

Final
Environmental Assessment for
Modification and Addition of
Evers Military Operations Area

District of Columbia Air National Guard

113th Wing, Joint Base Andrews, MD

December 2020



Guarding America - Defending Freedom



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**ENVIRONMENTAL ASSESSMENT FOR
MODIFICATION AND ADDITION OF
EVERS MILITARY OPERATIONS AREA**

Table of Contents

ACRONYMS AND ABBREVIATIONS vii

1.0 INTRODUCTION 1-1

1.1 BACKGROUND AND LOCATION 1-1

1.2 SPECIAL USE AIRSPACE OVERVIEW..... 1-3

1.3 PURPOSE AND NEED..... 1-4

1.4 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS 1-6

1.4.1 National Environmental Policy Act 1-6

1.4.2 Lead and Cooperating Agencies..... 1-6

1.4.3 Federal Aviation Administration Guidelines 1-7

1.4.4 Interagency and Intergovernmental Coordination for Environmental Planning and Public Involvement 1-7

1.4.5 Cultural Resources..... 1-8

1.4.6 Endangered Species Act..... 1-9

1.4.7 Other Executive Orders..... 1-9

1.5 RESOURCES NOT CARRIED FORWARD FOR DETAILED ANALYSIS 1-10

1.6 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS 1-14

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES 2-1

2.1 SELECTION CRITERIA..... 2-1

2.2 PROPOSED ACTION 2-1

2.2.1 Evers North MOA and Evers South MOA 2-7

2.2.2 Evers Center MOA 2-7

2.2.3 Evers Low MOA 2-8

2.2.4 Evers East MOA..... 2-9

2.2.5 Diesel ATCAAs (North, Center and South)..... 2-10

2.2.6 Aircraft Operations 2-10

2.2.6.1 Other Expected Users..... 2-11

2.2.6.2 Air Operations 2-12

2.3 ALTERNATIVES DISMISSED FROM FURTHER ANALYSIS 2-12

2.4 NO ACTION ALTERNATIVE 2-13

2.5 SUMMARY 2-14

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1

3.1 AIRSPACE MANAGEMENT 3-1

3.1.1 Definition of Resource 3-1

3.1.2 Affected Environment..... 3-4

3.1.2.1 Military Operations Area 3-4

3.1.2.2 Federal Air Corridors..... 3-5

	3.1.2.3 Military Training Routes	3-7
	3.1.2.4 Existing Aircraft	3-9
	3.1.2.5 Airfields	3-11
	3.1.2.6 Amateur Rocket Launch Facility	3-12
	3.1.2.7 Greenbank Observatory and National Radio Quiet Zone	3-13
	3.1.2.8 U.S. National Forests	3-14
	3.1.2.9 Aircraft Mishaps	3-15
	3.1.2.10 Safety Planning and Awareness Training	3-15
3.1.3	Significance Criteria	3-16
3.1.4	Environmental Consequences of the Proposed Action.....	3-16
	3.1.4.1 Air Traffic.....	3-17
	3.1.4.2 Airports.....	3-19
	3.1.4.3 Amateur Rocket Launch Facility	3-20
	3.1.4.4 Greenbank Observatory and NRQZ	3-20
	3.1.4.5 U.S. National Forests	3-21
	3.1.4.6 Aircraft Mishaps	3-21
	3.1.4.7 Safety Planning and Awareness Training	3-22
3.1.5	No Action Alternative.....	3-22
3.2	NOISE	3-22
	3.2.1 Definition of Resource	3-22
	3.2.1.1 Regulatory Review and Approach	3-24
	3.2.2 Affected Environment.....	3-26
	3.2.2.1 Population, Areas, and Sensitive Receptors Beneath the Evers MOA Complex.....	3-26
	3.2.3 Significance Criteria	3-33
	3.2.4 Environmental Consequences of the Proposed Action.....	3-33
	3.2.4.1 Overall Aircraft Noise	3-33
	3.2.4.2 Individual Overflight Noise	3-39
	3.2.5 No Action Alternative	3-40
3.3	BIOLOGICAL RESOURCES	3-40
	3.3.1 Definition of Resource	3-40
	3.3.2 Affected Environment.....	3-40
	3.3.2.1 Land Cover Types.....	3-42
	3.3.2.2 Wildlife.....	3-42
	3.3.2.3 Bird-Aircraft Strike Hazard	3-42
	3.3.2.4 Threatened and Endangered Species	3-45
	3.3.2.5 Eastern Region Forester Sensitive Species	3-47
	3.3.3 Significance Criteria	3-48
	3.3.4 Environmental Consequences of the Proposed Action.....	3-48
	3.3.4.1 Noise Effects on Wildlife	3-49
	3.3.4.2 Threatened and Endangered Species	3-52
	3.3.4.3 Bird-Aircraft Strike Hazard	3-52
	3.3.4.4 Eastern Region Forester Sensitive Species	3-53
	3.3.5 No Action Alternative.....	3-54
3.4	CULTURAL RESOURCES	3-54
	3.4.1 Definition of Resource	3-54
	3.4.2 Affected Environment.....	3-55

3.4.2.1	Cultural and Historical Setting.....	3-55
3.4.2.2	Nationally Listed Historic Properties	3-56
3.4.2.3	Other Known Cultural Resources	3-58
3.4.2.4	Tribally-Significant Cultural Resources	3-59
3.4.3	Significance Criteria	3-59
3.4.4	Environmental Consequences of the Proposed Action.....	3-61
3.4.4.1	Tribal Concerns.....	3-61
3.4.5	No Action Alternative.....	3-61
3.5	LAND USE	3-62
3.5.1	Definition of Resource	3-62
3.5.2	Affected Environment.....	3-62
3.5.2.1	Evers East and Evers Low MOAs.....	3-63
3.5.2.2	Evers North, Center, and South MOAs.....	3-64
3.5.3	Significance Criteria	3-64
3.5.4	Environmental Consequences of the Proposed Action.....	3-64
3.5.4.1	Evers East and Evers Low MOAs.....	3-65
3.5.4.2	Evers North, Center, and South MOAs.....	3-66
3.5.5	No Action Alternative.....	3-67
4.0	CUMULATIVE IMPACTS	4-1
4.1	APPROACH TO CUMULATIVE EFFECTS ANALYSIS	4-1
4.1.1	Scope of Cumulative Effects Analysis.....	4-1
4.1.2	Past, Present, and Reasonably Foreseeable Actions.....	4-2
4.1.3	Cumulative Effects Analysis and Potential Effects.....	4-2
4.1.3.1	Airspace Management	4-2
4.1.3.2	Noise	4-3
4.1.3.3	Biological Resources	4-3
4.1.3.4	Cultural Resources	4-3
4.1.3.5	Land Use.....	4-3
5.0	MANAGEMENT ACTIONS AND SPECIAL PROCEDURES	5-1
6.0	REFERENCES	6-1
7.0	LIST OF PREPARERS.....	7-1
APPENDICES		
APPENDIX A	PUBLIC AND AGENCY COORDINATION	
APPENDIX B	RECORD OF NON-APPLICABILITY	
APPENDIX C	AERONAUTICAL PROPOSAL	
APPENDIX D	NOISE MODEL	

LIST OF TABLES

<u>Number</u>	<u>Page</u>
Table 1-1. Annual Air Emissions Compared to <i>De Minimis</i> Thresholds	1-10
Table 1-2. Socioeconomic and Environmental Justice Data	1-12
Table 2-1. Vertical Limits and Charted Times of Use of Proposed Airspace.....	2-7
Table 2-2. Aircraft Operations Defined	2-11
Table 2-3. Air Operations - Existing and Proposed Action	2-12
Table 2-4. Summary of Alternatives.....	2-14
Table 3-1. Military Training Route Characteristics	3-9
Table 3-2. Annual Aircraft in the Airspace	3-9
Table 3-3. Civilian Airfields in the ROI	3-11
Table 3-4. Mishaps Rates for Primary Aircraft.....	3-15
Table 3-5. Flights Potentially Affected by Proposed Action	3-18
Table 3-6. Potential Effects to Aircraft and Airports	3-19
Table 3-7. Mishaps Rates for Primary Aircraft.....	3-22
Table 3-8. Common Sounds and Their Levels	3-23
Table 3-9. Relationship Between Annoyance and DNL.....	3-24
Table 3-10. Estimated Population Beneath the Proposed Evers MOA Complex	3-26
Table 3-11. Estimated Background Sound Levels.....	3-28
Table 3-12. Overall Sound Levels and Percent Highly Annoyed - Existing Conditions.....	3-28
Table 3-13. Estimated Sound Levels for Individual Overflights	3-30
Table 3-14. Lateral Distance from Flight Track for Speech Interference.....	3-32
Table 3-15. Overall Sound Levels and Percent Highly Annoyed - Proposed Action	3-34
Table 3-16. Bird Strike Rates - Existing Conditions	3-44
Table 3-17. Federally and State Listed Threatened and Endangered Species Beneath the Proposed Evers MOA Complex.....	3-45
Table 3-18. Bird Strike Rates - Proposed Action	3-53
Table 3-19. NRHP-Listed Properties in West Virginia Beneath the Evers MOA Complex	3-56
Table 3-20. NRHP-Listed Properties in Virginia Beneath the Evers MOA Complex	3-58

LIST OF FIGURES

<u>Number</u>	<u>Page</u>
Figure 1-1. Existing Evers MOA.....	1-2
Figure 2-1. Proposed Evers MOA Complex.....	2-2
Figure 2-2. Proposed Air Traffic Controlled Assigned Airspaces.....	2-3
Figure 2-3. Cross-Section of Proposed Modification and Addition of Evers MOA.....	2-5
Figure 3-1. Airspace Classification Diagram.....	3-2
Figure 3-2. ROI with Existing and Proposed MOAs.....	3-5
Figure 3-3. Low-Altitude Victor Routes in ROI	3-6
Figure 3-4. High-Level J & Q Air Routes in the ROI	3-7
Figure 3-5. Low-Level Military Traffic Routes with Corridor Width.....	3-8
Figure 3-6. Existing Flight Tracks - Proposed Evers North, Center and South MOAs	3-10
Figure 3-7. Existing Flight Tracks - Proposed Evers Low MOA.....	3-10

Figure 3-8. Sectional Showing Airports Within the ROI 3-12

Figure 3-9. National Radio Quiet Zone 3-14

Figure 3-10. Population Density 3-27

Figure 3-11. Overall Sound Levels and Percent Highly Annoyed - Existing..... 3-29

Figure 3-12. Estimated L_{max} for Individual Overflights 3-31

Figure 3-13. Overall Sound Levels and Percent Highly Annoyed - Proposed Action..... 3-35

Figure 3-14. Change in Overall Sound Levels - Proposed Action vs. Existing..... 3-36

Figure 3-15. National Forest Beneath the Proposed Evers MOA Complex 3-41

Figure 3-16. Land Cover Beneath the Proposed Evers MOA Complex 3-43

Figure 3-17. Migratory Flyways Over the United States 3-44

Figure 3-18. Bald Eagle Nest Locations – Evers Low and Evers East MOAs..... 3-51

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ACRONYMS AND ABBREVIATIONS

%HA	Percent Highly Annoyed
ACC	Air Combat Command
ACHP	Advisory Council on Historic Preservation
AFI	Air Force Instruction
AGL	above ground level
AHAS	Avian Hazard Advisory System
AI	Air Interdiction
ANG	Air National Guard
APE	area of potential effect
ARTCC	Air Route Traffic Control Center
AS	airlift squadron
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspaces
BAM	Bird Avoidance Model
BASH	Bird Aircraft Strike Hazard
BGEPA	Bald and Golden Eagle Protection Act
CAS	Close Air Support
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CKB	Clarksburg Approach Control
CMR	combat mission ready
COA	Certificate of Waivers or Authorization
CSAR	Combat Search and Rescue
dB	decibels
dBA	A-weighted decibels
DCA	Defensive Counter Air
DCANG	District of Columbia Air National Guard
DNL	day-night Sound Level
DOD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAC-A	Forward Air Control-Airborne
FL	flight level
FONSI	finding of no significant impact
FR	Federal Register
FS	Fighter Squadron
ft	feet
GBO	Green Bank Observatory
IFR	Instrument Flight Rules
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
ILS	Instrument Landing System
IR	Instrument Route
Leq	Equivalent Sound Level

Lmax	Maximum Sound Level
LOWAT	low altitude
LWB	Lewisburg Approach Control
MACA	Mid-Air Collision and Avoidance
MNF	Monongahela National Forest
MOA	Military Operations Area
MSL	mean sea level
MTR	military training route
NAS	National Airspace System
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NM	nautical mile
NOTAM	Notice to Airmen
NRHP	National Register of Historic Places
NRQZ	National Radio Quiet Zone
OSHA	Occupational Safety & Health Administration
OCA-AO	Offensive Counter Air – Attack Operations
PDARS	Performance Data and Reporting System
RA	Restricted Area
RAP	Ready Aircrew Program
RNAV	Area Navigation
ROI	Region of Influence
SEL	Sound Exposure Level
SHPO	State Historic Preservation Officer
SR	Slow Route
SUA	Special Use Airspace
tpy	tons per year
U.S.	United States
USAF	United States Air Force
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VFR	Visual Flight Rules
VICC	Virginia Interagency Coordination Center
VMC	visual meteorological conditions
VR	Visual Route
WG	Wing
ZDC	Washington DC Center
ZID	Indianapolis Center
ZOB	Cleveland Center

1.0 INTRODUCTION

The Air National Guard (ANG) has prepared this Environmental Assessment (EA) to consider the potential consequences to the human and natural environment associated with the modification, expansion, and utilization of the Evers Military Operations Area (MOA) to accommodate the training requirements of the 113th Wing (WG). The ANG is a Directorate within the National Guard Bureau (NGB). The ANG Director assists the Chief NGB to carry out the functions of the NGB as they relate to the national defense directives of the United States (U.S.) (Department of Defense [DOD] 2015).

The ANG has prepared this EA pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] 4321–4347), Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), and the Environmental Impact Analysis Process (EIAP) (32 CFR §989, formerly promulgated as Air Force Instruction [AFI] 32-7061). This EA also identifies applicable management actions and best management practices that would avoid or minimize effects relevant to the Proposed Action.

As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project and be available to inform decision-makers of the potential environmental effects of selecting the Proposed Action, reasonable alternatives, or No Action Alternative.

1.1 BACKGROUND AND LOCATION

The 113 WG, District of Columbia Air National Guard (DCANG) is located at Joint Base Andrews, Maryland. The 113 WG is the air component of the DCANG and is the only federal National Guard unit. The federal mission of the 113 WG is to maintain combat forces ready for mobilization, deployment and employment as needed to support national security objectives. The mission during peacetime has the combat-ready unit assigned to the Air Combat Command (ACC) to carry out missions compatible with training, mobilization readiness, humanitarian and contingency operations such as Operation Enduring Freedom and Inherent Resolve. The District's mission includes defending the National Capital Region, providing support to the District of Columbia and local communities, providing emergency relief support, and providing support for other contingency operations.

The existing Evers MOA is above West Virginia and Virginia (Figure 1-1). Part of the MOA is above Highland County, Virginia and the remainder of the MOA is in Pocahontas, Pendleton, and Randolph counties, West Virginia. The airspace begins at 1,000 feet (ft) above ground level (AGL) and continues to 17,999 ft above mean sea level (MSL).

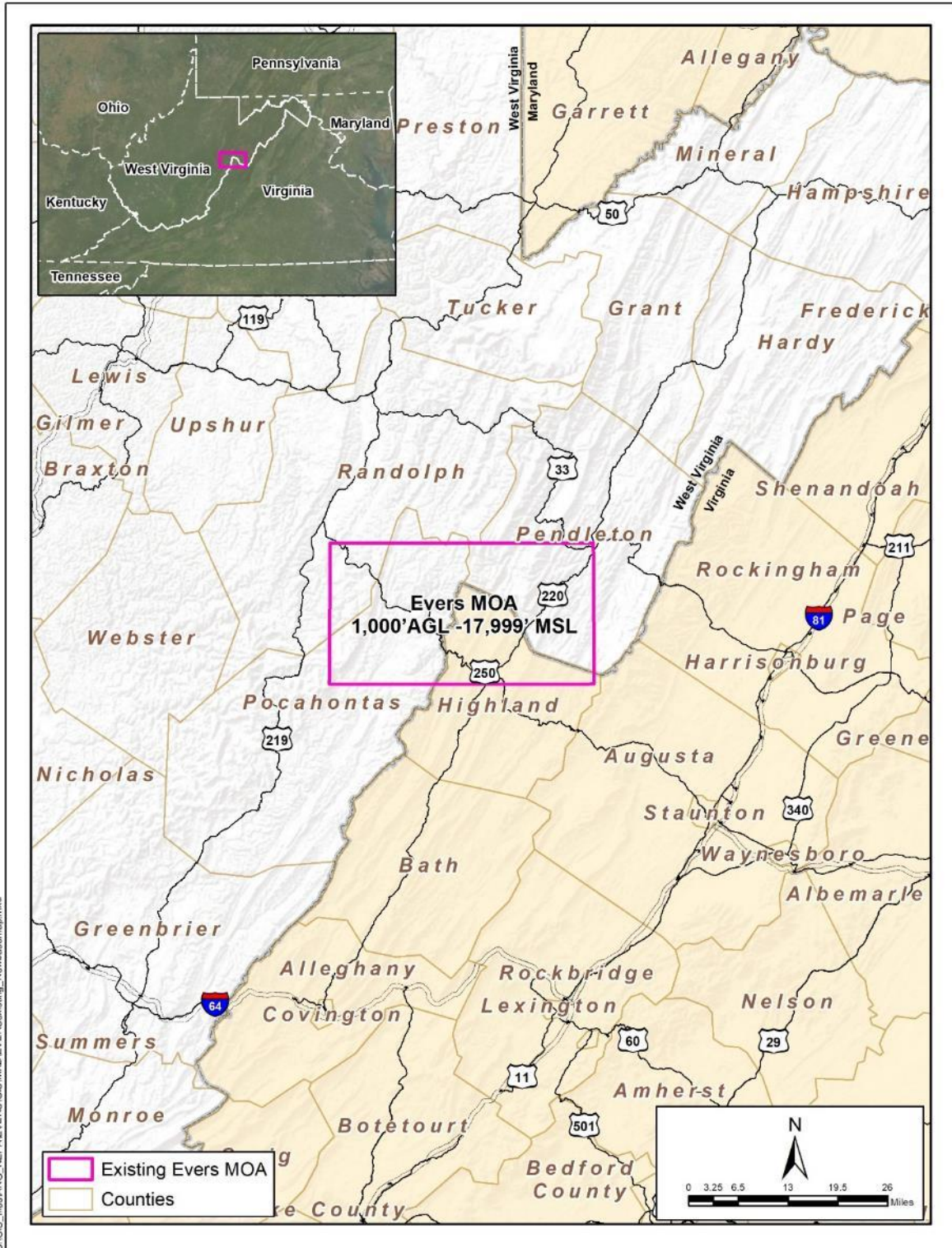


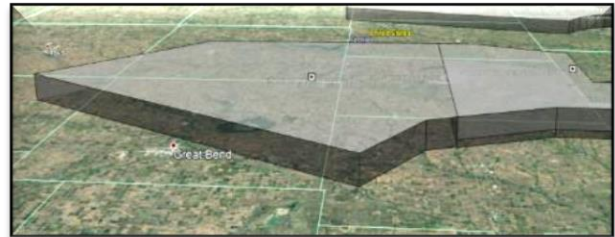
Figure 1-1. Existing Evers MOA

The proposed Evers MOA Complex would be an expansion and modification of the existing airspace and is described in detail in Section 2.

1.2 SPECIAL USE AIRSPACE OVERVIEW

The Federal Aviation Administration (FAA) Pilot's Handbook of Aeronautical Knowledge, Chapter 15 *Airspace*¹ identifies four types of airspace in the National Airspace System (NAS): controlled, uncontrolled, special use, and other. These types of airspace are defined by the complexity or density of aircraft movements, nature of the operations conducted within the airspace, the level of safety required, and national and public interest. The primary focus of this EA is on Special Use Airspace (SUA), specifically MOAs. SUA is the designation for airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. Certain SUA areas can create limitations on the mixed use of airspace. Section 3.1 *Airspace Management* describes airspace in detail.

MOAs consist of three-dimensional airspace with defined vertical and lateral limits. MOAs are established for separating certain military activities from civilian aircraft being operated under Instrument Flight Rules (IFR). Aircraft operated under IFR are operating with a clearance and under positive control of the



FAA Air Traffic Control (ATC). MOAs are depicted graphically on FAA sectional charts. Additional MOA information provided on the chart consists of upper limit elevation, lower limit elevation, activation method, hours of activation, controlling agency, and the using agency.

Civilian aircraft operating under IFR are allowed to fly through active MOAs under certain conditions. ATC may clear IFR traffic through an active MOA, if minimum IFR separation distances can be provided by ATC. If separation distances cannot be maintained, ATC will reroute or restrict IFR traffic from entering the active MOA.

Civilian aircraft may also operate under Visual Flight Rules (VFR). These aircraft are being operated using outside visual references for navigation, weather avoidance, traffic separation, and obstruction clearances. VFR aircraft are not under positive control by ATC, nor are they required to establish two-way communication with ATC. However, VFR aircraft may also fly through active MOAs. Because aircraft under VFR are not required to be in constant communication with ATC, pilots should exercise increased vigilance, or request ATC flight-following service, due to

¹ Source: FAA Pilot's Handbook of Aeronautical Knowledge, Chapter 15 *Airspace*
https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/17_phak_ch15.pdf

unusual or dangerous activity that might be occurring. ATC flight-following services are provided to requesting pilots on an ATC workload permitting basis. Flight-following services will assist VFR aircraft flying through the MOA by identifying potential conflicting traffic to the pilot.

1.3 PURPOSE AND NEED

The purpose of the action is to expand the Evers MOA laterally and vertically to train and prepare military pilots and aircrews for current and future conflicts. The action provides reasonable flexibility for aircrew usage and ATC de-confliction. Larger training airspace than the current confines of the Evers MOA is required for the diverse training mission sets. Current world conflicts have kept the F-16C in constant demand, but the amount of usable airspace to meet current training requirements has decreased (see Section 2.0).

The need for the action is to accommodate 113 WG training requirements for a reliable and realistic training environment in which to conduct upgrades and continuation training for aircrews. The restricted areas (RAs), warning areas, and military training routes (MTRs) that have been used in the past to accomplish training requirements have become increasingly unavailable to the 113 WG in recent years, resulting in training shortfalls due to ever tightening airspace limitations. Training shortfalls result from not having the availability of a spatially viable combat training environment to qualify and maintain aircrew capabilities, preserve readiness, and ultimately achieve our national objectives. Specifically, to meet the purpose and need the Proposed Action must (1) be within a reasonable distance (200 miles) of the primary end-user; (2) provide adequate size and shape for both air-to-air and air-to-ground training (i.e., 40 x 80 nautical miles [NM]); (3) adequate timing and capacity availability to the primary end-user; and (4) be controlled by a single FAA Air Route Traffic Control Center (ARTCC). The 40 x 80 NM size is necessary for air-to-air training; it allows for a 55 NM minimum intercept range (driven by expected enemy radar contact ranges and current missile kinematic capabilities), as well as an extra 25 NM total for a marshalling/holding area. Additionally, the 40 x 80 NM size allows for wider range of attack into the target area for simulated ground training. Any less than 40 NM in width does not allow for realistic ingress/egress maneuvering for simulated air-to-ground missions. The requested size also allows for multiple areas of operation for close air support missions.

The 113 WG maintains 30 combat mission ready (CMR) pilots in a combination of 24 experienced and six aviators in training. This mix is important to the calculation of CMR Ready Aircrew Program (RAP) sortie and event requirements, which are higher for inexperienced pilots and impact shortfall numbers. F-16C pilots must be able to train effectively and accurately by simulating all types of weapons across many mission sets. Considering a notional air-to-air intercept timeline of the F-16C and realistic surface attack/close air support scenario, 80 x 40 NM represents the minimum lateral airspace required to effectively train to the 113 WG's widely varying missions. Moreover, due to the F-16C's air-to-ground utility, low altitude (LOWAT)

airspace is essential for maintaining currency and proficiency to execute safe and effective combat operations.

To meet the RAP tasking requirements, the 113 WG must fly 2,144 annual training sorties, which includes air-to-air sorties that can be conducted over water. The surface attack mission requirement for 30 CMR pilots is 968, which is the number of air-to-ground training sorties required to be over land. In addition, the RAP requires 30 CMR pilots to accomplish 960 individual training events that need to be accomplished over land (most of these events can only be accomplished once per sortie). The RAP requires 1,440 simulated weapons employment events, which also need to be conducted over land. The 968 training sorties are used to conduct both the 960 over land training events, and the 1,440 weapons employment events. Thus, the proposed Evers MOAs are essential to accomplishing the 968 overland training sorties and provide a preferred option for all 2,144 total training sorties (which includes air-to-air requirements that do not necessarily have to be accomplished over land).

The primary drivers of airspace shape, size, and feature requirements are the F-16C RAP Tasking Memorandum, in conjunction with AFI 11-2F-16V1 that outlines the continuing training program for ACC units. These requirements define the minimum number and type of annual sorties, simulator missions and specific training events specialized aircrews must accomplish to sustain CMR. Per AFI 11-2F-16V1, an effective RAP mission requires accomplishment of a complete tactical scenario or a basic skills mission.

