational Safety and Health (AFOSH) and Occupational Safety and Health Administration (OSHA) standards, and management procedures including Air Force Policy Directive (AFPD) 91-2, would be followed appropriately.
- Only qualified pilots would be conducting flight operations in the proposed new low-altitude MOAs and would be required to abide by all applicable flight safety regulations.
- Safe flying procedures, adherence to flight rules, and knowledge of emergency procedures from consistent and repeated training for all aircrews, including Moody AFB airmen and other airspace users would be required.
- The DAF Mishap Prevention Program (Air Force Instruction [AFI] 91-202) would continue to be followed and would reduce the potential for aircraft mishaps.
- Moody AFB would continue its effective program to manage BASH, which is structured to adapt as changes in seasonal wildlife concentration affect the exposure of aircraft and personnel to risks.
- Grand Bay Range would continue to be monitored and managed using the same processes and procedures as under current conditions.
- Moody AFB would continue to follow the *23d Wing Wildland Fire Management Plan* and meet the fire management requirements of applicable regulations such as AFMAN 13-212, V1.

4.4.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

The total annual flying time within the Moody Airspace Complex under Modified Alternative 1 would be similar to the annual flying time described by Alternative 1 as operations in the low-altitude MOAs were increased by one-third to account for the possibility that some combination of low-altitude MOAs would be selected and charted. The change in flying time and airspace utilization would continue to be miniscule compared to the total number of flying hours under Modified Alternative 1, and there would be no substantial change in the estimated risk of mishap rate. The operation of aircraft at low altitudes always increases the risk of bird strikes. Although the number of operations under Modified Alternative 1 would be similar to those described in the Alternative 1, there would be a reduced risk of encountering birds during training operations under Modified Alternative 1 as there would be a smaller area of the Moody Airspace Complex where low-altitude aircraft operations would be conducted compared to the Alternative 1. Further, there would be no substantial change in range operations or ground safety between Modified Alternative 1 and Alternative 1. The majority of chaff and flare use would continue to be in the Moody 2 North and Moody 2 South MOAs, and chaff and flare use were not proposed in the Thud Low or Corsair North Low MOAs under Alternative 1; therefore, the changes to these MOAs under Modified Alternative 1 would have no effect on training operations involving the use of chaff and flares. All BMPs that would be implemented under Alternative 1 would also be implemented under Modified Alternative 1.

4.4.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

To reduce the potential for aircraft mishaps and ensure the health and safety of military and civilian personnel, and the public, the impacts avoidance and minimization measures identified in **Section 4.2.2**, and the BMPs listed in **Section 7.2** would be implemented to the greatest possible extent.

4.4.4.1 Flight Safety

Although no new training operations from Moody AFB are proposed, for the purposes of analysis of potential impacts, operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Long-term, minor, adverse impacts on flight safety would be expected under Alternative 2 as a result of increased total yearly flying time and use of more low-altitude airspace, which would increase the risk of mishaps and bird/wildlife aircraft strikes.

Aircraft Mishaps. Under Alternative 2, the total annual flying time within the Moody Airspace Complex would increase from 26,819 hours to 26,928 hours because more low-altitude airspace would be available for the same number of training operations, an increase of 109 hours or 0.4 percent. Flying times at middle altitudes would increase annually by 137 hours or 3 percent, from 4,775 hours to 4,912 hours; however, annual flying time at low altitudes would decrease from 22,043 hours to 22,016, a reduction of approximately 23 hours or 0.1 percent. Because an

increase of 0.4 percent in total yearly flying time would be negligible, an increase in the risk of mishap rate is not expected to occur.

Bird/Wildlife Aircraft Strike Hazard (BASH). Under Alternative 2, new low-altitude MOAs as low as 100 feet would be established. As shown in **Table 3.4-1**, 63.8 percent of Air Force bird/wildlife aircraft strikes have occurred above 100 feet AGL. The table can be used to predict the potential for a bird/wildlife aircraft strike to occur at certain altitudes. The proposed Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs would have a 2,000-foot floor and 7,999-foot ceiling. Based on the Air Force's overall data on recorded bird/wildlife aircraft strikes, approximately 11.8 percent of all bird/wildlife aircraft strikes occur between these altitudes. For the proposed Grand Bay MOA (100 to 499 feet AGL), 17.9 percent of all bird/wildlife aircraft strikes would occur between these altitudes. Lowering the floor of Moody 2 North MOA to 100 feet AGL would slightly increase the potential for a bird/wildlife aircraft strike as described for Alternative 1. There would, however, be a reduced risk of bird/wildlife aircraft strikes in the Moody 2 North and Moody 2 South MOAs because 18 percent of low-altitude training operations would be shifted out of these two MOAs under Alternative 2.

Low-Altitude Airspace. With the addition of new low-altitude MOAs, approximately 16 percent of the 2,018 total annual training operations currently limited to Moody 2 North MOA and Moody 2 South MOA would be redistributed. A total of 268 low-altitude operations that currently take place between 500 feet and 1,000 feet AGL in the Moody 2 North MOA and R-3008C would occur between 100 feet and 499 feet AGL in the Moody 2 North and Grand Bay MOAs. Lowering the floor of Moody 2 North, creating new low-altitude MOAs, and modifying the exclusion zone over the Banks Lake NWR would reduce airspace congestion, improve temporal flight scheduling, increase the physical distance between training flights, and allow for closer supervision by air traffic controllers facilitated by less traffic to better prepare aircrews and pilots for real-world combat scenarios and reduce safety risks.

Obstructions. Under Alternative 2, only the 23 structures identified under the proposed Grand Bay MOA and lowered altitude floor of the Moody 2 North MOA would intrude into those low-altitude MOAs. Impacts from these potential obstructions would be the same as described under Alternative 1. **Appendix G** presents a detailed obstructions analysis to support these findings.

4.4.4.2 Range Operations and Ordnance

Under Alternative 2, long-term, negligible to minor, adverse impacts on range and ordnance safety would occur because although there would be no change in the quantity or type of ordnance used, chaff and flare would be introduced and used in areas where previously no chaff or flare employment occurred. The Grand Bay Range would continue to be monitored and managed using the same processes and procedures as under current conditions.

Explosive and Ordnance Safety. It is not anticipated that the Proposed Action would increase the type or quantity of ordnance used at Grand Bay Range. No explosives or ordnance, other than chaff and flares, would be used in the proposed new low-altitude MOAs.

Chaff and Flare Employment. Chaff and flares would continue to be used as defensive countermeasures in the Moody 2 North and Moody 2 South MOAs. Under Alternative 2, there would be no change in the type or quantity of chaff and flare employment; however, chaff and flare employment would be redistributed throughout the Moody 2 North and Moody 2 South MOAs, and within the proposed new low-altitude MOAs including the Corsair South Low, Grand Bay, Mustang Low, and Warhawk Low MOAs (**Table 2.4-5**). The use of chaff would not occur in the proposed Corsair North Low or Thud Low MOAs. The use of flares in all existing and proposed MOAs, except the Corsair North Low MOA, would be limited to 2,000 feet AGL and the majority of chaff use (90 percent) and flare use (84 percent) would occur in the Moody 2 North and Moody 2 South MOAs.

4.4.4.3 Ground Safety

Under Alternative 2, long-term, negligible, adverse impacts on ground safety would occur because the introduction of flares into new airspace would, to a degree, increase the risk of wildland fires. There would be no change in ground safety procedures and activities at Moody AFB. Surface-level mission activities would be accomplished by technically qualified personnel and would be conducted in accordance with applicable DAF safety requirements, approved technical data, and standards.

Wildland Fire Management. The implementation of Alternative 2 would not change how Moody AFB responds to wildland fire. Flares would be employed in all of the proposed new low-altitude MOAs except the Corsair North Low MOA and the Thud Low MOA. Because of this, there would be an introduced risk in areas where there is currently no risk of wildland fires from flares. However, because the occurrence of wildfire associated with flares is inherently low, the use of flares would be limited to altitudes above 2,000 feet AGL, the use of flares is suspended when conditions are conducive to wildfires (i.e., drought periods), and Moody AFB has never had a fire caused by flares, the increase in risk would be negligible.

Personnel and Public Safety. Moody AFB emergency services and emergency response personnel would continue to monitor the airspace and regional area. Plans and programs implemented by the DAF and Moody AFB associated with ground operations would continue to minimize health and safety risks of military and civilian personnel and the public following the implementation of Alternative 2.

Best Management Practices Implementation. Under Alternative 2, best management practices (BMPs) would be implemented as described under **Section 4.4.2.3**.

4.4.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

To reduce the potential for aircraft mishaps and ensure the health and safety of military and civilian personnel, and the public, the impacts avoidance and minimization measures identified in **Section 4.2.2**, and the BMPs listed in **Section 4.4.2.1** would be implemented to the greatest possible extent.

4.4.5.1 Flight Safety

Although no new training operations from Moody AFB are proposed, for the purposes of analysis of potential impacts, operations in the proposed low-altitude MOAs were increased by a third to provide operational flexibility and account for the possibility that some combination of the proposed low-altitude MOAs may be selected and charted. Therefore, long-term, negligible, adverse impacts on flight safety would be expected under Alternative 3 as a result of new low-altitude airspace, which could increase the risk of bird/wildlife aircraft strikes.

Aircraft Mishaps. Under Alternative 3, the total annual flying time within the Moody Airspace Complex would remain the same as existing conditions. The annual flying time at middle altitudes would increase by 25 hours or approximately 0.5 percent, from 4,775 hours to 4,800 hours; however, annual flying time at low altitudes would decrease by 25 hours or approximately 0.1 percent, from 22,043 hours to 22,018. Because no increase in the total annual flying time is expected, no change in the risk for an increased mishap rate is anticipated. Regardless, to reduce the potential for aircraft mishaps and ensure the health and safety of military and civilian personnel and the public, the BMPs listed in **Section 7.2** would be implemented.

Bird/Wildlife Strike Hazard (BASH). Under Alternative 3, new low-altitude MOAs as low as 100 feet would be established. As shown in **Table 3.4-1**, 63.8 percent of Air Force bird/wildlife aircraft strikes over a 22-year period have occurred above 100 feet AGL. The table can be used to predict the potential for a bird/wildlife aircraft strike occurring at certain altitudes. The proposed Corsair North Low, Corsair South Low, Mustang Low, Thud Low, and Warhawk Low MOAs would have a 4,000-foot floor and 7,999-foot ceiling. Based on the Air Force's overall data on recorded bird/wildlife aircraft strikes, 2.6 percent of all bird/wildlife aircraft strikes occur between these altitudes. For the proposed Grand Bay MOA (100 to 499 feet AGL), 17.9 percent of all bird/wildlife aircraft strikes would occur between these altitudes. Lowering the floor of the Moody 2 North MOA to 100 feet AGL would slightly increase the potential for a bird/wildlife aircraft strike as described for Alternative 1. There would, however, be a reduced risk of bird/wildlife aircraft strikes in the Moody 2 North and Moody 2 South MOAs as 8 percent of low-altitude training operations would be shifted out of these two MOAs under Alternative 3.

Low-Altitude Airspace. Under Alternative 3, a total of 268 low-altitude operations that currently take place between 500 feet and 1,000 feet AGL in the Moody 2 North MOA and R-3008C would occur between 100 feet and 499 feet AGL in the Moody 2 North and Grand Bay MOAs. Lowering the floor of Moody 2 North and modifying the exclusion zone over the Banks Lake NWR would not provide the same level of safety risk reduction as Alternatives 1 and 2. Although low-altitude airspace congestion would be lowered, it would not be reduced to the level that substantial benefits to flight safety would be realized.

Obstructions. Impacts under Alternative 3, would be the same as described under Alternative 2. **Appendix G** presents a detailed obstructions analysis to support these findings.

4.4.5.2 Range Operations and Ordnance

Under Alternative 3, long-term, negligible, adverse impacts on range and ordnance safety would occur because although there would be no change in the quantity or type of ordnance used, chaff and flare would be introduced and used in areas where previously no chaff or flare employment occurred. Grand Bay Range would continue to be monitored and managed using the same processes and procedures as under current conditions.

Explosive and Ordnance Safety. It is not anticipated that the Proposed Action would increase the type or quantity of ordnance used at Grand Bay Range. No explosives or ordnance, other than chaff and flares, would be used in the proposed new low-altitude MOAs.

Chaff and Flare Employment. Chaff and flares would continue to be used as defensive countermeasures in the Moody 2 North and Moody 2 South MOA. Under Alternative 3, there would be no change in the type or quantity of chaff and flare employment; however, chaff and flare employment would be redistributed throughout the Moody 2 North and Moody 2 South MOAs, and within the proposed new low-altitude MOAs including Corsair South Low, Grand Bay, Mustang Low, and Warhawk Low MOAs (**Table 2.4-8**). The use of chaff would not occur in the proposed Corsair North Low or Thud Low MOAs. The use of flares in all existing and proposed MOAs, except the Corsair North Low MOA, would be limited to 2,000 feet AGL and the majority of chaff use (96 percent) and flare use (94 percent) would occur in the Moody 2 North and Moody 2 South MOAs.

4.4.5.3 Ground Safety

Under Alternative 3, long-term, negligible, adverse impacts on ground safety would occur because the introduction of flares into new airspace would, to a degree, increase the risk of wildland fires. Surface-level mission activities would be accomplished by technically qualified personnel and would be conducted in accordance with applicable DAF safety requirements, approved technical data, and standards.

Wildland Fire Management. Under Alternative 3, Moody AFB would continue efforts to suppress wildland fire. Because flares would be employed in all of the proposed new MOAs except the Corsair North Low and the Thud Low MOAs, there would be an introduced risk of fire in areas where there is currently no risk of wildland fires from flares. However, compared to Alternatives 1 and 2, the negligible risk of wildland fire in the new proposed low-altitude MOAs would be further reduced as the flares would not be released below 4,000 feet AGL, which is the proposed floor of these low-altitude MOAs under Alternative 3. Regardless, because the occurrence of wildfire associated with flares is inherently low and Moody AFB has never had a fire caused by flares, the increase in risk would be negligible.

Personnel and Public Safety. Moody AFB emergency services and emergency response personnel would continue to monitor the airspace and regional area. Plans and programs implemented by DAF and Moody AFB associated with ground operations would continue to minimize health and safety risks of military and civilian personnel, and the public following the implementation of Alternative 3.

Best Management Practices Implementation. Under Alternative 3, BMPs would be implemented as described in **Section 4.4.2.3**.

4.4.6 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and the proposed new low-altitude MOAs would not be created. The Moody Airspace Complex would be maintained in its current state, and no impacts on health and safety of civilian personnel or the public would be anticipated. There would be no reduction of safety risk through improved training opportunities at low altitudes under the No Action Alternative.

4.5 Air Quality

4.5.1 Evaluation Criteria

The environmental impacts on air quality are determined based on the net change in emissions of regulated pollutants when compared to existing conditions. Impacts would be considered significant if any alternative generated emissions that exceed the Prevention of Significant Deterioration (PSD) thresholds or would contribute to a violation of any federal, state, or local air regulations.

4.5.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

Alternative 1 would have long-term, minor, adverse impacts on air quality. Impacts would occur from incremental increases in emissions from additional air operations when compared to existing training and a distribution of existing air operations below the mixing height into the proposed low-altitude MOAs. The emissions from Alternative 1 would be below the PSD thresholds and would not contribute to a violation of any federal, state, or local air regulations.

Because all the counties in the ROI are in full attainment for the National Ambient Air Quality Standards (NAAQS), the general conformity regulations do not apply. The Air Conformity Applicability Model (ACAM) was used to estimate the changes in air emissions within the Moody Airspace Complex (**Appendix D**), which were compared to the PSD thresholds to determine the level of effects under NEPA (**Table 4.5-1**) (US Air Force 2019).

Table 4.5-1. Annual Air Emissions Compared to Significance Indicators – Alternative 1

County/ Condition	Annual Emissions (tpy)						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Atkinson	1.0	6.6	3.7	0.7	1.1	0.9	2,004.7
Ben Hill	<0.1	0.5	0.3	<0.1	<0.1	<0.1	152.9
Berrien	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	40.4
Brooks	0.3	2.3	1.3	0.2	0.4	0.3	698.9
Clinch	3.7	25.1	14.0	2.5	4.2	3.3	7,599.3
Coffee	<0.1	0.4	0.2	<0.1	<0.1	<0.1	130.3
Colquitt	0.2	1.7	0.9	0.2	0.3	0.2	513.1
Columbia (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	26.8

County/ Condition	Annual Emissions (tpy)						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Cook	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	30.0
Crisp	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.8
Dooly	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dougherty	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	15.1
Echols	1.9	13.3	7.4	1.3	2.2	1.7	4,028.2
Hamilton (Florida)	<0.1	0.6	0.4	<0.1	0.1	<0.1	190.4
Irwin	0.2	1.2	0.7	0.1	0.2	0.2	378.5
Jefferson (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	17.1
Lanier	3.1	21.4	11.9	2.1	3.6	2.8	6,478.8
Lee	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowndes	1.9	13.2	7.3	1.3	2.2	1.7	3,987.1
Madison (Florida)	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	33.3
Mitchell	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	26.1
Sumter	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thomas	<0.1	0.6	0.3	<0.1	<0.1	<0.1	171.5
Tift	<0.1	0.2	0.1	<0.1	<0.1	<0.1	70.5
Turner	0.1	0.7	0.4	<0.1	0.1	<0.1	213.5
Ware	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wilcox	0.1	0.9	0.5	<0.1	0.2	0.1	276.5
Worth	<0.1	0.4	0.2	<0.1	<0.1	<0.1	118.3
Total	13.1	89.7	50.1	8.9	15.1	11.7	27,203
Existing	12.9	88.9	48.9	8.7	14.7	11.5	26,686
Overall Change	0.2	0.8	0.2	0.2	0.4	0.2	517
PSD Threshold (tpy)	250	250	250	250	250	250	-
Exceeds PSD Thresholds? (Yes/No)	No	No	No	No	No	No	-

Source: US Air Force 2019

Note: It was assumed that flight time within each county would be proportional to its area beneath the Moody Airspace Complex.

tpy – tons per year; **VOC** - volatile organic compound; **NO_x** - nitrogen oxides; **CO** - carbon monoxide; **SO_x** - sulfur oxides; **PM₁₀** - particulate matter less than 10 microns; **PM_{2.5}** - particulate matter less than 2.5 microns; **CO_{2e}** - carbon dioxide equivalent; **PSD** – Prevention of Significant Deterioration

The existing emissions would both increase slightly and be partially redistributed into the counties beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. Both the overall and county-specific changes involving all projected criteria pollutant emissions would be less than the Prevention of Significant Deterioration (PSD) thresholds of 250 tons per year (tpy), the initial indicator of significance used to analyze criteria pollutants impacts within attainment areas. Therefore, actions with emissions below these levels would have less than significant effects on air quality. Emissions within the seven counties beneath Moody 2 North, Moody 2 South, and R-3008 would decrease when compared to existing conditions (see **Table 3.4-3**).

Operational data are based on each MOA, and county-level operational data are unavailable. Therefore, for analysis purposes, it was assumed that flight time within each county would be proportional to the county's land area beneath each MOA, with the aircraft operational time

within individual MOAs. The redistribution of emissions was included to illustrate that the existing (and unchanged) emissions would be redistributed. The total emissions from all operations combined would be less than the PSD threshold of 250 tpy, regardless of the actual distribution of air operations (either geographically or in any given year). No additional level of analysis would change this determination. Further, because both the overall and county-specific changes in emissions would be less than the PSD threshold of 250 tpy for all pollutants regardless of the actual distribution of air operations (either geographically or in any given year) or any changes in the attainment status of the region, the level of effects would be less than significant.

There would be no new stationary sources of air emissions and no changes in ground-based operations at Moody AFB; no air permits would be required. There is no heavy construction or associated sources of air emissions, and no BMPs associated with these types of activities would be required.

Climate Change and Greenhouse Gasses (GHGs). At this time, climate change presents a global problem caused by increasing global atmospheric concentrations of GHG emissions, and the current state of the science surrounding it does not support determining the global significance of local or regional emissions of GHGs from a particular action. Therefore, the quantitative analysis of carbon dioxide equivalent (CO₂e) emissions in this EIS is for disclosing the local net effects (increase or decrease) of the Proposed Action and alternatives and for its potential usefulness in making reasoned choices among alternatives. Under Alternative 1, there would be an incremental increase in GHG emissions of 517 tons per year of CO₂e (US Air Force 2019).

Georgia and Florida are in the southeast climate region of the United States, an area that climate change leaves exceptionally vulnerable to extreme heat events, hurricanes, and decreased water availability. Average annual temperatures across the southeast during the last century cycled between warm and cool periods, and temperatures increased from 1970 to the present by an average of 2 degrees Fahrenheit (°F). The number of category 4 and 5 hurricanes has increased substantially since the early 1980s compared to the historical records that date back to the mid-1880s. This increase can be attributed to both natural variability and climate change (National Climate Assessment 2019). **Table 4.5-2** lists climate stressors and their potential effects on the air operations in the Moody Airspace Complex. At this time, no future climate scenario or potential climate stressor would have appreciable effects on any element of the Proposed Action. The increase in the number of hurricanes in the southeast would introduce a minor additional risk to the air operations at Moody AFB and within the Moody Airspace Complex.

Table 4.5-2. Effects of Potential Climate Stressors on Aircraft Operations

Climate Stressor	Potential Effect on Aircraft Operations
More frequent and intense heat waves	Negligible
Longer fire seasons and more severe wildfires	Negligible
Changes in precipitation patterns	Negligible

Climate Stressor	Potential Effect on Aircraft Operations
Increased drought	Negligible
Harm to water resources, agriculture, wildlife, ecosystems	Negligible
Increase in number and size of hurricanes	Minor

Source: National Climate Assessment 2019

4.5.3 **Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries**

Modified Alternative 1 would have long-term, minor, adverse impacts on air quality. Impacts would occur from incremental increases in emissions from additional air operations when compared to existing training and a distribution of existing air operations below the mixing height into the proposed low-altitude MOAs. The emissions from Modified Alternative 1 would be below the PSD thresholds and would not contribute to a violation of any federal, state, or local air regulations.

Table 4.5-3 summarizes the annual air emissions for Modified Alternative 1 with the expected actual operations compared to DAF's significance indicators. Without the one-third increase in military training operations initially analyzed under Alternative 1 in the Draft EIS, the overall resulting air emissions from training in low-altitude airspace would be slightly less under Modified Alternative 1. This increase in operations was included specifically to account for the possibility that the DAF may select fewer low-altitude MOAs than initially proposed, and remains valid with the reduced footprint under Modified Alternative 1. In addition, with the footprint of the proposed low MOAs being reduced, these already limited emissions would no longer extend into Crisp, Dooly, Daugherty, Lee, Turner, Ware, and Wilcox counties. Air emissions under Modified Alternative 1 would be slightly less than those described for Alternative 1 in the Draft EIS and would not exceed DAF's significance indicators.

**Table 4.5-3. Annual Air Emissions Compared to Significance Indicators
– Modified Alternative 1**

County/ Condition	Annual Emissions (tpy) for Modified Alternative 1						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Atkinson	1.0	6.7	3.7	0.7	1.1	0.9	2,023.7
Ben Hill	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Berrien	<0.1	0.2	0.1	<0.1	<0.1	<0.1	70.8
Brooks	0.3	2.3	1.3	0.2	0.4	0.3	702.8
Clinch	3.6	24.8	13.7	2.4	4.1	3.2	7,454.2
Coffee	0.1	0.7	0.4	<0.1	0.1	<0.1	208.3

County/ Condition	Annual Emissions (tpy) for Modified Alternative 1						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Colquitt	0.3	2.0	1.1	0.2	0.3	0.3	586.9
Columbia (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	25.7
Cook	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	42.2
Crisp	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dooly	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dougherty	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Echols	1.9	13.3	7.4	1.3	2.2	1.7	3,946.8
Hamilton (Florida)	<0.1	0.6	0.3	<0.1	0.1	<0.1	186.7
Irwin	0.2	1.5	0.8	0.1	0.2	0.2	442.7
Jefferson (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	16.7
Lanier	3.1	21.4	11.6	2.1	3.5	2.7	6,352.5
Lee	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowndes	1.9	13.0	7.2	1.3	2.2	1.7	3,909.3
Madison (Florida)	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	32.6
Mitchell	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sumter	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thomas	<0.1	0.6	0.3	<0.1	<0.1	<0.1	177.5
Tift	0.2	1.5	0.9	0.2	0.3	0.2	463.9
Turner	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ware	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wilcox	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Worth	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	29.6
Total	12.9	88.9	48.9	8.7	14.7	11.5	26,686
Existing	12.9	88.9	48.9	8.7	14.7	11.5	26,686
Overall Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PSD Threshold (tpy)	250	250	250	250	250	250	-
Exceeds PSD Thresholds? (Yes/No)	No	No	No	No	No	No	-

Source: Air Force 2019

Note: It was assumed that flight time within each county would be proportional to its area beneath the Moody Airspace Complex.

CO – carbon monoxide; **NO₂** – nitrogen dioxide; **PM_{2.5}** – particulate matter less than 2.5 microns; **PM₁₀** – particulate matter less than 10 microns; **SO₂** – sulfur dioxide; **tpy** – tons per year; **VOC** – volatile organic compound

4.5.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

As with Alternative 1 and for similar reasons, Alternative 2 would have long-term minor adverse impacts on air quality. Impacts would occur from incremental increases in emissions from additional air operations when compared to existing training and a distribution of existing air operations below the mixing height into the proposed MOAs. The emissions from Alternative 2 would be below the PSD thresholds and would not contribute to a violation of any federal, state, or local air regulations.

As with Alternative 1, the existing emissions would both increase slightly and be partially redistributed into the counties beneath the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs (see **Table 4.5-4**) (US Air Force 2019). Both the overall and county-specific changes involving all projected criteria pollutant emissions would be less than the PSD threshold of 250 tpy, the initial indicator of significance used to analyze criteria pollutants impacts within attainment areas. Therefore, actions with emissions below these levels would have less than significant effects on air quality. Emissions within the seven counties beneath Moody 2 North, MOA Moody 2 South MOA, and Restricted Area R-3008 would decrease when compared to existing conditions (see **Table 3.1-3**).

Table 4.5-4. Annual Air Emissions Compared to Significance Indicator – Alternative 2

County/ Condition	Annual Emissions (tpy)						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Atkinson	3.0	7.1	3.9	0.7	1.2	0.9	2,137.7
Ben Hill	<0.1	0.2	0.1	<0.1	<0.1	<0.1	65.7
Berrien	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	17.4
Brooks	0.2	1.2	0.7	0.1	0.2	0.2	375.0
Clinch	4.0	27.4	15.2	2.7	4.6	3.6	8,304.4
Coffee	<0.1	0.2	0.1	<0.1	<0.1	<0.1	56.1
Colquitt	<0.1	0.7	0.4	<0.1	0.1	<0.1	200.6
Columbia (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	29.2
Cook	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	11.7
Crisp	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8
Dooly	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dougherty	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5.9
Echols	2.1	14.5	8.1	1.4	2.4	1.9	4,398.9
Hamilton (Florida)	0.1	0.7	0.4	<0.1	0.1	<0.1	208.1
Irwin	<0.1	0.5	0.3	<0.1	<0.1	<0.1	162.5
Jefferson (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9.3
Lanier	3.2	21.8	12.1	2.2	3.7	2.8	6,618.1
Lee	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lowndes	1.9	13.2	7.3	1.3	2.2	1.7	3,992.2
Madison (Florida)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	18.2
Mitchell	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10.2
Sumter	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thomas	<0.1	0.3	0.2	<0.1	<0.1	<0.1	90.1
Tift	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	29.8
Turner	<0.1	0.3	0.2	<0.1	<0.1	<0.1	90.8

County/ Condition	Annual Emissions (tpy)						
	VOC	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}	CO _{2e}
Ware	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wilcox	<0.1	0.4	0.2	<0.1	<0.1	<0.1	117.8
Worth	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	46.3
Total	13.0	89.1	49.5	8.8	14.9	11.6	26,997
Existing	12.9	88.9	48.9	8.7	14.7	11.5	26,686
Overall Change	0.1	0.2	0.6	0.1	0.2	0.1	311
PSD Threshold (tpy)	250	250	250	250	250	250	-
Exceeds PSD Thresholds? (Yes/No)	No	No	No	No	No	No	-

Source: US Air Force 2019

Note: It was assumed that flight time within each county would be proportional to its area beneath the Moody Airspace Complex.

tpy – tons per year; **VOC** – volatile organic compound; **NO_x** – nitrogen oxides; **CO** – carbon monoxide; **SO_x** – sulfur oxides; **PM₁₀** – particulate matter less than 10 microns; **PM_{2.5}** – particulate matter less than 2.5 microns; **CO_{2e}** – carbon dioxide equivalent; **PSD** – Prevention of Significant Deterioration

For analysis purposes, it was assumed that flight time within each county would be proportional to the county's land area beneath each MOA combined with the aircraft operational time within individual MOAs. Because both the overall and county-specific changes in emissions would be less than the PSD threshold of 250 tpy for all pollutants, regardless of the actual distribution of air operations (either geographically or in any given year) or any changes in the attainment status of the region, the level of effects would be less than significant.

There would be no new stationary sources of air emissions and no changes in ground-based operations at Moody AFB; no air permits would be required. There is no heavy construction or associated sources of air emissions, and no BMPs associated with these types of activities would be required.

Climate Change and GHGs. At this time, climate change presents a global problem caused by increasing global atmospheric concentrations of GHG emissions and the current state of the science surrounding it does not support determining the global significance of local or regional emissions of GHGs from a particular action. Therefore, the quantitative analysis of CO_{2e} emissions in this EIS is for disclosing the local net effects (increase or decrease) of the Proposed Action and alternatives and for its potential usefulness in making reasoned choices among alternatives. Under Alternative 2, there would be an incremental increase in GHG emissions of 311 tons per year of CO_{2e} (US Air Force 2019).

Table 4.5-2 listed climate stressors and their potential effects on the air operations in the Moody Airspace Complex. As with Alternative 1 and for similar reasons, no future climate scenario or potential climate stressor would have appreciable effects on any element of the Proposed Action.

4.5.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Alternative 3 would have long-term negligible adverse impacts on air quality. Impacts would occur from small changes in air operations above the mixing height when compared to existing training. These changes would be due to the redistribution of existing air operations into the proposed Corsair North Low, Corsair South Low, Thud Low, Mustang Low, and Warhawk Low MOAs. There would be no changes in air operations below 3,000 feet AGL and no changes in emissions below the mixing height. Alternative 3 would have no effects on air quality in any area beneath the Moody Airspace Complex, and air quality would be comparable to existing conditions. The emissions from Alternative 3 would be below the PSD thresholds and would not contribute to a violation of any federal, state, or local air regulations.

As with Alternatives 1 and 2, there would be no new stationary sources of air emissions and no changes in ground-based operations at Moody AFB; no air permits would be required. There would be no heavy construction or associated sources of air emissions, and no BMPs associated with these types of activities would be required.

Climate Change and GHGs. Under Alternative 3, there would be no change in GHG emissions when compared to existing conditions. **Table 4.5-2** lists climate stressors and their potential effects on the air operations in the Moody Airspace Complex. As with Alternatives 1 and 2 and for similar reasons, no future climate scenario or potential climate stressor would have appreciable effects on any element of the Proposed Action.

4.5.6 No Action Alternative

The No Action Alternative would result in no effect on air quality. There would be no long-term changes in emissions due to the Proposed Action. Ambient air quality would remain unchanged when compared to existing conditions.

4.6 Biological Resources

4.6.1 Evaluation Criteria

The significance of effects on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to proposed activities, and (4) the duration of ecological effects. Impacts to biological resources would be significant if sensitive species or habitats would be adversely affected over relatively large areas or disturbances would cause population-level impacts or reductions in population size or distribution of a sensitive species. A habitat perspective is used to provide a framework for analysis of general classes of effects (e.g., sound, human disturbance). This project has been entered into the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system to initiate consultation with USFWS. The DAF has made a may affect but not likely to adversely affect determination on the wood stork and has determined that the Proposed Action would have no effect on any other federally listed species. The DAF conferenced with the USFWS on the effects of aircraft operations at the Moody AFB

airfield, aircraft training operations, and the airspace modification proposal on the tricolored bat, which is proposed for listing, and monarch butterfly, which is a candidate species. The DAF made a not likely to jeopardize the continued existence determination for the tricolored bat and monarch butterfly. USFWS concurred with these determinations and **Appendix E** provides copies of the consultation correspondence.

4.6.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

Under the Proposed Action, there would be no ground-disturbing activities. Therefore the evaluation of potential impacts on biological resources under all four alternatives are associated with a shift in aircraft operations to the proposed low-altitude MOAs. Aircraft operations associated with the Proposed Action could have minor to moderate, adverse impacts on biological resources from aircraft movement, sound impacts, BASH, and use of defensive countermeasures (i.e., chaff and flares). The number and type of aircraft as well as flight profiles and airspace are the same under all alternatives; potential long-term, adverse impacts on biological resources are associated with the various altitudes in which training would occur. There would be no impacts on vegetation from aircraft movement, and the use of defensive countermeasures and vegetation is therefore not discussed.

4.6.2.1 Wildlife

Overall, the change in noise levels from training operations at lower altitudes in the proposed low-altitude MOAs is anticipated to have short- and long-term, minor, adverse impacts on wildlife, including birds breeding and foraging in nearby relatively undisturbed habitats, under Alternative 1. Adverse impacts on songbirds, raptors, and wading birds from aircraft movement would be long term and minor under Alternative 1, with a slight increased risk of bird/wildlife aircraft strikes involving raptors and wading birds.

Noise and Aircraft Movement. Changes in sound levels of sufficient magnitude can result in the direct loss of individuals, render habitat unsuitable, or reduce reproductive output within certain ecological settings. Ultimately, extreme cases of such stresses could have the potential to lead to population declines or local or regional extinction. Increased noise levels limit the distance in which animals can perceive acoustic signals (Barber et al. 2009). However, intermittent noise exposures are less likely to interfere with animal behavior than from continuous sound sources; military aircraft training in SUA instead typically produce intermittent sound exposures and not continuous sound exposures.

Wildlife can experience modifications of behavior, including altered reproduction strategies and the inability to forage for food, find cover, or obtain water in response to noise. Most studies indicate that wildlife differ in their response to various types, durations, and sources of sound (Manci et al. 1988, Radle 2007, National Park Service [NPS] 2011). Wildlife responses to aircraft overflight under most circumstances has minimal biological significance. Further, many birds and wildlife have the ability to habituate to noise emissions and movement from military aircraft (Grubb et al. 2010), and air operations training has been ongoing in the Moody Airspace Complex for decades.

Many studies addressing the effects of aircraft overflight noise on wildlife have focused on wildlife startle responses due to sound. Animal responses to aircraft are influenced by many variables, including size, speed, proximity (both height above the ground and lateral distance), engine sound, color, flight profile, and radiated sound. The type of aircraft (e.g., fixed-wing [jets] versus rotary-wing [helicopters]) and type of flight mission may also produce different levels of disturbance, with varying animal responses (Smith et al. 1988). Many studies have been focused on domestic animals. Therefore, the variability in the type of aircraft and missions studied as well as the animals evaluated make it difficult to generalize animal responses to noise disturbances across species. Pepper et al. (2003) suggest that many past studies were inconclusive and based on relatively small sample sizes. Research into the effects of noise on wildlife often presents conflicting results because of the variety of factors and variables that can affect or interfere with the determination of the actual effects that human-produced sound is having on any given animal (Radle 2007).

Noise produced by aircraft plays a minor role in disturbance of animals when the animal cannot see the aircraft. Aircraft noise can cause a startle response, but the severity of response depends upon the animal's previous exposure to the sound source and does not result in severe consequences. Adverse effects of aircraft noise on individuals and populations of wildlife are not proven except for rare panic responses when animals can see and hear the aircraft (Kempf and Hüppop 1997).

A startle response in wildlife is natural and helps animals avoid predators. Many prey species have adaptations to rapidly respond to startle or surprise events that trigger the possibility of a predator attack. The DAF has conducted studies which determine a startle response to be a sequence of events surprising an animal such as behavioral responses (muscular flinching, alerting, and running) and physiological changes (e.g., elevated heart rate). If the behavioral component of the startle is uncontrolled, particularly if the animal runs or jumps without concern for its safety, it is often called a panic. Completely uncontrolled panics are rare in mammals (Air Force 1994).

Bird/animal aircraft strikes are another hazard to wildlife, especially avian species, from aircraft movement. Low-altitude flight operations have a greater potential of encountering avian and other animals increasing the risk of strike hazards. Studies have shown that 95 percent of migratory birds fly at altitudes less than 10,000 feet, with the majority of them occurring below 3,000 feet, with most aircraft collisions occurring during low-altitude flight, especially proximate to airfields.

Undeveloped areas beneath the proposed low-altitude MOAs support relatively common wildlife species. However, wildlife, and especially avian species, utilizing these undeveloped areas for foraging and breeding would normally be sensitive to increased noise from military aircraft. Although there is variability in responses across species, many birds and wildlife have the ability to habituate to noise and movement from military aircraft (Grubb et al. 2010) and military aircraft operations have been ongoing in the Moody Airspace Complex for decades. As described in **Section 3.3, Acoustic Environment**, the increase in sound levels due to military aircraft operations varies across the proposed low-altitude MOAs both due to the number of operations

proposed in each of the proposed low-altitude MOAs and due to the low-altitude floor proposed for each MOA. However, the estimated DNL in all of the Moody Airspace Complex would not change substantially compared to existing conditions and only have minor impacts on wildlife. Supersonic flights would not occur within the proposed low-altitude MOAs; therefore, there would be no impacts on wildlife from sonic booms.

Defensive Countermeasures. The same quantities of chaff and flares (types similar to RR-188 chaff and M206 flares) would continue to be expended during the proposed training operations in the Moody Airspace Complex. Potential direct impacts on resources from training activities include the deposition of residual materials, such as plastic, from chaff and flare use, its accumulation in sensitive and protected areas, and the ultimate breakdown of these materials into substrate mediums. Indirect impacts include fire risk, transportation of these materials to other areas by environmental elements, and the potential for ingestion by sensitive species within the proposed low-altitude MOAs and beyond. Depending on the altitude of release and wind speed and direction, the chaff from a single bundle can be spread over distances ranging from less than a 0.25 mile to over 100 miles. The most confined distribution would be from a low-altitude release in calm conditions (Air Force 1997).

Chaff chemical composition, rate of decomposition, and tendency to leach toxic chemicals under various situations paired with baseline substrate chemistry and conditions are factors that could potentially alter substrate chemistry. A change in chemistry could potentially affect fauna, flora, vegetative cover, substrate stability, the type and quality of habitat, and leaching and runoff potential. Silica (silicon dioxide), aluminum, and stearic acid are major components of chaff with minor quantities of copper, manganese, titanium, vanadium, and zinc in the aluminum chaff coating. All are generally prevalent in the environment, and all but titanium are either found in plants and animals and/or necessary essentials for their growth. Silica does not present a chemical concern in the environment because it naturally occurs in silicate minerals, the most common mineral group on Earth. Silica is more stable in acidic environments than alkaline. Aluminum is also very abundant in the earth's crust, forming common minerals like feldspars, micas, and clays. While acidic and extremely alkaline substrates increase the solubility of aluminum, what is left eventually oxidizes to aluminum oxide, which is insoluble. Stearic acid is used in conjunction with palmitic acid to produce an anti-clumping compound for chaff fibers and both degrade when exposed to light and air (Air Force 1997).

The primary material in flares is magnesium, which is not highly toxic. It is highly unlikely organisms would ingest the component materials of flares; however, plastic caps are released with the deployment of both chaff and flares. Some flares utilize impulse cartridges and initiators which contain chromium and sometimes lead. Even though these are hazardous air pollutants under the Clean Air Act (CAA) and have been known to cause health risk in certain avian species, significant effects on biological resources are not expected because previous studies have indicated that there are no health risks from flare components, the amount of lead is expected to be very small and dispersed over great distances, and the use of BMPs would avoid the selection of flares containing lead. Another consideration is that flares have a potential to start fires that can spread, adversely and indirectly affecting many resources. Occurrences of flare-induced fires depend on the probabilities of flare materials reaching the ground, igniting

vegetation, and causing significant damage if fire spreads (Air Force 1997); however, all use of flares in the MOAs would occur at altitudes higher than 2,000 feet AGL, would typically burn out in less than 10 seconds, and would only be used during times of low fire risk, thereby greatly reducing the risk of wildland fires as a result of flare use.

To avoid or minimize the potential for adverse impacts from flares expenditures, the DAF would consider a public information program in areas where flares are used over non-DoD land to educate the public about the hazards of dud flares and proper procedures to follow if a dud flare is found.

The following describes the anticipated impacts for each of the proposed low-altitude MOAs with different proposed low-altitude floors.