Due to the F-16C's air-to-ground utility, LOWAT airspace is essential for maintaining currency and proficiency to execute safe and effective combat operations. Additionally, the existing Evers MOA is too small for air refueling operations, which have become a critical training multiplier. The proposed expansion and modification of the Evers MOA could accommodate air-to-air refueling. The creation of three Air Traffic Control Assigned Airspaces (ATCAAs) over the proposed MOA expansion and modification would provide a vertical airspace that effectively doubles the opportunities for full spectrum tactical training. The 113 WG requires access to airspace that provides a spatially viable combat training environment to qualify and maintain aircrew capabilities, preserve readiness, and ultimately achieve our national policy objectives. Failure to create the minimum lateral airspace for 113 WG missions will result in training shortfalls and negatively impact combat readiness and pilot safety. Training shortfalls result from not having

This EA uses sortie, operation, and event to describe different components of aircraft flying activities as follows:

Sortie: a single military aircraft flight from take-off through final landing. A sortie can include more than one operation.

Operation: regarding airspace, an operation is the use of one airspace unit (e.g., MOA) by one aircraft. Each time a single aircraft flies in a different airspace unit, one operation is counted toward the utilization of that airspace unit.

Event: specific training element (e.g., supersonic flight). More than one event may be performed during the use of an airspace unit. During a single sortie, aircraft could fly in several airspace units, conduct several operations, and events.

the availability of a spatially viable combat training environment to qualify and maintain aircrew capabilities, preserve readiness, and ultimately achieve our national objectives. The 113 WG cannot effectively train to realistic threat or target scenarios in the currently available Evers MOA airspace (16 x 30 NM).

1.4 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS

1.4.1 National Environmental Policy Act

NEPA and CEQ regulations (40 CFR Parts 1500 through 1508) require federal agencies to analyze the potential environmental impacts of Proposed Actions and alternatives and use those analyses in making decisions on whether and how to proceed with those actions. These regulations specify that an EA be prepared to (1) provide sufficient analysis and evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a finding of no significant impact (FONSI); (2) aid in an agency's compliance with NEPA when an EIS is not necessary; and (3) facilitate preparation of an EIS when necessary.

The EIAP is the United States Air Force's (USAF's) process for conducting environmental impact analyses, as promulgated at 32 CFR §989. To comply with NEPA and complete the EIAP, CEQ regulations and the EIAP are used together. To comply with NEPA and other relevant environmental requirements (e.g., the National Historic Preservation Act [NHPA], Endangered Species Act [ESA], etc.) and to assess potential environmental impacts, the EIAP and decision-making process for the Proposed Action involves a study and examination of all environmental issues pertinent to the proposed modifications and additions to the Evers MOA, in the form of this EA.

Although the Secretary of the Air Force or their designated representative will decide whether to implement the Proposed Action, the FAA has final authority for approving or denying any proposal to modify, expand, or establish SUA (e.g., MOAs, ATCAAs, and RAs).

1.4.2 Lead and Cooperating Agencies

The NGB is the lead agency for this EA pursuant to 40 CFR §1501.5 and §1508.5. Since the Proposed Action includes activities associated with SUA, NGB requested and received the FAA cooperation in accordance with the guidelines described in the Memorandum of Understanding between FAA and DOD concerning SUA actions, dated October 2019). The ANG is a Directorate within the NGB. The ANG requested that the FAA participate as a cooperating agency in various portions of the EA development, including (1) early review of the Proposed Action and Draft EA; (2) assuming responsibility, upon request, for developing information and preparing analyses on issues for which FAA personnel have special expertise; and (3) making FAA staff support available to enhance interdisciplinary review capabilities. Details regarding the process of

interaction between the ANG and FAA are described further in Appendix A, *Agency and Public Coordination* within the cooperating agency letter.

1.4.3 Federal Aviation Administration Guidelines

The FAA is responsible for managing navigable airspace for public safety and ensuring efficient use for commercial air traffic, general aviation, and national defense, including SUA utilized by the DOD. Consequently, the FAA is the final decision-making authority regarding modification or establishment of airspace. FAA Order JO 7400.2M (FAA 2019a), *Procedures for Handling Airspace Matters* provides guidance to air traffic personnel to assist in applying the requirements in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, to air traffic actions. FAA Order 1050.1F provides the FAA with policies and procedures to ensure agency compliance with NEPA and implementing regulations issued by the CEQ (40 CFR §1500-1508). Order 1050.1F identifies impact categories to be considered during the NEPA process. Sections 1.5 and 1.6 contain a list of each of the resources as prescribed by FAA Order 1050.1F, the associated sections within this EA where each is discussed, or the reason for excluding it from detailed analysis.

FAA Order 1050.1F defines the thresholds for “significant” noise impacts (Exhibit 4-1) and the thresholds for “reportable” noise impacts (Appendix B-1.4). To make certain the ANG is meeting FAA requirements, during the release and transmittal of the Draft EA, the ANG will "report" the greater than 5 dBA day-night Sound Level (DNL) increase pertaining to 45-60 DNL to interested parties. In addition, the ANG will include a brief discussion to outline that, as described above, changes in overall noise levels would only introduce minute incremental changes in the percent highly annoyed for areas under the proposed Evers Low MOA, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" in these areas. In addition, the ANG will outline that the change in noise under the Proposed Action would decrease noise levels by 2.6 to 7.8 dBA DNL throughout 634 square miles and for individuals beneath the existing Evers MOA.

1.4.4 Interagency and Intergovernmental Coordination for Environmental Planning and Public Involvement

Through the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), the ANG provides opportunities for the public to participate in the NEPA process to promote open communication and improve their decision-making process. All persons and organizations identified as having potential interest in the Proposed Action are encouraged to participate in the process.

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental effects. NEPA, 40 CFR §§1500-1508, and 32 CFR §989 requires public review of the EA before approval

of the FONSI and implementation of the Proposed Action. Through the IICEP process, the ANG notified relevant federal, state, and local agencies and allowed them 30 days to make known their environmental concerns specific to the Proposed Action. Similarly, consultation letters were sent to the federally recognized tribes to provide notification of the action and to initiate government-to-government consultation in accordance with Section 106 of the NHPA, *Agency and Public Coordination*. Tribal coordination was done through certified mail; follow-up phone calls to tribal recipients were conducted at 2 weeks and at 2 months after receipt verification to ask if there are any questions or concerns regarding the Proposed Action. Comments and concerns submitted by these agencies are subsequently incorporated into the analysis of potential environmental impacts conducted as part of the EA. A Notice of Availability for public review of the Draft EA and Draft FONSI (Appendix A) was published in the following newspapers and in each newspaper's online edition on the listed dates:

- Inter-Mountain, Elkins, WV, 4 and 18 May 2020, <https://www.theintermountain.com/>;
- The Recorder, Monterey, VA, 7 and 21 May 2020, <https://www.therecorderonline.com/>;
- Pocahontas Times, Marlinton, WV, 7 and 21 May 2020, <https://pocahontastimes.com/>; and
- Mountain Messenger, Lewisburg, WV, 9 and 23 May 2020, <https://mountainmessenger.com/>.

The Draft EA and Draft FONSI were available for 30-day review (May 4 - June 10, 2020) and download at www.113wg.ang.af.mil/EversMOA and www.wv.ng.mil/evers-moa; and at the following libraries from May 4 - June 10, 2020 if they become open to the public when closures related to COVID-19 are lifted:

- Elkins-Randolph County Library, Elkins, WV;
- Highland County Public Library, Monterey, VA;
- Pocahontas County Library, Marlinton, WV; and
- Greenbrier County Public Library, Lewisburg, WV.

The Draft EA and Draft FONSI were made available upon request. The following is a sample of the agencies that were provided an opportunity to comment on both the scope and analysis of the Draft EA:

- Aircraft Owners and Pilots Association
- Chamber of Commerce/Economic Development
- FAA
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers
- United States Department of Agriculture (USDA), Natural Resources Conservation Service
- State Historic Preservation Office
- State Department of Natural Resources
- U.S. Forest Service—Monongahela, Washington, and Jefferson National Forests
- Green Bank Observatory

1.4.5 Cultural Resources

The NHPA of 1966 (54 U.S.C. § 300101 et seq.) established the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation (ACHP). The ACHP was

tasked with, and provided, procedures for the management of Historic Properties on federal land (36 CFR §800). Historic Properties are generally defined as cultural resources, including archaeological remains, architecture, and traditional cultural places that are listed in or eligible for listing in the NRHP. Section 106 of the NHPA requires federal agencies to consider potential effects of their undertakings to Historic Properties, and requires the federal agency to consult with the appropriate State or Tribal Historic Preservation Office.

The Archaeological Resources Protection Act of 1979 (16 U.S.C. §§470aa-mm) was created to protect archaeological resources on public and Native American lands, and encourage cooperation and exchange of information between governmental authorities, professionals, and private individuals. The act establishes civil and criminal penalties for destruction and alteration of cultural resources.

The American Indian Religious Freedom Act (42 U.S.C. §1996) established federal policy to protect and preserve the rights of Native Americans to believe, express, and exercise their traditional religions, including providing access to sacred sites. In addition, EO 13175, *Consultation and Coordination with Indian Tribal Governments*, charges federal departments and agencies with regular and meaningful consultation with Native American tribal officials in the development of policies that have tribal implications.

1.4.6 Endangered Species Act

The ESA of 1973 (16 U.S.C. §§ 1531-1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened and endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their Proposed Actions through a set of defined procedures, which may include the preparation of a Biological Assessment and can require formal consultation with the USFWS under Section 7 of the Act.

1.4.7 Other Executive Orders

EO 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects*, establishes the framework for the “One Federal Decision” framework for improving the environmental review process for major infrastructure projects and sets goals for federal agencies to reduce the average time for completing environmental impact statements and authorized decisions. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that citizens in either of these categories are not disproportionately affected by a federal action. Additionally, potential health and safety effects that could disproportionately affect children are considered under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, acts as additional protection for migratory birds.

1.5 RESOURCES NOT CARRIED FORWARD FOR DETAILED ANALYSIS

The determination of issues to be analyzed versus those not carried forward for detailed analysis is part of the NEPA process as described in 40 CFR §1501.7(a) (3), which states that issues addressed in prior environmental reviews, or that are not potentially significant, may be eliminated from discussion in the EA. Several components of the Proposed Action naturally limit environmental effects. The Proposed Action would not include any infrastructure changes, construction, demolition, renovations, or ground-disturbing activities. The Proposed Action would not include supersonic flight activities, release of chaff and flares, or ordnance deployment. The following is a list of each of the resources as prescribed by FAA Order 1050.1F, which have not been carried forward in this EA and the reason for excluding it from detailed analysis.

Air Quality. U.S. Environmental Protection Agency (USEPA) has designated all counties beneath the proposed Evers MOA (i.e., Barbour, Braxton, Greenbrier, Harrison, Lewis, Nicholas, Pocahontas, Pendleton, Randolph, Tucker, Upshur, Webster, Alleghany, Bath, Botetourt, Highland) as full attainment for all criteria pollutants (USEPA 2018). Because all areas associated with the Proposed Action are in attainment, the General Conformity Rules do not apply and a Record of Non-applicability to the General Conformity Rule is in Appendix B. Although the general conformity rule would not apply, the Air Conformity Applicability Model was used to estimate the total direct and indirect emission from air operations within the proposed SUA, which have been compared to the *de minimis* (of minimal importance) thresholds to determine the level of effects under NEPA (Table 1-1) (USAF 2019a). Total emissions would be less than 10 percent of the *de minimis* threshold of 100 tons per year (tpy) of each pollutant and within an attainment area.

Table 1-1. Annual Air Emissions Compared to *De Minimis* Thresholds

	CO	NO ₂	VOC	SO ₂	PM ₁₀	PM _{2.5}	<i>De minimis</i> Threshold (tpy)	Exceeds <i>De Minimis</i> Threshold? (Yes/No)
Aircraft Operations	3.7	5.8	2.5	0.6	1.4	1.2	100	No

Source: USAF 2019a. PM₁₀ particulate matter 10 microns, PM_{2.5} particulate matter 2.5 microns, SO₂ sulfur dioxide, NO₂ nitrogen dioxide, VOC volatile organic compound, CO carbon monoxide

The general conformity rule was established with NEPA in mind, and it is understood that actions of this size within a USEPA-designated attainment area would have negligible effects to air quality. Emission estimates in Table 1-1 include all air operations in the proposed Evers Low MOA (i.e., 1,000 ft AGL to 10,999 ft MSL).

There would be no changes in personnel, no construction, and no changes in ground-based operations or training due to the Proposed Action. The Proposed Action would not include any new stationary sources of air emissions, and no air permits would be required. These effects would be negligible; therefore, air quality was not carried forward for detailed analysis in this EA.

Climate. The Proposed Action would have negligible effects on climate. There would be no changes in personnel, no construction, and no changes in ground-based operations or training due to the Proposed Action. The Proposed Action would not include any new stationary sources of air emissions. The ANG-wide training requirements would not change, and any increase in greenhouse gas emission from aircraft operations in the proposed airspace would be directly offset by reductions in emissions from the required training where it would otherwise be conducted. Climate would remain consistent with existing conditions. These effects would be negligible; therefore, climate was not carried forward for detailed analysis in this EA.

Coastal Resources. The proposed modifications and additions to the Evers MOA would not affect coastal resources located inland; therefore, Coastal Resources was not carried forward for detailed analysis in this EA.

Department of Transportation Act: Section 4(f). Section 4(f) of the U.S. DOT Act of 1966 (now codified at 49 U.S.C. § 303) protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites (FAA 2015). FAA Order 1050.1F prescribes that designation of airspace for military flight operations is exempt from Section 4(f) of the Department of Transportation Act. In addition, the National Defense Authorization Act of 1997 provided that “No military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of Section 303(c) of Title 49, U.S.C. (Public Law 105-85).” Therefore, this resource was not carried forward for detailed analysis in this EA.

Farmlands. Farmlands are defined as those agricultural areas considered important and protected by Federal, state, and local regulations. Important farmlands include all pasturelands, croplands, and forests (even if zoned for development) considered to be prime, unique, or of statewide or local importance (FAA 2015). The Proposed Action would have negligible effects to farmlands. There would be no short- or long-term changes in land use due to the Proposed Action. There would be no changes in personnel, no construction, and no changes in ground-based operations or training due to the Proposed Action. Proposed activities would not alter the current land use classifications, nor would they occur on farmlands. All land use would remain unchanged when compared to existing conditions. The effects would be negligible; therefore, Farmlands was not carried forward for detailed analysis in this EA. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL and would be compatible with all land uses, including farmlands. Effects on land use from noise is described in Section 3.2 of the EA.

Hazardous Materials, Solid Waste, and Pollution Prevention. No ground-disturbing activities (e.g., construction or demolition) would occur as a part of the Proposed Action. Consequently, there would be no increase in the temporary storage of construction-related materials and wastes. Therefore, no impacts associated with hazardous materials and wastes are anticipated. Military aircraft operating within the proposed airspace would continue to adhere to USAF fuel dumping

procedures, when necessary (i.e., in life-threatening emergency situations). Fuel dumping is not a component of any routine flight training and only occurs during in-flight emergency circumstances with a loss of life potential for the pilot (FAA Order JO 7110.65U Section 4.10 Fuel Dumping). Fuel dump procedures would remain unchanged under the Proposed Action and fuel venting is highly unlikely to occur within the airspace. These effects would be negligible; therefore, Hazardous Materials, Solid Waste, and Pollution Prevention were not carried forward for detailed analysis in this EA.

Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks. The Proposed Action would have negligible effects on the local or regional socioeconomic environment. Two thirds of the proposed airspace would have an 11,000 ft MSL floor, the total area of the low airspace would cover approximately twice the area as the existing 1,000 ft AGL floor. Therefore, expansion of the low airspace under the proposed action would spread the existing operations over a larger area, further reducing perceived acoustic effects to negligible levels. Establishment of the proposed Evers MOA expansion and modification would have no changes to socioeconomics or have any effects on environmental justice when compared to existing conditions. Table 1-2 outlines the total personal income, population, poverty level, and minority population for counties underlying the proposed Evers MOA (U.S. Bureau of Economic Analysis 2019).

Table 1-2. Socioeconomic and Environmental Justice Data

County	Total Personal Income*	Population	Poverty Level	Minority Population
Harrison, WV	\$3,007,582.00	68,775	36%	5%
Lewis, WV	\$584,861.00	16,442	43%	3%
Braxton, WV	\$432,895.00	14,463	44%	3%
Nicholas, WV	\$792,086.00	25,743	40%	3%
Barbour, WV	\$502,693.00	16,892	45%	4%
Upshur, WV	\$760,965.00	24,632	39%	4%
Webster, WV	\$223,861.00	8,820	58%	0%
Greenbrier, WV	\$1,278,836.00	35,580	41%	7%
Tucker, WV	\$277,058.00	6,922	40%	2%
Randolph, WV	\$1,009,637.00	29,287	40%	4%
Pocahontas, WV	\$313,423.00	8,620	41%	4%
Bath, VA	\$252,991.00	4,558	33%	8%
Pendleton, WV	\$234,884.00	7,291	44%	5%
Highland, VA	\$94,835.00	2,230	29%	0%
Alleghany, VA	\$786,749.00	15,919	37%	8%
Botetourt, VA	\$1,598,263.00	33,192	24%	7%
Virginia	\$466,742.00	8,310,301	27%	37%
West Virginia	\$69,872.70	1,846,092	39%	8%

*All county dollar estimates are in thousands of dollars and all state dollar estimates are in millions of dollars.

Source: EJSSCREEN 2019 and U.S. Census Bureau 2019

Consideration of environmental justice and protection of children is to ensure that no group of people should bear a disproportionate share of the negative environmental consequences resulting from federal actions. The threshold used for identifying minority and low-income were developed

consistent with CEQ guidance (CEQ 1997a) for identifying minority populations. For this analysis, the significance thresholds for environmental justice concerns were established at the state level. For the analysis, counties are assumed to contain disproportionately high percentages of minority and/or low-income populations if the percentage of minority and/or low-income persons in the area significantly exceeds the state average (20 percentage points) or if the percentage of minority and/or low-income population exceeds 50 percent of the population. All counties in West Virginia except for Harrison and Upshur exceed the state poverty average for the state (39 percent), however, the other poverty levels are not “meaningfully greater” than the low-income population for the state. All counties in Virginia except for Botetourt exceed the state poverty average for the state (27 percent); however, the other county poverty levels are not “meaningfully greater” than the low-income population for the state. The Proposed Action is not expected to result in disproportionate negative environmental effects for low-income populations because no effects on sales volume, income, employment, or population would be expected. In addition, military airspace has not been shown to affect the economic values beneath it. There are no counties in West Virginia or Virginia that exceed the state minority average (8 percent and 37 percent, respectively). Data reviewed indicates that counties underlying the proposed Evers MOA expansion and modification do not present an above average presence of environmental justice populations.

There would be no effects on sales volume, income, employment, or population due to the Proposed Action. No effects to Socioeconomics, Environmental Justice, Environmental Health and Safety Risks would occur under the Proposed Action; therefore, these resource areas were not carried forward for detailed analysis in this EA.

Natural Resources and Energy Supply. The Proposed Action would not involve extractive activities or changes in the energy supply; therefore, Natural Resources and Energy Supply was not carried forward for detailed analysis in this EA.

Visual Effects. The Proposed Action would have negligible effects on visual features. There would be no construction or infrastructure development associated with the Proposed Action, and no changes to the visual or aesthetic characteristics of any area. Aircraft would not create condensation trails within the proposed Evers MOA, as the aircraft would not operate above 25,000 ft AGL the minimum altitude normally required to produce them. All existing visual features would remain consistent with existing conditions. These effects would be negligible; therefore, Visual Effects was not carried forward for detailed analysis in this EA.

Water Resources. No construction activities or other ground-based activities would occur under the Proposed Action, and its implementation would not cause any disturbance of surface water or groundwater resources; including wetlands, floodplains, surface waters, groundwater, or wild and scenic rivers. Therefore, Water Resources was not carried forward for detailed analysis in this EA.

1.6 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

As directed by guidelines in NEPA, CEQ regulations, and 32 CFR 989, the description of the affected environment focuses on those resource areas potentially subject to impacts and should be commensurate with the anticipated level of environmental impact. After preliminary analyses of resources as prescribed by FAA Order 1050.1F and other NGB requirements, the following resource areas will be carried forward for further analysis in the EA due to the potential for direct, indirect, or cumulative effects:

Airspace Management. Detailed descriptions of the affected environment and analysis of the environmental consequences associated with Airspace Management including airspace safety are in Section 3.1 of the EA.

Noise. Detailed descriptions of the affected environment and analysis of the environmental consequences associated with Noise are in Section 3.2 of the EA.

Biological Resources. Detailed descriptions of the affected environment and analysis of the environmental consequences associated with Biological Resources including Bird Aircraft Strike Hazard safety considerations are in Section 3.3 of the EA.

Cultural Resources. Detailed descriptions of the affected environment and analysis of the environmental consequences associated with Cultural Resources are in Section 3.4 of the EA.

Land Use. Detailed descriptions of the affected environment and analysis of the environmental consequences associated with Land Uses are in Section 3.5 of the EA.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This section presents a detailed description of the Proposed Action, including the requirement to provide an integrated, year-round, realistic training environment in accordance with F-16C RAP and AFI 11-2F-16V1 training requirements. The details of the Proposed Action form the basis for the analyses of potential environmental effects presented in Section 3 of the EA. This section includes a discussion of alternatives considered but dismissed from further analysis, as well as the No Action Alternative. No viable alternatives to the Proposed Action were identified.

2.1 SELECTION CRITERIA

The current airspace limitations of the Evers MOA impede efficient military aircraft exercises. To allow for the required exercises, the proposed airspace must be of sufficient, contiguous size and altitude to train and prepare military aircrews for current and future conflicts in a realistic training environment. In addition, the airspace must be within F-16C average sortie duration range to accomplish 113 WG training requirements. The selection criteria are summarized below.

- Must be within a reasonable distance (200 miles) of the primary end-user
- Must provide an adequate size and shape for both air-to-air and air-to-ground training (i.e., 40 x 80 NM)
- Must have adequate availability to the primary end-user
- Must be controlled by a single ARTCC, due to unique topographic communication concerns

Without airspace that meets these selection criteria, exercising units would be severely constrained while trying to achieve their required training goals. Failure to create airspace of suitable dimensions will result in training shortfalls and negatively impact combat readiness and pilot safety. Training shortfalls result from not having the availability of a spatially viable combat training environment to qualify and maintain aircrew capabilities, preserve readiness, and ultimately achieve our national objectives.