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Sound levels would increase up to 2.4 dBA DNL as a result of aircraft operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs under Alternative 1. The sound levels in these proposed low-altitude MOAs would range from 36.7 dBA DNL to 41.2 dBA DNL; sound levels would remain relatively low and would have long-term, minor, adverse impacts on wildlife. The maximum sound level from individual overflights at 1,000 feet AGL would increase from 48.4 to 59.1 dBA at 8,000 feet AGL to 75.5 to 87.8 dBA at 1,000 feet AGL. Therefore, individual overflights at altitudes of 1,000 feet AGL would disturb wildlife both through increased sound and the visibility of aircraft movement to wildlife, causing startle behavioral responses. However, each aircraft training event would occur over different locations through time, and low-altitude training operations would not be concentrated in any one location across the very large areas under these proposed low-altitude MOAs. Additionally, these low-altitude training events currently conducted in the Moody 2 North, Moody 2 South, and Restricted Area R-3008 and would be shifted to the proposed low-altitude MOAs, increasing the available area for approximately the same number of low-altitude training events annually. Therefore, it is highly unlikely that wildlife would be exposed to a single training event during critical species life-cycle events such as mating and nesting. Increased noise from aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have a long-term minimal adverse impact on terrestrial wildlife under Alternative 1.

Given that training altitudes would always occur above 1,000 feet AGL in these MOAs, aircraft movement in these four proposed low-altitude MOAs would have no impacts on mammals, reptiles, and amphibians under Alternative 1. The majority of aircraft training operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would occur at altitudes above where most bird species would be migrating or foraging. However, aircraft movement below 2,000 feet AGL could adversely impact migrating birds, including migrating sandhill cranes, and have a greater risk of BASH in these four proposed low-altitude MOAs under Alternative 1. Migrating birds could have a greater potential of encountering aircraft during training operations below 2,000 feet. However, given the large area where training would occur, the lack of any new low-altitude training events (i.e., low-altitude training events currently conducted in other low-altitude MOAs would be shifted to these proposed low-altitude MOAs), and that most training would occur during daytime hours while most songbirds migrate at night,

there is a low probability for birds to encounter aircraft during training operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Although most songbirds and raptors do not flush from a nest or perch due to infrequent low-altitude flights, low-altitude aircraft can be disturbing to waterfowl (Manci et al. 1988; Delaney et al. 1997). Waterfowl and wading birds such as herons and egrets are typically more sensitive to disturbance as they aggregate in large flocks during migration and in some cases, during breeding activities. Although south central Georgia is not in a migratory flyway for waterfowl and waterfowl are not considered a high risk aircraft strike hazard for Moody AFB (Moody AFB 2001), wading birds such as herons and egrets are common near open water areas and within wetland complexes, and migrating sandhill cranes do occur in the Moody Airspace Complex. When at rest, wading birds typically flock in open water environments or wetlands that have open exposure to the sky, increasing the visual acuity towards aircraft movement. Further, studies indicate that birds such as waterfowl and wading birds exposed to frequent overflights never completely habituate to increased sound levels and aircraft movement (Bowles 1995).

Under the Proposed Action, the quantity and type of chaff and flares used in the Moody Airspace Complex would not change, but their use would be redistributed into the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs. Impacts on wildlife from the continued use of chaff and flares would be limited to a startle effect from chaff and flare deployment or flare combustion products. The potential of being struck by debris or a dud flare, given the small amount, is remote. Startle effects from the release of chaff and flares would be minimal relative to the sound of the aircraft. The potential for wildlife to be startled from flare deployment at night when flares would be most visible would be minimal due to the short burn time of the flare. It is highly unlikely that during active military training with aircraft in the proposed low-altitude MOAs that birds would remain in the area where training is occurring to be adversely impacted by chaff and flares deployment. Further, chaff and flares are so small that it is highly unlikely that the small amount of lightweight material ejected during their deployment would have an adverse impact on birds or that the material would reach the ground level and have an impact on mammals. Lastly, an evaluation of the potential for chaff to be inhaled by large wildlife found that the fibers are too large to be inhaled into the lungs and that chaff material is made of silicon and aluminum that has been shown to have low toxicity (Air Force 1997); therefore, the use of chaff and flares during training in the proposed low-altitude MOAs would have no impact on wildlife under Alternative 1.

Moody 2 North MOA. Sound levels would increase by 0.3 dBA DNL as a result of aircraft operations in the Moody 2 North MOA under Alternative 1. The sound levels in Moody 2 North MOA with a new low-altitude floor would be 44.6 dBA DNL; therefore, sound levels would remain relatively low and have minimal long-term, adverse impacts on wildlife. Maximum sound levels from individual overflights that occurred as low as 100 feet AGL instead of 500 feet AGL would increase by approximately 13 dBA. Individual overflights at altitudes of 100 feet AGL would disturb wildlife both through increased sound and the visibility of aircraft movement causing startle behavioral responses.

The majority of aircraft training operations in the Moody 2 North MOA would occur at altitudes above where most bird species would be migrating or foraging. However, aircraft movement

below 2,000 feet AGL could adversely impact migrating birds and have a greater risk of BASH in the Moody 2 North MOA under Alternative 1. Migrating birds could have a greater potential of encountering aircraft during training operations below 2,000 feet. Given the large area where training would occur across the Moody 2 North MOA, the lack of any new low-altitude training events (i.e., some low-altitude training events currently conducted in Moody 2 North MOA would be shifted to proposed low-altitude MOAs), that most training would during daytime hours while most songbirds migrate at night, and that aircraft operations are currently conducted below 2,000 feet in the Moody 2 North MOA, there is a low probability for birds to encounter aircraft during training operations with the proposed lower floor in the Moody 2 North MOA. Therefore, long-term adverse impacts on migrating birds from aircraft movement would be minor under Alternative 1.

Training events at altitudes as low as 100 feet AGL, which would not exceed 134 operations annually, could cause behavioral responses in mammals, reptiles, and amphibians in the Moody 2 North MOA under Alternative 1 if these wildlife are in areas where the sky is visible at the time the low-altitude aircraft operation occurs. These behavioral responses would be temporary and last only as long as the aircraft producing increased sound emissions is visible. However, aircraft overflights are currently conducted as low as 500 feet AGL in the Moody 2 North MOA, and up to 134 annual aircraft operations at altitudes below 500 feet would not likely change the behavioral responses in mammals, reptiles, and amphibians in the Moody 2 North MOA, especially since the overall number of annual aircraft operations in the Moody 2 North MOA would decrease from 2,545 to 1,913. Therefore, there would be no impacts on mammals, reptiles, and amphibians in the Moody 2 North MOA under Alternative 1.

Impacts on avian species would be the same as described for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Infrequent low-altitude flights as low as 100 feet AGL would be unlikely to disturb foraging, perching, or nesting raptors, songbirds, and wading birds in the Moody 2 North MOA because current operations in the Moody 2 North MOA extend to 500 feet AGL, and the overall number of aircraft operations in the Moody 2 North MOA would decrease under Alternative 1.

Grand Bay MOA. Noise would increase by 3.3 dBA DNL as a result of aircraft operations in the Grand Bay MOA under Alternative 1. The sound levels in the Grand Bay MOA with a 100-foot AGL low-altitude floor would be 51.0 dBA DNL. Therefore, sound levels would remain relatively low and have minimal impacts on wildlife. Peak sound levels from individual overflights that occurred as low as 100 feet AGL instead of 500 feet AGL would increase by approximately 13 dBA, causing intermittent disturbance to wildlife through both increased sound levels and the aircraft visibility and startle behavioral responses. Although a single location would not be subjected to regular or continuous high sound levels from aircraft overflights, and no more than 134 operations below 500 feet AGL would occur annually across the entire Grand Bay MOA, these high, intermittent sound levels would likely cause startle responses, which would be most acute in ungulates and avian species. However, even at altitudes as low as 100 feet AGL, most reptiles and amphibians would be unlikely to respond to aircraft overflights as the sky is typically obscured by vegetation, water, and/or soil for these animals. Further, the proposed creation of the Grand Bay MOA under Alternative 1 would expand the 65 dBA DNL sound contour

associated with the Grand Bay Range as flight tracks on the north side of the Grand Bay Range would be extended (see **Figure 4.3-2**). This extension of the 65 dBA DNL contour would be over mostly wetland and aquatic habitats, some of which are associated with the Banks Lake NWR, and would cause startle responses in wading birds, which could impact their behavior during overwintering and migration.

Migrating birds, including wading birds such as sandhill cranes, would have a greater potential of encountering aircraft during training operations in the Grand Bay MOA, where training that is currently conducted down to 500 feet AGL would extend below 500 feet AGL. However, given the large area where training would occur in the Grand Bay MOA, the lack of any new low-altitude training events (i.e., low-altitude training events down to 500 feet AGL are currently conducted within the same lateral confines as the proposed Grand Bay MOA), and that most training would occur during daytime hours while most songbirds migrate at night, there is a low probability for birds to encounter aircraft during training operations in the proposed Grand Bay MOA. There would be an increased BASH risk from low-altitude flights by military aircraft over aquatic and wetland habitats under the proposed Grand Bay MOA. Most of the bird species that would be present below the Grand Bay MOA and be disturbed by sound emissions and aircraft movement would be wading birds and raptors, which always pose a management issue for BASH programs. However, BASH programs identify locations of seasonal concentrations of wading birds and raptors that pose a risk to aircraft and pilots and measures are taken to minimize the risk of collisions. See **Section 4.4** for an additional discussion of BASH with respect to safety concerns. The proposed Grand Bay MOA would have long-term minor, adverse impacts on migrating birds from noise emissions and aircraft movement in the Grand Bay MOA under Alternative 1.

Training events at altitudes between 500 and 100 feet AGL, which would not exceed 134 operations annually, could cause behavioral responses in mammals, reptiles, and amphibians in the Grand Bay MOA under Alternative 1 if these wildlife are in areas where the sky is visible at the time the low-altitude aircraft operation occurs. These behavioral responses would be temporary and would likely not result in any long-term adverse impact to mammals, reptiles, and amphibians. However, the proposed Grand Bay MOA would have a long-term minor adverse impact on mammals, reptiles, and amphibians as a result of low-altitude operations.

Thud Low MOA. Sound levels would increase from approximately 39.2 dBA DNL to 41.4 dBA DNL as a result of aircraft operation in the Thud Low MOA under Alternative 1. Although there would be an increase of 2.2 dBA DNL, the overall sound level of 41.4 dBA DNL remains relatively quiet and would have minimal impacts on wildlife, including wild ungulates, which are typically more sensitive to sound disturbance than other mammal species (Manci et al. 1988). The maximum sound from individual overflights would increase from 48.4 to 59.1 dBA at 8,000 feet AGL to 60.2 to 68.3 dBA. Although the maximum noise would increase, the maximum noise levels at an altitude of 4,000 feet AGL would be unlikely to cause behavioral responses in animals. Individual overflights down to an altitude of 4,000 feet would occur across the entire Thud Low MOA, which is a large area, and these specific sound-level increases would rarely occur over the same location. Therefore, wildlife would only rarely experience these single-event, higher sound annoyances and any behavioral changes would primarily involve turning to

orient toward the aircraft sound. Although the concerns with sound emission and visibility of aircraft movement previously described have been raised in the literature and examples have been documented, studies of unconfined wildlife to overflight by military jet aircraft at 500 feet AGL or higher have not shown measurable changes in population size or reproductive success at the population level or other significant biological impact under normal conditions. With an altitude floor of 4,000 feet, there would be no interactions between wildlife and their observations of aircraft movement as a low-altitude floor of 4,000 feet would be above the point of visibility by most wildlife, including most avian species.

Aircraft operations have the potential for bird and other wildlife strikes. This can occur during flight at altitude. The majority of aircraft training operations in the Thud Low MOA would occur at altitudes above where most bird species would be migrating or foraging. As such, it is highly unlikely that aircraft movement would adversely impact foraging birds or have a risk of BASH in the Thud Low MOA under Alternative 1. However, with a proposed increase in training operations in the proposed Thud Low MOA, there would be an increased risk of BASH; however, this risk of BASH would only be spatially relocated across the Moody Airspace Complex as the low-altitude training would be shifted from other low-altitude MOAs to the Thud Low MOA and would not increase. Further, Moody AFB maintains a BASH prevention program specifically to manage BASH risk and implements measures to greatly reduce the likelihood for BASH incidents. The outcome of the BASH program is both increased safety for pilots and military aircraft as well as fewer incidents of injury or death of birds and other wildlife. As such, with the same number of low-altitude training events as current conditions and risk reduction implementation measures associated with the BASH program discussed in **Section 3.4**, the adverse impacts on birds and other wildlife from aircraft strikes during air operations in the proposed low-altitude MOAs under Alternative 1 would be long-term and minor. Further, given the altitudes that training would occur, aircraft movement in the MOAs would have no impacts on mammals, reptiles, and amphibians in the Thud Low MOA under Alternative 1.

Moody 2 South MOA. Although there would be no change to the charted airspace for Moody 2 South MOA under Alternative 1, aircraft operations that currently take place in the Moody 2 South MOA would shift to the newly created low-altitude MOAs. As a result, sound levels in the Moody 2 South MOA would decrease by 1.1 dBA DNL from 43.3 dBA DNL to 42.2 dBA DNL under Alternative 1. Sound levels from individual overflights at 500 feet AGL would continue to disturb wildlife both through high sound levels during aircraft overflights and the visibility of aircraft movement causing startle behavioral responses. However, the frequency of these low-altitude aircraft overflights would decrease as a result of Alternative 1. The shift of low-altitude aircraft operations from the Moody 2 South MOA to other low-altitude MOAs would reduce long-term, adverse noise impacts on wildlife in the Moody 2 South MOA; however, this beneficial impact would be minor as the current low-altitude training events likely have very little negative effects on terrestrial wildlife.

4.6.2.2 Threatened and Endangered Species

Under the Proposed Action, there would be no ground-disturbing activities and all potential impacts on biological resources would be associated with aircraft operations and the use of

defensive countermeasures in the proposed low-altitude MOAs. Because there would be no ground-disturbing activities, there would be no adverse impacts on federally or state listed plant species, fully aquatic wildlife species, or invertebrates. Moody AFB would continue to implement a 500-foot and 1 nm exclusion zone around all known active bald eagle nests and wood stork rookeries within the Moody Airspace Complex. This is a local avoidance procedure and is periodically updated with any reports of newly discovered or surveyed wood stork rookeries in the Moody Airspace Complex.

The DAF has made a no effect determination for all federally listed species in the action area except for the wood stork. The DAF has made a may affect, but not likely to adversely affect determination for the wood stork. Concurrence with the DAF's determinations has been received from the USFWS (see **Appendix E**).

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Adverse effects on listed species could occur from flight operations at lower altitudes in these proposed low-altitude MOAs. These aircraft operations could affect listed species from aircraft movement, sound, bird/wildlife aircraft strikes and use of defensive countermeasures at very low altitudes. For listed bird species, given the large area where training would occur, and that most low-altitude training would occur during daytime hours, the likelihood for listed birds to encounter aircraft during training operations is low. However, aircraft movement at altitudes at 1,000 feet above wood stork rookeries in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs could have the potential to cause a startle effect in the nesting wood storks. Although the chance of an aircraft strike to a wood stork or disturbance of active rookeries is extremely unlikely with aircraft operations occurring above 1,000 feet AGL, aircraft movement may affect, but is not likely to adversely affect wood storks.

There is the potential for components of chaff and flares that remain after use to make their way to the water surface of wetlands and shallow aquatic environments where they could be mistaken for prey items. Chaff cartridges, chaff canisters, chaff components, and chaff and flare end caps and pistons would be released into the environment, where they would persist for long periods. Some species of waterbirds and seabirds are known to ingest plastic when it is mistaken for prey (Auman et al. 1997, Yamashita et al. 2011, Provencher et al. 2014). The ingestion of plastic such as chaff and flare compression pads or pistons by birds such as wood storks could cause gastrointestinal obstructions or hormonal changes leading to reproductive issues (Provencher et al. 2014). Unless consumed plastic pieces were regurgitated, the chaff and flare compression pads or pistons could cause digestive tract blockages and eventual starvation and be lethal to birds that forage in aquatic habitats such as wood storks; however, based on the available information, it is not possible to accurately estimate actual ingestion rates or responses of individual bird species (Moser and Lee 1992); for example, it is possible that wood storks do not mistake these plastic components for prey and mistakenly consume them. Given the small number of chaff and flares that would be used over the large expanses of the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs, it is highly unlikely that wood storks would ever encounter chaff and flare components in aquatic environments of Carolina bays where they forage. Further, no additional chaff and flare use is proposed under Alternative 1; a portion of the chaff and flares would be redistributed from their current use in the

Moody 2 North and Moody 2 South MOAs to the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs. Therefore, the use of chaff and flares in the proposed low-altitude MOAs as a result of training may affect but is not likely to adversely affect the wood stork as a result of Alternative 1.

Low-altitude training operations in these four proposed low-altitude MOAs also have the potential to startle red-cockaded woodpeckers if the species is present in these areas. However, there are no known occurrences of red-cockaded woodpeckers beneath the proposed low-altitude MOAs and no suitable habitat (i.e., mature pine forest) has been identified. Therefore, there would be no effect on red-cockaded woodpeckers from the proposed training in the proposed low-altitude MOAs under Alternative 1. Military aircraft operations in the proposed low-altitude MOAs would have no impact on the eastern black rail as this species is entirely restricted to marsh vegetation and would not be startled by aircraft flying as low as 1,000 feet.

The indigo snake is primarily associated with gopher tortoise burrows and occur in forested habitats. They would not be exposed to aircraft movement and operations or increased sound levels; therefore, the proposed aircraft operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have no effect on the indigo snake.

The frosted flatwoods salamander would also occur in forested habitats primarily associated with aquatic environments. The frosted flatwoods salamander would not be exposed to aircraft movement or increased sound levels from training operations in the proposed low-altitude MOAs. Therefore, aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have no effect on the frosted flatwoods salamander. The reticulated flatwoods salamander would not occur in the project area because its distribution is limited to suitable habitats west of the Apalachicola River.

The proposed endangered tricolored bat is known to occur on Moody AFB and in the Moody Airspace Complex. The Moody AFB Safety Office reported four tricolored bat strikes in 2022 (12 May, 27 July, 28 July, and 13 October 2022), which could have occurred either at the Moody AFB airfield or in SUA during training operations. No additional training operations at low altitude are proposed under Alternative 1. Further, no additional nighttime training operations are proposed under Alternative 1. Under Alternative 1, low-altitude and nighttime training operations would be redistributed from existing low-altitude SUA to the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. For the tricolored bat, given the large area where training would occur, and that there would be no change in the number of low-altitude operations or the timing of aircraft operations in the Moody Airspace Complex, and that most low-altitude training would occur during daytime hours and the tricolored bat is crepuscular/nocturnal, the likelihood for the tricolored bat to encounter aircraft more frequently than under existing conditions during training operations is very low. As such, aircraft movement in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not likely jeopardize the continued existence of the tricolored bat.

Annual migration patterns for the eastern monarch butterfly population include south Georgia and north Florida in the Moody Airspace Complex. Aircraft operations at altitudes at or below

1,000 feet in the proposed low-altitude MOAs could strike migrating monarch butterflies during soaring flight. However, there would be no increase in low-altitude aircraft operations under Alternative 1, as a portion of the current low-altitude aircraft operations would be redistributed from existing low-altitude MOAs to proposed low-altitude MOAs. Therefore, there would be only a slight increase in the likelihood of aircraft strikes to migrating monarch butterflies in the Moody Airspace Complex as the existing low-altitude aircraft operations would occur over a broader geographic area within the monarch butterfly's migratory pathway. Therefore, aircraft movement in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not likely jeopardize the continued existence of the monarch butterfly.

Moody 2 North MOA. There are no known wood stork rookeries in the Moody 2 North MOA; further, it is highly unlikely that the red-cockaded woodpecker and eastern black rail would occur in the Moody 2 North MOA because no suitable habitat has been identified for these species. Therefore, lowering the floor of the Moody 2 North MOA would have no effect on the red-cockaded woodpecker, the eastern black rail, and the wood stork because they are not likely present in the region. Lowering the floor of the Moody 2 North MOA would not substantially change the DNL sound levels in the Moody 2 North MOA, and federally listed reptiles and amphibians would not be affected by these minor sound level changes nor would they perceive aircraft movement at these lower altitudes. Therefore, the lowering of the floor at the Moody 2 North MOA would have no effect on the indigo snake, and frosted flatwoods salamander. As described for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, there would be no change in the number of low-altitude training operations or the number of nighttime training operations under Alternative 1. Instead existing training operations would be redistributed. As described for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, aircraft movement at lower altitudes in the Moody 2 North MOA would not likely jeopardize the continued existence of the tricolored bat and monarch butterfly.

Grand Bay MOA. There are no known wood stork rookeries in the Grand Bay MOA and there is no suitable habitat for the red-cockaded woodpecker and eastern black rail in the Grand Bay MOA. Therefore, low-altitude training operations in the proposed Grand Bay MOA would have no effect on the red-cockaded woodpecker, eastern black rail, or wood stork as they are not likely breeding or nesting in the area. Training operations in the proposed Grand Bay MOA would not substantially change the sound levels and federally listed reptiles and amphibians would not be affected by these minor sound level changes nor would they perceive aircraft movement at these lower altitudes. Therefore, low-altitude operations in the proposed Grand Bay MOA would have no effect on the indigo snake, and frosted flatwoods salamander. As described for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, there would be no change in the number of low-altitude training operations or the number of nighttime training operations under Alternative 1. Instead existing training operations would be redistributed. Therefore, aircraft movement at lower altitudes in the Moody 2 North MOA would not likely jeopardize the continued existence of the tricolored bat and monarch butterfly.

Thud Low MOA. Sound levels would not change substantially with training operations in the proposed Thud Low MOA and aircraft operations would not occur below 4,000 feet AGL,

eliminating any risk of disturbance from aircraft movement on federally listed reptiles and amphibians. There is no suitable habitat for the red-cockaded woodpecker in the project area; therefore, there would be no effect on the red-cockaded woodpecker from the proposed Thud Low MOA. The eastern black rail is a secretive bird that occurs in dense wetland vegetation and would rarely be exposed to the open sky to observe aircraft operating at low altitudes. Therefore, there would be no effect on the eastern black rail from the proposed Thud Low MOA.

The wood stork is known to roost and forage in the project area, and roost sites have been documented throughout the Moody Airspace Complex, including the Thud Low MOA. However, aircraft operations at 4,000 feet AGL with only a minimal increase in sound levels would not disturb roosting or foraging wood storks. The use of chaff and flares are not proposed in the Thud Low MOA.

The indigo snake is primarily associated with gopher tortoise burrows and occur in forested habitats. They would not be exposed to aircraft movement and operations or increased sound levels; therefore, the proposed Thud Low MOA would have no effect on the gopher tortoise or indigo snake.

The frosted flatwoods salamander would also occur in forested habitats primarily associated with aquatic environments. The frosted flatwoods salamander would not be exposed to aircraft movement or increased sound levels from training operations in the Thud Low MOA. Therefore, the proposed Thud Low MOA would have no effect on the frosted flatwoods salamander.

As described for the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, there would be no change in the number of low-altitude training operations or the number of nighttime training operations under Alternative 1. Instead existing training operations would be redistributed. There would be no substantial increase in noise in the Thud Low MOA under Alternative 1 and aircraft movement would not occur below 4,000 feet MSL. Therefore, the proposed Thud Low MOA would have no affect on the tricolored bat or monarch butterfly.

4.6.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

Impacts on wildlife and threatened and endangered species for the proposed Grand Bay MOA, and the lowering of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs, would be the same under Modified Alternative 1 as described for Alternative 1 because the proposed airspace floors would be the same for these proposed low-altitude MOAs under both alternatives. Further, the impacts on wildlife and threatened and endangered species from the use of defensive countermeasures in the proposed low-altitude MOAs would be the same as described for Alternative 1. Under Modified Alternative 1, the Thud Low MOA would not be charted. Therefore, there would be no impacts on wildlife or threatened and endangered species from aircraft movement and noise operating at lower altitudes during training under Modified Alternative 1.

4.6.3.1 Wildlife

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Impacts on birds from noise and aircraft movement in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be long term, minor, and adverse under Modified Alternative 1, but would be reduced relative to Alternative 1 because the lateral boundaries of the proposed charted Corsair North Low MOA, Mustang Low MOA, and Warhawk Low MOA would be reduced relative to Alternative 1, reducing the low-altitude training operations area beneath the Moody Airspace Complex. As training altitudes would always occur at or above 1,000 feet AGL in these MOAs, aircraft movement would have no impacts on mammals, reptiles, or amphibians under Modified Alternative 1.

Sound levels would increase up to 2.3 dBA DNL as a result of aircraft operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs under Modified Alternative 1. The sound levels in these proposed low-altitude MOAs would range from 37.2 dBA DNL to 39.8 dBA DNL; sound levels would remain relatively low and would have minimal impacts on wildlife. The maximum sound levels from individual overflights would increase as described for Alternative 1. Individual overflights at altitudes of 1,000 feet AGL would disturb wildlife both through increased sound and the visibility of aircraft movement causing startle behavioral responses. However, each individual aircraft training event would occur over different locations through time and low-altitude operations would not be concentrated in any one location across the very large areas under these proposed MOAs. Further, the lateral boundaries of these MOAs would be smaller than under Alternative 1, reducing the underlying airspace and ground surface and associated wildlife habitats exposed to these training activities. Therefore, it is highly unlikely that wildlife would be exposed to a single training event during critical species life-cycle events such as mating and nesting. The proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have a long-term, minor, adverse impact on terrestrial wildlife under Modified Alternative 1.

The majority of aircraft training operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would occur at altitudes above where most bird species would be migrating or foraging. All aircraft movement would be at or above 1,000 feet AGL and could adversely impact migrating birds and have a greater risk of BASH in these four proposed low-altitude MOAs under Modified Alternative 1. Migrating birds could have a greater potential of encountering aircraft during training operations at 1,000 feet; however, given the large area where training would occur, the lack of any new low-altitude training events (i.e., low-altitude training events currently conducted in other low-altitude MOAs would be shifted to these proposed low-altitude MOAs), the reduction in the lateral boundaries of these MOAs compared to Alternative 1, that most training would occur during daytime hours while most songbirds migrate at night, and that all training events would occur at altitudes of at least 1,000 feet AGL and most songbirds migrate below that altitude, there is a low probability for birds to encounter aircraft during training operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.

4.6.3.2 Threatened and Endangered Species

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Adverse effects on listed species could occur from flight operations at lower altitudes in these four proposed low-altitude MOAs. These aircraft operations could affect biological resources from aircraft movement, sound, bird and animal aircraft strikes, and use of defensive countermeasures. For listed bird species, given the large area where training would occur, and that most low-altitude training operations would occur during daytime hours, the likelihood for listed birds to encounter aircraft during training operations is low, and reduced relative to Alternative 1 as the lateral boundaries of the proposed low-altitude airspace is reduced under Modified Alternative 1. Further, aircraft movement at altitudes at 1,000 feet above wood stork rookeries in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs has the potential to cause a startle effect in nesting wood storks. However, the chance of an aircraft strike to a wood stork even at altitudes as low as 1,000 feet would be extremely unlikely given that wood storks typically forage and travel at very low altitudes. Wood storks could mistake plastic components from defensive countermeasures as prey items and ingest these residual plastic components as described for Alternative 1. No additional chaff and flare use is proposed under Alternative 1; a portion of the chaff and flares would be redistributed from their current use in the Moody 2 North and Moody 2 South MOAs to the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs. Therefore, as described for Alternative 1, the use of defensive countermeasures may affect but is not likely to adversely affect wood storks.

Low-altitude training operations in these four proposed low-altitude MOAs would also have the potential to startle red-cockaded woodpeckers if the species is present in these areas. There are, however, no known occurrences of red-cockaded woodpeckers beneath the proposed low-altitude MOAs, and no suitable habitat (i.e., mature pine forest) has been identified. Therefore, no effect on red-cockaded woodpeckers from the proposed training would occur in the proposed low-altitude MOAs under Modified Alternative 1. Military aircraft operations in the proposed low-altitude MOAs would have no impact on the eastern black rail as this species is entirely restricted to marsh vegetation and would not be startled by aircraft flying as low as 1,000 feet.

It is highly unlikely that either aircraft movement or sound levels from low-altitude training at or above 1,000 feet AGL would elicit a response from federally listed small mammals, reptiles, or amphibians. Sound from military aircraft would not substantially increase beneath the proposed low-altitude MOAs, and aircraft movement from additional low-altitude training events in these proposed MOAs would have no effect on the listed mammals, reptiles, and amphibians. There would be no supersonic training activities in the proposed low-altitude MOAs; therefore, there would be no impacts from sonic booms.

As described for Alternative 1, there would be no additional low-altitude or nighttime operations and current aircraft operations at low altitudes would be redistributed under Modified Alternative 1. Therefore, aircraft movement at lower altitudes would not likely to jeopardize the continued existence of the tricolored bat and monarch butterfly.

4.6.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

Impacts on wildlife and threatened and endangered species for the proposed Thud Low MOA, Grand Bay MOA, and the lowering of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs would be the same under Alternative 2 as described for Alternative 1 because the proposed airspace floors would be the same for these proposed low-altitude MOAs under both alternatives. Further, the impacts on wildlife and threatened and endangered species from the use of defensive countermeasures in the proposed low-altitude MOAs would be the same as described for Alternative 1.

4.6.4.1 Wildlife

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Impacts on birds from noise and aircraft movement in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be, long-term, minor, and adverse under Alternative 2. Further, given that training altitudes would always occur at or above 2,000 feet AGL, aircraft movement in these four proposed low-altitude MOAs would have no impacts on mammals, reptiles, or amphibians under Alternative 2.

Sound levels would increase up to 1.4 dBA DNL as a result of aircraft operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs under Alternative 2. The sound levels in these proposed low-altitude MOAs would range from 35.8 dBA DNL to 40.6 dBA DNL; sound levels would remain relatively low and would have minimal impacts on wildlife. The maximum sound levels from individual overflights would increase from 48.4 to 59.1 dBA at 8,000 feet AGL to 68.0 to 76.7 dBA at 2,000 feet. Individual overflights at altitudes of 2,000 feet AGL would disturb wildlife both through increased sound and the visibility of aircraft movement causing startle behavioral responses. However, each individual aircraft training event would occur over different locations through time and low-altitude operations would not be concentrated in any one location across the very large areas under these proposed MOAs. Therefore, it is highly unlikely that wildlife would be exposed to a single training event during critical species life-cycle events such as mating and nesting. The proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have a long-term, minor, adverse impact on terrestrial wildlife under Alternative 2.

The majority of aircraft training operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would occur at altitudes above where most bird species would be migrating or foraging. All aircraft movement would be at or above 2,000 feet AGL and could adversely impact migrating birds and have a greater risk of BASH in these four proposed low-altitude MOAs under Alternative 2. Migrating birds could have a greater potential of encountering aircraft during training operations at 2,000 feet; however, given the large area where training would occur, the lack of any new low-altitude training events (i.e., low-altitude training events currently conducted in other low-altitude MOAs would be shifted to these proposed low-altitude MOAs), that most training would occur during daytime hours while most songbirds migrate at night, and that all training events would occur at altitudes of at least 2,000

feet AGL and most songbirds migrate below that altitude, there is a low probability for birds to encounter aircraft during training operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.

4.6.4.2 Threatened and Endangered Species

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Adverse effects on listed species could occur from flight operations at lower altitudes in these four proposed low-altitude MOAs. These aircraft operations could affect biological resources from aircraft movement, sound, bird and animal aircraft strikes and use of defensive countermeasures. For listed bird species, given the large area where training would occur, and that most low-altitude training operations would occur during daytime hours, the likelihood for listed birds to encounter aircraft during training operations is low. Further, aircraft movement at altitudes at 2,000 feet above wood stork rookeries in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs has the potential to cause a startle effect in nesting wood storks. However, the chance of an aircraft strike to a wood stork even at altitudes as low as 2,000 feet would be extremely unlikely given that wood storks typically forage and travel at very low altitudes. Wood storks could mistake plastic components from defensive countermeasures as prey items and ingest these residual plastic components as described for Alternative 1. No additional chaff and flare use is proposed under Alternative 1; a portion of the chaff and flares would be redistributed from their current use in the Moody 2 North and Moody 2 South MOAs to the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs. Therefore, the use of defensive countermeasures may affect but is not likely to adversely affect wood storks.

Low-altitude training operations in these four proposed low-altitude MOAs also has the potential to startle red-cockaded woodpeckers if the species was present in these areas. However, there are no known occurrences of red-cockaded woodpeckers beneath the proposed low-altitude MOAs and no suitable habitat (i.e., mature pine forest) has been identified. Therefore, there would be no effect on red-cockaded woodpeckers from the proposed training in the proposed low-altitude MOAs under Alternative 2. Military aircraft operations in the proposed low-altitude MOAs would have no impact on the eastern black rail as this species is entirely restricted to marsh vegetation and would not be startled by aircraft flying as low as 2,000 feet.

It is highly unlikely that either aircraft movement or sound levels from low-altitude training at or above 2,000 feet AGL would elicit a response from federally listed small mammals, reptiles, or amphibians. Sound from military aircraft would not substantially increase beneath the proposed low-altitude MOAs, and aircraft movement from additional low-altitude training events in these proposed MOAs would have no effect on the listed mammals, reptiles, and amphibians. There would be no supersonic training activities in the proposed low-altitude MOAs; therefore, there would be no impacts from sonic booms.

As described for Alternative 1, there would be no additional low-altitude or nighttime operations and current aircraft operations at low altitudes would be redistributed under Modified Alternative

1. Therefore, aircraft movement at lower altitudes would not likely jeopardize the continued existence of the tricolored bat and monarch butterfly.

4.6.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Impacts on wildlife and threatened and endangered species for the proposed Thud Low MOA, Grand Bay MOA, and the lowering of the floor of the Moody 2 North MOA as well as the shifting of aircraft operations from the Moody 2 South MOA to other proposed low-altitude MOAs would be the same under Alternative 3 as described for Alternative 1. Further, the impacts on wildlife and threatened and endangered species from the use of defensive countermeasures in the proposed low-altitude MOAs would be the same as described for Alternative 1.

4.6.5.1 Wildlife

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. There would be no adverse impacts on birds from noise and aircraft movement in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs under Alternative 3. Further, given that training altitudes would always occur at or above 4,000 feet AGL, aircraft movement in these four proposed low-altitude MOAs would have no impacts on mammals, reptiles and amphibians under Alternative 3.

Sound levels would not increase as a result of aircraft operations in the Corsair North Low and Corsair South Low MOAs and would increase by 0.2 dBA in the Mustang Low and Warhawk Low MOAs under Alternative 3. The sound levels in these proposed low-altitude MOAs would range from less than 35 dBA DNL to 40.3 dBA DNL; sound levels would remain relatively low and would have no impacts on wildlife. Sound from individual overflights at 4,000 feet AGL would range from 67.5 to 78.4 dBA SEL, and individual overflights at altitudes of 4,000 feet AGL would not disturb wildlife as these relatively low sound levels and the lack of visibility of aircraft movement with training operations at these altitudes are both unlikely to cause startle responses. The proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have no adverse impacts on terrestrial wildlife under Alternative 3.

The majority of aircraft training operations in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would occur at altitudes above where most bird species would be migrating or foraging. All aircraft movement would be at or above 4,000 feet AGL, while migrating birds have a greater potential of encountering aircraft during training operations at less than 2,000 feet. Therefore, given the large area where training would occur, the lack of any new low-altitude training events (i.e., low-altitude training events currently conducted in other low-altitude MOAs) would be shifted to these proposed low-altitude MOAs, that most training would occur during daytime hours while most songbirds migrate at night, and that all training events would occur at altitudes of at least 4,000 feet AGL and most songbirds migrate below that altitude, it is highly unlikely that birds would encounter aircraft during training operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.

4.6.5.2 Threatened and Endangered Species

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Adverse effects on listed species could occur from flight operations at lower altitudes in these four proposed low-altitude MOAs. These aircraft operations could affect biological resources from aircraft movement, sound, bird and animal aircraft strikes and use of defensive countermeasures. For listed bird species, given the large area where training would occur, and that most low-altitude training would occur during daytime hours, the likelihood for listed birds to encounter aircraft during training operations is low. Further, with aircraft movement at altitudes at no less than 4,000 feet above wood stork rookeries in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs, there is no potential to cause a startle effect in nesting wood storks. However, wood storks could mistake plastic components from defensive countermeasures as prey items and ingest these residual plastic components as described for Alternative 1. No additional chaff and flare use is proposed under Alternative 3; a portion of the chaff and flares would be redistributed from their current use in the Moody 2 North and Moody 2 South MOAs to the proposed Corsair South Low, Mustang Low, and Warhawk Low MOAs. Therefore, the use of defensive countermeasures may affect but is not likely to adversely affect wood storks.

Low-altitude training operations in these four proposed low-altitude MOAs also have the potential to startle red-cockaded woodpeckers if the species is present in these areas. However, there are no known occurrences of red-cockaded woodpeckers beneath the proposed low-altitude MOAs and no suitable habitat (i.e., mature pine forest) has been identified. Therefore, there would be no effect on red-cockaded woodpeckers from the proposed training in the proposed low-altitude MOAs under Alternative 3. Military aircraft operations in the proposed low-altitude MOAs would have no impact on the eastern black rail as this species is entirely restricted to marsh vegetation and would not be startled by aircraft flying as low as 4,000 feet.

Aircraft movement from low-altitude training at or above 4,000 feet AGL would not elicit a response from federally listed small mammals (including tricolored bats), reptiles, amphibians, or monarch butterflies. Sound from military aircraft would not increase beneath the proposed low-altitude MOAs, and aircraft movement from additional low-altitude training events in these proposed MOAs would have no effect on the listed mammals, reptiles, amphibians, or monarch butterflies. There would be no supersonic training activities in the proposed low-altitude MOAs; therefore, there would be no impacts from sonic booms.

4.6.6 No Action Alternative

Under the No Action Alternative, there would be no shift in low-altitude training operations because there would be no new low-altitude MOAs created. Therefore, there would be no new impacts on wildlife or threatened and listed endangered species. Continued aircraft movement in the SUAs may affect and is likely to adversely affect the tricolored bat and monarch butterfly. All low-altitude training would continue to be concentrated in the Moody 2 South and Moody 2 North MOAs and Restricted Area R-3008. As a result of the No Action Alternative, low-altitude training operations would not be spread out across a large area and all adverse impacts on

wildlife from sound levels, aircraft movement, and use of defensive countermeasures would continue to be concentrated in the Moody 2 North and Moody 2 South MOAs. Although there are very few areas with habitat suitable to support listed species in the Moody 2 South MOA, those highly sensitive habitats such as Carolina bays and/or mature pine forests would continue to be negatively impacted by single-event sound levels as high as 96.2 dBA SEL and by low-altitude aircraft movement.

4.7 Cultural Resources

4.7.1 Evaluation Criteria

Under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 Code of Federal Regulations [CFR] 800), an adverse effect is found when an undertaking (or action) may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for National Register of Historic Places (NRHP) eligibility in a manner that would diminish the property's historic integrity of location, setting, feeling, association, design, materials, or workmanship. Examples of adverse impacts on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

4.7.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

Under Alternative 1, no impacts on cultural resources are anticipated in the proposed low-altitude MOAs with 1,000 feet AGL floors charted beneath and within the lateral confines of the Corsair North, Corsair South, Mustang, and Warhawk MOAs. Additionally, no impacts on cultural resources are anticipated in the Thud Low MOA with a floor of 4,000 feet AGL.

The newly created Grand Bay MOA with a floor of 100 feet AGL and the lowering of the floor of the existing Moody 2 North MOA from 500 feet to 100 feet AGL represent the areas of greatest potential to affect cultural resources and are the two MOAs included in the delineated Area of Potential Effect (APE) described in **Section 3.7.3**. Impacts on historic structures could occur from vibrations associated with low-altitude training operations below 500 feet AGL in the Grand Bay and Moody 2 North MOAs, including vibrations from activities such as helicopter hovering during training. Given that there are no supersonic activities proposed and that only 134 flight operations below 500 feet AGL are proposed in each of the two MOAs annually, it is unlikely that any adverse effects would occur on historic properties as a result of vibration from aircraft noise. Only four potentially NRHP-eligible properties have been identified in the APE, and these are all urban structures which would be avoided by at least 1,000 feet vertically and 2,000 feet laterally under existing FAA rules on flying near congested areas (14 CFR 91.119). The anticipated vibration impacts from low-altitude aircraft movement and noise in the APE would

have no effect on subsurface archaeological deposits and negligible effects on aboveground resources.

Redistribution of the existing operations in these two MOAs to the new proposed low-altitude MOAs would represent a reduction of visual and noise impacts on cultural resources in these MOAs that would also be negligible. The noise study for the Proposed Action concluded that the overall noise environment would be comparable to existing conditions.

4.7.3 *Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries*

Under Modified Alternative 1, impacts on cultural resources would be the same as described for Alternative 1. Impacts on historic structures could occur from vibration associated with low-altitude training operations below 500 feet AGL in the Grand Bay and Moody 2 North MOAs. Given that there are no supersonic activities proposed and that only 134 flight operations below 500 feet AGL are proposed in each of the two MOAs annually, it is unlikely that any adverse effects would occur on historic properties as a result of vibration from aircraft noise.