2.2 PROPOSED ACTION

The proposed Evers MOA expansion and modification is in West Virginia and Virginia (Figures 2-1 and 2-2). The proposed MOA Complex is 80 NM north-south and 40 NM east west. The Proposed Action would expand beyond the lateral footprint of the current Evers MOA, subdivide this new airspace volume into five portions that increase Washington ARTCC's ability to accommodate civil operations, and establish three ATCAAs above the MOAs (Figure 2-2). The Evers East and Evers Low MOAs would be delineated within the existing Evers MOA. The northeast portion of the existing Evers MOA would no longer be under any MOA with the Proposed Action (Figure 2-1). The components of the Proposed Action include:

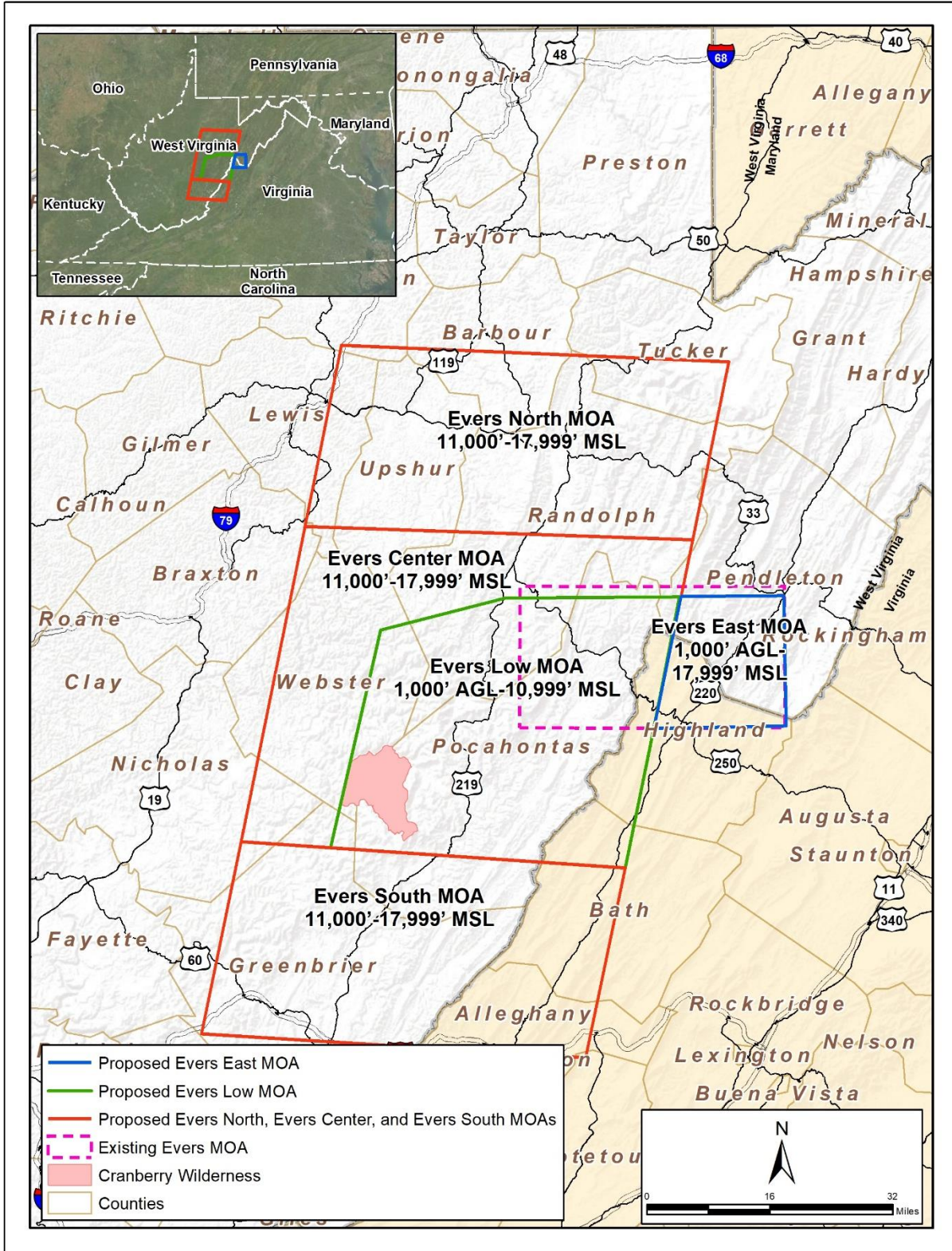


Figure 2-1. Proposed Evers MOA Complex

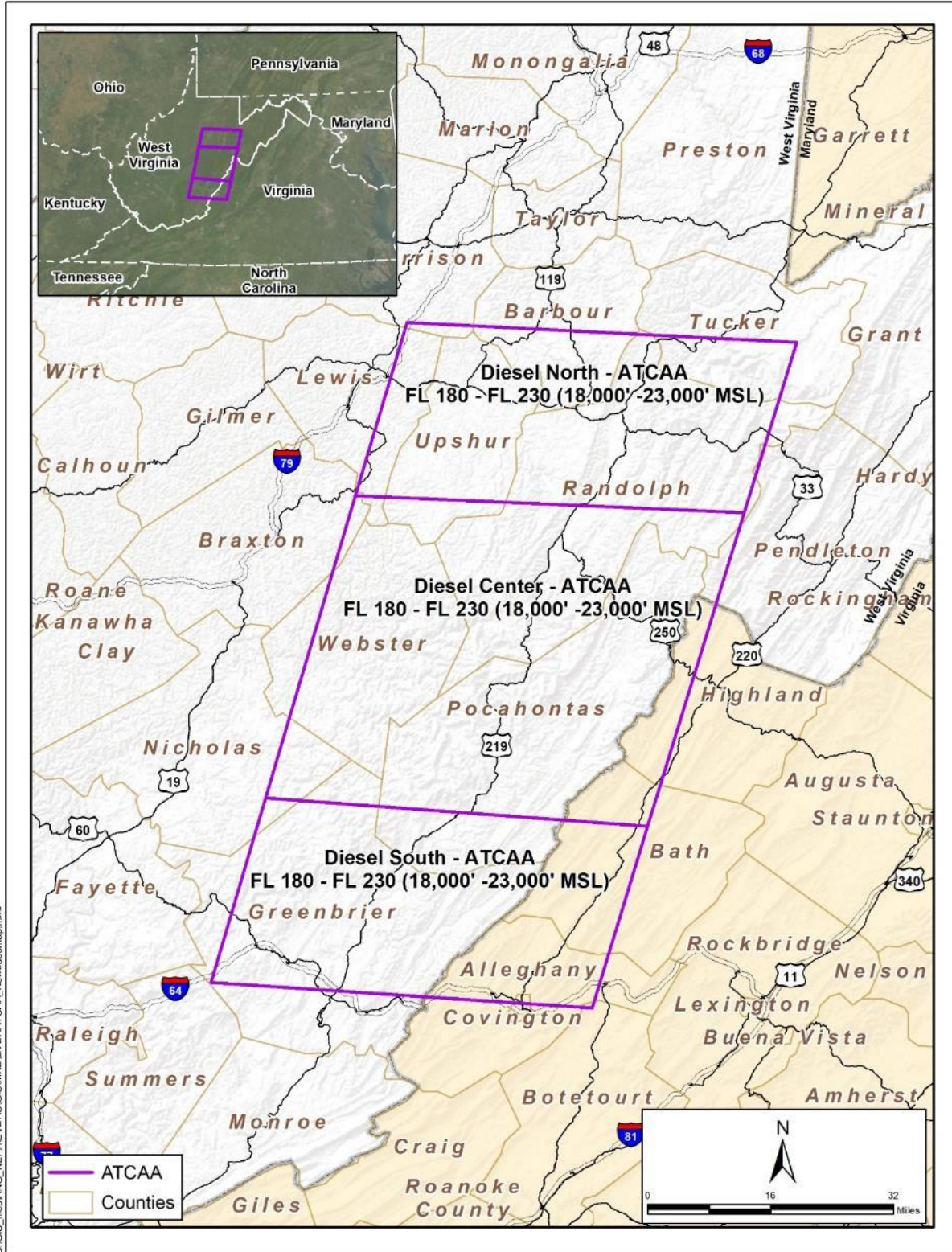


Figure 2-2. Proposed Air Traffic Controlled Assigned Airspaces

- Delineate new airspace
 - Evers North, Center and South MOAs (11,000 ft – 17,999 ft above MSL)
 - Evers Low MOA (1,000 ft AGL – 10,999 ft above MSL)
 - Evers East MOA (1,000 ft AGL – 17,999 ft above MSL)
- Create three ATCAAs
 - Diesel North, Center and South ATCAA (Flight Level [FL]180 – FL230 MSL)

The proposed Evers MOA Complex would occur over all or parts of the following West Virginia counties: Harrison, Barbour, Tucker, Pendleton, Lewis, Upshur, Randolph, Braxton, Webster, Pocahontas, Nicholas, and Greenbrier. In addition, parts of the following Virginia counties would underlie the proposed expansion and modification: Highland, Alleghany, Bath, and Botetourt. The landscape of West Virginia is rugged, as the Appalachian Mountain system passes from north to south through the state. The elevation within the proposed Evers MOA complex is approximately 2,100 ft above MSL in the lowest valleys to the highest point (Spruce Knob in Pendleton County) in West Virginia at 4,863 ft above MSL. Therefore, the proposed low airspace would rise and fall according to surface elevation to remain at least 1,000 ft AGL (i.e., approximately 3,100 ft above MSL at the lowest point).



This view shows the variable terrain beneath the southeast corner of the proposed Evers Low MOA beginning at 1,000 ft AGL.

The lowest portions would begin at 1,000 ft AGL and continue to 17,999 ft above MSL. The proposed MOA Complex would include three ATCAAs above the proposed MOAs extending up to FL 230 (23,000 ft AGL) (Figure 2-3).

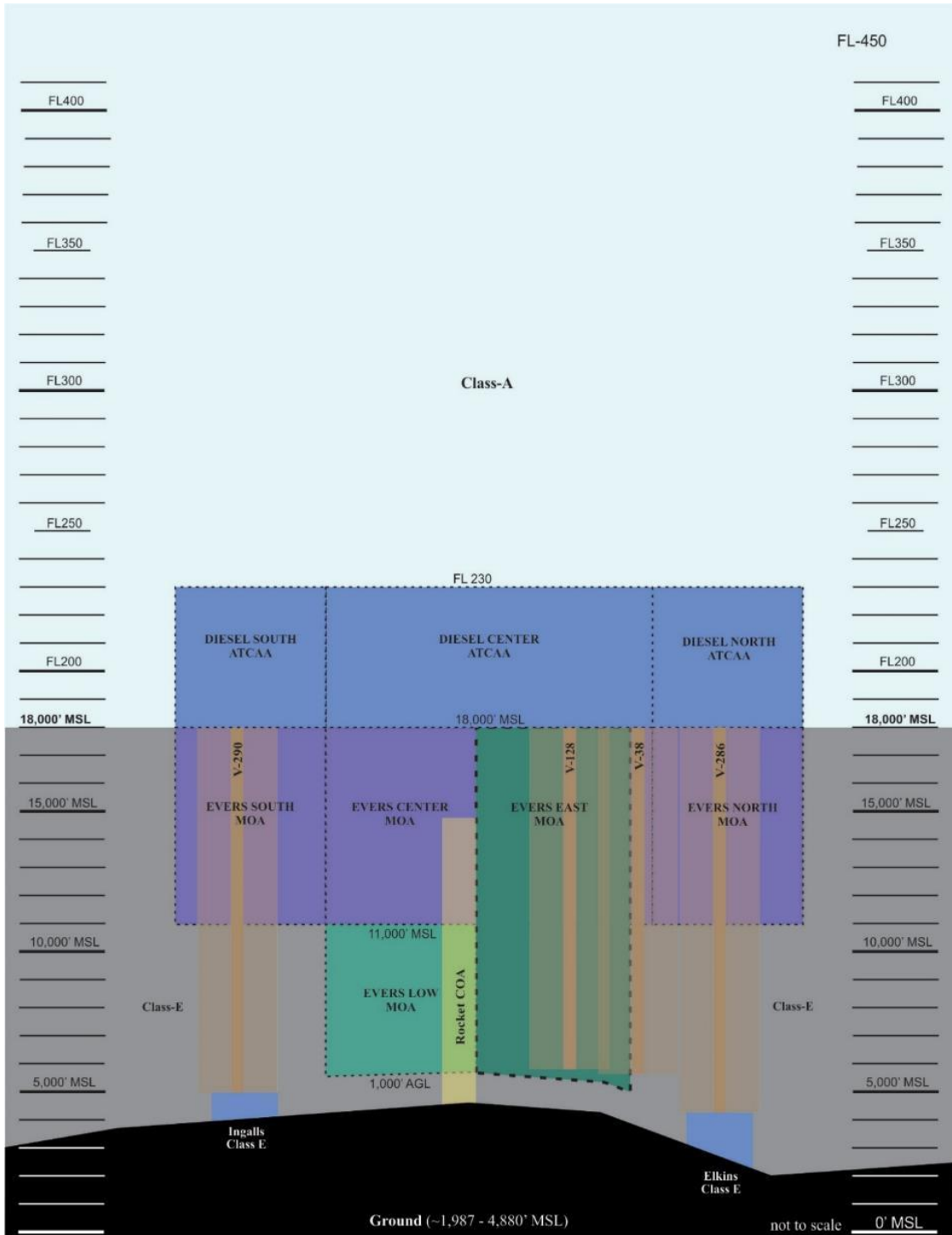


Figure 2-3. Cross-Section of Proposed Modification and Addition of Evers MOA

Under the Proposed Action, there would be no infrastructure changes, no ground-disturbing activities, no supersonic flight activities, no release of chaff and flares, no weapons firing, and no ordnance deployment within the proposed airspace.

The proposed expansion and modification of the Evers MOA would create for USAF aircraft an additional tactically diverse and valuable over land training environment on the eastern seaboard. The proposed shape and depth would allow fighter and cargo units to simulate weapons and stores delivery at both low and medium altitudes while targeting and being targeted, at a realistic range, from surface and air threats. The proposed expansion was conceived and built in coordination with FAA representatives to minimize civilian air traffic encroachment and conflict while maintaining the boundaries within a single air traffic controlling center. Through coordination with the Washington ARTCC, the subsections of the proposed MOAs and ATCAAs could be activated or deactivated as needed and distinguishable for aircrew adherence.

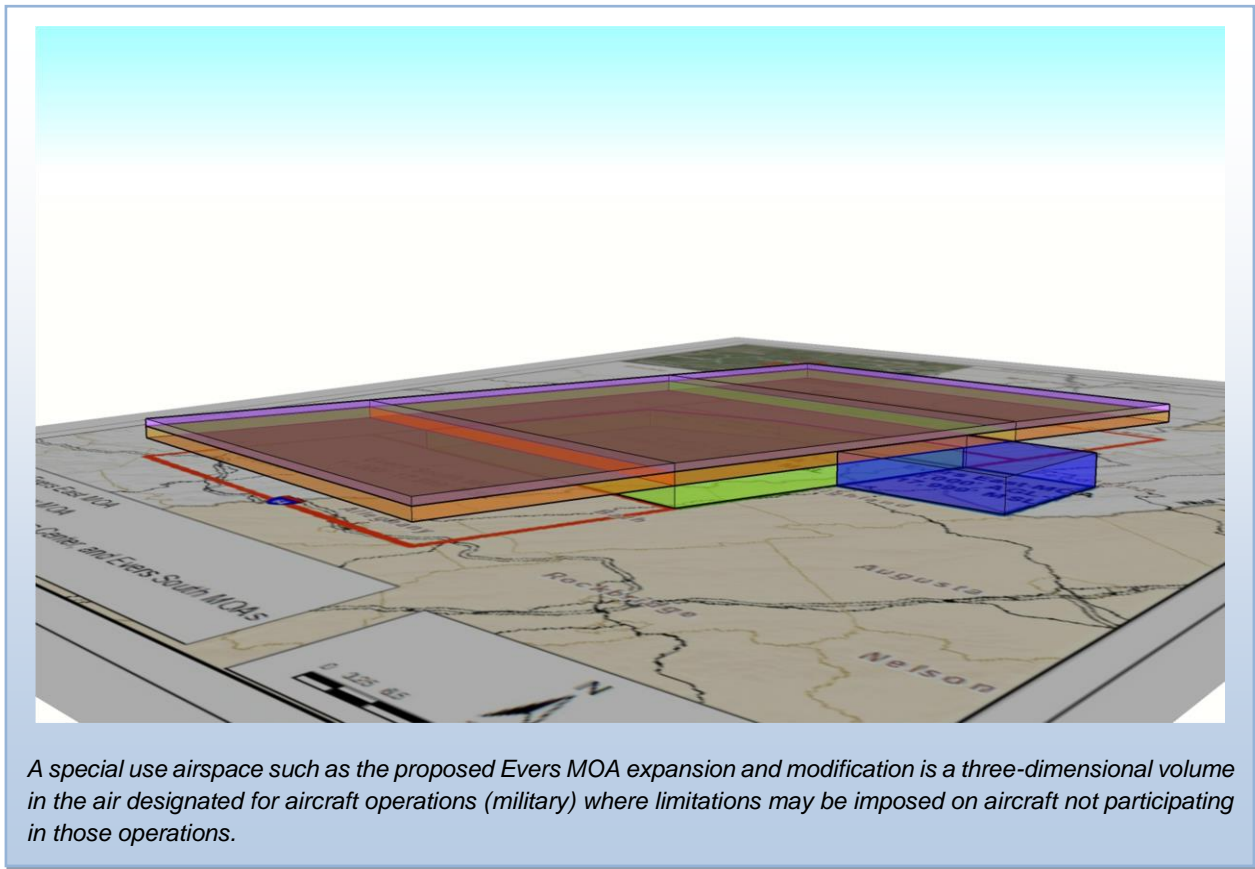


Table 2-1 provides the vertical limits and the charted times of use of the proposed SUA components. The lateral coordinates of the proposed airspace are presented in Appendix C.

Table 2-1. Vertical Limits and Charted Times of Use of Proposed Airspace

Airspace	Low-Level (1,000' AGL – 10,999' MSL)	Mid-Level (11,000' – 17,999' MSL)	ATCAA Level (FL180-FL230)	Charted Use
Evers North MOA		•		Sunrise to Sunset Daily Other times by Notice to Airmen (NOTAM)
Evers Center MOA		•		
Evers South MOA		•		
Evers Low MOA	•			
Evers East MOA	•	•		
Diesel North ATCAA			•	
Diesel Center ATCAA			•	
Diesel South ATCAA			•	

Note: There would be no operations conducted in the proposed SUA between 10:00 p.m. and 7:00 a.m.

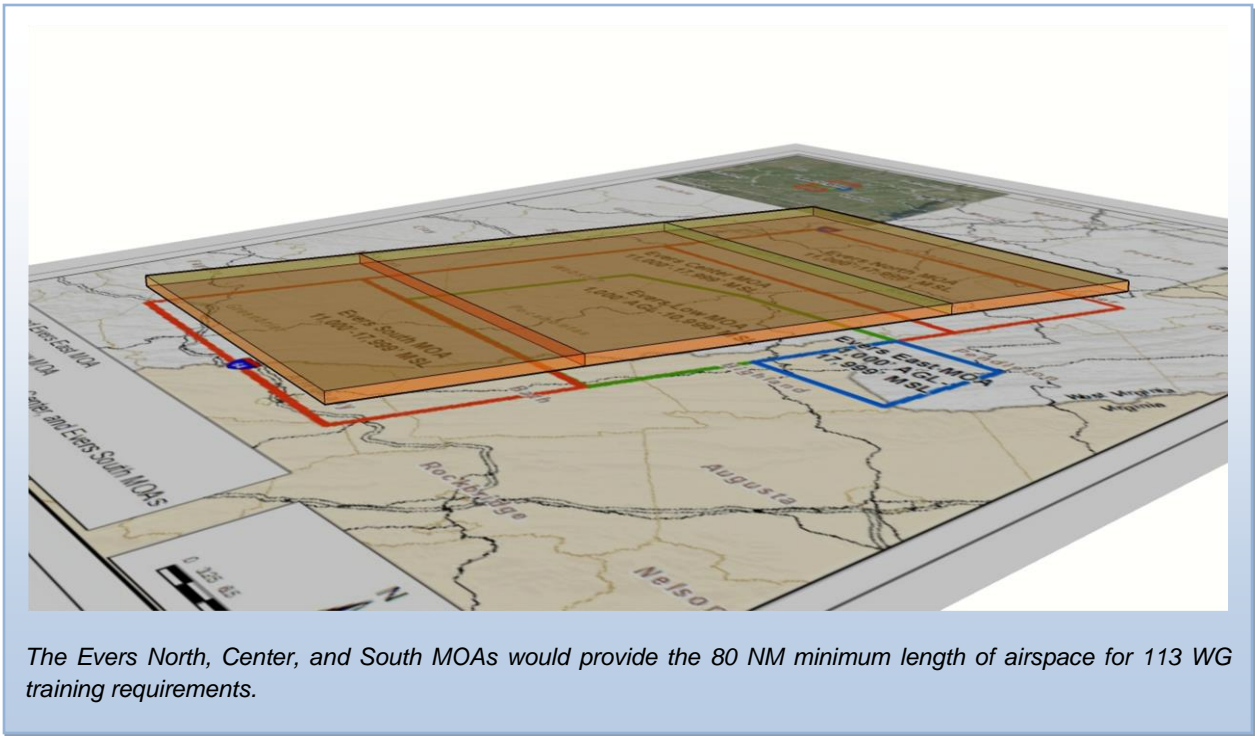
As noted in Table 2-1, the charted use of the proposed airspace would be sunrise to sunset and other times by NOTAM. As outlined in Section 3.1.2.3, there is existing military air traffic on MTRs throughout the areas beneath the existing and proposed Evers MOAs (see Figure 3-5). These air operations are both lower to the ground, more frequent, and along designated routes. These activities are not under the direct control of the 113WG and would not change under the Proposed Action.

2.2.1 Evers North MOA and Evers South MOA

Evers North and South MOAs are 25 x 40 NM areas on either side of Evers Center MOA. Each area can be combined with Evers Center to enable a 55 to 80 NM intercept range for air-to-air training or used individually as a 25 NM holding/marshalling area (Figure 2-1). The Evers North and South MOAs would begin at 11,000 ft above MSL and extend to 17,999 ft above MSL. The proposed North and South MOAs are deconflicted with the FAA air traffic control routes in a northeasterly-southeasterly direction with 20 NM length x 40 NM width dimensions.

2.2.2 Evers Center MOA

The Evers Center MOA would have the same northeasterly-southeasterly orientation as the Evers North and South MOAs for contiguous airspace and have the same vertical limits of 11,000 ft above MSL to 17,999 ft above MSL (Figure 2-1). The dimensions would be 40 x 40 NM.

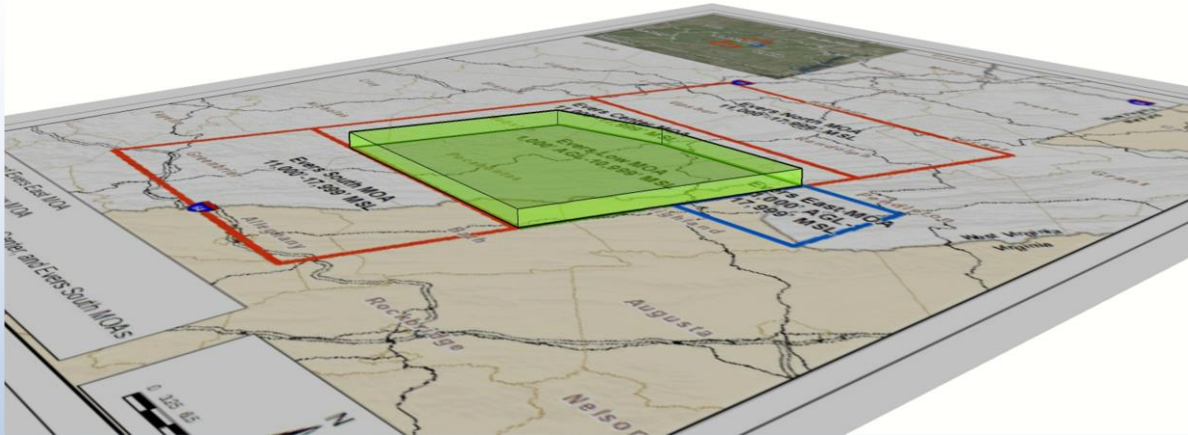


2.2.3 Evers Low MOA

The proposed Evers Low MOA would be under the proposed Evers Center MOA, but with reduced north and west boundaries such that north-south and east-west transit corridors remain and allow traffic flow departing or recovering from civilian airfields (Figure 2-1). The Evers Low MOA would be geographically located to isolate low altitude training over sparsely populated areas and offset from civilian air traffic. The northern boundary and northeast corner of the proposed Evers Low MOA would be relocated to provide a 3-mile buffer from the southern boundary of the Clarksburg Airport Radar Approach Control area. The buffer would eliminate the need for redundant control coordination between Washington ARTCC and Clarksburg Airport.

As shown in Figure 2-1, the Cranberry Wilderness Area is beneath the southwest corner of the proposed Evers Low MOA. As part of the Proposed Action and incorporated into flight guidance, aircraft operations over the Cranberry Wilderness Area would be conducted at least 2,000 ft AGL.

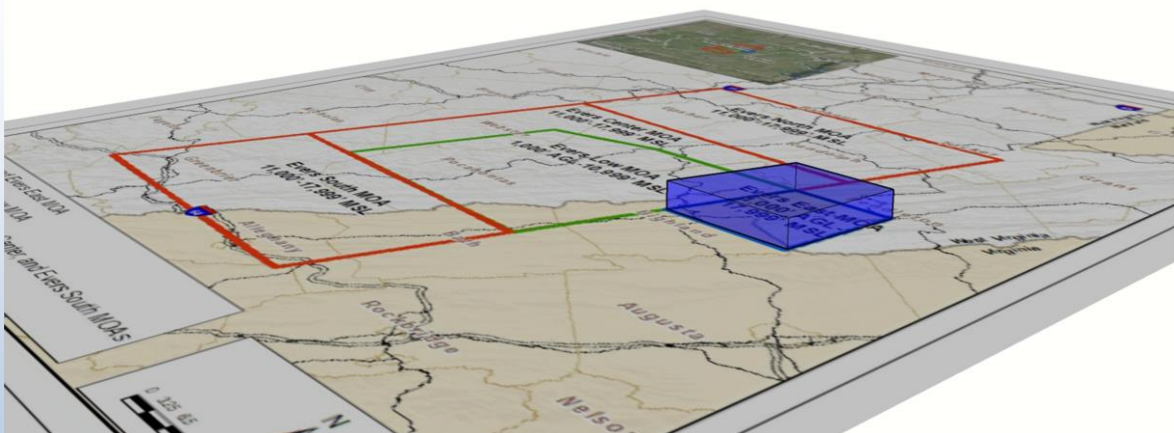
The Proposed Action would spread the air operations in the existing Evers MOA (634 square miles) to the larger Evers Low MOA (1,270 square miles). The air operations above 10,999 ft MSL in the existing Evers MOA would be spread to the much larger Evers Center MOA. Even though the number of sorties and total time in the MOA Complex will increase by about 50 percent, the percentage of High-Altitude use will increase so as to leave the total amount of time of activity in Low-Altitude relatively unchanged (see Table 2-3).



The Evers Low MOA would begin at 1,000 ft AGL and join the Center MOA at 10,999 ft above MSL.

2.2.4 Evers East MOA

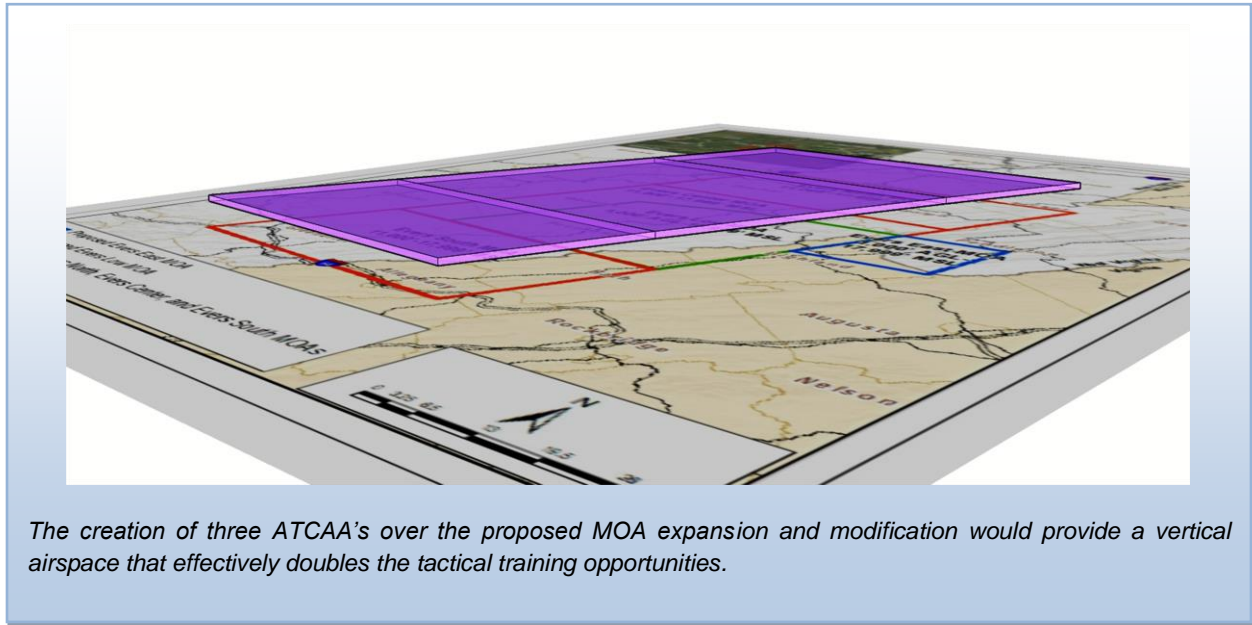
The proposed Evers East MOA would be approximately half the size in lateral dimensions of the existing Evers MOA (Figure 2-1). Establishment of the Evers East MOA would not constitute an appreciable change to the vertical or lateral boundaries when compared to the existing Evers MOA. As stated above for the Evers Low MOA, the air operations in the existing Evers MOA would be spread to the larger Evers Low MOA and the much larger Evers Center MOA.