4.7.4 *Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor*

Under Alternative 2, impacts on cultural resources would be the same as described for Alternative 1. Impacts on historic structures could occur from vibration associated with low-altitude training operations below 500 feet AGL in the Grand Bay and Moody 2 North MOAs. However, given that there are no supersonic activities proposed and that only 134 flight operations below 500 feet AGL are proposed in each of the two MOAs annually, it is unlikely that any adverse effects would occur on historic properties as a result of vibration from aircraft noise.

4.7.5 *Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor*

Under Alternative 3, impacts on cultural resources would be the same as described for Alternative 1. Impacts on historic structures could occur from vibration associated with low-altitude training operations below 500 feet AGL in the Grand Bay and Moody 2 North MOAs. However, given that there are no supersonic activities proposed and that only 134 flight operations below 500 feet AGL are proposed in each of the two MOAs annually, it is unlikely that any adverse effects would occur on historic properties as a result of vibration from aircraft noise.

4.7.6 *No Action Alternative*

Under the No Action Alternative, there would be no changes to the existing airspace. The operational floors of the Moody Airspace Complex would remain at 8,000 feet MSL in the Corsair North, Corsair South, Mustang, Thud, and Warhawk MOAs and at 500 feet AGL in Moody 2 North MOA and R-3008C; therefore, no impacts on cultural resources under the No Action Alternative are expected.

4.8 Land Use and Recreation

4.8.1 Evaluation Criteria

Land use is affected by changes that alter, detract, or eliminate use or enjoyment of a place. Since the Proposed Action would not involve any ground disturbance, the primary effect of project implementation on land use would be associated with noise generated by aircraft operations at low altitude within existing and proposed airspace. A land use impact would be significant if it were inconsistent or noncompliant with existing land use plans or policies, precluded the viability of existing land use, precluded continued use or occupation of an area, was incompatible with adjacent land use to the extent that public health or safety is threatened, or conflicted with planning criteria established to ensure the safety and protection of human life and property.

In addition to local land use initiatives, FAA regulations specify minimum altitude and avoidance distances to which aircraft must adhere when flying over specific types of structures, settlements, or categories of land. In accordance with FAA avoidance rules (14 CFR 91.119), aircraft must avoid congested areas of a city, town, or settlement or any open-air assembly of people by 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet. Outside congested areas, aircraft must avoid persons, vessels, vehicles, or structures by 500 feet. Low-altitude avoidance and noise-sensitive areas for the proposed airspace would be charted and published by the FAA and/or identified in the local flight instructions for pilots. Pilots would be instructed to avoid these locations by horizontal and vertical distances to enhance flight safety, noise abatement, and environmental sensitivity.

Even with these avoidance distances, there would be a potential for perceptible increases in noise levels to occur for some rural residents. According to the Federal Interagency Committee on Urban Noise (1980), exposure to noise levels in excess of 65 dBA DNL would require additional noise mitigation measures to be implemented for affected structures; 75 dBA DNL is incompatible with residential, public use and recreation land uses and would constitute a potentially significant impact. A detailed noise and overflight exposure study evaluated the potential environmental consequences associated with establishing new low-altitude MOAs immediately underneath existing SUA within the Moody Airspace Complex; for a detailed discussion, see **Section 4.3, Acoustic Environment**.

4.8.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

The overall noise levels under Alternative 1 for all of the proposed low-altitude MOAs would be well below 65 dBA DNL and 65 dBA L_{dnmr} (see **Table 4.3-1**), and the change in the percent of the population that would be highly annoyed due to noise ranges from 0.0 percent to 0.7 percent. Therefore, noise from aircraft operations under Alternative 1 in the proposed low-altitude MOAs would have long-term minor impacts on land use and recreational activities.

4.8.2.1 Land Use

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs. Changes to aircraft operations beneath the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be incremental, and the overall noise environment would be comparable to existing conditions. Although aircraft operations would occur down to 1,000 feet AGL and would be more readily visible from the ground surface, operations would be spread out throughout the entire Moody Airspace Complex with noise and aircraft movement only being readily apparent at any one location infrequently. Individual aircraft noise would, on rare occasions, exceed 75 dBA and 90 dBA SEL at any one location beneath the proposed low-altitude MOAs. These events would not be incompatible with existing land uses.

Agricultural practices that involve livestock and poultry beneath the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be more sensitive to noise and aircraft movement than agricultural practices that involve planted crops. Domestic animals can have behavioral responses to increased noise and aircraft movement, but these responses are typically minimal (Manci et al. 1988). Studies on the effects of noise on domestic animals indicate that they habituate to noise over time, if it occurs with some regularity. Animals that experience aircraft overflights for the first time would likely be startled, but an initial startle response would not be detrimental to a domesticated animal's long-term health and would not lead to incompatible agricultural uses for lands beneath the proposed low-altitude MOAs (Air Force 1994). Further, no supersonic flights are proposed in the MOAs and, therefore, aircraft operations would not cause any ear damage or startle responses as a result of sonic booms.

Moody 2 North MOA. As described for the Corsair North Low and other MOAs above, the noise environment would not change substantially as a result of the lowering of the altitude of the Moody 2 North MOA from 500 feet AGL to 100 feet AGL. The overall change in sound level would be 0.3 dBA and would be well below 65 dBA DNL. Therefore, noise from aircraft operations would not cause any land use incompatibilities. Although up to 134 aircraft operations annually would occur below 500 feet AGL, these events would be rare, spread out over great distances, and would not occur over the same location repeatedly. Further, with the addition of other low-altitude MOAs under Alternative 1, there would be fewer low-altitude operations during training in the Moody 2 North MOA than under existing conditions.

Aircraft operations below 500 feet could startle livestock and poultry beneath the Moody 2 North MOA. However, the number of operations annually proposed below 500 feet AGL are very infrequent and would be dispersed over a very large area. Following any interaction between an aircraft operation below 500 feet AGL and domestic animals, and after the initial startle response, the affected domestic animal would return to normal conditions. Further, there would be fewer aircraft operations at low altitudes during training in the Moody 2 North MOA under Alternative 1, which would reduce the likelihood of domestic animal and aircraft interactions. Therefore, aircraft movement and noise would not be incompatible with any existing land uses, including agricultural land uses.

Grand Bay MOA. Noise and aircraft movement in the Grand Bay MOA would not be incompatible with any designated land uses. Noise levels in the Grand Bay MOA under Alternative 1 would increase by 3.3 dBA, but would be 51.0 dBA DNL. Although up to 134 aircraft operations would occur annually below 500 feet, these operations would be infrequent, would be spread out across large areas of the MOA, and would not occur at the same location repeatedly.

Up to 5,361 annual aircraft operations at low altitudes would continue to be conducted in R-3008 and up to 134 of those annual aircraft operations would be conducted in the Grand Bay MOA. A portion of these existing 5,361 annual operations, which are currently limited to an altitude of 1,500 feet AGL over the Banks Lake NWR, would be conducted over the Banks Lake NWR between 1,500 feet and 500 feet AGL with the partial modification of the exclusion zone to allow flying over the non-open water portion of the NWR. FAA Advisory Circular 91-36D recommends a 2,000-foot AGL minimum altitude advisory for noise-sensitive areas, such as National Parks, NWRs, Waterfowl Production Areas, and Wilderness Areas. This voluntary practice recommends avoidance, if practical, and does not apply where an altitude of 2,000 feet AGL is considered necessary for a pilot to operate safely. Pilots would prefer to approach the Grand Bay Range over the Banks Lake NWR at altitudes lower than 2,000 feet AGL for both training and safety requirements. The modification of altitude restrictions over the Banks Lake NWR, except for the approximately 900-acre area over the portion of the NWR comprised of open water and shoreline, would provide Air Force pilots with approaches to the Grand Bay Range that are less steep. Although the modification of the exclusion zone would increase the individual aircraft overflight noise, only a fraction of the total low-altitude operations over the Banks Lake NWR would occur below 1,500 feet annually, and none would occur below 1,500 feet over the open-water portions of the Banks Lake NWR. The Banks Lake NWR permits activities that generate substantial intermittent noise levels, such as the use of motorboats (with no horsepower or speed restrictions). Further, these relatively infrequent, low-altitude aircraft operations over the Banks Lake NWR would not generate noise levels above the threshold for incompatible land uses of 65 dBA DNL. Therefore, the proposed Grand Bay MOA and modification of the Banks Lake NWR exclusion zone would not be incompatible with this special use land area.

Potential impacts on domesticated animals, including livestock and poultry, are the same as described for the Moody 2 North MOA. Aircraft operations in the proposed Grand Bay MOA would not be incompatible with any agricultural land uses.

Moody 2 South MOA. Under Alternative 1, there would be a substantial decrease in low-altitude aircraft operations in the Moody 2 South MOA. Noise levels would decrease by 1.1 dBA DNL because of the reduction in operations with a shift of these low-altitude operations to other low-altitude MOAs. However, there would be no impact on land uses under the Moody 2 South MOA as a result of this shift in low-altitude training.

Thud Low MOA. Aircraft operations down to 4,000 feet AGL in the Thud Low MOA would increase noise levels by 2.2 dBA. However, the overall sound level beneath the Thud Low MOA under Alternative 1 would be 41.4 dBA DNL. Aircraft movement at 4,000 feet AGL dispersed

across the large area of the Thud Low MOA would not be readily apparent to people or domestic animals on the ground and would not impact special use areas such as Eufaula NWR easement lands or those lands held by land trusts. Therefore, noise and aircraft movement in the proposed Thud Low MOA would not be incompatible with any existing land uses, including agricultural uses involving livestock and poultry.

4.8.2.2 Recreation

Recreational users of lands under the airspace would experience slight noise increases and would experience an increased presence of aircraft into the viewshed. However, the projected noise levels would not be considered incompatible with recreational land uses, and no significant impacts would occur. Military training operations that are currently concentrated in the Moody 2 North and Moody 2 South MOAs would be dispersed throughout the proposed low-altitude MOAs. Some activity would occur at night; therefore, people camping on land beneath the proposed low-altitude MOAs would have the potential to see and hear aircraft after dark and see flares released at altitudes above 2,000 feet AGL. However, the recreational areas beneath the proposed MOAs are already currently subjected to aircraft training activity with visible low-altitude aircraft movement in the existing MOAs, and only a small percentage of all training operations would occur at night. Therefore, there would be a minor impact on recreational users from aircraft operations in the proposed low-altitude MOAs.

Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs.

Recreational activities primarily occur on private lands as well as within Reed Bingham State Park and Georgia State Wildlife Management Areas (WMAs), such as the Alapaha River WMA. Recreational activities on both private and public lands include hunting, fishing, wildlife viewing, boating, and hiking. Aircraft overflights in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not generate noise levels above 65 dBA DNL over these recreation areas. Although individual aircraft overflights would not be loud enough to damage hearing or structures, individual low-level overflights would be loud and abrupt enough to startle outdoor recreationists and cause readily perceptible vibrations in buildings directly under their flight paths. Given the infrequency of these events, the large area in which aircraft operations at low altitudes would occur across the proposed MOAs, the rare moments in which a recreationist would interact with a low-flying aircraft, and the procedures to provide IFR approaches and departures to underlying airports by civilian aircraft, the impacts on recreational uses in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be minor under Alternative 1.

Moody 2 North MOA. There are no public recreational lands under the Moody 2 North MOA. Recreational activities, such as hunting, fishing, and wildlife viewing, are limited to private lands or those held by private nonprofit entities such as land trusts. Aircraft overflights in the Moody 2 North MOA under Alternative 1 would not generate noise levels above 65 dBA DNL over private lands where recreation activities could occur. Individual aircraft flying at low altitudes could startle individuals and wildlife. However, aircraft operations in the Moody 2 North MOA are currently conducted down to 500 feet AGL; only 134 annual operations are anticipated below 500 feet AGL in the Moody 2 North MOA under Alternative 1. Because there would be no

substantial change in low-altitude operations in the Moody 2 North MOA and only a small number of those operations would occur annually below 500 feet AGL, the impacts on recreational uses in the Moody 2 North MOA would be minor under Alternative 1.

Grand Bay MOA. The Grand Bay MOA would support up to 134 of annual operations occurring below 500 feet AGL. The primary public use area beneath the Grand Bay MOA is the Banks Lake NWR. Although aircraft overflights in the Grand Bay MOA under Alternative 1 would not generate noise levels above 65 dBA DNL over the Banks Lake NWR and private lands, an increase in individual overflights from the partial modification of the Banks Lake NWR exclusion zone, to allow flying over the non-open water portion of the NWR, could startle individuals recreating at the Banks Lake NWR or hunting, fishing, or camping on private lands. Given the infrequency of these events, the large area in which aircraft operations at low altitudes would occur across the Grand Bay MOA, the presence of motorized boats with no horsepower limit generating noise at the Banks Lake NWR, and the rare moments in which a recreationist would interact with a low-flying aircraft, the impacts on recreational uses in the Grand Bay MOA would be minor under Alternative 1.

Moody 2 South MOA. The reduction in low-altitude training from 5,546 to 3,597 annual operations would reduce the likelihood of individual aircraft flying at low altitudes to startle individuals and recreationists participating in activities such as hunting, fishing, and wildlife viewing. However, this change in impacts on recreational uses would not be significant.

Thud Low MOA. Recreational uses under the Thud Low MOA include hunting, fishing, and wildlife viewing on public and private lands; golfing and camping at Georgia Veterans Memorial State Park; and soaring activities from Cordele-Crisp County Airport. These recreational activities are sensitive to noise; however, under Alternative 1, aircraft operations would not generate noise levels above 65 dBA DNL over these public and private lands. Further, aircraft would not operate below 4,000 feet AGL, and individual aircraft operations over recreationists would be unlikely to startle or disturb individuals and wildlife. With a 4,000-foot AGL floor, gliders can approach and depart Cordele-Crisp County Airport without delay and there would be no restrictions for VFR flights on gliders in active MOAs. Therefore, aircraft operations in the Thud Low MOA under Alternative 1 would not impact recreational uses.

4.8.3 *Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries*

Recreational users of lands, livestock and poultry, and private and public users under the airspace would experience slight noise increases under Modified Alternative 1 similar to those described for Alternative 1, but the projected changes in noise levels would not be considered incompatible with existing land uses and recreational activities. Therefore, no significant impacts would occur. Military training operations that are currently concentrated in the Moody 2 North and Moody 2 South MOAs would be dispersed throughout the proposed low-altitude MOAs. Some activity would occur at night; therefore, people camping on land beneath the proposed low-altitude MOAs would have the potential to hear aircraft after dark and see flares released at altitudes above 1,000 feet AGL. The recreational areas beneath the proposed MOAs are

already subjected to aircraft training activity in the existing MOAs, and only a small percentage of all training operations would occur at night under this alternative. Soaring activities would continue with Moody AFB ATC and Valdosta RAPCON providing prioritization for IFR approaches and departures to airports in the Moody Airspace Complex, and there would be no restrictions on VFR flights in the proposed low-altitude MOAs. Therefore, there would be a minor impact on recreational uses from aircraft operations in the proposed low-altitude MOAs.

4.8.3.1 Land Use

Impacts from aircraft operations on land use compatibility in the Moody 2 North, Moody 2 South, and Grand Bay MOAs under Modified Alternative 1 are the same as described for Alternative 1, because the proposed floor and ceiling altitudes would be the same for these MOAs. Under Modified Alternative 1, however, there would be no impacts from aircraft operations on land use compatibility beneath the Thud MOA as the Thud Low MOA would not be charted.

Aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would cause incremental changes in the noise environment beneath the MOAs; however, the overall noise environment would be comparable to existing conditions. Aircraft operations would occur down to 1,000 feet AGL and would be more readily visible from the ground surface, and aircraft operations would be more concentrated in the Corsair North Low, Mustang Low, and Warhawk Low MOAs under Modified Alternative 1 because the lateral boundaries of these MOAs would be smaller than under Alternative 1. Noise and aircraft movement would continue to be only readily apparent at any one location infrequently. Individual aircraft operations could startle individuals or domestic animals, such as livestock and poultry; however, these occasional interactions would not be incompatible with any land uses beneath the proposed low-altitude MOAs.

4.8.3.2 Recreation

Impacts from aircraft operations on recreation in the Moody 2 North, Moody 2 South, and Grand Bay MOAs under Modified Alternative 1 are the same as described for Alternative 1, because the proposed floor and ceiling altitudes would be the same as for Alternative 1. There would, however, be a reduction in impacts on recreation from aircraft operations beneath the Thud MOA under Modified Alternative 1 because the Thud Low MOA would not be charted.

Similar to Alternative 1, recreational users of lands under the airspace would experience slight noise increases; however, the projected noise levels would not be considered incompatible with recreational uses and no significant impacts would occur.

Impacts on recreational activities in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not generate noise levels above 65 dBA DNL over public and private lands used for recreation. Similar to Alternative 1, individual low-level overflights as low as 1,000 feet AGL would be loud and abrupt enough to startle individuals and wildlife recreating directly under their flight paths. Given the infrequency of these events, the large area in which aircraft operations at low altitudes would occur across the proposed MOAs, and the rare moments in which a recreationist would interact with an aircraft operating as low as

1,000 feet, the impacts on recreational uses in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be minor under Alternative 2.

4.8.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

Similar to Alternative 1, recreational users of lands, livestock and poultry, and private and public users under the airspace would experience slight noise increases, but the projected changes in noise levels would not be considered incompatible with existing land uses and recreational activities. Therefore, no significant impacts would occur. Military training operations that are currently concentrated in the Moody 2 North and Moody 2 South MOAs would be dispersed throughout the proposed low-altitude MOAs. Some activity would occur at night; therefore, people camping on land beneath the proposed low-altitude MOAs would have the potential to hear aircraft after dark and see flares released at altitudes above 2,000 feet AGL. The recreational areas beneath the proposed MOAs are already currently subjected to aircraft training activity in the existing MOAs, and only a small percentage of all training operations would occur at night. Soaring activities would continue with Moody AFB ATC and Valdosta RAPCON providing prioritization for IFR approaches and departures to airports in the Moody Airspace Complex, and there would be no restrictions on VFR flights in the proposed low-altitude MOAs. Therefore, there would be a minor impact on recreational uses from aircraft operations in the proposed low-altitude MOAs.

4.8.4.1 Land Use

Impacts from aircraft operations on land use compatibility in the Moody 2 North, Moody 2 South, Grand Bay, and Thud Low MOAs under Alternative 2 are the same as described for Alternative 1, because the proposed floor and ceiling altitudes would be the same for these MOAs. There would be fewer operations shifted from the Moody 2 North and Moody 2 South MOAs under Alternative 2 compared to Alternative 1, but these changes would not impact land use beneath the MOAs.

Aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would cause incremental changes in the noise environment beneath the MOAs; however, the overall noise environment would be comparable to existing conditions. Although aircraft operations would occur down to 2,000 feet AGL and would be more readily visible from the ground surface, operations would be spread out throughout the entire Moody Airspace Complex, with noise and aircraft movement only being readily apparent at any one location infrequently. Individual aircraft operations could startle individuals or domestic animals, such as livestock and poultry; however, these occasional interactions would not be incompatible with any land uses beneath the proposed low-altitude MOAs.

4.8.4.2 Recreation

Impacts from aircraft operations on recreation in the Moody 2 North, Moody 2 South, Grand Bay and Thud Low MOAs under Alternative 2 are the same as described for Alternative 1, because the proposed floor and ceiling altitudes would be the same as for Alternative 1. There would be

fewer operations shifted from the Moody 2 North and Moody 2 South MOAs under Alternative 2 compared to Alternative 1, but these changes would not impact recreation beneath the MOAs.

Similar to Alternative 1, recreational users of lands under the airspace would experience slight noise increases; however, the projected noise levels would not be considered incompatible with recreational uses and no significant impacts would occur.

Impacts on recreational activities in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not generate noise levels above 65 dBA DNL over public and private lands used for recreation. Similar to Alternative 1, individual low-level overflights as low as 2,000 feet AGL would be loud and abrupt enough to startle individuals and wildlife recreating directly under their flight paths. However, given the infrequency of these events, the large area in which aircraft operations at low altitudes would occur across the proposed MOAs, and the rare moments in which a recreationist would interact with an aircraft operating as low as 2,000 feet, the impacts on recreational uses in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would be minor under Alternative 2.

4.8.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Similar to Alternatives 1 and 2, recreational users of lands, livestock and poultry, and private and public users under the airspace would experience slight noise increases. Under Alternative 3, the projected changes in noise levels would not be considered incompatible with existing land uses or recreational activities, and no significant impacts would occur. A smaller number of military training operations that are currently concentrated in the Moody 2 North and Moody 2 South MOAs would be dispersed throughout the proposed low-altitude MOAs under Alternative 3. Some activity would occur at night; therefore, people camping on land beneath the proposed low-altitude MOAs would have the potential to hear aircraft after dark and see flares released at altitudes above 4,000 feet AGL. However, the recreational areas beneath the proposed MOAs are already currently subjected to aircraft training activity in the existing MOAs, and only a small percentage of all training operations would occur at night. Soaring activities would continue with Moody AFB ATC and Valdosta RAPCON providing prioritization for IFR approaches and departures to airports in the Moody Airspace Complex, and there would be no restrictions on VFR flights in the proposed low-altitude MOAs. Therefore, there would be a minor impact on recreational uses from aircraft operations in the proposed low-altitude MOAs.