The Evers East MOA would maintain the vertical dimensions of 1,000 ft AGL to 17,999 ft above MSL.

2.2.5 Diesel ATCAAs (North, Center and South)

The proposed Diesel North, Center, and South ATCAAs would overlay the lateral boundaries of the Evers North, Center, and South MOAs (Figure 2-2), beginning at 18,000 ft above MSL and extending to 23,000 ft above MSL. According to FAA coordination, the proposed ATCAAs would be altitude de-conflicted with terminal arrivals while providing maximum weapon simulations at the designated altitudes.



2.2.6 Aircraft Operations

The 113th WG operates the F-16C, which is a multi-role fighter platform currently in service. Operational activities would consist of MOA flight operations to include tactical combat maneuvering with abrupt, unpredictable changes in altitude and direction of flight. As authorized by FAA (Exemption No. 7960I), night vision goggle lights-out training may be conducted in the Evers MOA. The Evers MOA modification does not create a unique situation that would increase the level of risk to flight safety beyond that which already exists for where lights out training is approved. The FAA concurred (Appendix A) with the USAF assessment of the risk associated with night vision goggle lights-out training to be minimal. The F-16C aircraft operations are defined in Table 2-2.

Table 2-2. Aircraft Operations Defined

Aircraft Operation	Definition
Defensive Counter Air (DCA)	The objective of DCA is to protect friendly forces and vital interests from enemy air and missile attacks and is synonymous with air defense.
Offensive Counter Air – Attack Operations (OCA-AO)	Air-to-ground weapons employment against adversary aircraft and integrated air defense systems.
Combat Search and Rescue (CSAR)	Operations that are carried out within or near combat zones by a task force of helicopters, ground-attack aircraft, aerial refueling tankers and an airborne command post.
Close Air Support (CAS)	Aircraft operations with strike capabilities in support of ground maneuver operations.
Forward Air Control-Airborne (FAC-A)	Aircraft engaged in close air support of ground troops. The FAC-A is normally an airborne extension of the tactical air control party.
Air Interdiction (AI)	Aircraft operations to effect visual or electronic contact by a friendly aircraft with another aircraft.

2.2.6.1 Other Expected Users

Other expected users of the Evers MOA Complex that are included in the Proposed Action include the 175th Wing (175 WG), Maryland Air National Guard (MD ANG) flying A-10Cs, the 1st Fighter Wing (1 FW), Langley AFB, VA, flying F-22s and T-38s, the 4th Fighter Wing (4 FW), Seymour Johnson AFB, NC, flying F-15Es, and the 167th Airlift Wing (167 AW) flying C-17s and the 130th Airlift Wing (130 AW) flying C-130s both from the West Virginia Air National Guard. Other military users (for example U.S. Navy) could participate in exercises hosted by any of the expected users.

The federal mission of the 175 WG is to maintain combat forces ready for mobilization, deployment, and employment as needed to support national security objectives; its mission during peacetime has the combat-ready unit assigned to ACC. The 1 FW’s mission is to rapidly deploy combat ready F-22 aircraft and airmen to perform air dominance and air defense missions in support of all U.S. operations. The 1 FW’s T-38s provide professional adversary air support to enhance the F-22 combat capability. The 4 FW’s F-15E mission is to be prepared to deploy anywhere in the world on short notice and deliver an array of air-to-ground weapons. The 167 AW operate C-17s to deliver people and equipment to locations around the globe. The 130 AW’s

mission is to deploy a force capable of conducting effective and sustained C-130 combat airlift operations in support in support of the USAF and the State of West Virginia.

2.2.6.2 Air Operations

The overall aircraft utilization phased in over time within the proposed airspace is presented in Table 2-3. The data are grouped into low level (below 11,000 ft above MSL), and mid-level (11,000 to 17,999 ft above MSL) to represent the limits of the MOA. Flight operations could include aircraft diving to 1,000 ft AGL for a small amount of time and then returning to higher altitudes. High-level (above 17,999 ft MSL) represents ATCAA use. Aircraft operating under the Proposed Action would remain 1,000 ft AGL and above.

Table 2-3. Air Operations - Existing and Proposed Action

Aircraft	Annual Usage				Individual Mission Parameters				
	Time in SUA (hours)	Number of Training Missions	Single Aircraft Sorties	Percentage of Operations in Busiest Month	Average Number of Aircraft Per Mission	Time at Altitude (minutes/sortie)			
						Low-Altitude	Mid-Altitude	High-Altitude	
Existing Operations									
F-16	109	194	485	20%	2.5	16.9	16.9	-	-
F-15E	40	52	192	15%	4.0	15.0	5.0	-	-
F-22	40	119	357	20%	3.0	3.0	17.0	-	-
T-38A	36	63	189	20%	3.0	5.1	28.9	-	-
A-10C	21	41	82	37%	2.0	15.0	15.0	-	-
Total/Average	245	469	1,305		2.5	11.0	16.6		
Proposed Operations									
F-16	136	243	606	20%	2.5	10.1	10.1	13.5	-
F-15E	88	120	480	15%	4.0	13.2	13.2	17.6	-
F-22	40	119	357	20%	3.0	3.0	12.0	5.0	-
T-38A	36	63	189	20%	3.0	5.1	20.4	8.5	-
A-10C	21	41	82	37%	2.0	11.3	9.4	9.4	-
C-17	25	25	25	8%	1.0	15.0	15.0	30.0	-
C-130	20	40	80	15%	2.0	22.5	6.0	1.5	-
Total/Average	365	651	1,819		2.5	11.4	12.3	12.2	

Low Altitude = 1,000 ft AGL – 10,999 ft MSL. Mid-Altitude = 11,000 ft – 17,999 ft MSL. High Altitude = FL180 – FL230.

2.3 ALTERNATIVES DISMISSED FROM FURTHER ANALYSIS

Modification of the Duke MOA located in Pennsylvania and New York was considered as an alternative but dismissed from further analysis. The distance, shape and size are incompatible with 113WG's/F-16C training requirements; the Duke MOA is more than 200 miles from the farthest end user, trapezoidal shape, and approximately 38 x 43 NM in size. The Duke MOA is appreciably farther and smaller than the proposed Evers MOAs. The lateral confines of the Duke MOA do not allow for effective tactical intercept training critical to the 113 WG F-16 Airspace Control Alert mission. In addition, the Duke MOA is incompatible with training that is essential for CMR. This alternative would not (1) be within 200 miles of the primary end-user or (2) establish a 40 x 80

NM airspace. This alternative does not meet the purpose and need of the Proposed Action or the single ARTCC criterion; therefore, it will not be carried forward for detailed analysis in the EA.

Creation of a new stand-alone MOA within 200 miles of Joint Base Andrews was considered as an alternative that would allow full spectrum air-to-air and air-to-ground training but dismissed from further analysis because of the following factors. Factors considered were distance from Joint Base Andrews, established military airspace, airfields, park and recreation areas, agriculture areas, population centers, and expected population growth in areas. In coordination with FAA, the 113 WG determined that there was no uncongested airspace within the search area to create a new stand-alone MOA over land.

Continued use of Patuxent River R4006 was considered as an alternative but was dismissed from further analysis. R4006 has historically been used for 113 WG training requirements that did not require over-land training. However, the 113 WG does not have priority for airspace use and due to airspace requirements of the host-user (Navy P-8s, F-35s, etc.), it does not have predictable availability for the 113 WG. In addition, R4006 is predominantly over water, making it unrealistic as a training area for the 113 WG.

In addition to the above-mentioned alternatives, the 113 WG has investigated the use of other airspaces to complete their training such as the use of existing RAs, warning areas, MTRs, and other larger airspaces further away. These are described briefly below, but as none of these options meet the purpose and need of the Proposed Action, they will not be carried forward for detailed analysis in the EA.

- Air combat maneuvering is prohibited in Fort Pickett, Virginia MOAs according to Chapter 6 of the Fort Pickett Range Regulation.
- Warning Areas (W-107/386) over the Atlantic Ocean are primarily used for unrestricted air-to-air training only. Neither W-107 or W-386 present valuable target replication for air-to-ground mission training because the absence of terrain features, moving vehicles, personnel, and surface roadways do not provide a realistic training scenario.
- MTRs limit dynamic tactical training because of the one-way construct and the limited widths of the route structures.
- Larger airspaces that meet 113 WG training requirements exist but are beyond the normal average sortie duration of the F-16C. Either dedicated fuel tanker support or off-station refueling operations would be needed to make use of the MOAs.

2.4 NO ACTION ALTERNATIVE

The CEQ regulation 40 CFR §1502.14(d) specifically requires analysis of the No Action Alternative in all NEPA documents. Current operations in the existing Evers MOA would continue

under the No Action Alternative. Under the No Action Alternative, the 113 WG would continue to experience training shortfalls that negatively impact combat readiness and pilot safety. Training shortfalls result from not having the availability of a spatially viable combat training environment to qualify and maintain aircrew capabilities, preserve readiness, and ultimately achieve our national objectives.

The No Action Alternative would not provide for compliance with F-16C RAP Tasking Memorandum and AFI 11-2F-16V1 continuing training program. In addition, the No Action Alternative would not meet the purpose and need.

2.5 SUMMARY

Table 2-4 presents a summary of the alternatives compared to the selection criteria. Only the Proposed Action meets all the selection criteria and it, along with the No Action Alternative, have been carried forward for detailed analysis in this EA.

Table 2-4. Summary of Alternatives

Selection Criteria	Proposed Expansion of Evers MOA	Modification of the Duke MOA	New Stand-Alone MOA	Patuxent River/R4006	No Action Alternative
Reasonable distance (200 miles) of primary end-user	Yes	No	No	Yes	No
Adequate size and shape (40 x 80 NM)	Yes	No	No	Yes	No
Adequate availability to the primary end-user	Yes	No	Yes	No	No
Controlled by a single ARTCC	Yes	No	Yes	Yes	No
Meets All Selection Criteria	Yes	No	No	No	No

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes relevant and existing environmental conditions for resources potentially affected by the Proposed Action. In compliance with NEPA, CEQ regulations, and AFI 32-7061, the assessment focuses only on resource areas subject to environmental effects. The affected environment and assessment of environmental consequences focuses on the modification and expansion of the Evers MOA Complex. The Region of Influence (ROI) includes all or parts of the following West Virginia counties: Harrison, Barbour, Tucker, Pendleton, Lewis, Upshur, Randolph, Braxton, Webster, Pocahontas, Nicholas, and Greenbrier. In addition, parts of the following Virginia counties underlie the proposed expansion and modification: Highland, Alleghany, Bath, and Botetourt. A brief discussion of resource areas with negligible environmental effects anticipated from implementation of the Proposed Action is presented in Section 1.5 *Resources Not Carried Forward for Detailed Analysis*.

3.1 AIRSPACE MANAGEMENT

3.1.1 Definition of Resource

Airspace is the four-dimensional area (space and time) that overlies a nation and falls under its jurisdiction. Airspace consists of both controlled and uncontrolled areas. Controlled airspace and the constructs that manage it are known as NAS. This system is "...a common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures; technical information; and manpower and material" (FAA 2015). Navigable airspace is airspace above the minimum altitudes of flight prescribed by Title 49, Subtitle VII, Part A, Air Commerce and Safety, and includes airspace needed to ensure the safety of aircraft launch, recovery, and transit of the NAS (49 U.S.C. 40102).

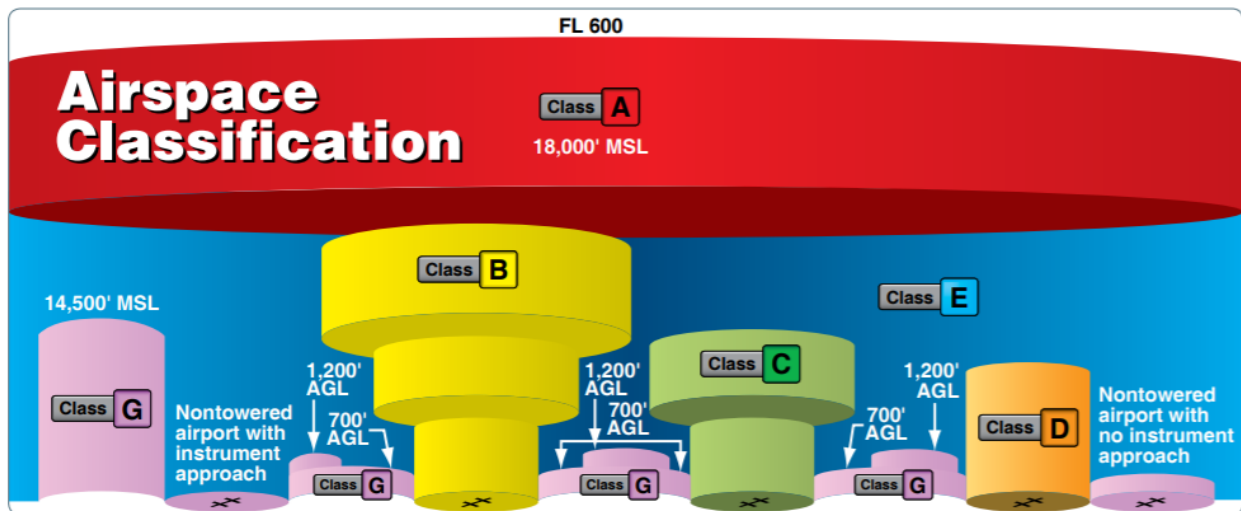
Congress has charged the FAA with the responsibility of developing plans and policies for the use of navigable airspace and assigning, by regulation or order, the use of the airspace necessary to ensure efficient use and the safety of aircraft (49 U.S.C. 40103(b)). The FAA also regulates military operations in the NAS through the implementation of FAA Order JO 7400.2M, Procedures for Handling Airspace Matters and FAA Order JO 7610.4T, Special Operations. FAA Order JO 7610.4T was jointly developed by the DOD and FAA to establish policy, criteria, and specific procedures for ATC planning, coordination, and services during defense activities and special military operations. The use and management of airspace by USAF organizations is defined in AFI 13-201 Air Force Airspace Management and AFI 11-214 Air Operations and Procedures.

Different classifications of airspace are defined by different types of altitude measurements. The classifications commonly referred to throughout this section are:

- Above Ground Level - The distance above ground level.
- Mean Sea Level - The altitude above mean sea level as defined by altimeter instrumentation.
- Flight Level (FL) - Altitudes expressed in hundreds of feet.

IFR and VFR are the two basic modes of flying. IFR is a method of air navigation that relies on instrumentation, and which is always under the direction of ATC. As aircraft launch at one airport, traverse the sky, and then land at a different airport, every movement is directed by the ATC. Control is transferred from one ATC to another as aircraft cross jurisdictional lines as designated by the FAA. VFR is a method of air navigation that relies primarily on visual reference for location and see-and-avoid techniques for safe separation of aircraft. VFR flying is subject to weather conditions.

Controlled airspace is a limited section of airspace where ATC is provided to IFR and VFR traffic. Controlled airspace classifications² include Classes A through E and Class-G (there is no Class-F) (Figure 3-1).



Source: Pilot's Handbook of Aeronautical Knowledge, Chapter 15 (FAA 2019b)

Figure 3-1. Airspace Classification Diagram

- Class-A airspace is from 18,000 ft above MSL up to and including FL 600. The airspace is dominated by commercial traffic using designated flight routes. Unless otherwise authorized, all pilots must operate their aircraft under IFR.
- Class-B airspace is from the surface to 10,000 ft above MSL surrounding the nation's busiest airports. Class B airspace is designed to contain all published instrument procedures

² https://aspmhelp.faa.gov/index.php/Airspace_Classification

once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. There is no Class B airspace in the state of West Virginia; the nearest Class B airspace is around Washington Dulles airport.

- Class-C airspace is from the surface to 4,000 ft above the MSL elevation surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. The airspace usually consists of a surface area with a 5 NM radius, an outer circle with a 10 NM radius that extends from 1,200 ft to 4,000 ft above the airport MSL elevation and an outer area. Each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. There is a Class-C airspace around the Charleston Yeager Airport in Charleston, WV approximately 55 NM west of the proposed SUA. Another exists at Roanoke Regional Airport in Roanoke, VA approximately 30 NM south of the proposed SUA. Further out is a Class-C airspace around Richard Byrd International Airport at Richmond, VA approximately 100 NM east of proposed SUA
- Class-D airspace is from the surface to 2,500 ft above the MSL elevation surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Unless otherwise authorized, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace.
- Class-E airspace is any controlled airspace that is not Class A, B, C, or D. It 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 will be configured to contain all instrument procedures. Also, in this class are federal airways, airspace beginning at either 700 or 1,200 ft AGL used to transition to and from the terminal or en route environment, and en route domestic and offshore airspace areas designated below 18,000 ft above MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 ft above MSL over the United States up to but not including 18,000 ft above MSL, and the airspace above FL 600.
- Class-G airspace that is not designated as Class A, B, C, D, or E. Class G airspace is essentially uncontrolled by ATC except when associated with a temporary control tower.

MOAs are airspaces established for separating certain military training activities from IFR traffic. IFR traffic may be cleared to pass through an active MOA if adequate IFR separation criteria can be met and procedures are described in a Letter of Agreement between the military unit and the

ATC controlling agency (FAA Order JO 7400.2). Non-participating VFR aircraft can operate in an active MOA while using see-and-avoid flight procedures to avoid military training activities. All MOAs and RAs are depicted on sectional charts identifying the exact area, the name of the airspace, altitudes of use, published hours of use, and the controlling agency. ATCAAs are uncharted airspace above 17,999 ft MSL that accommodate high-altitude military flight training. ATC routes IFR traffic around ATCAAs when activated.

3.1.2 Affected Environment

The existing Evers MOA (Figure 3-2) consists of a single MOA over mountainous terrain along the border between Virginia and West Virginia. The rectangular Evers MOAs is oriented approximately 18.4 NM north-south and 34.5 NM east-west. The ROI is an area extending 10 NM outside the MOAs and ATCAAs that make up the Proposed Action (Figure 3-2). The ROI encompasses activities in and around the Evers MOA Complex that would be affected by the Proposed Action.

3.1.2.1 Military Operations Area

The ROI includes the existing Evers MOA which extends from 1,000 ft AGL up to 17,999 ft above MSL. The airspace charted activation times are sunrise to sunset by NOTAM. It is 634 square miles over parts of Virginia and West Virginia. It lies entirely within and is controlled by the Washington ARTCC (Washington Center). The primary user organization is the 113 WG of the DCANG.

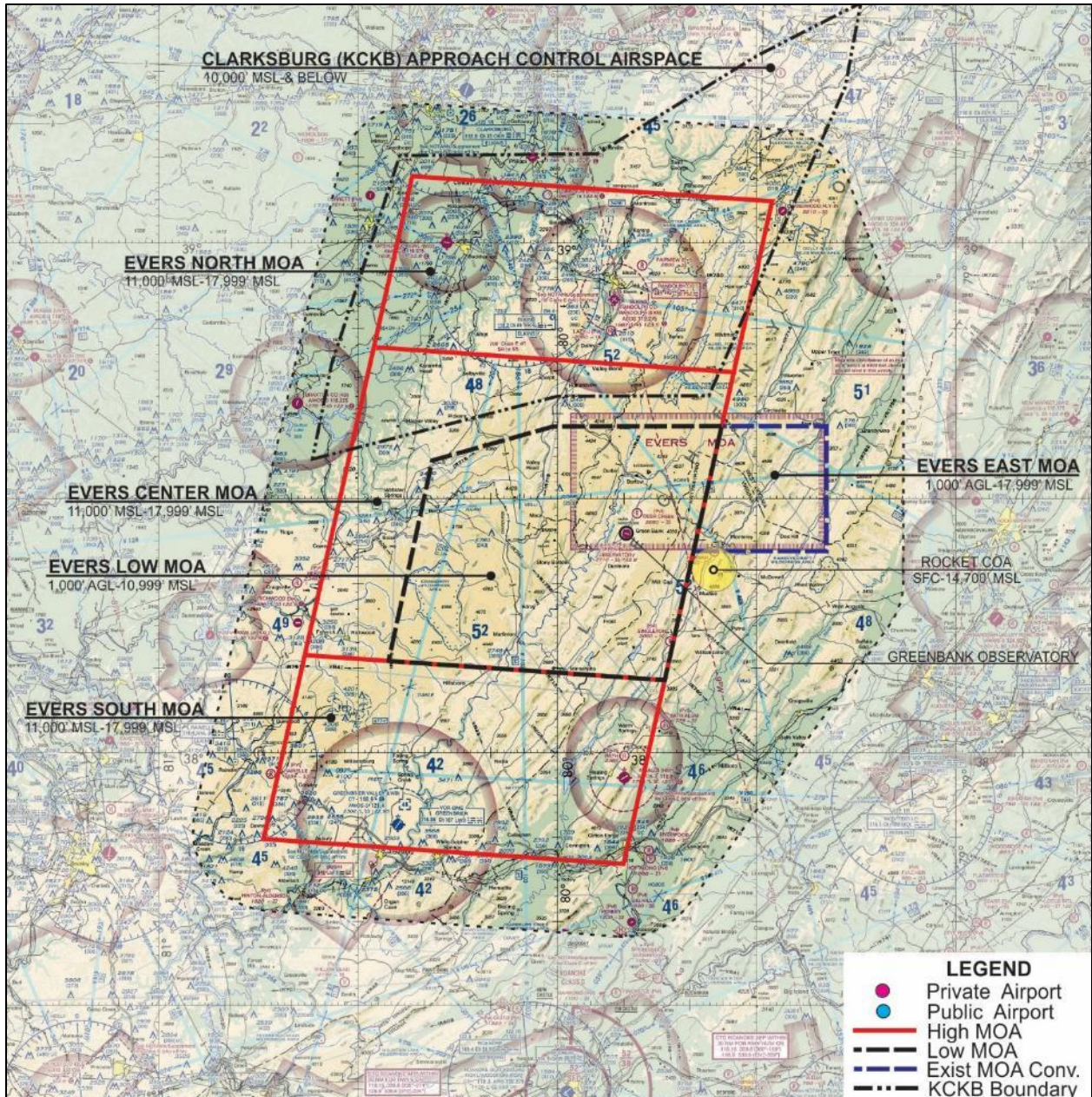


Figure 3-2. ROI with Existing and Proposed MOAs

3.1.2.2 Federal Air Corridors

Federal airways are linear routes that extend between navigational beacons which broadcast directional information allowing aircraft to maintain course along a route. Federal airways include low-altitude victor airways and high-altitude jet routes. Victor airways extend from 1,200 ft AGL to 18,000 ft above MSL in Class-E airspace. There are ten Victor airways that traverse the ROI. Three routes (V-38, V-128, and V-469) are charted through the existing Evers MOA (Figure 3-3). High-altitude commercial "J" routes and "Q" routes extend from FL180 to FL450 and provide a

more systematic flow of high-altitude air traffic. There are several commercial J-Routes and Q-Routes in the high IFR airspace that traverse the ROI (Figure 3-4). All the high-altitude routes are above the existing Evers MOA.