4.8.5.1 Land Use

Impacts from aircraft operations on land use compatibility in the Moody 2 North, Moody 2 South, Grand Bay, and Thud Low MOAs under Alternative 3 are the same as described for Alternatives 1 and 2, because the proposed floor and ceiling altitudes would be the same for these MOAs. There would be fewer operations shifted from the Moody 2 North and Moody 2 South MOAs under Alternative 3 compared to Alternatives 1 and 2, but these changes would not impact land use beneath the MOAs.

Aircraft operations in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would have very little change in the noise environment beneath the MOAs, and the overall noise environment would be comparable to existing conditions. Although aircraft operations would occur down to 4,000 feet AGL, at this altitude aircraft would be visible from the ground surface but would be unlikely to cause a startle effect in humans, domestic animals, or wildlife. As such, these occasional interactions with low-altitude aircraft would not be incompatible with any land uses beneath the proposed low-altitude MOAs.

4.8.5.2 Recreation

Impacts from aircraft operations on recreation in the Moody 2 North, Moody 2 South, Grand Bay and Thud Low MOAs under Alternative 3 are the same as described for Alternatives 1 and 2, because the proposed floor and ceiling altitudes would be the same as for Alternative 1. There would be fewer operations shifted from the Moody 2 North and Moody 2 South MOAs under Alternative 3 compared to Alternatives 1 and 2, but these changes would not impact recreation beneath the proposed low-altitude MOAs.

Recreational users of lands under the airspace would experience slight noise increases; however, the projected noise levels would not be considered incompatible with recreational uses and no significant impacts would occur. Recreational users in the airspace of the Moody Airspace Complex, such as glider operations and rocketry events, would experience some minor impacts as additional airspace scheduling and coordination with ATC would occur within the proposed low-altitude MOAs. Also, there is no restriction on gliders operating using VFR in the proposed low-altitude MOAs. Further, most of these recreational activities in the airspace occur on weekends when the MOAs are typically not activated and there is little to no military training; for special civilian air operational events, Moody AFB and ATC would develop operational agreements with these users to accommodate these events, further reducing the impacts on these recreational activities.

Impacts on recreational activities in the proposed Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs would not generate noise levels above 65 dBA DNL over public and private lands used for recreation. Individual low-level overflights would not be lower than 4,000 feet AGL and would be unlikely to startle wildlife or individuals recreating directly under their flight paths. Further, given the infrequency of these events, the large area in which aircraft operations at low altitudes would occur across the proposed low-altitude MOAs, and the rare moments in which a recreationist would interact with an aircraft operating as low as 4,000 feet, there would be no impacts on recreational uses in the Corsair North Low, Corsair South Low, Mustang Low, and Warhawk Low MOAs under Alternative 3.

4.8.6 No Action Alternative

4.8.6.1 Land Use

Under the No Action Alternative, the airspace changes proposed would not be made. Land use conditions would remain the same. Low-altitude aircraft operations would continue to be concentrated in the Moody 2 North and Moody 2 South MOAs and Restricted Area R-3008, and

the effects of aircraft noise and startle effects from the visual perception of low-altitude aircraft operations would remain concentrated on agricultural land uses beneath the SUA.

4.8.6.2 Recreation

Under the No Action Alternative, there would be no change in the existing conditions. Low-altitude aircraft operations would continue to be concentrated in the Moody 2 North and Moody 2 South MOAs and Restricted Area R-3008, and the effects of aircraft noise and visual perception of low-flying aircraft to recreational uses would continue.

4.9 Socioeconomics

4.9.1 Evaluation Criteria

The socioeconomic analysis focuses on the potential effects the proposed low-altitude MOAs may have on the ROI population, as well as their social and economic resources. These social and economic resources are defined in terms of resident population and economic activity. Under the Proposed Action, Air Force personnel, operation procedures, and maintenance procedures would not be expected to change from existing conditions. Potential secondary socioeconomic effects of the Proposed Action have been evaluated for airspace use, noise conditions, and safety in the affected area. The potential effects of the airspace modifications and changes in airspace use were evaluated to determine their potential impacts on the population, economic activity and land use values in the ROI.

Impacts on socioeconomics would be considered significant if they resulted in either substantial changes in the local or regional population, housing, community general services (health, police, and fire services), social conditions from the demands of additional population/population shifts; local or regional economy, employment, or spending or earning patterns.

4.9.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

The new low-altitude MOAs within the Moody Airspace Complex would not result in significant impacts on socioeconomics. The Proposed Action would not result in changes in population, employment, or income within the ROI. The anticipated long-term, minor to moderate, adverse impacts from training operations would include increased presence of and associated noise from military aircraft flying at lower altitudes in areas underlying the existing Moody Airspace Complex. As explained in **Section 3.3, Acoustic Environment**, the anticipated noise levels would increase by up to 3.3 dBA. This change in noise level may be perceptible in some communities, but would generally be comparable to existing conditions and blend into the existing background noise. Also, training would not be frequent enough, or loud enough, over any one area to result in any land use incompatibilities. Although the relationship between training and property values is difficult to quantify since the numbers of training operations and types of aircraft that use the MOAs would not vary from the existing conditions, no changes in underlying property functions or values are anticipated. Noise levels would not exceed the threshold for compatibility with any land uses and no more than 134 operations at altitudes below 500 feet AGL would occur

annually in each of the Grand Bay and Moody 2 North MOAs, and therefore, impacts from noise on populations would be minor.

Long-term, minor to moderate, adverse impacts would be expected on the civilian airspace users and airports underlying the proposed low-altitude MOAs or the other airports underlying the broader Moody Airspace Complex.

For example, the Homerville Airport (HOE) is beneath the Moody 2 North MOA, which currently has a floor of 500 feet AGL; the Moody 2 North MOA's current floor is lower than the lowest alternative floor proposed for low-altitude MOAs over the airports in the Thud, Mustang, Warhawk, Corsair North, and Corsair South MOAs. According to the 2020 Georgia Statewide Airport Economic Impact Study prepared by Georgia Department of Transportation (Georgia Department of Transportation 2020), HOE has a total economic activity of \$7,181,300 and 46 employees. The HOE's annual airport-supported state and local sales and income tax revenues are \$267,650. HOE had one based aircraft in 2016 and 832 general aviation operations, which was a decrease from 900 operations in 2001. In comparison to other Level II airports beneath the proposed low-altitude MOAs (see **Table 3.2-3**), the economic output of HOE is not substantially affected by the overlying active low-altitude Moody 2 North MOA. In comparison to HOE, the Crisp County-Cordele Airport (CKF; a Level II airport) beneath the Thud MOA (currently with an 8,000-foot MSL floor) has total economic activity of \$2,932,800 and supports 35 employees with annual airport-supported state and local sales and income tax revenues of \$128,500. However, CKF had 4,381 general aviation operations in 2016, down from 26,100 operations in 2001. The Fitzgerald Municipal Airport (FZG; a Level II airport) located beneath the Warhawk MOA (currently with an 8,000-foot MSL floor) has total economic activity of \$1,393,400 with 17 employees and income tax revenues of \$57,360. FZG had 1,350 general aviation operations in 2016, down from 12,225 operations in 2001. The Moultrie Regional Airport (MGR; a Level II airport) located beneath the Corsair North MOA (currently with an 8,000-foot MSL floor) has a total economic activity of \$11,724,000 with 98 employees and local sales and income tax revenues of \$504,620. MGR had 10,839 general aviation operations in 2016, down from 14,100 operations in 2001.

Therefore, of the four Level II airports beneath the Moody Airspace Complex, HOE has the second-highest economic activity and the least reduction in general aviation operations between 2001 and 2016, even though it is located beneath the Moody 2 North MOA (which has a floor of 500 feet AGL), indicating that the military training operations by Moody AFB concentrated in the Moody 2 North MOA are not likely having an economic impact on HOE. Further, under the Proposed Action, low-altitude training operations currently concentrated in the Moody 2 North MOA would be redistributed to the new proposed low-altitude MOAs, reducing the number of training operations proximate to the HOE.

As noted in **Section 4.2**, Moody AFB would coordinate operational agreements with organizers to accommodate airspace access for large civilian flying events (e.g., Sunbelt Agricultural Expo and annual soaring competitions) to avoid impacts on the activities and the economic benefits they contribute in the region.

Section 4.2, Airspace Management, details impacts on airspace users and airspace management from activation of and operations conducted within the proposed low-altitude MOAs. Discussion in this section addresses impacts on air travel as relates to local and regional air travel and transport affecting the state's commercial and general aviation economies. As explained in **Sections 3.2** and **4.2.2** (see **Table 4.2-3**), when the proposed low-altitude MOAs are active, nonparticipating aircraft (e.g., civilian and commercial aircraft, including gliders) approaching or departing from airports underlying the Moody Airspace Complex may be delayed or be required to deviate slightly or make altitude changes for avoidance of training activities in those areas. However, for IFR approach to underlying airports, an active MOA would be deactivated to allow for aircraft landing, minimizing the impacts from delays.

Some pilots of VFR aircraft transiting the region to other destinations may also choose to detour (as indicated in AOPA 2005) or reroute around or through the Sabre MOA to avoid flying through an active low-altitude MOA. These changes can result in increased distances flown and associated incurred costs from additional fuel and oxygen purchase requirements. Actual incurred costs per detour would vary depending upon 1) the type of aircraft being flown, 2) the weather, 3) aircraft origin and destination and actual detour distances required to accomplish those individual flights, 4) the frequency that an aircraft may be detoured over time, 5) the experience level of individual pilots and willingness to fly VFR in a MOA which is clearly authorized, and 6) the numbers of aircraft opting to detour as a result of the proposed low-altitude MOA. Because of that wide range of variables, it is more appropriate to provide descriptive cost estimates than specific dollar figures, and estimate the maximum diversion distances. Economic costs likely incurred by civilian aircraft would in most cases be minor to moderate because there is no requirement for aircraft flying VFR to avoid active low-altitude MOAs (i.e., avoidance is a pilot choice), procedures would be put in place rerouting training operations followed by deactivating a low-altitude MOA for IFR aircraft landing at airports beneath the proposed low-altitude MOAs, and NOTAMs would be issued 6 hours in advance of activating a low-altitude MOA outside of published times of use, providing the option for pilots to reroute early and avoid substantial detours.

The following are factors for the average east-west and north-south detours (see **Appendix B, Section B-3** for details). These estimated detour distances would cost additional minutes of flight time, oxygen, and pounds (gallons) of fuel, and other operational costs to each flight.

- East-west detours around the Moody Airspace Complex or through the Sabre MOA would require aircraft to fly an estimated additional 34 nm, on average.
- North-south detours around the Moody Airspace Complex or through the Sabre MOA would require aircraft to fly an estimated additional 45 nm, on average.

For the Proposed Action, the FAA and DAF collaborated to define the minimum airspace volume necessary to meet the Moody AFB's low-altitude training mission requirements, minimize impacts on the underlying airports, and maintain airspace access to the civilian users of the NAS. Moody AFB would implement the measures identified in **Section 3.2** to avoid or minimize impacts on the underlying community of airspace users and airports.

4.9.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

Modified Alternative 1 would not result in significant impacts on the socioeconomics. Overall effects on the population, housing, property values, employment and income within the ROI would be similar to those discussed under Alternative 1.

Added fuel and other operational costs for aircraft detouring around the Moody Airspace Complex or through the Sabre MOA to avoid flying through active SUA would be less than those costs described for Alternatives 1, 2, and 3. Because Modified Alternative 1 would affect an estimated 40 percent fewer aircraft than Alternative 1, 27 percent fewer than Alternative 2, and 11 percent fewer than Alternative 3, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex (up to the floor of the proposed 1,000-foot low-altitude MOAs) to transit the region, use of the detours or rerouting options around or through the Moody Airspace Complex would be less than Alternatives 1, 2, and 3.

4.9.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

Alternative 2 would not result in significant impacts on the socioeconomics. Overall effects on the population, housing, property values, employment and income within the ROI would be similar to, but less than those discussed under Alternative 1.

Added fuel and other operational costs for aircraft detouring around the Moody Airspace Complex or through the Sabre MOA to avoid flying through active SUA would be the same as described for Alternative 1. However, because Alternative 2 would affect an estimated 3 percent fewer aircraft than Alternative 1, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex (up to the floor of the proposed 2,000 foot low-altitude MOAs) to transit the region, use of the detours or rerouting options around or through the Moody Airspace Complex would be less than Alternative 1.

4.9.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Alternative 3 would not result in significant impacts on the socioeconomics. Overall effects for the population, housing, property values, employment and income within the ROI would be similar to, but less than, those discussed under Alternative 2.

Added fuel and other operational costs for aircraft detouring around the Moody Airspace Complex or through the Sabre MOA to avoid flying through active SUA would be the same as described for Alternative 1. However, because Alternative 3 would affect an estimated 20 percent fewer aircraft than Alternatives 1 and 2, and aircraft would still be able to use the airspace underlying the Moody Airspace Complex (up to the floor of the proposed 4,000 foot low-altitude MOAs) to transit the region, it is expected that use of the detours or rerouting options around or through the Moody Airspace Complex would be less than Alternatives 1 and 2.

4.9.6 No Action Alternative

Under the No Action Alternative, socioeconomics would be expected to remain as described under affected environment within the ROI. Therefore, there would be no significant impacts.

4.10 Environmental Justice

4.10.1 Evaluation Criteria

Impacts on identified environmental justice (minority and low-income) communities and the protection of children and the elderly would be considered significant if one or more of the following were to occur:

- Activities or operations substantially altering lifestyles or quality-of-life of households that reside under the Moody AFB MOAs
- Disproportionately high and adverse environmental or human health impacts on an identified minority or low-income population that appreciably exceed those to the general population around the project area
- Disproportionately high and adverse environmental health or safety risks to an identified population of children or the elderly

The primary concern for impacts on minority and low-income populations is the potential for increased noise exposure. As indicated in **Section 4.3**, noise from aircraft overflights in the Moody Airspace Complex would not generate individual acoustic events loud enough to damage hearing or structures (i.e., exceeding 65 dBA DNL). Although aircraft overflights would not be loud enough to damage hearing or structures, individual low-level overflights would be loud and abrupt enough to startle individuals and cause readily perceptible vibrations in homes and buildings directly under flight paths. These effects, however, would be less than significant, and mitigation measures (**Section 7**) would be put in place to minimize the impact as much as possible.

4.10.2 Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor

As explained in **Section 4.3**, noise levels associated with aircraft training operations under Alternative 1 would be comparable to existing conditions within the Moody Airspace Complex with incremental changes to the overall noise environment. These changes would be due to extending the arrival and departure flight tracks for flight safety; mitigation measures (**Section 7**) would be put in place to minimize the impact to the population such as the time of day of flights and flight frequency. Although a number of census tracts were identified as environmental justice populations greater than the Community of Comparison (COC), the Proposed Action would be limited to airspace only, and would therefore not result in any disproportionately high or adverse human health or environmental effects on minority, low-income, youth, or elderly populations.

4.10.3 Modified Alternative 1. Create New Military Operations Areas with a 1,000-Foot Floor with Modified Lateral Boundaries

Modified Alternative 1 would be limited to airspace and would not result in any disproportionately high or adverse human health or environmental impacts on minority, low-income, youth, or elderly populations. Overall effects for the populations under the Moody Airspace Complex would be less than those described for Alternative 1; due to aircraft operations conducted in less low-altitude airspace, the potential impacts on any communities would be less than for Alternative 1.

4.10.4 Alternative 2. Create New Military Operations Areas with a 2,000-Foot Floor

Alternative 2 would be limited to airspace and would not result in any disproportionately high or adverse human health or environmental impacts on minority, low-income, youth, or elderly populations. Overall effects for the populations under the Moody Airspace Complex would be less than those described for Alternative 1; due to aircraft operations conducted at higher altitudes, the potential impacts on any communities would be less than for Alternative 1.

4.10.5 Alternative 3. Create New Military Operations Areas with a 4,000-Foot Floor

Alternative 3 would be limited to airspace and would not result in any disproportionately high or adverse health or environmental impacts on minority, low-income, youth and or elderly populations. Overall effects for the populations under the Moody Airspace Complex would be less than those described in Alternative 2; due to aircraft operations completed at higher altitudes, the potential impacts on any communities would be less than those described in Alternative 2.

4.10.6 No Action Alternative

Under the No Action Alternative, there would be no changes to the existing airspace. The exclusion zone over the Banks Lake NWR would remain unaltered. Therefore, the existing conditions related to environmental justice and protection of children and elderly populations would be unchanged; therefore, no impacts would occur.

4.11 Summary of Impacts

No significant impacts on any resource area were found for any of the four alternatives evaluated. Further, Alternative 1, Modified Alternative 1, Alternative 2, and Alternative 3 as described in **Sections 2.4.2** through **2.4.5** provide a reasonable upper and lower bound of these potential environmental effects. The prior analyses in this EIS conservatively assumed the upper bound number of flight operations in each proposed low-altitude MOA that could occur if fewer than the proposed five low-altitude MOAs are approved for implementation. Therefore, the potential impacts of any alternative combinations would not be significant, would not have noise levels or aircraft movement that would be incompatible with existing land uses, would not have substantial adverse impacts on biological and cultural resources, and would not alter the socioeconomics of the region.

Choosing an alternative combination that either eliminates at least one of the low-altitude MOAs with a floor of 1,000 feet AGL, or selects for one or more low-altitude MOAs with a floor of 4,000 feet AGL instead of 1,000 feet AGL, such as Modified Alternative 1, would reduce the number of rerouted civilian flights that would have to transition up and over the low-altitude MOAs when activated. Alternative 1 provides a scenario that has the potential for the most substantial adverse impacts on civilian flights and public and private airports beneath the proposed low-altitude MOAs; the selection of any proposed low-altitude MOAs with altitude floors higher than 1,000 feet AGL or with fewer low-altitude MOAs and/or a reduction in the lateral boundaries of low-altitude MOAs such as Modified Alternative 1 would reduce these adverse impacts on civilian aircraft.

5.0 CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) regulations stipulate that the cumulative effects analysis considers the potential environmental consequences resulting from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 Code of Federal Regulations [CFR] 1508.7). In addition, CEQ published guidance for addressing and analyzing cumulative impacts under the National Environmental Policy Act (NEPA). CEQ’s publication, *Considering Cumulative Effects Under the National Environmental Policy Act* (January 1997), provides additional guidance for conducting an effective and informative cumulative impacts analysis.

Whereas the individual impacts of one project in a particular area or region may not be considered significant, numerous projects in the same area or region may cumulatively result in significant impacts. Cumulative impacts most likely arise when a relationship exists between a proposed action and other actions occurring in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide in time, even partially, have the potential for cumulative impacts.

5.1 Relevant Past, Present Actions, and Reasonably Foreseeable Future Actions

This section identifies and evaluates past, present, and reasonably foreseeable future projects that could cumulatively affect environmental resources in conjunction with the Proposed Action. The Region of Influence (ROI) for the cumulative effects analysis is the same as defined for each resource in Chapter 3. Actions identified in **Tables 5.1-1** and **5.1-2** would not interact with all resources; therefore, resources that potentially could result in a cumulative effect with the addition of the Proposed Action and alternatives are noted in these tables.

Assessing cumulative effects begins with defining the scope of other actions and their potential interrelationship with the proposed or alternative actions. Other activities or projects that coincide with the location and timetable of the Proposed Action and other actions are evaluated. Actions not identified in Chapter 2 as part of the proposed or alternative actions, but that could be considered as actions connected in time or space (40 CFR 1508.25) may include projects that affect areas on or near the Moody Airspace Complex.

An effort has been made to identify actions that are being considered or are in the planning phase at this time. To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action or alternatives, these actions are included in this cumulative analysis. This approach enables decision makers to have the most current information available in order that they can evaluate the potential environmental consequences of the Proposed Action.

5.1.1 *Department of the Air Force Actions*

Recent past and ongoing military actions in the Moody Airspace Complex were considered as part of the existing condition in the appropriate resource ROI. Each project summarized in this section was reviewed to consider the implication of each action with the proposed or alternative actions. Potential overlaps in affected area and project timing were considered.