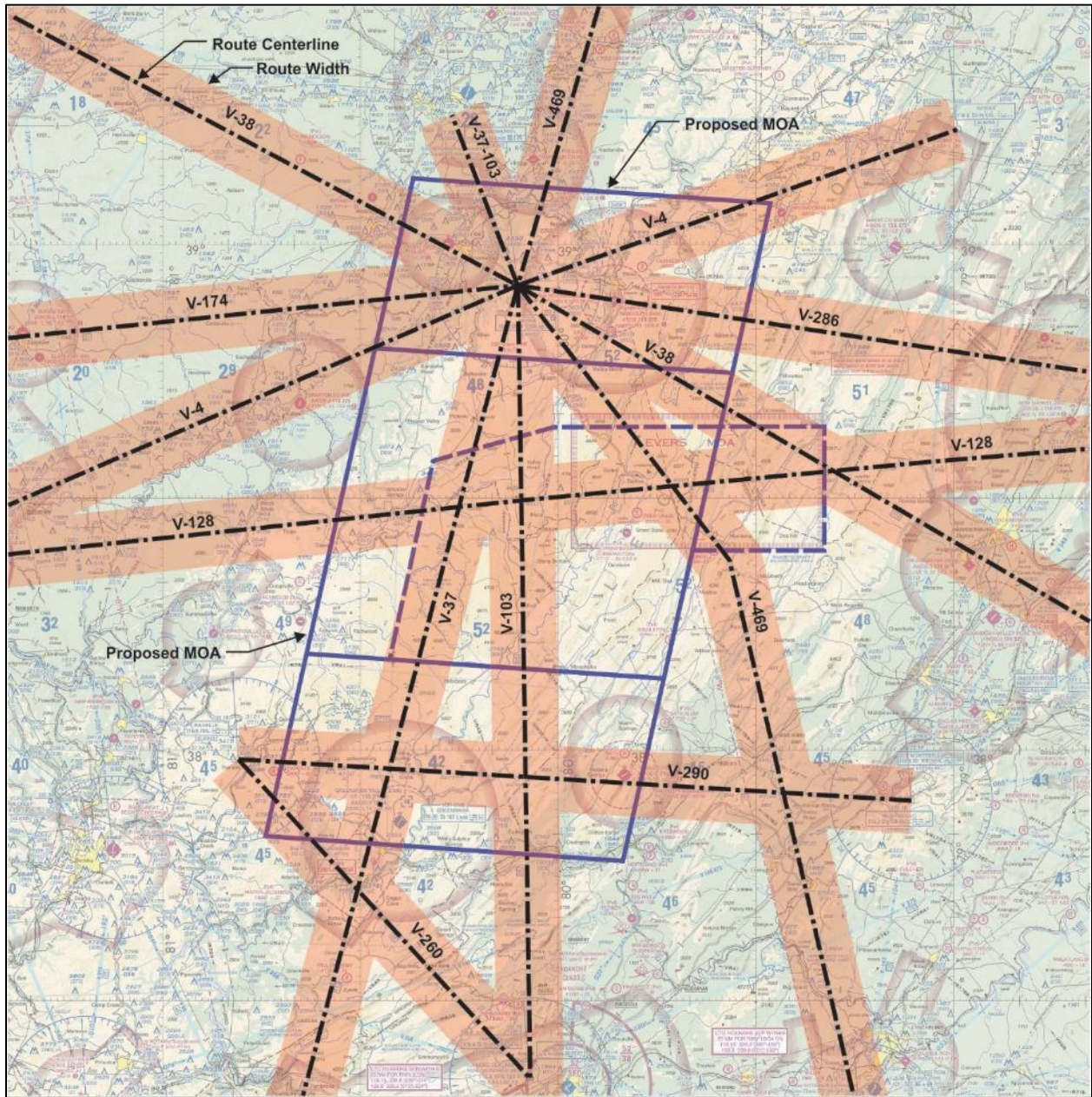


Figure 3-3. Low-Altitude Victor Routes in ROI

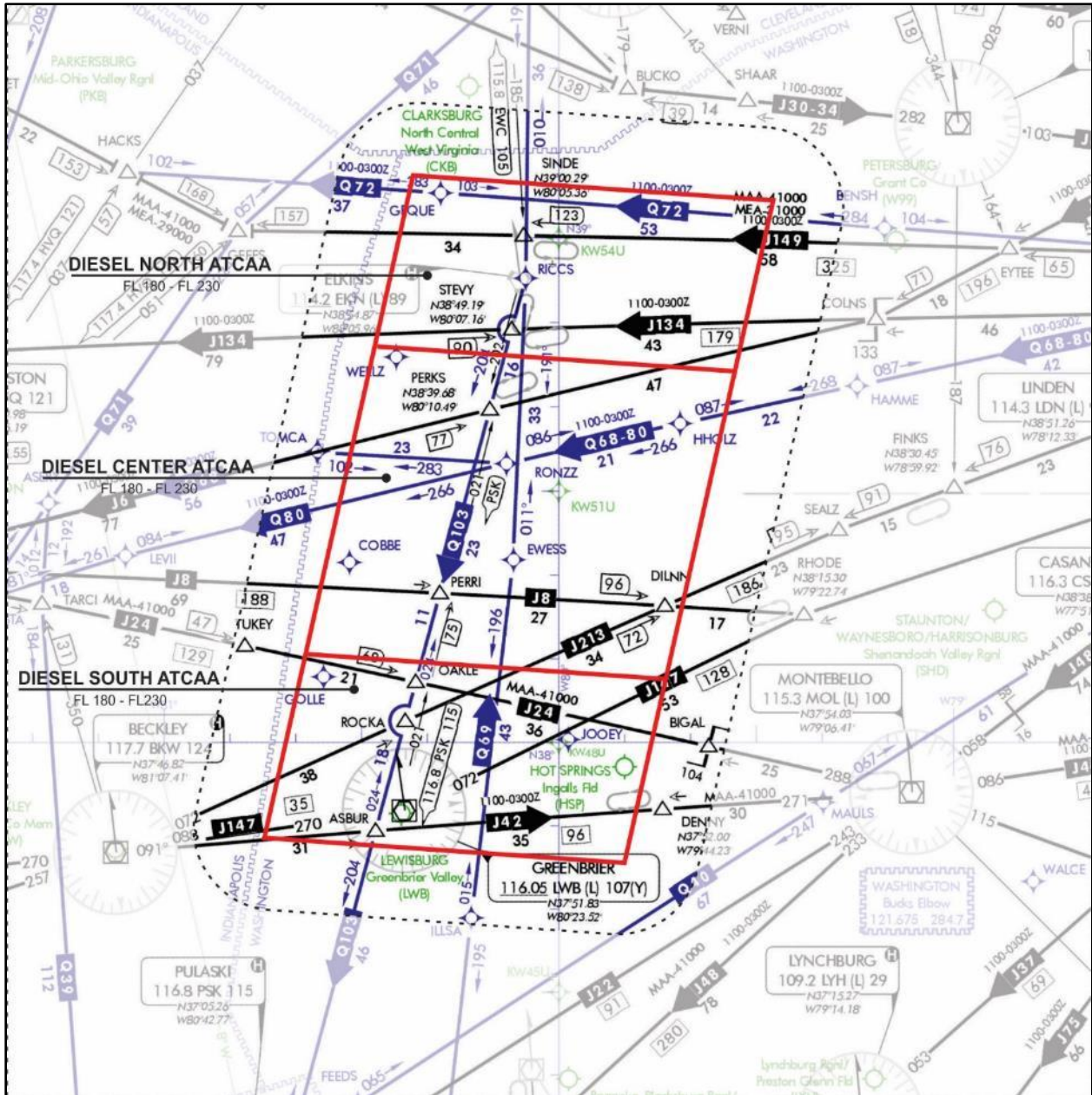


Figure 3-4. High-Level J & Q Air Routes in the ROI

3.1.2.3 Military Training Routes

There are several established MTRs used by the military for low-level training (Figure 3-5). MTRs are aerial corridors in which military aircraft can operate below 10,000 ft faster than the maximum safe speed of 250 knots that all other aircraft are restricted to while operating below 10,000 ft. MTRs are divided into Instrument Routes (IR), and Visual Route (VR). Each route is identified by either of these two letters, followed by either four digits for routes below 1,500 ft above ground

level, or three digits for routes extending for at least one leg above 1,500 ft AGL. (i.e., VR-1056). The difference between the IR and VR routes is that IR routes are flown under the control of ATC, while VR routes are not (FAA JO 7610.4V, Air Traffic Organization Policy).

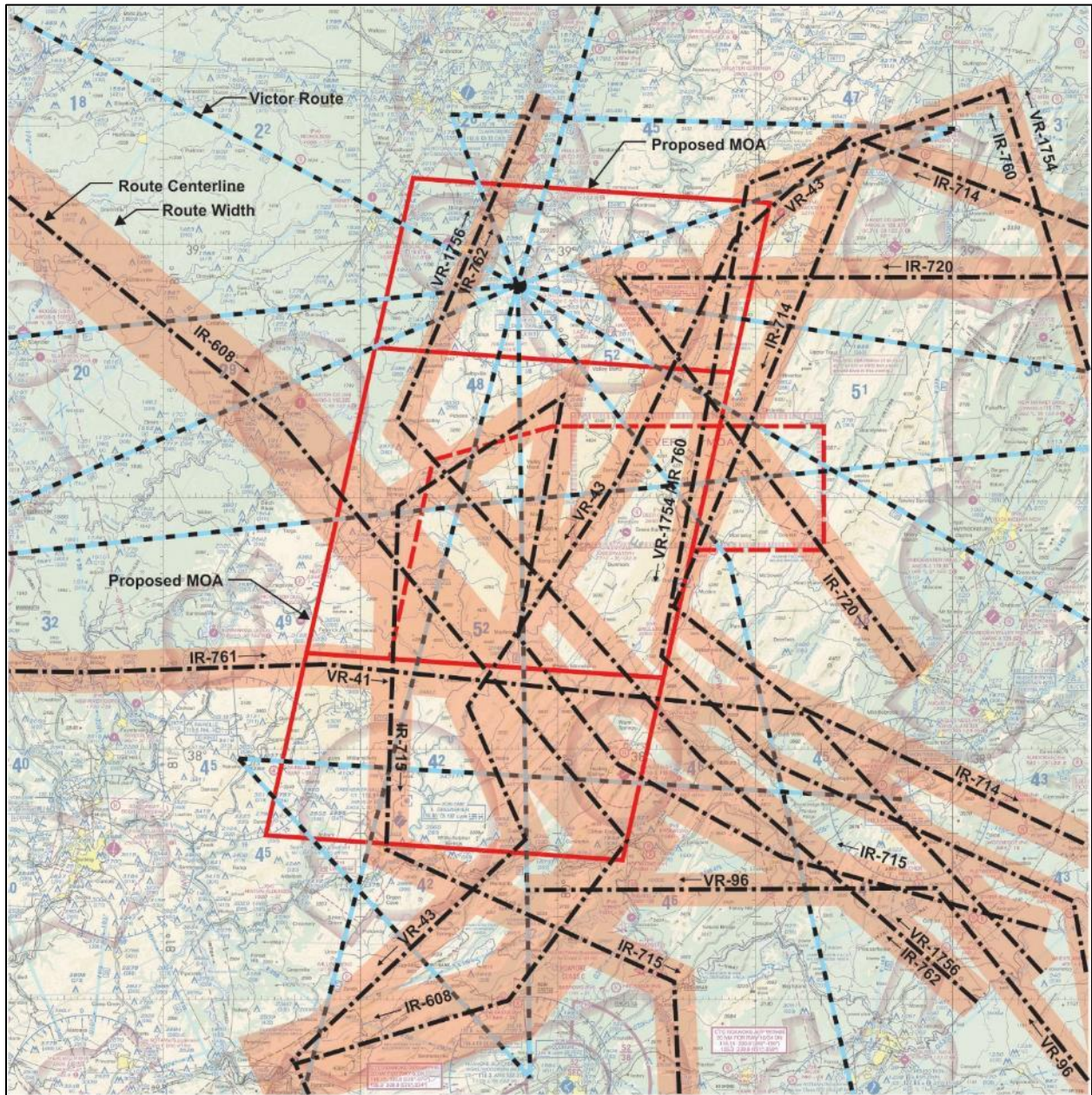


Figure 3-5. Low-Level Military Traffic Routes with Corridor Width

Several organizations in the area also use the airspace including those listed in Table 3-1, which includes all fiscal year 2018 usage numbers for all units. Table 3-1 identifies the characteristics

and annual usage of the MTRs in the ROI. There are seven IRs and four VRs in the ROI. VR-43 has 1,259 sorties per year, whereas all other MTRs have limited usage.

Table 3-1. Military Training Route Characteristics

Route	Width (NM)	Altitude	Usage (# Sorties 3Yr Average)	Scheduling Agency ¹
IR 608	20	9,000 MSL-10,000 MSL	0	NAS
IR 714	G-H: 3L&5R/H-I: 10	G-H: SFC-6,000 MSL/I: 6,000	NA-	Oceana
IR 715	10	8,000 MSL	1	Oceana
IR 720	10	7,000 MSL-8,000 MSL	0	Oceana
IR 760	6	SFC-6,000 MSL	0	Oceana
IR 761	10	6,000 MSL-7,000 MSL	13	Oceana
IR 762	B-C: 10/C-D: 5R&2L	B-C:7,000 MSL/D:6,000 MSL	17	Oceana
VR 41	I-J:10/J-K: 5L&4R	500 AGL 10,500 MSL	127	Seymour
VR 43	10	100 AGL-10,500 MSL	1,259	Seymour
VR-1754	6	G:500-1500 AGL/H-I: SFC-	101	Oceana
VR 1756	2L&1R	SFC-1,500 AGL	39	Oceana

¹ Seymour=Seymour Johnson AFB, Oceana=Naval Air Station Oceana, NAS=Naval Air Station Pensacola

Military operations occur below the proposed airspace and are attributable to MTR activities that are conducted separately from this airspace proposal. Aircraft operating under the Proposed Action would remain 1,000 ft AGL and above. As indicated above, there is existing military air traffic on MTRs throughout the areas beneath the existing and proposed Evers MOAs. These air operations are both lower to the ground, more frequent, and along designated routes. These activities are not under the direct control of the 113WG and would not change under the Proposed Action.

3.1.2.4 Existing Aircraft

Aircraft in the region are tracked in the Performance Data and Reporting System (PDARS). This data includes Victor route flights, military air operations, and all aircraft with active transponders. The tracks depicted are all the transits, both military and commercial/civilian as provided by FAA. Table 3-2 outlines the total annual number of aircraft that fly through the proposed airspace. In 2018, 13,881 aircraft flew through the airspace which encompasses the proposed Evers North, Center and South MOAs combined. During the same period, 4,492 aircraft flew through the airspace of the proposed Evers Low MOA. It is estimated that 5 percent of the individual flights entered both the proposed high and low airspaces. Approximately 5,911 of the total non-military flights would be VFR and 8,866 would be IFR (FAA 2018). Figures 3-6 and 3-7 show the existing flight tracks for 2018 overlaid on the proposed MOAs and the existing Evers MOA.

Table 3-2. Annual Aircraft in the Airspace

Altitude Block	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
High	803	732	858	1,077	1,259	1,348	1,373	1,454	1,326	1,436	1,179	966	13,811
Low	258	191	260	426	426	530	522	463	353	437	344	282	4,492

High Altitude Block is 11,000 ft above MSL – 17,999 ft above MSL.
 Low Altitude Block is Surface to 10,999 ft above MSL.

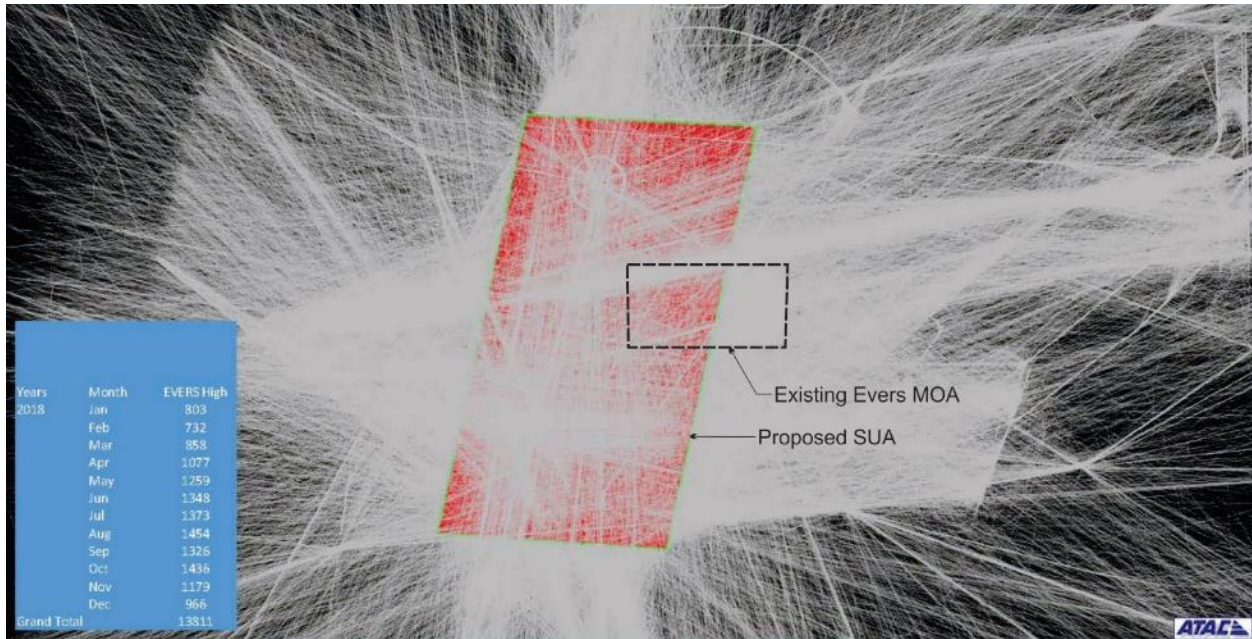


Figure 3-6. Existing Flight Tracks - Proposed Evers North, Center and South MOAs

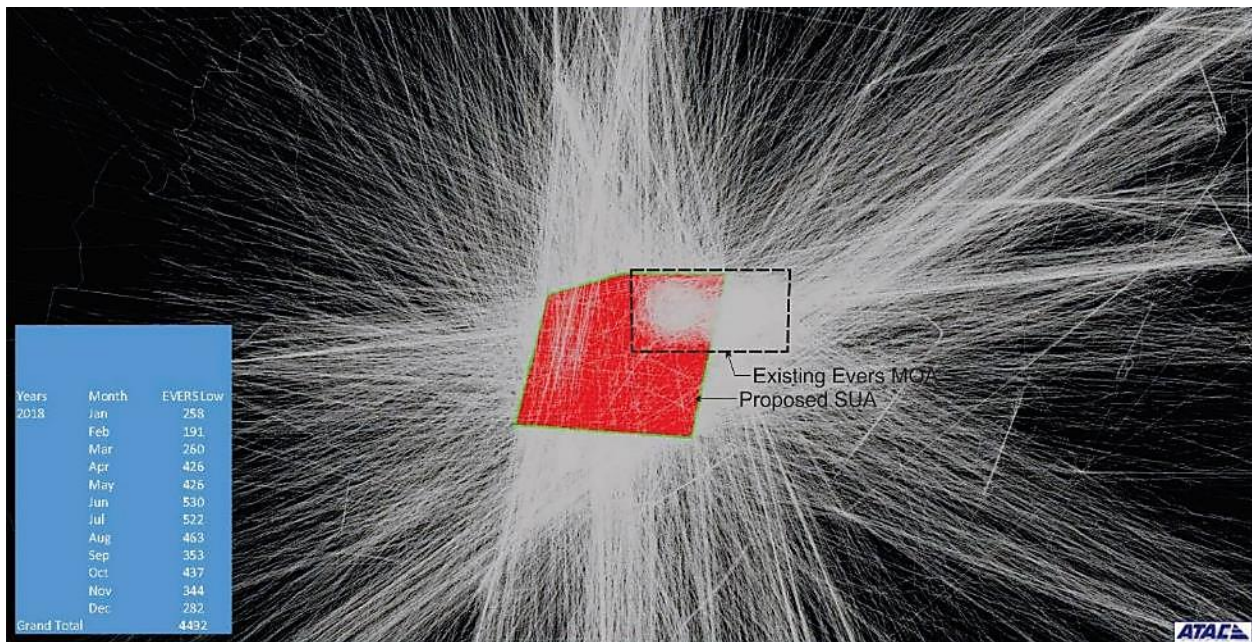


Figure 3-7. Existing Flight Tracks - Proposed Evers Low MOA

3.1.2.5 Airfields

Table 3-3 and Figure 3-8 provide information on civilian airfields located within the ROI. The Washington DC Center (ZDC) is not the controlling agency for several airports in the area, including Elkins-Randolph Airport, Greenbrier Valley Airport, Upshur County Regional Airport, Braxton County Airport, Louis Bennett Airport, and Philippi/Barbour County Airport. ZDC will identify and initiate letters of agreement or procedures with other applicable military units and ATC facilities as needed. This will allow the safe and expeditious flow of air traffic in, around, and through the proposed MOA.

Table 3-3. Civilian Airfields in the ROI

Airport Name	ID	Status (Public/ Private)	ARTCC	A/D	Airport Airspace Class	ILS	RNAV	AVG OPS/YR
Beneath Proposed MOA								
Bath Community Hospital	47V	Private	ZDC	ZDC	E	-	-	-
Deer Creek Farm Airport	WV0	Private	ZDC	ZDC		-	-	-
Elkins-Randolph County Airport	KEK	Public	ZOB	CKB-	E	-	X	10,585
Fairview Airport	WV7	Private	ZDC	ZDC	Trans-E	-	-	-
Green Bank Observatory Airport	WV5	Private	ZDC	ZDC		-	-	-
Greenbrier Valley Airport	KLW	Public	ZDC	LWB-	D	X	X	17,885
Hannah Field Airport	7VA	Private	ZDC	ZDC		-	-	-
Ingalls Field Airport	KHS	Public	ZDC	ZDC	E	X	X	9,855
Lazy J Aerodrome	00W	Private	ZDC	ZDC	E	-	-	-
Simpson Airport	9W3	Public	ZDC	ZDC	Trans-E	-	-	60
Singleton Airport	97V	Private	ZDC	ZDC		-	-	-
Upshur County Regional Airport	W22	Public	ZOB	CKB-	Trans-E	-	X	9,855
Within ROI								
Bath Alum Airport	9VA	Private	ZDC	ZDC	Trans-E	-	-	-
Braxton County Airport	48I	Public	ZOB	ZID	Trans-E	-	X	3,068
Louis Bennett Field Airport	WV2	Private	ZOB	ZOB		-	-	50
Big Hill Airport	44V	Private	ZDC	ZDC		-	-	-
Herold Airport	WV6	Private	ZDC	ZDC		-	-	2,496
Hop-Along Airport	12V	Private	ZDC	ZDC		-	-	-
Perkey Airport	79V	Private	ZDC	ZDC		-	-	-
Philippi/Barbour County Regional	79D	Public	ZDC	CKB-	Trans-E	-	X	4,004
Rainelle Airport	WV3	Private	ZDC	ZDC		-	-	74
Richwood Municipal Airport	3I4	Public	ZDC	ZDC		-	-	200
Riverwood Airport	0VA	Private	ZDC	ZDC		-	-	-
Windwood Fly-In Resort Airport	WV6	Private	ZDC	ZDC		-	-	-

ZDC=Washington ARTCC, ZOB=Cleveland ARTCC, ZID=Indianapolis ARTCC, CKB=Clarksburg Approach Control, LWB=Lewisburg Approach Control, A/D=Airport Designation, ILS=Instrument Landing System, RNAV=Area Navigation, AVG OPS/YR=Average Operations per Year

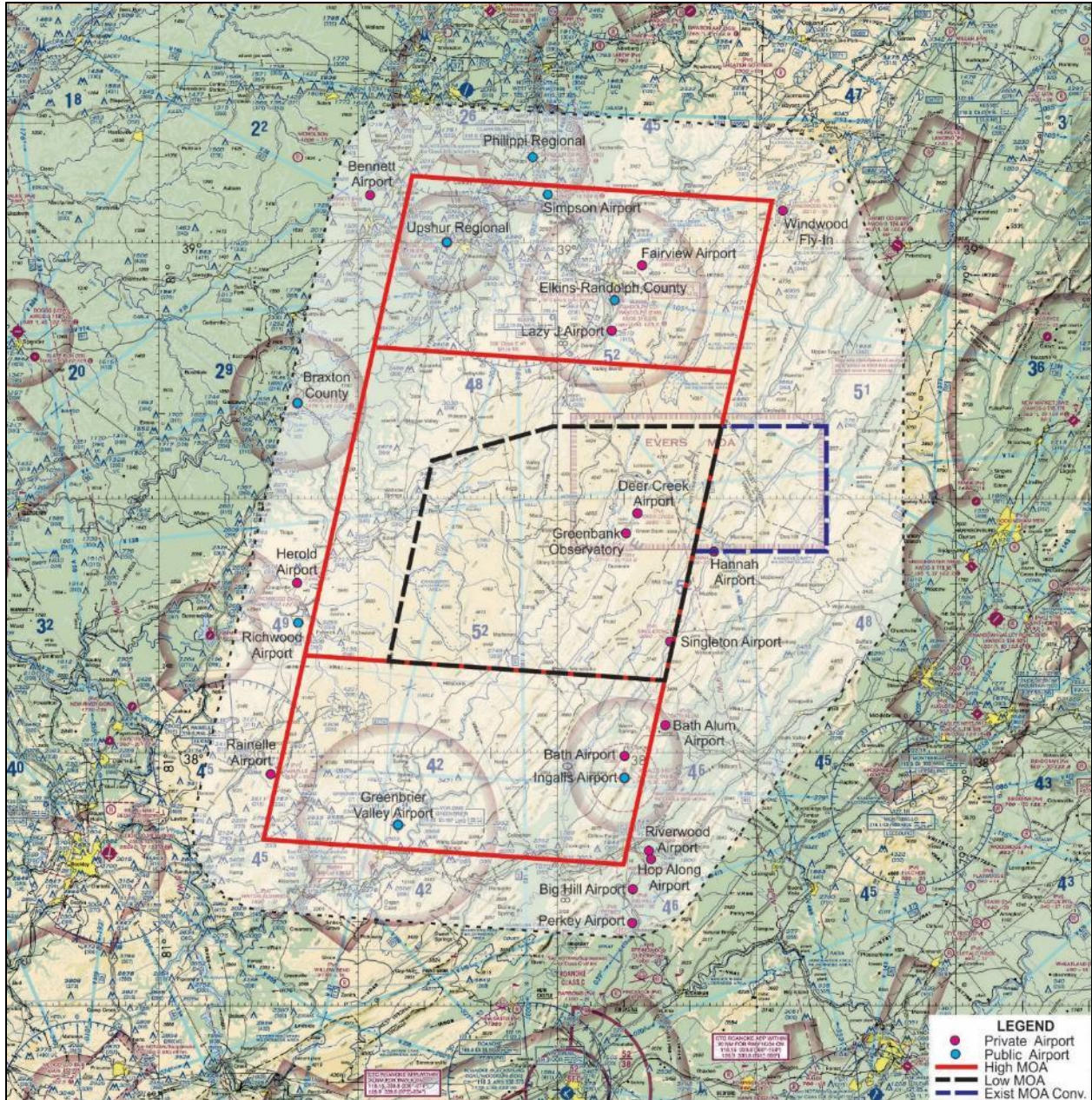


Figure 3-8. Sectional Showing Airports Within the ROI

3.1.2.6 Amateur Rocket Launch Facility

The Valley Aerospace Team of Staunton, Virginia received a Certificate of Authorization (COA) to conduct amateur rocket operations near Monterey, Virginia (see Figure 3-2). The Valley Aerospace Team was formed in early 2005 and started launching at the current launch site in 2010. The COA includes limitations for Class II unmanned rockets launched within 2 NM of the launch facility, not to exceed 12,000 ft AGL or 14,700 ft above MSL, between sunrise and sunset.

Nighttime launches are between sunset and midnight, within a 1 NM safety buffer, not to exceed 3,000 ft AGL or 5,700 ft above MSL. Additionally, the organization contacts the LEIDOS Flight Service Station at least 24 hours before a launch to request a NOTAM. The Valley Aerospace Team must contact ZDC, the 113 WG Scheduling Office, and Fleet Area Control and Surveillance Facility 1 hour before, 15 minutes before, and after launch operations. The launch site is south of the existing Evers MOA, but the safety buffer is in the proposed airspace. The safety buffer intersects the eastern boundary of the proposed Evers Low and Evers Center MOAs.

Most of the flights are under 6,000 ft AGL (daytime) and 2,000 ft AGL (nighttime). The lateral distance is typically under 1,500 ft. The Valley Aerospace Team has never had a rocket travel more than 1 NM from the range area, which is well within their approved 2 NM radius area.

The Valley Aerospace Team has the ability to run flight simulations using several different computer software programs. They do not typically fly close to COA issued by the FAA due to the weather conditions and proximity of trees around the site. Also, the maximum launch altitude for flights containing research motors is 90 percent of the authorized altitude established by the FAA.

3.1.2.7 Greenbank Observatory and National Radio Quiet Zone

The Green Bank Observatory (GBO) in Green Bank, West Virginia is the original site of the National Radio Astronomy Observatory and was formed in 1957 for the purpose of astronomical observations into the radio universe. The GBO operates and maintains several large, extremely sensitive radio telescopes for the purpose of collecting astronomical radio wavelength emissions for the study of the universe. The GBO is off Highway 92 between Boyer and Dunmore, West Virginia. The GBO's National Radio Quiet Zone (NRQZ) covers 13,000 square miles where radio transmissions are restricted for scientific research and gathering of military intelligence (Figure 3-9). The area is split between west-central Virginia, east-central West Virginia, and the southernmost tip of the Maryland panhandle. The Federal Communications Commission created the NRQZ to minimize interference with the GBO, and to provide protection for the U.S. Navy Information Operations Command activities conducted at Naval Air Station Sugar Grove. Coordination with the NRQZ Administration Office is required for all licensed transmitters inside the NRQZ.

The nature and sensitivity of the GBO telescopes enable the collection of weak astronomical signals. The Robert C. Byrd Green Bank Telescope operates at frequencies between 200 megahertz and 116 gigahertz, with a collecting sensitivity of 10^{-32} watts per square meter per hertz. The maximum height of the telescope is 485 ft AGL. The location of the proposed Evers Low MOA would be approximately 500 ft above this telescope.

The GBO and NRQZ are beneath the existing Evers MOA. The military training events and the GBO/NRQZ have coexisted for many years. Except as noted, the Proposed Action will not change the military airspace over the GBO and NRQZ.

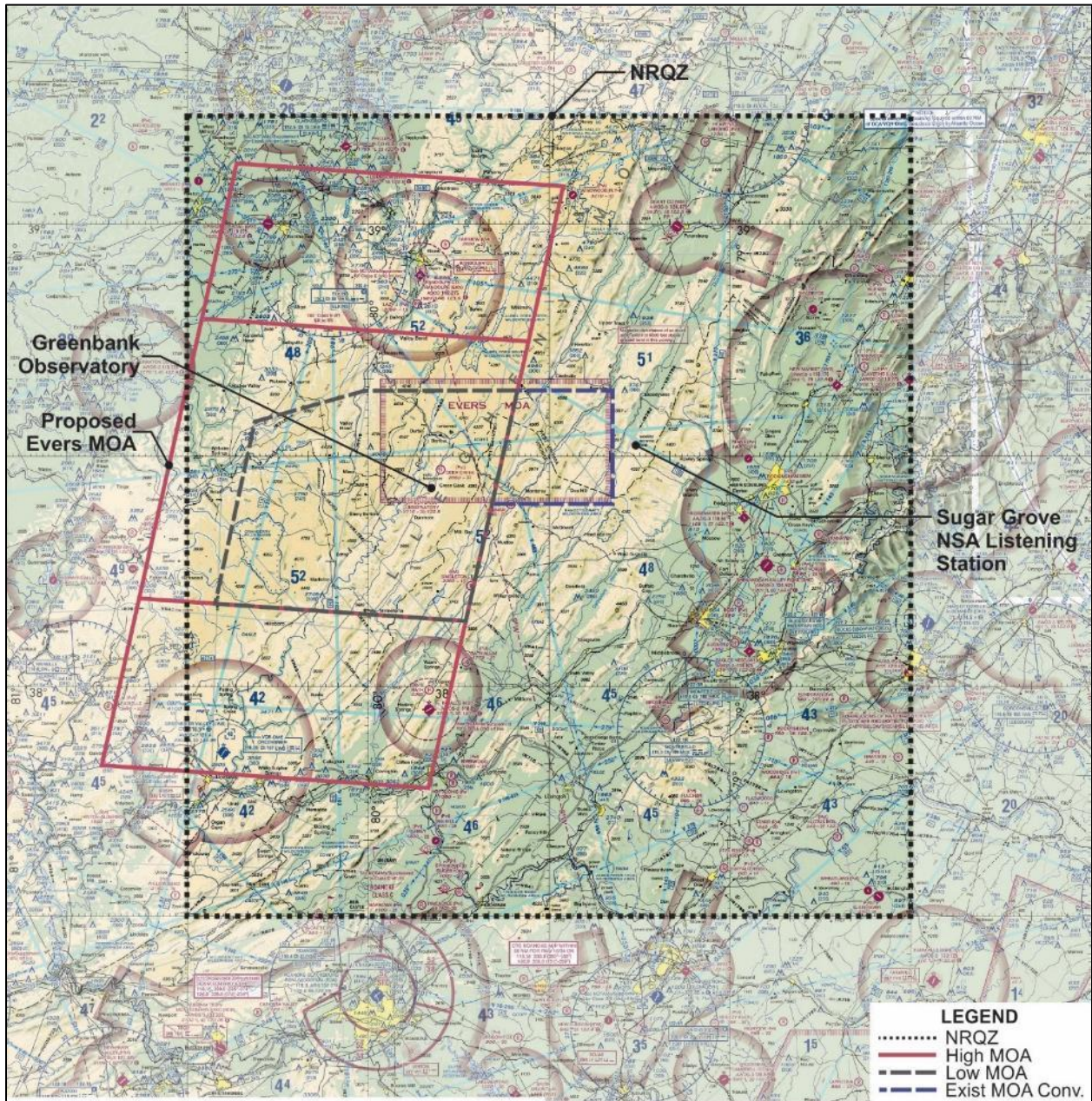


Figure 3-9. National Radio Quiet Zone

3.1.2.8 U.S. National Forests

George Washington and Thomas Jefferson National Forests (Regions 8) and Monongahela National Forest (Region 9) conduct aerial surveys for wildland fire and prescribed fire operations,

fire suppression, and prescribed fire treatments within the proposed Evers MOA Complex. Aerial controlled burn operations are conducted at various locations across the forests. The U.S. Forest Service issues NOTAMs when conducting aircraft operations.

3.1.2.9 Aircraft Mishaps

Safety of military aircraft operations are described through an aircraft’s “mishap rate,” which is the number of mishaps per 100,000 flying hours for each aircraft type. The time between mishaps is calculated by comparing the mishap rate with the number of hours flown annually. Safety Investigation and Hazard Reporting mishaps are categorized by the USAF based on the severity of injury and the amount of damage measured in monetary value. These are classified as Class A – E, with Class A being the most critical and Class E being the least (Air Force Guidance Memorandum to AFI 91-204, *Safety Investigation and Hazard Reporting*). Table 3-4 outlines the Air Force-wide mishaps rates and the time within the airspace for the primary aircraft utilizing the Evers MOA Complex. Most aircraft mishaps occur during the landing and take-off phase and not during flight training in airspace; therefore, the expected mishap rates for the MOA Complex would be lower than those outlined herein.

Table 3-4. Mishaps Rates for Primary Aircraft

Aircraft	Mishaps per 100,000 flying hours				
	Class A Mishap	Class B Mishap	Aircraft Destroyed	Pilot Fatalities	Overall Fatalities
F-16	1.83	1.27	1.41	0.33	0.52
F-15	0.70	3.32	0.85	0.28	0.38
F-22	5.38	11.12	1.08	0.36	0.72
T-38	0.69	1.09	0.59	0.20	0.20
A-10	0.55	6.54	0.55	0.00	0.00

Source: USAF 2019b.

3.1.2.10 Safety Planning and Awareness Training

Low-altitude operations are dynamic and highly demanding. Preflight planning, low-altitude awareness training, and in-flight warning systems make up a three-prong approach to ensure low-altitude training is conducted safely. These components emphasize ground and object avoidance, minimizing head-down-time, and implementing on-board warning systems as fail-safes during low-altitude flight.

Preflight Planning. Before each low-level training mission, pilots conduct preflight checks, mission planning and briefing. Two key components of flight preparation for low-altitude operations are route planning and map study. During route planning the pilot determines turnpoints, key references, lines of communication, restricted fire areas, minimum risk routes, and airspace coordination areas. As low-altitude flight does not allow for a considerable amount of head-down time, the memorization of flight routing along with known tactical reference points aids in in-flight navigation and mission safety. During map study - terrain, obstacle elevations,

geographic funneling features, and areas for terrain masking are reviewed. Pilots identify terrain features that are evident and can serve as a stake in the ground for orientation (e.g., a mountain, a large lake, dry lake bed, large intersection). Then a pilot identifies funneling features from these elements to help locate a target, turnpoint, or point of interest. This is known as working big to small, where the mountain or lake serves as the big and the funnel features lead to the small.

Low-Altitude Awareness Training. The pilots go through rigorous training emphasizing low-altitude awareness. The pilot develops task management skills that allow for accomplishing the mission while reducing the probability of ground impact. Pilot tasks during low-altitude missions fall into three main groups (1) terrain clearance tasks, (2) other critical tasks, and (3) noncritical tasks. The lower the pilot operates the aircraft, the more time the pilot focuses on terrain clearance. Terrain clearance becomes a noncritical task only when leaving the low-altitude environment. The following are subtasks associated with terrain clearance.

- **Aircraft Control.** Control of the aircraft is paramount. Without aircraft control, every other task is meaningless.
- **Altitude Control.** Altitude control establishes the time available for a task. Consideration should be given to climbing to a higher altitude if a task is going to require significant head-down time.
- **Vector Control.** Head-down time can also be increased if there is a positive vector away from the ground and terrain clearance can be assured.

Because of the demanding nature of the low-altitude arena, becoming overtasked (i.e., task saturation) will occur at some point in time. Pilots are trained to recognize task saturation and act to reduce it. Pilots are also conditioned to develop a mental and physical cross-check that establishes acceptable terrain clearance and determines time available for other tasks.

3.1.3 Significance Criteria

Effects to civilian airspace use and management would be less than significant unless the Proposed Action would (1) result in violation of FAA (FAA Order 7400.2, FAA 2019a) or DOD criteria (AFI 13-201); (2) undermine the safety of military, commercial or civil aviation; or (3) cause conflicts, congestion, or delays for a substantial number of non-participating aircraft. CEQ regulation (40 CFR 1508.27) direct that significance criteria are to be used as a guide, as significance must take into consideration the context and intensity of the Proposed Action. The airspace significance criteria present the context and intensity relative to regulations and guidance, safety, and general aviation use of airspace.

3.1.4 Environmental Consequences of the Proposed Action

The Proposed Action would have less than significant effects to airspace use and management. There would be less than significant adverse effects in the form of conflicts, congestion, or delays

to non-participating aircraft. The Proposed Action would not (1) result in violation of FAA or DOD criteria or any state or federal law; (2) undermine the safety of military, commercial or civil aviation; or (3) cause conflicts, congestion, or delays for an appreciable number of non-participating aircraft.

3.1.4.1 Air Traffic

Table 3-5 outlines the number of flights that could be affected by the Proposed Action. An estimated number of approximately 2,300 flights could be affected annually by the Proposed Action. This represents approximately 16 percent of the non-military flights that currently traverse the proposed airspace. VFR traffic that chooses to fly through an active MOA and IFR traffic that are allowed to fly through an active MOA would be unaffected by the Proposed Action.

The Proposed Action could affect approximately 1,300 VFR flights (Table 3-5); half of which currently traverse the area where the Evers North, Center and South MOAs would be established. A small percentage of VFR traffic would be expected to fly in the proposed airspace above 10,000 ft above MSL because of oxygen requirements and aircraft performance limitations. Based on membership surveys conducted by the Aircraft Owners and Pilots Association³ that 39 percent of pilots fly above 10,000 ft and 40 percent of aircraft operate under VFR (FAA 2018), it can be extrapolated that approximately 15.6 percent of VFR flights above 10,000 ft above MSL could be affected by the Proposed Action. Non-participating VFR aircraft can operate in an active MOA while using see-and-avoid flight procedures to avoid military training activities.

The Proposed Action could affect approximately 1,000 IFR flights (Table 3-5); most of which currently traverse the area where the Evers North, Center and South MOAs would be established. Based on 90 percent of non-participating IFR aircraft conducting operations between 9:00 a.m. and 10:00 p.m. (FAA 2018, standard peak usage hours for IFR traffic of 4,417 hours per year), 60 percent of non-participating aircraft operating IFR (FAA 2018), and the proposed SUA activation times, it can be extrapolated that approximately 12 percent of IFR flights could be affected by the Proposed Action. Civilian aircraft operating under IFR are allowed to fly through active MOAs if minimum IFR separation distances can be provided by ATC and procedures are established in a letter of agreement.

³ <https://www.ainonline.com/aviation-news/business-aviation/2019-08-21/aopa-asks-faa-weigh-supersonic-limits-below-fl180>

Table 3-5. Flights Potentially Affected by Proposed Action

Function	Low MOA Airspace	High MOA Airspace	Total
Existing Aircraft (aircraft per year)	4,200	13,100	17,000
Existing Military Aircraft (aircraft per year)	1,300	1,300	2,600
Non-Military Traffic (aircraft per year)	2,900	11,800	14,700
Non-Military VFR Traffic (aircraft per year)	1,200	4,700	5,900
Non-Military IFR Traffic (aircraft per year)	1,800	7,000	8,800
VFR Flights Affected (aircraft per year)	600	700	1,300
IFR Flights Affected (aircraft per year)	200	800	1,000
Total Flights Affected (aircraft per year)	800	1,500	2,300

Sources: FAA 2018, <https://eaa1361.org/wp-content/uploads/2019/03/AOPA-SUA-Survey-2019.pdf>.

This assessment assumes (1) 5 percent of the aircraft would traverse both the high and low airspaces, all military aircraft will utilize both altitude blocks, (2) 40 percent of non-participating aircraft would be operating VFR (FAA 2018), (3) 50 percent of pilots flying VFR would choose to avoid the Low MOA airspace based on charted activation times (AOPA 2019), (4) 15.6 percent of VFR pilots flying in the High MOA airspace (see Footnote 3), and (5) 90 percent of non-participating aircraft would conduct operations between 9:00 a.m. and 10:00 p.m. (FAA 2018).

Because VFR aircraft are not required to maintain radio and radar contact with air traffic control at lower altitudes, the actual number of VFR aircraft potentially flying through the proposed SUA is unattainable. This EA approximates the percentage of VFR aircraft affected to be 50% based on a 2019 AOPA national survey which had limited responses. Although this survey provides good insight to how the respondents operate in the National Airspace System, this survey is not directly related to the proposed airspace. This assessment was not designed to provide exact numbers, but to provide a rough-order-of-magnitude estimate of the number of aircraft potentially effected to determine the effects under NEPA.

Table 3-6 outlines potential effects from establishing the Evers MOA Complex on existing air traffic. Effects to individual flights would vary, ranging from inconveniences like additional flight planning, to effects such as operating with an elevated risk of conflict with military training operations. The proposed airspace has approximately 14,700 non-military aircraft transiting it each year and approximately 17.7 percent of the flights could be affected by the Proposed Action.

The following management actions and special operating procedures would be implemented (see Management Procedures, page 5-1):

- Military aircraft training in the proposed Evers MOA Complex would maintain contact with the controlling agency to ensure proper separation with all non-participating aircraft.
- The proposed MOAs would only be activated and used during visual meteorological conditions (VMC), whereas VFR flight rules would always be permitted. Pilots would always have sufficient visibility to maintain visual separation from terrain and other aircraft during approach and departure from the airports.

- Military safety officers would continue to utilize the Mid-Air Collision and Avoidance (MACA) educational and outreach program to conduct public awareness and outreach.
- Upon request from the FAA or airports affected, written procedures could be established (per FAA JO 7400.2) to ensure proper IFR separation.

Table 3-6. Potential Effects to Aircraft and Airports

Evers North, Center and South MOAs and ROI		
IFR Aircraft (851 annual operations potentially affected)	VFR Aircraft (737 annual operations potentially affected)	Airports (20 Public and Private Airports)
<ul style="list-style-type: none"> • Pilots may need additional flight planning to determine activation status of MOA. • Aircraft may need to reroute around or below MOAs when active. • Pilots may have potential conflict to flight plans while in transit due to unanticipated activations of MOA. 	<ul style="list-style-type: none"> • Pilots may have potential conflict to flight plans while in transit due to unanticipated activations of MOA. • Pilots may have to operate with an elevated risk of conflict with military training operations – particularly at very low altitudes. • Pilots may have to operate see-and-avoid at elevated awareness levels. 	<ul style="list-style-type: none"> • The airports under this MOA are uncontrolled airfields (no control tower operations).
Evers Low MOA and Evers East MOA		
IFR Aircraft (213 annual operations potentially affected)	VFR Aircraft (830 annual operations potentially affected)	Airports (4 Private Airports)
<ul style="list-style-type: none"> • If departing under instrument meteorological conditions, IFR clearance must be obtained on the ground prior to take off via telephone (or radio) with ATC. Once the clearance is obtained, the pilot can depart on an IFR clearance. 	<p>All effects listed above</p> <ul style="list-style-type: none"> • There could be a potential decrease in communication and safety than at higher altitudes • Pilots may display unwillingness to take-off or land from airports or airfield surrounded by low-level MOAs. • Pilots may operate at times with the potential for limited line-of-site from mountainous terrain. 	<p>The private airfields under this MOA are uncontrolled airfields (no control tower operations).</p>

3.1.4.2 Airports

There are four private airports beneath the proposed Evers Low and Evers East MOAs including: Deer Creek Farm Airport, GBO Airport, Hannah Field Airport and Singleton Airport (Figure 3-8). All are private airfields and VFR-only. Three of the airports are beneath the existing Evers MOA and no change in flight operations would be expected from existing conditions. Hannah Field and Singleton are on the eastern edge of the proposed airspace, and flights to the south or east of these airports could be affected. Pilots would fly VFR through or below the MOA for a western or northern destination or would be vectored around the proposed MOAs. This would add an additional 5 to 13 NM of transit depending on the airport and direction of travel. Flights to and from GBO and Deer Creek would require flying below 1,000 ft AGL or VFR through MOA when active. The travel distance through or under the proposed MOA would be between 9 and 25

NM depending on the airport and direction of travel. Table 3-6 outlines some of the potential effects from establishing the Evers MOA Complex above airports. Other effects to aircraft using these airports may include the need to operate with limited line-of-sight when below the low MOA in mountainous terrain, and interference with radar and radio communication with ATC and other aircraft. These effects would be to individual aircraft that currently fly unimpeded; however, due to the limited number of air operations at these airports, the overall effects would be less than significant.

There are 20 public and private airports beneath or within 10 NM of the proposed Evers MOA Complex that are not beneath the proposed Evers Low and Evers East MOAs (Figure 3-8). Additional coordination with pilots using these airports may be necessary. Aircraft utilizing these airports would arrive and depart essentially unimpeded; however, some revectoring may be required during periods when the MOAs are active. These effects would be less than significant.

3.1.4.3 Amateur Rocket Launch Facility

The Proposed Action would not adversely affect the amateur rocket launch facility. The COA (2 NM of the launch facility) is nearby but outside the existing Evers MOA and the proposed Evers Low MOA. There have been no difficulties or conflicts with military training operations in the Evers MOA based on our previous experiences. There would be an overall reduction in aircraft transiting the airspace due to the proposed expansion of the Evers MOA. The prior coordination between the amateur rocket launch facility and the 113 WG scheduling office would further improve coordination to avoid potential impacts.

3.1.4.4 Greenbank Observatory and NRQZ

Based on their response to the IICEP coordination, the GBO identified three concerns related to the expansion of the Evers MOA: (1) the height of the Evers Low MOA, (2) focused noise and safety, and (3) unknown frequency and power level radio transmissions. The height of the Robert C. Byrd Green Bank Telescope (485 ft AGL) and the lower limit of the Evers Low MOA is 1000 ft AGL. This could result in flights 500 ft above the telescope which increases the potential for impacts related to noise and radio transmissions. Noise levels are multiplied due to the accumulated reflection of sound waves by the 2.3-acre collecting area of the Robert C. Byrd Green Bank Telescope. Employees working on the structure may potentially experience physical damage to their hearing or fall due to unanticipated atmospheric and structural disturbance. The sensitive electronic components of the telescope receivers may potentially be overloaded or destroyed by transmissions above certain power levels.

In addressing GBOs concerns, the 113 WG of DCANG would minimize impacts to the GBO through the following accommodations:

1. To minimize noise and radio interference to the GBO, the 113 WG will propose a chart modification to establish a no-fly zone around the GBO facility that has a radius of 2.5 statute miles and a ceiling of 2,500 ft AGL.
2. To address notification requirements requests from GBO, the 113 WG will provide notification to the GBO via email and via telephone of proposed activity every Friday with the proposed flight schedule for the following week. When circumstances warrant, weather changes and/or last-minute changes will be forwarded to the GBO via telephone as soon as practicable but no later than one hour prior to the change actually occurring. The proposed Evers MOA flight information is not inclusive of all possible military overflights.
3. To prohibit 113 WG aircraft using the Evers MOA from targeting the GBO facility intentionally with any electromagnetic pulses.

3.1.4.5 U.S. National Forests

The Virginia Interagency Coordination Center (VICC) is the dispatch center for mobilization of resources from the Bureau of Land Management, USFWS, National Park Service, USDA Forest Service, and Virginia Department of Forestry. Based on comments received during the IICEP process the 113 WG would coordinate with the VICC to ensure deconfliction of any airspace issues associated with wildland fire protection and prescribed burning activities throughout the George Washington, Thomas Jefferson and Monongahela National Forest (Region 8 and 9).

3.1.4.6 Aircraft Mishaps

Table 3-7 outlines the rate of potential mishaps with the Proposed Action based on Air Force-wide mishaps rates for individual aircraft types. Mishap rates shown reflect the air operations in the proposed Evers MOA Complex. Safety of military aircraft operations are described through an aircraft's "mishap rate," which is the number of mishaps per 100,000 flying hours for each aircraft type. Overall, mishaps with and without the Proposed Action would remain small and comparable to Air Force-wide rates. In general, the Proposed Action would provide the ANG additional training options over a broader area reducing the need to compress the required training into the existing Evers MOA. In addition, any air operations conducted in the proposed MOAs would be offset on a one-to-one basis with training in other low airspace - airspace that may include additional travel time and the potential for transit-related mishaps. These effects would be less than significant, as they would not undermine the safety of military, commercial or civil aviation.

There have been no recorded mishaps within the charted Evers MOA. There was one aircraft that was in transit between New Orleans and Boston when it crashed in the Shenandoah Valley in 2014. The pilot suffered a medical condition (hypoxia) and crashed. It was not related to any aircraft airspace training or low-level flight activity.

Table 3-7. Mishaps Rates for Primary Aircraft

Aircraft	Mishaps per 100,000 flying hours				
	Class A Mishap	Class B Mishap	Aircraft Destroyed	Pilot Fatalities	Overall Fatalities
F-16	1.83	1.27	1.41	0.33	0.52
F-15	0.70	3.32	0.85	0.28	0.38
F-22	5.38	11.12	1.08	0.36	0.72
T-38	0.69	1.09	0.59	0.20	0.20
A-10	0.55	6.54	0.55	0.00	0.00
C-17	0.70	1.13	0.05	0.16	0.21
C-130	0.43	1.98	0.19	0.29	1.40

Source: USAF 2019b.

3.1.4.7 Safety Planning and Awareness Training

Under the Proposed Action, pilots would continue to conduct preflight planning, participate in low-altitude awareness training to ensure low-altitude training is conducted safely. In addition, pilots would continue to follow low-level guidance and remain 1,000 ft above the highest obstacle and 2,000 ft laterally when over congested or populated areas, as well as 500 ft above all known or observed antennas and obstacles (14 CFR § 91.119).

3.1.5 No Action Alternative

The No Action Alternative would have no impacts to airspace use and management. Establishment of the proposed additions to the Evers MOAs and the creation of ATCAAs would not occur. Training would continue at existing levels in the existing Evers MOA and units would continue to have difficulty and delays in gaining access to the airspace at other locations for certain types of training. Airspace management would remain unchanged when compared to existing conditions.

3.2 NOISE

3.2.1 Definition of 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. Sounds encountered in daily life and their sound levels are provided in Table 3-8.

Table 3-8. 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
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room

Source: Harris 1998.