Moody Air Force Base (AFB) is an active military installation that experiences continuous evolution of mission and operational requirements. All construction projects must comply with land use controls, which include safety and environmental constraints outlined in the Moody Air Force Base (AFB) Installation Development Plan (2018) and the Environmental Assessment for the Installation Development Plan (2018). Moody AFB, like other major military installations, requires new construction and infrastructure improvements. These routine projects are environmentally cleared using NEPA's Categorical Exclusion process and would continue to occur in conjunction with the Proposed Action. However, because the proposal is entirely limited to the Moody Airspace Complex and no proposed activities would occur at Moody AFB, construction projects that would not change flight training operations in the Moody Airspace Complex would not contribute to cumulative effects and are not discussed further. Although not currently planned, there is the potential for more aircraft to access the proposed low-altitude MOAs, the potential in the future for lowering the floor on other MOAs in the Moody Airspace Complex, and the possibility of adding new squadrons to fill the capacity gained in this action. All of these potential projects would require additional NEPA evaluation and review if proposed. **Table 5.1-1** lists the past, present, and reasonably foreseeable future major Department of the Air Force (DAF) projects anticipated to occur in the Moody Airspace Complex.

5.1.2 *Nonfederal Actions*

Nonfederal actions such as maintenance and construction of buildings and infrastructure beneath the Moody Airspace Complex would not have any interaction with the proposal unless those activities would include the objects that would be of a height to be a flight operations hazard. There are numerous cell phone towers within the Moody 2 North Military Operations Area (MOA) and proposed Grand Bay MOA that exceed 100 feet above ground level (AGL) in height, with some of the tallest towers having a height of approximately 400 feet AGL. However, all towers of this height must meet Federal Aviation Administration (FAA) and International Civil Aviation Organization tower lighting requirements with towers marked with tower lights or tower paint. The Moody Airspace Complex overlies a primarily rural area. Anticipated future nonfederal projects that may overlap in the potentially affected area or project timing with the Proposed Action were also considered and are shown in **Table 5.1-2**. Although not identified as a specific potential nonfederal action in the project area, additional wind and solar power generation projects could also be implemented beneath the Moody Airspace Complex. All of the Moody Airspace Complex is marginally viable for 250-foot-high hub turbines for wind power generation.

**Table 5.1-1. Past, Present, and Reasonably Foreseeable Federal Projects
in the Moody Airspace Complex**

Project	Project Summary	Time Frame	Relevance to Proposed Action	Resource Interaction
Grand Bay Range (Winnersville Weapons Range)	Construction and Operation of the Grand Bay Range	Past	Flight operation changes relative to training operations using the Grand Bay Range. Established the Banks Lake NWR exclusion zone.	Airspace Management, Noise, Safety, Biological Resources, Land Use
2006 BRAC Actions	Moody AFB distributed 68 T-38C aircraft, distributed 45 T-6A aircraft, received 48 A-10 aircraft, received installation-level TF34 engine maintenance, and relocated installation-level ALQ-184 maintenance.	Past	Beddown of A-10 aircraft that utilize the Moody Airspace Complex	Airspace Management, Noise, Air Quality, Socioeconomics
Bemiss Field	Proposed an Unimproved Landing Zone at Bemiss Field and an increase in the number of HH-60, HC-130, and transient sortie-operations.	Past	Increased use of the Restricted Area airspace within the Moody Airspace Complex	Airspace Management, Noise, Air Quality
Expansion of the Bulldog MOAs	Expansion of the Bulldog B MOA through the creation of two new MOAs, Bulldog C and Bulldog E. The new MOAs were charted under the existing Bulldog B MOA.	Past	Increased the availability of low-altitude MOAs controlled by the DAF regionally.	Airspace Management
Expansion of Off-Base HLZs	Established eight new HLZs in Echols and Lanier counties. Used for helicopter landings, ground troop training, and flyovers by helicopters and fixed-wing aircraft. The HLZs are privately owned and utilized by the DAF under lease agreements.	Past	HLZs are located under the Moody Airspace Complex but new HLZs did not change aircraft operations.	Safety
C-130 Recapitalization	Replacement of the HC-130P aircraft with the HC-130J aircraft at Moody AFB.	Past	HC-130Js utilize the Moody Airspace Complex for training operations	Noise, Air Quality
Classic Associate Unit for A-10 Training	Using the 23 WG existing aircraft, an estimated 1,800 flight hours annually would occur for reserve pilots.	Past	Additional A-10 flight operations in the Moody Airspace Complex	Airspace Management, Noise, Air Quality
Lower Pattern Altitude for A-10 Training	Lowered the A-10 VFR overhead flight pattern from 2,000 feet AGL to 1,500 feet AGL	Past	A-10 aircraft training with a lower VFR overhead flight pattern occurs in the Moody Airspace Complex	Airspace Management, Safety
A-29 Beddown	Based up to 20 A-29 aircraft over a 4-year period at Moody AFB to conduct training for the Afghan Air Force.	Past	Additional flight operations in the Moody Airspace Complex	Airspace Management, Noise, Air Quality

Project	Project Summary	Time Frame	Relevance to Proposed Action	Resource Interaction
Reconfigure Moody 1 MOA	Reconfigure Moody 1 MOA to create formal sub areas within the Moody 1 MOA so the entire MOA is not required to be activated if only a portion of the MOA is in use.	Past	Created the Corsair North, Corsair South, Moody 2 North, Moody 2 South, Mustang, Sabre, Thud, and Warhawk MOAs from the Moody 1 MOA	Airspace Management, Safety
VFR-IFR in R-3008	Changed the weather operations category of Grand Bay Range and R-3008 from VFR to VFR-IFR	Present	Scheduling of training operations in R-3008	Airspace Management, Safety
Bemiss Field Unimproved Landing Zone Project	An EA is being completed for tree clearing around the runways, heavy weight drops, and increased aircraft operations.	Present	Additional aircraft operations are proposed in the Moody Airspace Complex	Airspace Management, Noise, Air Quality, Biological Resources
HH-60G to HH-60W	The HH-60G helicopters at Moody AFB would be replaced with the new combat rescue helicopter HH-60W.	Future	Current HH-60G helicopter operations would be replaced with HH-60W	Safety
Grand Bay Weapons Range Expansion	Acquire land to be used for training requirements. Land would most likely be southwest and contiguous to the installation.	Future	Expands low-altitude training at the Grand Bay Range	Safety, Biological Resources
F-35A Wing/MQ-9 Wing Beddown at Tyndall AFB	Beddown of an Operational WG (up to 52 F-35A aircraft) and a MQ-9 Remotely Piloted Aircraft WG (24 MQ-9 aircraft) at Tyndall AFB, Florida, retrofit and develop facilities to accommodate the additional aircraft, and increase numbers of support personnel and training operations at Tyndall AFB.	Future	Proposal includes an estimated 46 annual hours of F-35A flight training operations as well as MQ-9 flight training operations in the Moody Airspace Complex. Flight operations would be conducted at the Grand Bay Range and immediately overlying airspace (R-3008).	Airspace Management, Safety

AFB – Air Force Base; **AGL** – aboveground level; **BRAC** – Base Realignment and Closure; **DAF** - Department of the Air Force; **EA** – Environmental Assessment; **F-35** – Joint Strike Fighter aircraft; **HLZ** – helicopter landing zone; **IFR** – instrument flight rules; **MOA** – Military Operations Area; **MQ-9** – remotely piloted aircraft system; **NWR** – National Wildlife Refuge; **R-** – Restricted Area; **VFR** – visual flight rules; **WG** – wing

**Table 5.1-2. Past, Present, and Reasonably Foreseeable Nonfederal Projects
at Moody Airspace Complex**

Scheduled Project	Project Summary	Timeframe	Relevance to Proposed Action	Resource Interaction
FAA NexGen	Implementing a range of new technologies to improve aircraft routing and monitoring in airspace and on the ground resulting in more efficient use of airspace, reduced delays, fuel costs, emissions, and noise. The FAA program began in 2007 and is anticipated to be fully functional by 2025.	Past, Present, Future	None. Ongoing changes to commercial aviation including routing not expected to affect use of military airspace such as the proposed low-altitude MOAs.	None
Georgia Statewide Aviation System Plan	Helps ensure that Georgia has a system of public-use airports that are conveniently located to meet the needs of commercial aviation, business and corporate users, and personal and recreational flyers.	Present and Future	No specific recommendations are made for any airports beneath the Moody Airspace Complex. However, land use recommendations associated with airport planning are provided.	Safety
Southern Georgia Regional Commission Regional Plan 2018	The goal of the Regional Plan is to develop a multifaceted and sustainable strategy, developed through a very public process of involving regional leaders and stakeholders to guide decision making, which will advance the region's communities to a thriving future.	Present and Future	Supports regional economic and land planning efforts that can include building codes and height restrictions ordinances and zoning ordinances to support Moody AFB operations.	Airspace Management, Safety
County Comprehensive Plans	County Comprehensive Plans provide descriptions of the physical and economic features of counties and set forth long-term goals and plans to guide future development and activities. The plans of those counties identified as at least partially underlying the Moody Airspace Complex were reviewed and considered for this analysis: Atkinson County (2018), Ben Hill County (2016), Coffee County (2019), Brooks County (2017), Clinch County (2015), Echols County (2015), Irwin County (2019), Lanier County (2016), Lowndes County (2016), Tift County (2018), and Turner County (2016).	Present and Future	Although specific activities and projects are not identified in the Comprehensive Plans, some county Comprehensive Plans do include zoning recommendations that support Moody AFB operations.	Safety

AFB – Air Force Base; **FAA** – Federal Aviation Administration; **MOA** – Military Operations Area

5.2 Cumulative Effects Analysis

5.2.1 Airspace Management

The Base Realignment and Closure (BRAC) action that created the low-altitude A-10 and A-29 missions at Moody AFB generated a demand for low-altitude Special Use Airspace (SUA) where mostly mid-altitude SUA was available for training operations. As such, Moody AFB's existing low-altitude SUA (Moody 2 North and Moody 2 South MOAs and R-3008) is congested, and scheduling and implementation of training operations at low-altitude suffer (see **Appendix B** for additional descriptions of low-altitude training operational requirements). Long-term beneficial cumulative impacts would occur for Moody AFB's airspace management from the implantation of the Proposed Action, because training operations at low-altitude would be redistributed across numerous low-altitude MOAs and would eliminate missed training operations at low altitudes due to congested airspace.

The separation of the Moody 1 MOA into multiple subareas (i.e., Corsair North, Corsair South, Mustang, Sabre, Thud, and Warhawk MOAs) has provided greater flexibility in meeting civilian airspace demands by reducing the size of the military airspace activated during military training missions. With multiple MOAs replacing a single large MOA, much of the Moody Airspace Complex remains available to civilian aircraft transit and operations during military training activities. The proposed low-altitude MOAs would also be charted as separate subareas within the Moody Airspace Complex, under and within the lateral confines of the existing MOAs, providing Moody AFB the same flexibility in activating smaller SUA subareas and providing a cumulative long-term benefit to military and civilian airspace use. It is anticipated that proposed F-35A and MQ-9 flight training operations could slightly increase overall airspace usage at Moody AFB if use of the Moody Airspace Complex is required to support the training program out of Tyndall AFB, Florida. These operations would be limited to the existing Grand Bay Range and Restricted Area R-3008 or at higher altitudes in existing MOAs. It is estimated that F-35A training operations would occur for 46 hours annually in the Grand Bay Range and R-3008, with all operations occurring above 5,000 feet AGL. Because the proposed low-altitude MOAs provide new and dedicated airspace capacity to support Moody AFB's low-altitude training missions, cumulative impacts on airspace management and airspace congestion from the potential increase in transient aircraft operations (e.g., from F-35A and/or MQ-9 flight training) within the airspace complex would be negligible to minor.

Under Alternatives 1 and 2, the proposed low-altitude MOAs in combination with the high demand for low-altitude airspace to support training operations at Moody AFB would have a cumulative long-term, minor to moderate, adverse impact on civilian flight operations at public and private airports beneath the proposed low-altitude MOAs. Under Modified Alternative 1 and Alternative 3, the proposed low-altitude MOAs in combination with the high demand for low-altitude airspace to support training operations at Moody AFB would have a cumulative long-term, minor adverse impact on civilian flight operations at public and private airports beneath the proposed low-altitude MOAs. To mitigate adverse effects, the same minimization measures identified for Alternative 1 (**Section 4.2.2**) to avoid or reduce impacts on flight operations would be implemented under any of the action alternatives.

Although Moody AFB would only activate low-altitude MOAs when training operations warranted their use, during their activation, civilian aircraft would be rerouted around the active low-altitude MOAs and the overlying existing MOAs. Civilian aircraft would incur additional time and cost using longer routes during takeoffs and landings at these public and private airports.

5.2.2 Acoustic Environment (Noise)

There are no other identified proposed actions in the Moody Airspace Complex that would substantially change the noise environment. Under all four alternatives, the training operations in the proposed low-altitude MOAs would increase noise beneath the MOAs but this increase would not be substantial and would not meet the threshold of annoyance for most receptors. By redistributing the training operations across additional low-altitude MOAs, airspace capacity would be created to fly more aircraft up to the previous congestion levels. Although there are no plans to increase training operations in the Moody Airspace Complex, additional operations would increase noise exposure for businesses and residents even if new aircraft operations generated the same noise as current aircraft. New aircraft could be louder than current aircraft training in the low-altitude MOAs, and the replacement aircraft for retiring aircraft would also likely increase noise levels under the Moody Airspace Complex. Any further Moody Airspace Complex operational changes would be evaluated through additional NEPA analyses. Therefore, the Proposed Action when combined with other cumulative actions would have long-term, minor noise impacts for all four alternatives.

5.2.3 Health and Safety

The current low-altitude airspace utilization creates substantial congestion in Moody AFB's low-altitude SUA (Moody 2 North and Moody 2 South MOAs and R-3008) and requires substantial planning and logistical considerations to ensure training operations at low altitudes for all of Moody AFB's missions are accommodated safely. Under Alternatives 1 and 2, the Proposed Action in combination with other past and present actions would reduce the congestion in these existing low-altitude MOAs and provide a long-term beneficial cumulative impact for safety in training at low altitudes at Moody AFB. Under Modified Alternative 1 and Alternative 3, the congestion in the existing low-altitude MOAs would only be slightly reduced and would not provide a long-term beneficial cumulative impact for safety in training at low altitudes at Moody AFB.

Under all four alternatives, the Proposed Action would redistribute low-altitude training operations but would not substantially change the number of these training operations annually within the Moody Airspace Complex. Low-altitude training operations increase the risk of bird/wildlife aircraft strikes, and that hazard is carefully managed by Moody AFB through their Bird/Wildlife Aircraft Strike Hazard (BASH) Program. However, regardless of alternative selected, there would be no additional adverse cumulative impacts on safety as a result of the Proposed Action when combined with other cumulative actions (that may slightly increase the overall numbers of flight operations in the airspace complex) because the number of low-altitude training operations would not change substantially. Therefore, the BASH risk would remain unchanged.

5.2.4 Air Quality

Past and ongoing activities have contributed to the attainment status of the counties beneath the proposed airspace. All counties are currently in attainment, having air quality that meets the National Ambient Air Quality Standards (NAAQS). Taking into account past, present, and reasonably foreseeable activities, the Proposed Action and alternatives would not be expected to contribute to significant cumulative effects to air quality or to result in exceedances of the NAAQS.

Greenhouse gas (GHG) emissions would increase slightly, compared to current operations, for Modified Alternative 1 and Alternatives 1 and 2. A comparison of the estimated GHG emissions for Alternative 1, Modified Alternative 1, and Alternative 2 and the No Action Alternative is presented in **Table 5.2-1**. Alternative 3 would occur above the mixing height of 3,000 feet AGL and emissions generally do not have effects on individuals on the ground, and this alternative is therefore not shown the table.

**Table 5.2-1. Annual GHG Emission Estimates
for Each Alternative**

Alternative	Annual GHG Emissions (tons per year)
Alternative 1	535
Modified Alternative 1	517
Alternative 2	265
No Action Alternative	0

Implementation of Alternative 1 would result in the largest increase in GHG emissions, and implementing Alternative 3 would have no increase. While climate change results from the incremental addition of GHG emissions from millions of individual sources, the significance of an individual source alone is impossible to assess on a global scale beyond the overall need for global GHG emission reductions to potentially avoid catastrophic global outcomes. Therefore, the quantitative analysis of carbon dioxide equivalent (CO₂e) emissions in this Environmental Impact Statement (EIS) is for disclosing the local net effects (increase or decrease) of the Proposed Action and alternatives and for its potential usefulness in making reasoned choices among alternatives.

5.2.5 Biological Resources

Under all four alternatives, the Proposed Action, in combination with the proposed Unimproved Landing Zone and the Grand Bay Range expansion projects, has the potential to cause cumulative minor, adverse impacts on wildlife through increased disturbance from noise and movement. The use of the Unimproved Landing Zone in combination with a slight increase in the noise environment and more aircraft movement at low altitudes as a result of the Proposed Action could increase the disturbance of birds and mammals under the Moody Airspace Complex in the long term. Further, the removal of vegetation and loss of habitat from the

Unimproved Landing Zone and Grand Bay Range expansion projects would disperse wildlife into other areas where low-altitude training operations would occur under the Proposed Action.

No cumulative impacts on threatened and endangered species are anticipated under any of the three alternatives. Moody AFB maintains a program to place low-altitude training exclusion zones over all bald eagle and wood stork nesting sites under the Moody Airspace Complex to avoid both noise and visual disturbances associated with low-altitude operations. Under the Proposed Action, these exclusion zones would continue to be used over any identified active nest site. Moody AFB natural resources managers work with Georgia Department of Natural Resources and US Fish and Wildlife Service personnel to update the nest database annually.

5.2.6 Cultural Resources

Aircraft training operations in the proposed low-altitude MOAs in combination with other projects identified in the Moody Airspace Complex would have no cumulative impacts on cultural resources. No ground-disturbing activities are proposed, all federal projects are subject to National Historic Preservation Act Section 106 compliance ensuring the cultural resources are evaluated as part of any present or foreseeably future action, and for all four alternatives, the Proposed Action was determined to not have any adverse impacts on cultural resources.

5.2.7 Land Use and Recreation

Comprehensive land planning implemented through the South Georgia Regional Commission and through local county comprehensive plans supports planned development through ordinances that ensure land use compatibilities. The South Georgia Regional Commission has been supportive of integrating zoning ordinances that provide for compatibility with the military training mission at Moody AFB and future land development. Specific zoning ordinances have been included in the Comprehensive Plans for Lanier and Lowndes counties to account for the special requirements associated with military training activities in the region. Under all four alternatives, the Proposed Action in combination with the regional land use planning would not cause any cumulative adverse impacts.

There are no proposed projects in the region that would interact with the Proposed Action that would cause cumulative impacts on regional recreational resources. No substantial change in the noise or visual environment would occur as a result of the Proposed Action under any of the three alternatives evaluated and would therefore not have cumulative impacts on recreational opportunities such as hunting, fishing, and wildlife viewing, which are prevalent in the region.

5.2.8 Socioeconomics

The Proposed Action would create new low-altitude MOAs that would be located over existing public and private civilian airports. When active, the new low-altitude MOAs could impede the transiting of aircraft to and from airports that are proximate to the proposed low-altitude MOAs. Civilian aircraft could incur additional costs in time and fuel associated with transiting around active low-altitude MOAs. If pilots of visual flight rules (VFR) aircraft opt to detour around the airspace complex to avoid periodically active MOAs, the estimated additional flight distance

from a detour would be between 34 and 45 nautical miles (nm). This may result in added fuel, additional minutes of flying time, and other operational costs for pilots of the detouring aircraft. Cumulatively, under all four alternatives, with the likelihood for ever-increasing use of civilian airports in south Georgia, the Proposed Action would have a moderate long-term impact on the socioeconomics of the region. The growth of some local public airports could be reduced due to the additional transit times for civilian aircraft. Notices to Airmen (NOTAMs) would be issued by Moody AFB to notify civil aviators of planned training operations to reduce scheduling flights through the low-altitude airspace during periods when the proposed low-altitude MOAs would be active.

5.2.9 Environmental Justice

Regardless of alternative, the Proposed Action would not have disproportionate impacts on minority, low-income, youth, or elderly populations, and no other projects proposed in the vicinity of the Moody Airspace Complex were identified that would cause disproportionate impacts on these populations. Therefore, there would be no adverse cumulative impacts on environmental justice populations under any of the three alternatives evaluated.

6.0 OTHER ENVIRONMENTAL CONSIDERATIONS

This section addresses irreversible and irretrievable commitments of resources, unavoidable impacts from implementing the Proposed Action, and short-term uses versus long-term productivity based on the technical analyses presented in **Section 4.0, *Environmental Consequences***.