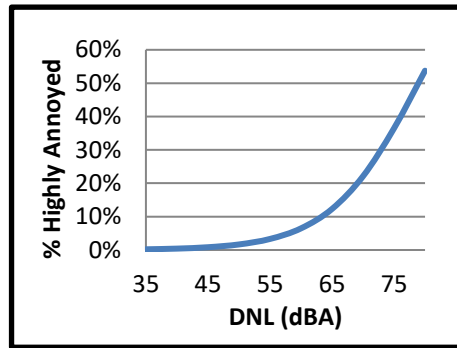
The sound pressure level noise metric describes steady noise levels, although few noises are constant; therefore, additional noise metrics have been developed to describe noise including:

- Maximum Sound Level (L_{max}) – L_{max} is the maximum sound level of an acoustic event in decibels (e.g., when aircraft is directly overhead).
- Equivalent Sound Level (L_{eq}) - L_{eq} is the average sound level in decibels.
- 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.
- 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, including 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 (Table 3-9). 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 determine exactly how many or which individuals may be annoyed by aircraft noise. Annoyance is reported as the change in the percent of population expected to be highly annoyed, and individuals or populations outlined as highly annoyed within this EA are for reference purposes and to determine the potential for effects.

Table 3-9. Relationship Between Annoyance and DNL

DNL/ L_{dnmr} (dBA)	% Highly Annoyed
35	0.2%
40	0.4%
45	0.8%
50	1.7%
55	3.3%
60	6.5%
65	12.3%
70	22.1%
75	36.5%
80	53.7%



Source: USAF 2016.

3.2.1.1 Regulatory Review and Approach

MR_NMAP is the FAA- and DOD-Approved noise model for aircraft operations beneath special use airspace (USAF 2016b and FAA 2015). This noise analysis uses the MR_NMAP (v3.0) as part of the NoiseMAP computer suite to predict noise levels (DNL) associated with aircraft operations beneath the proposed Evers MOA Complex (USAF 2016a). The parameters considered in the modeling included aircraft type, airspeed, power settings, aircraft operations, vertical training profiles, and the time spent within each airspace block.

L_{dnmr} is the accepted noise metric for the ANG when determining noise levels from aircraft operations within SUA; however, DNL is the accepted noise metric for the FAA when determining noise levels from aircraft operations within SUA. MR_NMAP was used to model the overall sound levels with both L_{dnmr} and DNL and both have been carried forwarded for use in this analysis to meet the requirements for both agencies. L_{dnmr} based on the busiest month aircraft operations with rapid onset penalty, whereas DNL is based on annual air operations without rapid onset penalty. Due to the onset penalty and the use of busiest month operations, L_{dnmr} always equals or exceeds DNL.

As the action encompassed an area that is larger than the immediate vicinity of an airport and includes actions above 3,000 ft AGL, the noise analysis includes a discussion on a change-in exposure and examines the change in noise levels as compared to population and demographic information from the U.S. Census blocks. The assessment includes depictions of (1) the population within areas exposed at or above DNL 65 dB, at or above DNL 60 but less than DNL 65 dB, and at or above DNL 45 dB but less than DNL 60 dB has been included in the discussion (FAA 2015).

Since the study encompasses a large geographical area, the effects are of medium intensity over a large area, as opposed to 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. FAA Order 1050.1F (FAA 2015) defines the thresholds for “significant” noise impacts (Exhibit 4-1) and the thresholds for “reportable” noise impacts (Appendix B-1.4). To make certain the ANG is meeting FAA requirements, during the release and transmittal of the Draft EA, the ANG will “report” the greater than 5 dBA day-night Sound Level (DNL) increase to interested parties. In addition, the ANG will include a brief discussion to outline that, as described above, changes in overall noise levels would only introduce a minute incremental changes in the percent highly annoyed for areas under the proposed Evers Low MOA, as the noise in such areas would not normally solicit complaints and noise would be “essentially the least important of various factors” in these areas. In addition, the ANG will outline that the change in noise under the Proposed Action would decrease noise levels by 2.6 to 7.8 dBA DNL throughout 634 square miles and for individuals beneath the existing Evers MOA.

Supplemental Metrics. Both the USAF and the FAA encourage the inclusion of supplemental noise metrics in the assessment of noise from airspace actions under certain circumstances (USAF 2016b and FAA 2015). It is understood that the sole use of DNL and land-use compatibility cannot accurately describe the effects from aircraft noise. This is particularly true for airspace actions which have effects of medium intensity over large geographical areas, as opposed to high-intensity effects over a smaller area (e.g., noise near an airport or air installation). MR_NMAP was used to determine the %HA for each SUA to account for all negative aspects of noise, including activity interference, and speech interference, and was used as an additional basis for determining impacts due to aircraft noise associated with the action. MR_NMAP was also used to calculate L_{max} and SEL for individual overflights, and L_{dnmr} levels and the average daily number of events that would exceed 75 dBA (L_{max}) beneath the proposed Evers MOA Complex. These metrics were used to assess the potential for disturbance to speech, and to provide the public with a better understanding of the specific effects (USAF 2016b and FAA 2015). The Final Noise Study Report is provided in Appendix D.

3.2.2 Affected Environment

3.2.2.1 Population, Areas, and Sensitive Receptors Beneath the Evers MOA Complex

U.S. Census block data was used to determine the population exposed to aircraft noise. Other than visual counts, this is the narrowest available geo-referenced data set available. The MOA Complex is vast, covering 4,827 square miles, and the census block data was appropriate for this scale activity. Table 3-10 and Figure 3-10 outline the population under the proposed Evers MOA Complex. There are approximately 130,000 individuals and 72,000 households beneath the proposed Evers MOA Complex. The northeast portion of the existing Evers MOA would no longer be under any MOA with the Proposed Action (Figure 2-1).

Table 3-10. Estimated Population Beneath the Proposed Evers MOA Complex

Airspace	Population	Households	Area (square miles)
Existing			
Evers Existing	6,990	5,214	634
Proposed			
Evers Low MOA	9,186	9,742	1,270
Evers Center MOA^a	18,802	10,168	858
Evers South MOA	33,941	18,604	1,260
Evers North MOA	64,180	30,550	1,178
Evers East MOA	3,775	2,549	261
Total^b	129,884	71,613	4,827

a Does not include population or area included under the Evers Low MOA.

b Does not include the population or area beneath the northeast portion of the existing Evers MOA, which would no longer be under any MOA with the Proposed Action (Refer to Figure 2-1).

Source: U.S. Census Bureau 2018.

3.2.2.2 Existing Background Noise Levels

Background noise levels (L_{eq} and DNL) were estimated for the areas below the proposed MOA 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 (ANSI 2013). Table 3-11 outlines the overall sound levels (i.e., DNL) beneath the proposed Evers MOA Complex without any aircraft activities. Most of the land beneath the proposed MOA Complex is rural; however, there are several small towns and villages. These towns would be relatively quiet, and background sound levels without aircraft would not normally exceed 52 dBA L_{eq} in the daytime, or 44 dBA L_{eq} at night. Background levels would be less than this in rural areas, and appreciably less in remote areas.

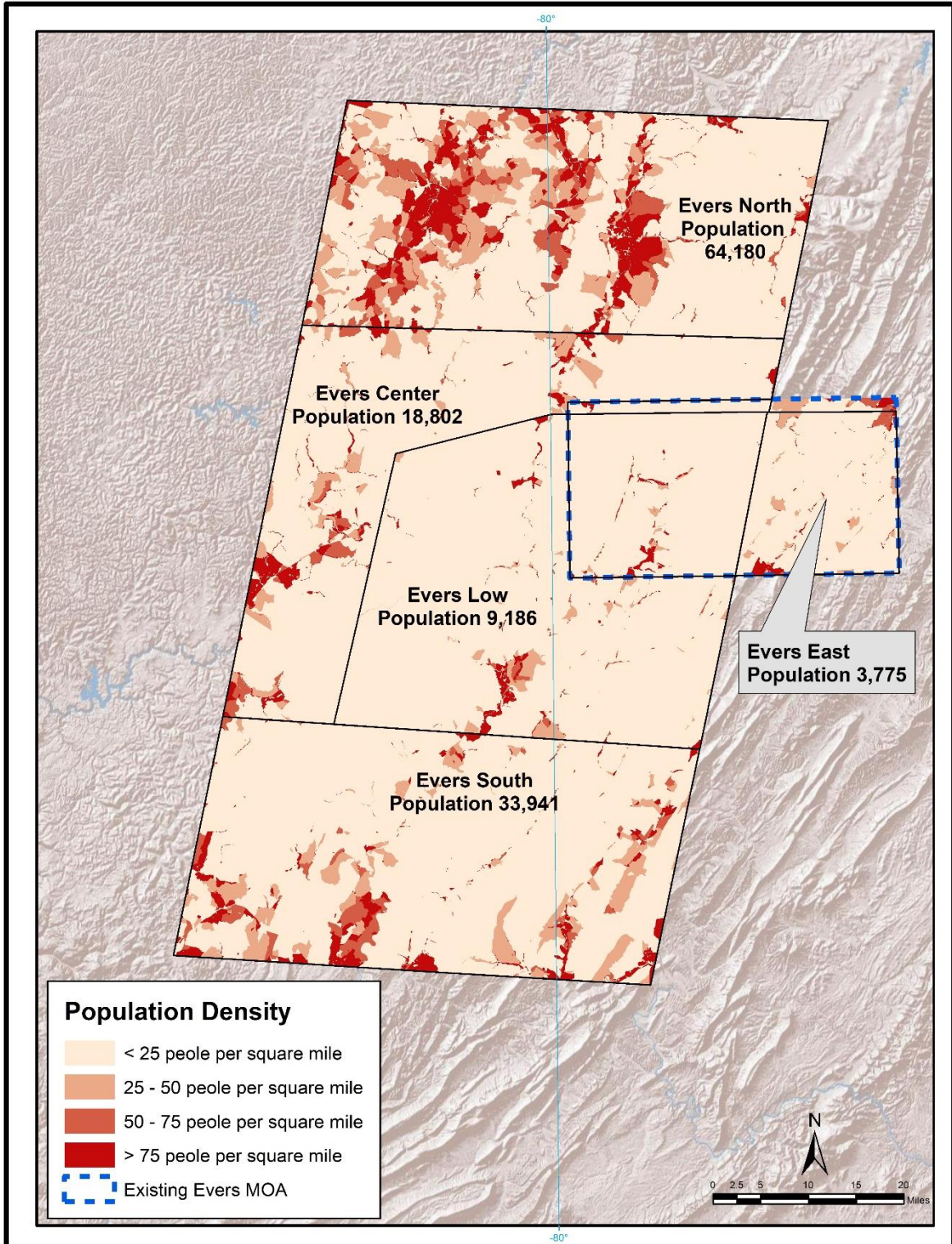


Figure 3-10. Population Density

Table 3-11. 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.

3.2.2.3 Existing Overall Aircraft Noise

Table 3-12 outlines the existing overall sound levels (i.e. DNL/L_{dnmr}) beneath the Evers MOA Complex without the Proposed Action. Figure 3-11 outlines the overall sound levels (i.e. L_{dnmr}) beneath the existing Evers MOA with aircraft activities and the remainder of the proposed MOA Complex without any aircraft activities. The estimated DNL ranges from less than 42.0 dBA DNL in rural areas beyond the boundaries of the existing MOA to 49.8 dBA DNL in areas beneath the existing Evers MOA. The estimated L_{dnmr} ranges from less than 42.0 dBA DNL in rural areas beyond the boundaries of the existing MOA to 54.2 dBA DNL in areas beneath the existing Evers MOA. The overall noise from aircraft operations is higher than background levels beneath the existing Evers MOA. These sources are primarily vehicle traffic, but also include industrial sources, construction activities, and lawn equipment.

Table 3-12. Overall Sound Levels and Percent Highly Annoyed - Existing Conditions

Airspace	Population	DNL (dBA)	L _{dnmr} (dBA)	%Highly Annoyed
Evers MOA	6,990	49.8	54.2	2.9%

Source: USAF 2016a and U.S. Census 2018.

^a DNL based on actual air operations without rapid onset penalty.

^b L_{dnmr} based on average busiest month aircraft operations with rapid onset penalty.

Noise from existing aircraft operations does not exceed 65 dBA DNL and is compatible with all land uses. In general, the aircraft operations are spread throughout the 634 square miles beneath the existing Evers MOA. Although, the overall noise from aircraft is compatible with all land uses, an estimated 2.9 percent of the population are highly annoyed by the existing aircraft noise under the Evers MOA. Generally speaking, 0.6 percent of individuals are highly annoyed by other sources of noise in rural and remote areas that are void of aircraft operations.

The Proposed Action would spread the air operations in the existing Evers MOA to the larger Evers Low MOA. The air operations above 10,999 ft MSL in the existing Evers MOA would be spread to the much larger Evers North, South, East, and Center MOAs.

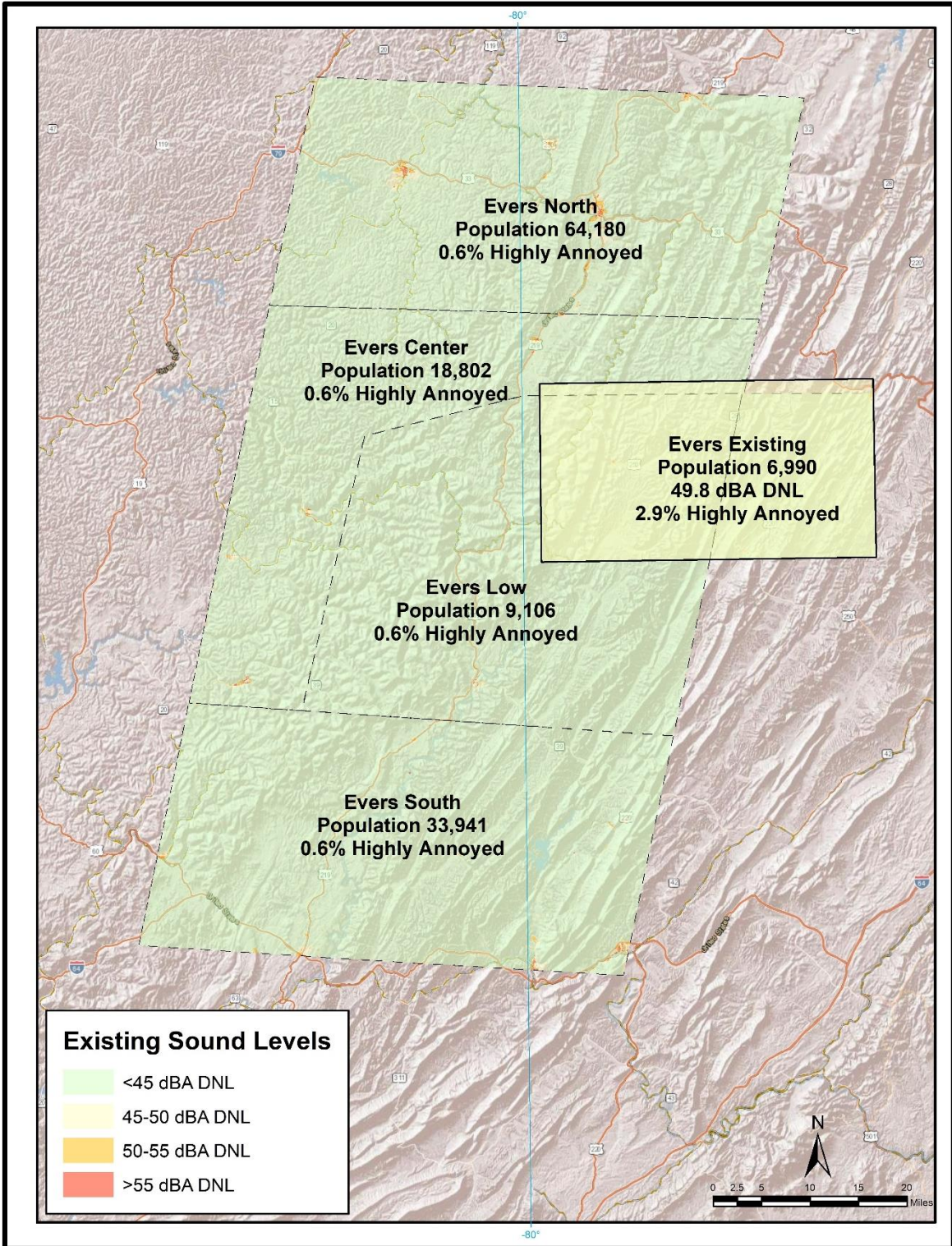


Figure 3-11. Overall Sound Levels and Percent Highly Annoyed - Existing

3.2.2.4 Existing Individual Overflight Noise

Although operational noise levels are too low to result in incompatibility with existing land uses, noise from individual overflights generate distinct acoustical events. Table 3-13 outlines the L_{max} and SEL for individual aircraft overflights for the primary users of the existing Evers MOA. Mid- to low-altitude overflights are similar to, but substantially louder than high altitude commercial aircraft overflights. Overflights conducted in the mid-level airspaces are clearly audible, sometimes loud, to individuals who are outdoors, and clearly perceptible inside nearby buildings. Effects from mid-level overflights are distributed throughout areas below and adjacent to the existing MOA. Overflights conducted in the low-level airspaces are loud, sometimes very loud, to individuals who are outdoors, and clearly audible, sometimes loud inside nearby buildings. These overflights are brief, intermittent, distributed though the MOA, and normally do not occur repeatedly at any one location. Individual overflights would be neither loud enough or frequent enough to highly annoy appreciable percentage of the population or to generate areas of incompatible land-use beneath the existing Evers MOA.

Table 3-13. Estimated Sound Levels for Individual Overflights

Altitude (ft AGL)	L_{max} (dBA) ^a				SEL (dBA) ^b			
	A-10 ^c	F-15 ^d	F-16 ^e	F-22 ^f	A-10 ^c	F-15 ^d	F-16 ^e	F-22 ^f
1,000	94.8	96.7	100.4	112.4	98.4	103.5	104.9	118.7
5,000	75.6	77.7	80.3	93.0	83.4	88.7	89.0	103.5
10,000	63.9	67.6	69.8	82.9	73.5	80.4	80.3	95.2
20,000	49.2	55.5	57.6	70.9	60.6	70.1	69.8	85.0

Source: USAF 2016a.

Notes:

^a L_{max} is the maximum sound level during an individual overflight.

^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.

^c A-10A operating at 97% Engine Core RPM (NC) at 350 knots.

^d F-15E operating at 85%NC at 300 knots.

^e F-16C operating at 90% NC at 450 knots.

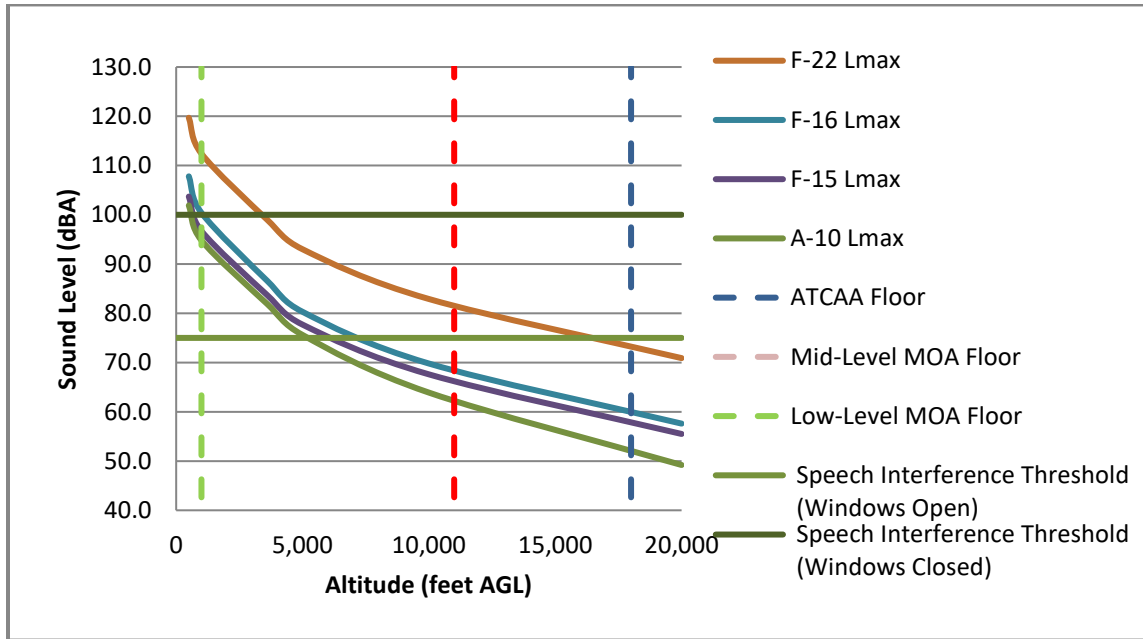
^f F-22 operating at 100% Engine Thrust Ratio (ETR) at 300 knots.

As outlined in Section 3.1.2.3, there is existing military air traffic on MTRs throughout the areas beneath the existing and proposed Evers MOAs. These air operations are lower to the ground and along designated routes. These activities are not controlled by the 113WG and are separate DOD operations from the Evers Proposed Action. Aircraft operating under the Proposed Action would remain 1000 ft AGL and above.

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 75 dBA (DNWG 2009). This level is consistent with, and more conservative than, the thresholds outlined in the American National Standards Institute's *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools* (ANSI 2010).

Figure 3-12 depicts the L_{max} for individual aircraft overflights for the primary users of the existing Evers MOA. L_{max} at 1,000 ft AGL are 94.8 dBA for an A-10, 96.7 dBA for an F-15, 100.4 dBA for an F-16, and 118.7 for an F-22 (Table 3-13). These sound levels are appreciably louder than the threshold for speech interference, and single A-10, F-15, F-16 or F-22 aircraft operating in the low-level MOAs would interfere with communication for individuals on the ground under their flight path. L_{max} at 10,000 ft AGL are 63.9 dBA for an A-10, 67.6 dBA for an F-15, 69.8 dBA for an F-16, and 82.9 for an F-22, and only F-22 overflights would exceed the threshold for speech interference when operating in the mid-level MOAs. These effects are distributed throughout areas below and adjacent to the areas under the existing Evers MOA.



Source: USAF 2016a and DNWG 2009. Notes: L_{max} is the maximum sound level during the overflight.

Figure 3-12. Estimated L_{max} for Individual Overflights

Table 3-14 outlines the estimated critical distance required for an individual aircraft to interfere with speech, and the lateral distance on the ground from flight track where aircraft interfere with speech. An F-22 operating in the mid- or low-altitude portions of the existing Evers MOA interferes with speech for all individuals within approximately 3.0 miles of the flight track directly below the aircraft. An F-16 operating in the low-altitude portion of the existing Evers MOA interferes with speech for all individuals within approximately 0.9 to 1.3 miles of the flight track directly below the aircraft. An F-15 operating in the low-altitude portion of the existing Evers

MOA interferes with speech for all individuals within approximately 0.7 to 1.2 miles of the flight track directly below the aircraft. An A-10 operating in the low-altitude portion of the existing Evers MOA interferes with speech for all individuals within approximately 0.7 to 0.9 miles of the flight track directly below the aircraft. It is possible that some locations experience these events more often others; however, louder events at these locations are offset with a one-to-one reduction in overflights at other locations.

Table 3-14. Lateral Distance from Flight Track for Speech Interference

	Slant Distance (ft) to Speech Interference Threshold	Overflight Altitude (ft AGL)			
		500	1,000	3,600	5,000
Lateral Distance from Flight Track for Speech Interference (ft [miles])					
F-22	16,000	15,992 (3.0)	15,969 (3.0)	15,590 (3.0)	15,199 (2.9)
F-16	7,000	6,982 (1.3)	6,928 (1.3)	6,003 (1.1)	4,899 (0.9)
F-15	6,300	6,280 (1.2)	6,220 (1.2)	5,170 (1.0)	3,833 (0.7)
A-10	5,000	4,975 (0.9)	4,899 (0.9)	3,470 (0.7)	

Source: USAF 2016a.

Damage to Hearing. Noise-related hearing loss due to long-term exposure (many years) to continuous noise in the work place 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, 8 hours per day for 40 years to experience hearing loss (USEPA 1974 and CHABA 1977). Accordingly, the Occupational Safety & Health Administration (OSHA) and the USAF adopted a threshold of 80 dBA for 8 hours per day as the threshold for hearing protection (USAF 2013). As aircraft overflights are intermittent and not continuous, no individuals are exposed to sound levels exceeding 75 dBA for 8 hours per day beneath the Evers MOA. In addition, OSHA and the NGB adopted a threshold of 140 dB instantaneous noise level as a threshold for short-term exposure that may induce hearing loss. As individual aircraft overflights within the Evers MOA are not supersonic, and do not generate sonic booms above 140 dB, no individuals beneath the MOA 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 (USAF 2016b, Siskind 1989, and Bureau of Mines 1980). Individual overflights within the Evers MOA are not supersonic, and do not generate sonic booms above 140 dB; therefore, there is no potential of damage to structures.

3.2.3 Significance Criteria

Effects to noise would be less than significant unless the Proposed Action would (1) increase noise levels by more than 1.5 dBA DNL in a noise sensitive area exposed to noise above 65 dBA DNL; (2) increase noise levels by greater than 5 dBA DNL over large geographic areas or populations and is determined to be environmentally controversial; or (3) generate individual acoustic events loud enough to damage hearing or structures.

3.2.4 Environmental Consequences of the Proposed Action

The Proposed Action would have the potential for long-term minor adverse effects on the noise environment. Effects would be due to noise from the introduction of low- to mid-altitude military overflights in areas beneath the proposed Evers Low MOA. The Proposed Action would not increase noise levels by more than 1.5 dBA DNL in a noise sensitive area that is exposed to noise above 65 dBA DNL or generate individual acoustic events loud enough to damage hearing or structures. The Proposed Action would increase noise levels by 5.2 dBA DNL and percent highly annoyed by 0.8 percent beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. There would be appreciable decreases (4.3 to 10.8 dBA DNL) in noise and corresponding decrease in the percent highly annoyed under the existing Evers MOA (Table 3-15). Regardless of any decreases in noise in the existing MOA, individuals experiencing a higher noise levels within the proposed low would still be affected by the Proposed Action.