6.1 Irreversible and Irretrievable Commitment of Resources

National Environmental Policy Act (NEPA) Council on Environmental Quality (CEQ) regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 Code of Federal Regulations [CFR] 1502.16). Irreversible and irretrievable resource commitments are related to the loss in value of an affected resource that cannot be restored as a result of the action (e.g., loss of soil productivity following land development). Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action.

The Proposed Action would be limited to the establishment of low-altitude Military Operations Areas (MOAs) within the lateral confines of existing Special Use Airspace (SUA) and the lowering of the floor of an existing low-altitude MOA in the Moody Airspace Complex. No ground-disturbing activities would occur and no new flight operations are proposed. Flight operations and training would require the consumption of fuel and material used in defensive countermeasures; however, no changes in the type or quantity of these materials are proposed. No significant irreversible or irretrievable commitment of resources is anticipated from implementing the Proposed Action.

6.2 Unavoidable Adverse Impacts

NEPA requires an analysis for any potential significant impacts resulting from implementation of a proposed action, including those that can be mitigated to a less than significant level. Avoidance, minimization, or mitigation of adverse effects on natural, cultural, and other environmental resources is implemented to the greatest extent possible and practicable (see **Section 7**); however, all impacts may not be completely avoided and/or mitigated. Based on the analysis presented in **Section 4.0, *Environmental Consequences***, implementing the Proposed Action or alternatives would result in the following unavoidable environmental impacts:

- An aircraft mishap could introduce hazardous materials into the environment; mishap impacts would be mitigated by standard operating procedures that identify potential hazardous materials, protect responding personnel and the environment, and provide guidelines for the ultimate cleanup and disposal of the crash residues.

- Wildfires from flare usage could impact wildlife and their habitat. The risk of wildfires from flare expenditures from aircraft would be minimized by operational constraints, including the prohibition of flares during periods of “very high” or “extreme” National Fire Danger ratings. During periods of “high” fire danger, aircraft would not use flares below 18,000 feet mean sea level (MSL).

Chapter 7 describes the best management practices and mitigation measures under consideration for this Proposed Action.

6.3 Relationships between Short-Term Uses and Long-Term Productivity

CEQ regulations (Part 1502.16) specify that environmental analysis must address “...the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” Special attention is given to impacts that narrow the range of beneficial uses of the environment. The analysis must evaluate if choosing one option reduces future flexibility in pursuing other options or if committing a resource to a certain use would eliminate the possibility for other uses of that resource.

The Proposed Action would be limited to the creation of low-altitude MOAs beneath and with the lateral confines of existing SUA and the lowering of the floor of an established MOA; no ground-disturbing activities would occur. As such, there would be no short-term construction-related impacts or changes to land use as a result of implementing the Proposed Action. Additional energy resources (i.e., fuel for planes) would not be irreversibly dedicated for an extended period of time, and no change in the number of flight training operations would occur under the Proposed Action.

Although each individual training operation is short in duration, the use of the low-altitude MOAs for training activities would be a repeated use for the foreseeable future, resulting in long-term effects. Wildlife and special status species inhabiting areas beneath the airspace may be temporarily disturbed by the aircraft activity that previously occurred at 8,000 feet above ground level (AGL) and above but would now occur as low as 1,000 feet AGL. Noise levels would, however, range from less than 35 A-weighted decibel (dBA) day-night sound level (DNL) to 59.7 dBA DNL in the low-altitude training areas surrounding the Grand Bay Range, where aircraft operations would occur down to 100 feet AGL. The largest increase in noise would be beneath the Grand Bay MOA, which would have an estimated increase of 3.3 dBA DNL under Alternative 1. The overall sound level is estimated to be 51.0 dBA DNL, which is well below the 65 dBA threshold for which adverse noise effects on wildlife would be expected to occur.

Land uses below the proposed low-altitude MOAs would experience projected changes in DNL levels of 51 dBA DNL or less, which is well below the 65 dBA DNL threshold for land use restrictions or incompatibilities. Additionally, with no ground-disturbing activities proposed, cultural resources underlying the airspace would not be affected.

Implementation of the Proposed Action is not expected to result in the types of impacts that would reduce environmental productivity, affect biodiversity, or permanently narrow the range of beneficial uses of the environment.

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7.0 BEST MANAGEMENT PRACTICES AND ENVIRONMENTAL PROTECTION MEASURES

7.1 Measures to Avoid or Minimize Impacts on Airspace Users, Underlying Communities, and Airports

- Moody Air Force Base (AFB), in coordination with Valdosta Radar Approach Control (RAPCON) and the Jacksonville Air Route Traffic Control Center (ARTCC), would establish Letters of Authorization with affected public and private airports, as appropriate, to establish air traffic control (ATC) procedures for approaches and departures when the low-altitude Military Operations Area (MOA) is active.
- Moody AFB would continue to issue a Notice to Airmen (NOTAM) for lights-out training at least 48 hours in advance of the start of training. This training would continue to be conducted on an intermittent basis, Monday through Friday between the hours of sunset and 0100 hours.
- Moody AFB would provide a 6-hour advance notice prior to activation of a low-altitude MOA.
- The proposed low-altitude MOAs would continue to follow the protocol to exclude areas from the surface up to 1,500 feet above ground level (AGL) within a radius of 3 nautical miles (nm) of any public airport in accordance with FAA Order JO 7400.2. Training operations would avoid these airport exclusion zones.
- The proposed low-altitude MOAs would continue to follow the protocol to exclude the 1 nm, 1,500-foot-AGL exclusion area around the city of Lakeland, Georgia, in the airspace associated with Grand Bay Range.
- Jacksonville ARTCC can request use of the Thud, Mustang, and Warhawk MOAs to accommodate air traffic through these areas. Additionally, air traffic along V routes (V-5, V-578, and V-579) transiting the Moody Airspace Complex would be prioritized by the Jacksonville ARTCC and Valdosta RAPCON to maintain an unimpeded and safe flow of aircraft between Valdosta and Atlanta.
- Coordination of military training operations within the Moody Airspace Complex with the appropriate ARTCC sectors would continue to minimize impacts on civilian air traffic approaching or departing from airports underlying the proposed low-altitude MOAs and reconfigured Moody 2 North MOA.
- Moody ATC and Valdosta RAPCON would continue to operate under protocols to prioritize and accommodate unimpeded approach and departure flights to the airports beneath and proximate to the Moody Airspace Complex, including those underlying low-altitude MOAs. Instrument flight rules (IFR) flights would be accommodated by the following:
 - For all IFR traffic approaching or departing the underlying airports, Moody AFB ATC is alerted that MOA clearance will be needed approximately 30 minutes prior to an arrival or departure for an IFR civilian aircraft.
 - Upon notification, ATC relocates or pauses military training activity in an active MOA, deactivates the MOA allowing for the IFR civilian aircraft to transit the airspace.

- When the civilian aircraft is clear from the airspace, ATC reactivates the MOA for military training activities following the completion of the IFR civilian flight.
 - Most of the airports currently accommodated are not tower controlled, and civilian aircraft depart visual flight rules (VFR) and then call for clearance; at that time ATC clears the MOA of military training activity to provide access for the departing flight, which continues IFR according to its flight plan.
 - There are also weather requirements for IFR approaches and departures that are managed in the Moody Airspace Complex. If a civilian flight needs IFR due to weather, Moody AFB ATC deactivates the MOA and moves training operations away, then after the IFR flight is complete, reactivates the MOA and returns to training.
 - Additionally, to accommodate civilian air traffic transiting the region along a general east-west flight path, the existing 0.5 nm-wide low-altitude airspace corridor through the airspace complex (see **Figure 1.2.2**).
- When inactive, Moody AFB would continue to turn over inactive MOAs airspace to the Federal Aviation Administration (FAA) to accommodate civilian flight operations, per Department of Defense (DoD) and Department of the Air Force (DAF) policies.
- Moody AFB would use FAA-established Flight Service frequencies, phone lines, websites, and mobile applications to communicate information to the general aviation community concerning MOA activation and deactivation. The general aviation community would be able to receive information on active MOAs from the following:
 - Online at <https://sua.faa.gov>, <https://www.1800wxbrief.com>, or at <https://pilotweb.nas.faa.gov>
 - By phone at 1-800-WXBRIEF
 - In flight by contacting Flight Service
- When Valdosta RAPCON activates or deactivates the MOAs, all surrounding air traffic control facilities would be notified in order to alleviate delays for subsequent arriving and transient aircraft. This real-time coordination between agencies is key to managing operations within the Moody Airspace Complex.
- ATC shall ensure military aircraft operating in a MOA in which an IFR aircraft will depart from or land at an airport underlying the Moody Airspace Complex are separated in accordance with IFR procedures (detailed in **Section 4.2.2**) at all times.
- Mid-air collision avoidance brochures would be updated to reflect changes to the Moody Airspace Complex and distributed to airports underlying and proximate to the Moody Airspace Complex.
- For special civilian air operational events, such as the annual Glider Soaring Expo, Lakeland Fun and Sun, annual Sunbelt Agricultural Expo, and the rocketry organizations that sometimes require the use of lower-altitude airspace, Moody AFB ATC and Valdosta RAPCON would develop operational agreements with the users to accommodate their periodic events and avoid conflicts between civilian aircraft operations during these events and military training activities in the proposed low-altitude MOAs.

7.2 Measures to Avoid or Minimize Impacts on Health and Safety

- Only qualified pilots would be conducting flight operations in the proposed new low-altitude MOAs and would be required to abide by all applicable flight safety regulations.
- Safe flying procedures, adherence to flight rules, and knowledge of emergency procedures from consistent and repeated training for all aircrews, including Moody AFB airmen and other airspace users, would be required.
- The DAF Mishap Prevention Program (Air Force Instruction [AFI] 91-202) would continue to be followed and would reduce the potential for aircraft mishaps.
- Moody AFB would continue its effective program to manage bird/wildlife aircraft strike hazard (BASH), which is structured to adapt as changes in seasonal wildlife concentration affect the exposure of aircraft and personnel to risks.
- Grand Bay Range would continue to be monitored and managed using the same processes and procedures as under current conditions.
- Moody AFB would continue to follow the 23d Wing Wildland Fire Management Plan and meet the fire management requirements of applicable regulations such as AFMAN 13-212, V1.

7.3 Measures to Avoid or Minimize Impacts on Biological Resources

- Moody AFB would consider a public information program in areas where flares are used over non-DoD land to educate the public about the hazards of dud flares and proper procedures to follow if a dud flare is found.
- Moody AFB would continue to implement a 500-foot and 1 nm exclusion zone around all known active bald eagle nests and wood stork rookeries within the Moody Airspace Complex.

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8.0 REFERENCES

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10.0 GLOSSARY

Term	Definition
Above Ground Level (AGL)	AGL is an altitude expressed in feet above the ground surface. AGL is used to refer to lower altitudes (almost always below 10,000 feet), when clearance from terrain is a concern for aircraft operations.
Air Combat Command (ACC)	The ACC is the Air Force Command that operates combat aircraft assigned to bases within the contiguous 48 states, except those assigned to Air National Guard and the Air Force Reserve Command.
Air Force Instruction (AFI)	AFIs implement United States laws and regulations and provide policy for Air Force personnel and activities.
Air-to-Air Training	Air-to-air training prepares aircrews to achieve and maintain air superiority over the battlefield and defeat enemy aircraft. Air-to-air training often includes some aircraft playing the role of adversaries, or enemy forces. Air-to-air training activities include advanced handling characteristics, air combat training, low-altitude air-to-air training, and air intercept training. This training also requires the use of defensive countermeasures.
Air-to-Ground Training	Air-to-ground training employs all the techniques and maneuvers associated with weapons use and includes low-and high-altitude tactics, navigation, formation flying, target acquisition, and defensive reaction. Training activities include surface attack tactics, different modes of weapons delivery, electronic combat training, and the use of defensive countermeasures.
Air Traffic	Air traffic consists of aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.
Air Traffic Control (ATC)	ATC is a service operated by an appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.
Air Traffic Control Assigned Airspace (ATCAA)	ATCAA is airspace that has been designated in a Letter of Agreement with the Federal Aviation Administration that can be used to extend the ceiling of a Military Operations Area above 18,000 feet (Flight Level 180). ATCAA is not depicted on any chart and is usually referred to by the same name as the underlying Military Operations Area. This airspace remains under control of the Federal Aviation Administration when not in use to support general aviation activities.
A-Weighted Decibel (dBA)	The relative loudness of sounds in air as perceived by the human ear. Decibel scale readings are adjusted by A-weighting to take into account the varying sensitivity of the human ear to different frequencies of sound.
Candidate Species	This is a species for which the United States Fish and Wildlife Service has sufficient information regarding the biological vulnerability of and threat(s) to that species to warrant a proposal to reclassify it as threatened or endangered (formerly Category 1 candidate species).
Chaff	Chaff is the term for small fibers of aluminum-coated mica packed into approximately 150-gram bundles and ejected by aircraft as a self-defense measure to reflect hostile radar signals.

Term	Definition
Clean Air Act (CAA)	The CAA empowered the United States Environmental Protection Agency to establish standards for common pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and safety.
Controlled Airspace	This is a generic term that encompasses the classifications and dimensions of airspace within which air traffic control service is provided to flights under instrument or visual flight rules (IFR and VFR, respectively). Under IFR, pilots fly through airspace (including clouds) using their onboard navigation systems. Under VFR, aircrews must remain clear of clouds and must avoid other aircraft that they see.
Council on Environmental Quality (CEQ)	The Council is within the Executive Office of the President and is composed of three members appointed by the President, subject to approval by the Senate. Members are to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the nation; and to formulate and recommend national policies to promote the improvement of quality of the environment.
Day-Night Average Sound Level (DNL)	Day-night average sound level is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a 24-hour period to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10-decibel penalty for sounds after 10:00 p.m. and before 7:00 a.m. DNL is the Federal Aviation Administration's primary noise metric. Federal Aviation Administration Order 1050.1E defines DNL as the yearly day/night average sound level.
Decibel (dB)	A decibel is a sound measurement unit.
Defensive Countermeasures	This refers to coordination of maneuvers and use of aircraft defensive systems designed to negate enemy threats. Those maneuvers (which include climbing, descending, and turning) require sufficient airspace to avoid the aircraft being targeted by threat systems. Aircraft use sophisticated electronic equipment to jam air and ground radar-tracking systems and dispense chaff and flares to confuse hostile radar and infrared sensors.
Endangered Species	The Endangered Species Act of 1973 defined the term "endangered species" to mean any species (including any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature) that is in danger of extinction throughout all or a significant portion of its range.
Environmental Justice	Pursuant to Executive Order 12898, <i>Federal Actions to Address Environmental Justice in Minority and Low-Income Populations</i> , review must be made as to whether a federal program, policy, or action presents a disproportionately high and adverse human health or environmental effect on minority and/or low-income populations.
Flight Level (FL)	This designates an altitude at high levels and is based on a standard pressure. FLs are designated in hundreds of feet. In the United States, the transition from altitude to level is at 17,999 feet mean sea level/FL180.

Term	Definition
Frequency	The rate in which a vibration occurs that constitutes a wave in a material, such as a sound wave.
Hertz	The International System of Units unit of frequency, which is defined as one cycle per second.
Inert Ordnance	Inert ordnance has no explosive or incendiary material. This inert (nonexplosive) ordnance is used by training aircrews authorized to verify that aircraft systems are functioning properly, without the use of live ordnance. Inert ordnance is only used at authorized air-to-ground training ranges.
Instrument Flight Rules (IFR)	IFR is a standard set of rules that all pilots, civilian and military, must follow when operating under flight conditions that are more stringent than visual flight rules. These conditions include operating an aircraft in clouds, operating above certain altitudes prescribed by Federal Aviation Administration regulations, and operating in some locations like major civilian airports. Air traffic control agencies ensure separation of all aircraft operating under IFR.
Instrument Route (IR)	Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both instrument flight rule and visual flight rule weather conditions below 10,000 feet mean sea level at airspeeds in excess of 250 knots indicated airspeed.
Intensity	The measurable amount of a property, such as force.
Jet Route	A route that serves aircraft operations from 18,000 feet mean sea level (MSL) up to and including Flight Level 450. The routes are referred to as "J" routes with numbering to identify the designated route;
Logarithm	A quantity representing the power in which a fixed number must be raised to produce a given number.
Low Altitude	Low altitude or low level means an aircraft flying at or below 7,999 feet AGL down to 100 feet AGL.
Maximum Sound Level (L_{max})	L_{max} is the highest sound level that occurs during a single aircraft overflight.
Mean Seal Level (MSL)	MSL is an altitude expressed in feet measured above average (mean) sea level. MSL is most commonly used when operating at or below 18,000 feet where clearance from terrain is less a concern for aircraft operation.
Mid-Altitude	Mid-altitude or mid-level means an aircraft flying at or above 8,000 feet MSR to FL230.
Military Operations Area (MOA)	A MOA consists of airspace below 18,000 feet MSL established to separate military activities from IFR traffic and to identify where these activities are conducted for the benefit of pilots using visual flight rules.
Military Training Route (MTR)	A MTR is a corridor of airspace with defined vertical and lateral dimensions established for conducting military flight training at airspeeds in excess of 250 nautical miles (nm) per hour.

Term	Definition
Mitigation	Council on Environmental Quality Section 1508.20 defines “mitigation” to include: <ul style="list-style-type: none"> (a) Avoiding the impact altogether by not taking a certain action or parts of an action (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action (e) Compensating for the impact by replacing or providing substitute resources or environments
Nautical Mile (nm)	A nm is equal to 1.15 statute miles.
National Environmental Policy Act (NEPA)	The National Environmental Policy Act of 1969 directs federal agencies to take environmental factors into consideration in their decisions.
National Historic Preservation Act (NHPA)	The National Historic Preservation Act of 1966, as amended, established a program for the preservation of historic properties throughout the United States.
Onset-Adjusted Monthly DNL (L_{dnmr})	The average sound energy in a 24-hour period with a 10 dB penalty added to the nighttime levels, and up to an additional 11 dB penalty for acoustical events with onset rates greater than 15 dB per second, such as high-speed jets operating near the ground. L_{dnmr} is assessed for the month with the highest number of events, and as with DNL and SEL, it does not directly represent the sound level at any given time.
Ordnance	Any item carried by an aircraft for dropping or firing, including live or inert bombs, ammunition, air-to-air missiles, chaff, and flares.
Other Airspace	This type of airspace is not designated as Special Use Airspace but has similar use restrictions for nonparticipating civilian aircraft. Other airspace includes military training routes such as visual routes and instrument routes.
Performance Data Analysis and Reporting System	A tool used by the Federal Aviation Administration to manage and improve efficient use of airspace in the United States. The system consists of a dedicated network of computers located at Federal Aviation Administration sites that use specialized software for collecting detailed air traffic management system data. Among the data tracked by the system are flight tracks for all aircraft (using an active transponder that can be tracked via radar) operating in the airspace. Some Visual Flight Rule aircraft do not activate their transponders during flight; those flights are not tracked.
Restricted Area	A restricted area is designated airspace that supports ground or flight activities that could be hazardous to nonparticipating aircraft.
Sonic Boom	A sonic boom is the impulsive noise created when a vehicle flies at speeds faster than sound.
Sortie	A sortie is a single flight, by an individual or group of aircraft, from takeoff to landing.

Term	Definition
Sound Exposure Level (SEL)	Sound Exposure Level accounts for both the maximum sound level and the length of time a sound lasts. It provides a measure of the total sound exposure for an entire event.
Special Use Airspace (SUA)	SUA consists of airspace within which military activities are confined and kept separate from nonparticipating civilian flights for safety. Types of SUA include MOAs and Restricted Areas. The defined vertical and lateral limits vary for each MOA. While MOAs generally extend from 1,200 AGL to 18,000 feet MSL, the floor may extend below 1,200 feet AGL if there is a mission requirement and minimal adverse aeronautical effect. Restricted Areas define SUA where hazards to aircraft could be present, such as munitions deployment or aerial gunnery.
State Historic Preservation Office (SHPO)	The State Historic Preservation Office is the state department responsible for assigning protected status for cultural and historic resources.
Threatened Species	A threatened species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Traditional/Cultural Resource	Cultural and traditional resources are any prehistoric or historic district, site or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes.
Uncontrolled Airspace	This airspace has no air traffic control service, but all military and civilian pilots must adhere to instrument or visual flight rules.
Visual Flight Rule (VFR)	A standard set of rules that all pilots, both civilian and military, must follow when not operating under instrument flight rules. These rules require that pilots remain clear of clouds and avoid other aircraft. Under VFR, a pilot must be able to operate with visual reference to the ground and visually avoid obstructions and other aircraft. See <i>instrument flight rules</i> .
Visual Route (VR)	This is a route used by military aircraft for conducting low-altitude, high-speed navigation and tactical training where pilots must use visual cues to see and avoid obstacles. These routes are flown under VFR.

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