3.2.4.1 Overall Aircraft Noise

Table 3-15, Figure 3-13, and Figure 3-14 summarize the overall noise levels (i.e. DNL) beneath the Evers MOA Complex with the implementation of the Proposed Action and their change when compared to existing conditions. To meet both ANG and FAA criteria, noise modeling was performed (Appendix D) to determine both L_{dnmr} and DNL. The estimated DNL (i.e., average annual noise) would range from 42.9 dBA in areas beneath mid-altitude MOAs to 47.2 dBA in the low-altitude training areas. The estimated L_{dnmr} (i.e., busiest month noise) would range from 43.8 dBA in areas beneath mid-altitude MOAs to 49.6 dBA in the low-altitude training areas. The overall noise environment would be similar to but slightly greater than background levels in most areas beneath the existing and proposed SUAs.

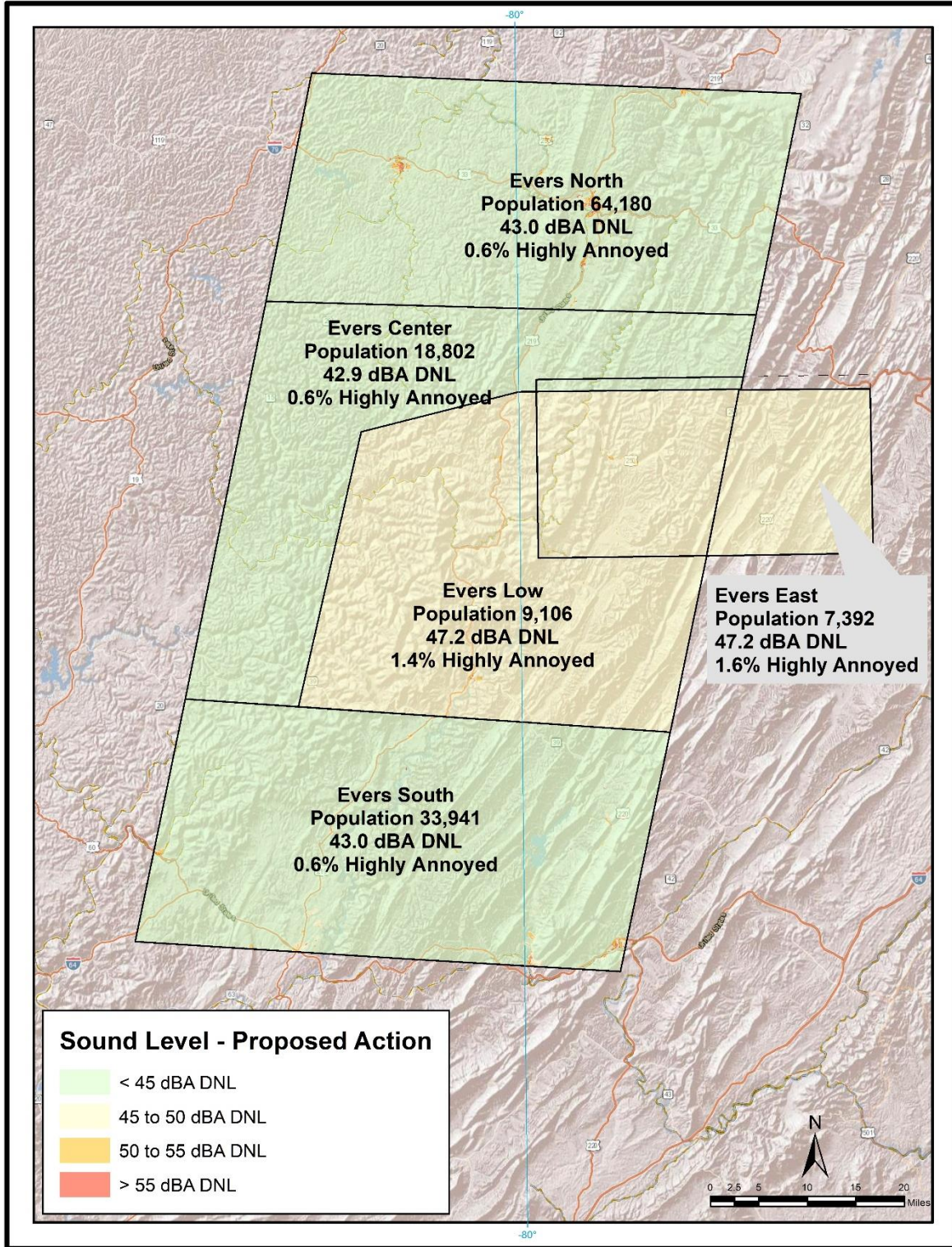
Table 3-15. Overall Sound Levels and Percent Highly Annoyed - Proposed Action

Airspace	Existing			Proposed			Change from Existing		
	DNL (dBA)	L _{dnmr} (dBA)	%Highly Annoyed	DNL (dBA)	L _{dnmr} (dBA)	%Highly Annoyed	DNL (dBA)	L _{dnmr} (dBA)	%Highly Annoyed
Evers Low MOA (under existing MOA)	49.8	54.2	2.9%	47.2	49.5	1.4%	-2.6	-4.6	-1.5%
Evers Low MOA (not under existing MOA)	42.0	42.0	0.6%	47.2	49.5	1.4%	5.2	7.5	0.8%
Evers Center MOA (under existing MOA)	49.8	54.2	2.9%	42.9	43.8	0.6%	-6.9	-10.4	-2.3%
Evers Center MOA (not under existing MOA)	42.0	42.0	0.6%	42.9	43.8	0.6%	0.9	1.8	0.0%
Evers South MOA	42.0	42.0	0.6%	43.0	43.9	0.6%	1.0	1.9	0.0%
Evers North MOA	42.0	42.0	0.6%	43.0	43.9	0.6%	1.0	1.9	0.0%
Evers East MOA	49.8	54.2	2.9%	47.2	49.6	1.6%	-2.6	-4.6	-1.3%
Areas no longer under MOA	49.8	54.2	2.9%	42.0	42.0	0.6%	-7.8	-12.2	-2.3%
		Total	1.1%		Total	0.7%		Total	-0.4%

Source: US Census 2018 and USAF 2016a.

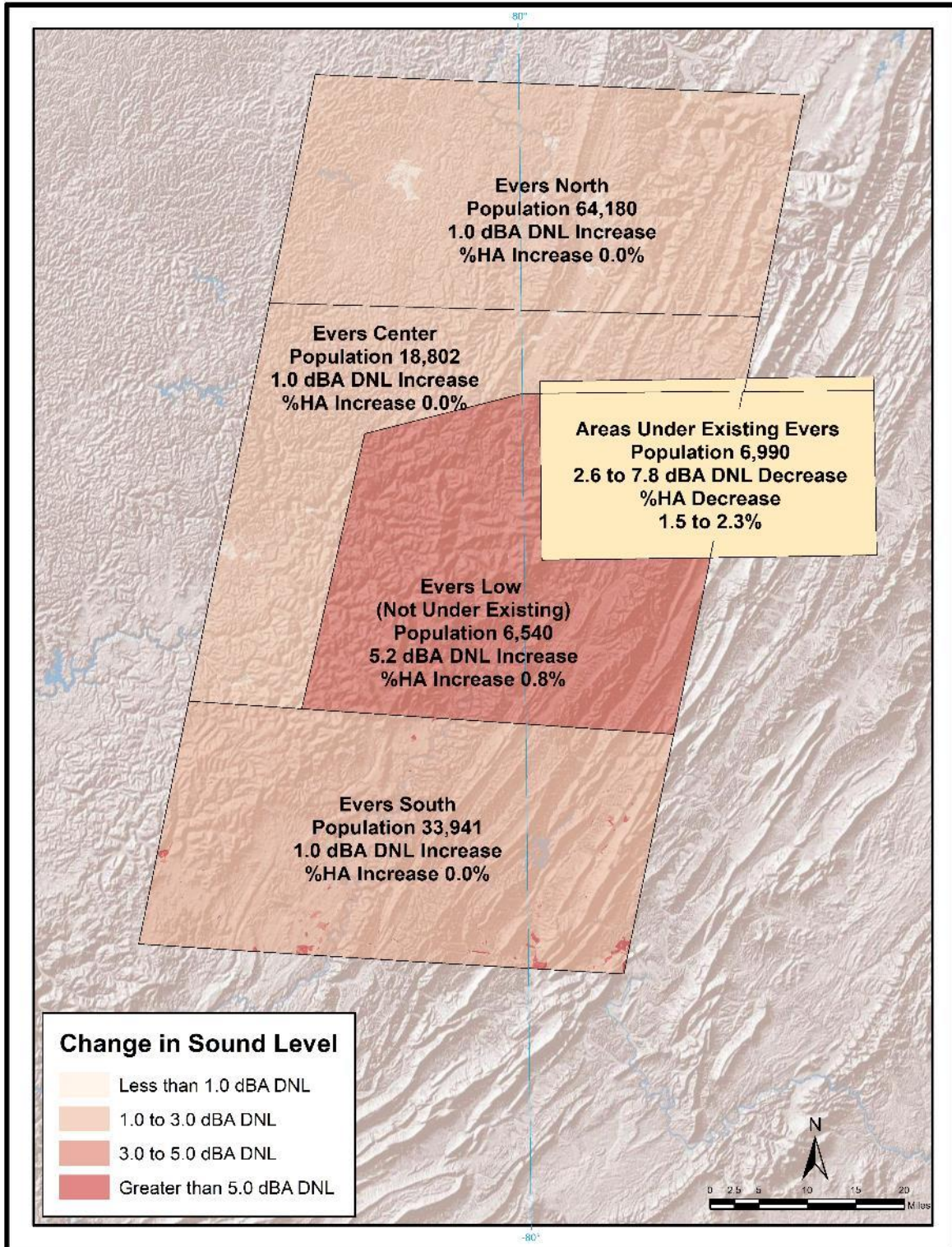
^a DNL based on actual aircraft operations without rapid onset penalty.

^b L_{dnmr} based on average busiest month aircraft operations with rapid onset penalty.



Source: USAF 2016 and US Census Bureau 2018.

Figure 3-13. Overall Sound Levels and Percent Highly Annoyed - Proposed Action



Source: USAF 2016 and US Census 2018.

Figure 3-14. Change in Overall Sound Levels - Proposed Action vs. Existing

Land Use Compatibility. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL and would be compatible with all land uses. These effects would be less than significant (USAF 2016b and FAA 2015). This includes being compatible with wilderness area, residential area, church, school, and recreational area guidelines beneath the proposed airspace. These effects would be less than significant.

In the Proposed Evers Low MOA, there would be periodic low overflights loud enough to cause brief interruptions in communication. These overflights would be brief, intermittent, distributed throughout the newly proposed low MOA, and would not normally occur repeatedly at any one location. These overflights would be neither loud enough, nor frequent enough, to be incompatible with any land uses or any noise sensitive activities. Noise from aircraft operations for all potential sensitive receptors, and all areas under the proposed MOAs would be well below 65 dBA DNL and would be compatible with all noise sensitive activities.

Although some studies report that the effects of aircraft noise on domestic animals are inconclusive, most of the literature reviewed indicates that domestic animals exhibit some behavioral responses to military overflights but generally seem to habituate to the disturbances over a period of time. Many studies on domestic animals suggest that some species appear to acclimate to sound disturbance (Manci et al. 1988). The effects of noise on domestic animals have been studied since the late 1950's and based on these studies, the effects from conducting low-altitude flights over agricultural areas would be small (Bowles et al. 1990). Noise generated by low-altitude, high-speed aircraft overflights normally will have no direct effect on large domestic livestock (USAF 1994). According to the USAF 1994 position paper on effects of low-altitude overflights (below 1,000 ft) on domestic fowl, overflight activity has negligible effects. The paper indicated that the typical reaction of domestic fowl after exposure to sudden, intense noise is a short-term startle response. The reaction ceases as soon as the stimulus is ended, and within a few minutes all activity returns to normal. Most of the literature suggests that domestic animals exhibit adaptation, acclimation, and habituation after repeated exposure to jet aircraft noise and sonic booms. More severe responses are possible depending on the number of birds, the frequency of exposure, and environmental conditions (Wyle Laboratories 2008).

In a technical bulletin, the Department of Defense Noise Working Group published a summary of an extensive body of pertinent scientific data on domestic fowl accumulated over the past 40 years. The technical bulletin concluded that the most serious potential damages to poultry are injuries and suffocations that occur when panicked birds pile or crowd. It was noted that any type of aircraft noise of sufficient sound level can induce piling and crowding; however, only naive birds (with no prior exposure to aircraft noise) panic, and birds habituate quickly to noise. The technical bulletin noted that the likelihood of damaging panicked responses is small based on experimental studies and interviews with growers. Based on the existing experimental evidence, effects on productivity (effects on growth and egg production) were considered unlikely and predictions of the potential

for effect could not be made because little is known about the physiological effects of stress, in general, on birds. The summary noted that effects of aircraft overflights on marketability are possible; however, the economic losses due to aircraft overflights would be minimal (DNWG 2013).

Change in Overall Noise. The overall noise from aircraft operations would (1) blend with background levels beneath the proposed Evers South, Evers Center, and Evers North MOAs; (2) would be lower than existing levels in areas beneath the existing Evers MOA; and (3) be higher than existing levels in areas beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. The Proposed Action would increase noise levels by 5.2 dBA DNL throughout 943 square miles and for 6,540 individuals beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. The Proposed Action would decrease noise levels by 4.6 to 12.2 dBA DNL throughout 634 square miles and for 6,990 individuals beneath the existing Evers MOA.

Effects of Noise on Individuals. Although, the overall noise from aircraft is compatible with all land uses, the %HA under the Proposed Action would range from 0.6 percent to 1.4 percent for areas beneath the proposed MOAs. Due to the redistribution of aircraft operations, there would be a slight reduction (0.4 percent reduction) in the overall %HA of for all areas under the Evers MOA Complex when compared to existing conditions. Generally speaking, 0.6 percent of individuals are highly annoyed by other sources of noise in rural and remote areas that are void of aircraft operations.

The %HA, when compared to existing conditions would range from a decrease of 1.5 to 2.5 percent beneath the existing Evers MOA to an increase of 0.8 percent in areas beneath the proposed Evers Low MOA in areas that are not currently within the existing Evers MOA. This minute level of increase is expected, as at levels below 55 dBA, it takes very large changes in overall noise levels to annoy additional individuals. This is consistent with the 1974 USEPA's *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with and Adequate Margin of Safety* (i.e., The Levels Document) which outlines that community response to changes in noise below 55 dBA would be marginal at best, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" (USEPA 1974). These effects would be less than significant.

FAA Order 1050.1F defines the thresholds for "significant" noise impacts (Exhibit 4-1) and the thresholds for "reportable" noise impacts (Appendix B-1.4). The reportable noise thresholds are for DNL 65 dB and higher: +1.5 dB, for DNL 60 dB to <65 dB: +3 dB, and for DNL 45 dB to <60 dB: +5 dB. To make certain the ANG is meeting FAA requirements, during the release and transmittal of the Draft EA, the ANG "reported" the greater than 5 dBA day-night Sound Level (DNL) increase to interested parties. In addition, the ANG included a brief discussion to outline that, as described above, changes in overall noise levels would only introduce a minute incremental

changes in the percent highly annoyed for areas under the proposed Evers Low MOA, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" in these areas. In addition, the ANG outlined that the change in noise under the Proposed Action would decrease noise levels by 2.6 to 7.8 dBA DNL throughout 634 square miles and for individuals beneath the existing Evers MOA.

During the EA process, through the IICEP effort, the ANG provides opportunities for the public to participate in the NEPA process to promote open communication and improve their decision-making process. Through the IICEP process, the ANG has notified relevant federal, state, and local agencies and allowed them 30 days to make known their environmental concerns specific to the Proposed Action. No correspondences have been received that express appreciable concern to the Proposed Action. However, during this process several responses were received which included request for the draft environmental assessment and requests to ensure noise was assessed within the document. See Appendix A for further information on the IICEP letters.

3.2.4.2 Individual Overflight Noise

The nature and overall levels of noise from individual overflights would be similar to existing conditions. However, under the Proposed Action these effects would extend to all newly proposed SUAs, including Evers Low and Evers East. Areas beneath these proposed MOAs would intermittently experience aircraft overflights that would range from loud to very loud exceeding 75 dBA L_{max} at any given point on the ground. The primary and loudest jet aircraft are included in the noise analysis. These overflights would continue to be brief, intermittent, distributed though the newly proposed MOA, and normally do not occur repeatedly at any one location. Overflights of aircraft within the proposed low-level MOAs would interfere with communication for individuals within approximately one to three miles of the aircraft's flight path. In general, individual overflights would be either loud enough or frequent enough to highly annoy some individuals as outlined above. Some locations would experience these events more often; however, events would be offset with a one-to-one reduction in overflights at other locations.

There are numerous potentially sensitive receptors beneath the existing and proposed Evers MOA, including residences, schools, churches, hospitals, wilderness areas, and recreational areas. In the Proposed Evers Low MOA, there would be periodic low overflights loud enough to cause brief interruptions in communication. These overflights would be brief, intermittent, distributed though the newly proposed low MOA, and would not normally occur repeatedly at any one location. These overflights would be neither loud enough, nor frequent enough, to be incompatible with any land uses or any noise sensitive activities. Noise from aircraft operations for all potential sensitive receptors, and all areas under the proposed MOAs would be well below 65 dBA DNL, and would be compatible with all noise sensitive activities.

Damage to Hearing or Structures. As with existing conditions, and for similar reasons, aircraft overflights would not generate individual acoustic events loud enough to damage hearing or structures. These effects would be less than significant.

3.2.5 No Action Alternative

Selecting the No Action Alternative would result in no new or changed effects on the noise environment. The modification and addition to the Evers MOA would not occur. The noise environment would remain unchanged when compared to existing conditions.

3.3 BIOLOGICAL RESOURCES

3.3.1 Definition of Resource

Biological resources include native or naturalized plants and animals and the habitats in which they live, including vegetation; wildlife; and threatened, endangered, or sensitive species in a given area. Biological resources are necessary for ecosystem integrity. The existence and preservation of biological resources are important to society for aesthetic, recreational, and socioeconomic purposes.

Since there will be no ground-disturbing activities, no infrastructure changes, no supersonic flight activities, no release of chaff and flares, no weapons firing, and no ordnance deployment, effects to ground-dwelling wildlife (i.e., reptiles, amphibians, fish, and invertebrates) or their associated habitats from the implementation of the Proposed Action would be nonexistent. In addition, water resources (i.e., wetlands, floodplains, surface waters, groundwater, or wild and scenic rivers) were dismissed from detailed analysis for the same reason.

Threatened, endangered, or sensitive species include plant and animal species listed and proposed for listing by the USFWS under the ESA and by state natural resources agencies. The federal ESA protects endangered and threatened plant and animal species and designated critical habitats, while the Virginia Department of Agriculture and Consumer Services 1979 Endangered Plant and Insect Species Act protects threatened and endangered plant and insect species listed in the Commonwealth of Virginia. West Virginia does not have legislation protecting state listed species. Special status species also include bird species protected under the federal Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act (BGEPA).

3.3.2 Affected Environment

The proposed Evers MOA Complex covers approximately 4,827 square miles in West Virginia and Virginia. Public land in the Monongahela and George Washington/Jefferson National Forests provide opportunities for recreational activities. The two National Forests occupy 2,622 square miles beneath the Proposed Evers MOA Complex in West Virginia and Virginia (Figure 3-15).

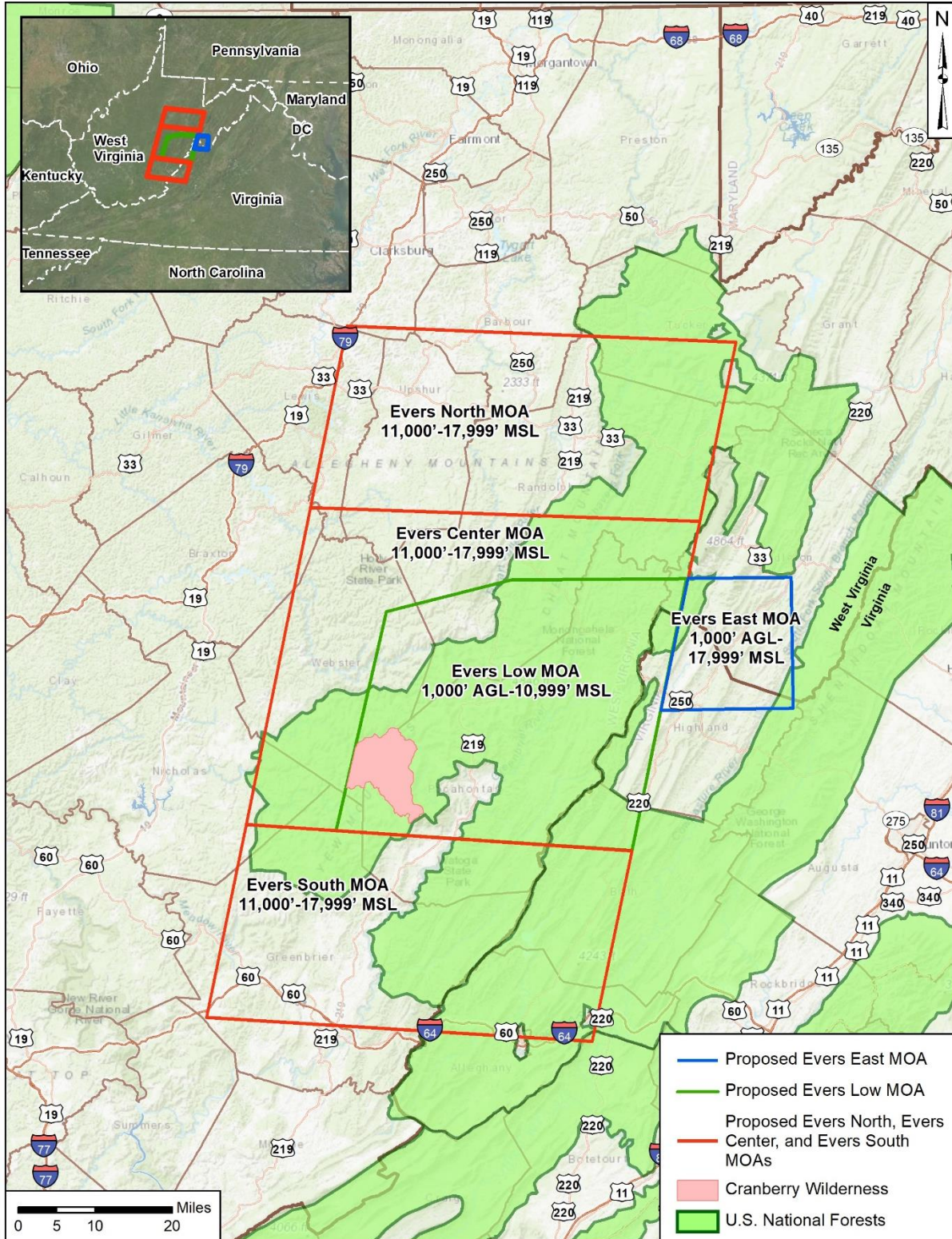


Figure 3-15. National Forest Beneath the Proposed Evers MOA Complex

The rural landscape, woodlands, and wildlife of the Appalachian Mountains are key biological resources. The IICEP response from the Monongahela National Forest (MNF) indicated that all or portions of eight congressionally designated wilderness areas may be within the proposed MOAs. The MNF encompasses more than 921,000 acres in federal ownership in 10 counties of West Virginia. It is the largest expanse of public land in West Virginia and represents 52 percent of the publicly available recreation land in West Virginia. The majority of the MNF is within the counties identified in the proposed MOAs (Appendix A).

3.3.2.1 Land Cover Types

The proposed Evers MOA lies over the Appalachian Mountains and parts of West Virginia and Virginia. Land cover beneath the proposed Evers MOA covers a total of approximately 4,827 square miles and may be grouped into seven generalized categories according to the National Land Cover Database (MRLC 2018) (Figure 3-16). The area is primarily forest (87 percent), pastures (7 percent), and developed land (4 percent). The remaining 2 percent of land cover is comprised of water, barren land, grasslands, and wetlands. Forests contain a diverse selection of deciduous and mixed evergreen-deciduous woodlands dominated by species including red oak (*Quercus rubra*), black oak (*Quercus velutina*), white oak (*Quercus alba*), bitternut hickory (*Carya cordiformis*), red maple (*Acer rubrum*), yellow-poplar (*Liriodendron tulipifera*), and Virginia pine (*Pinus virginiana*) (Morin 2017 and WV DNR 2003c).

3.3.2.2 Wildlife

The forested land in the region beneath the proposed Evers MOA Complex provides habitats for a variety of wildlife. Common mammals found in this region include the eastern cottontail rabbit (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), several species of bat (i.e., *Eptesicus*, *Myotis*, *Nycticeius* spp.), American beaver (*Castor canadensis*), and several species of squirrel including the southern flying squirrel (*Glaucomys volans*). Less common species of mammal in the area include the coyote (*Canis latrans*), black bear (*Ursus americanus*), and bobcat (*Lynx rufus*). Other terrestrial and aquatic species such as the timber rattlesnake (*Crotalus horridus*) and the spotted salamander (*Ambystoma maculatum*) live in the region as well (WV DNR 2003b).

3.3.2.3 Bird-Aircraft Strike Hazard

The DCANG follows the policies and procedures in the Bird/Wildlife Aircraft Strike Hazard (BASH) Plan as put out by order of the Secretary of the Air Force. It implements AFI 91-202, *USAF Mishap Prevention Program*, AFI 91-204, *Safety Investigations and Reports*, and the Air Force Manual 91-223, *Aviation Safety Investigations and Reports*. The BASH Plan applies to all Evers MOA Complex members, Geographically Separated Units, transient/deployed units to the Evers MOA Complex, and its associated training areas and airspace (USAF 2018).

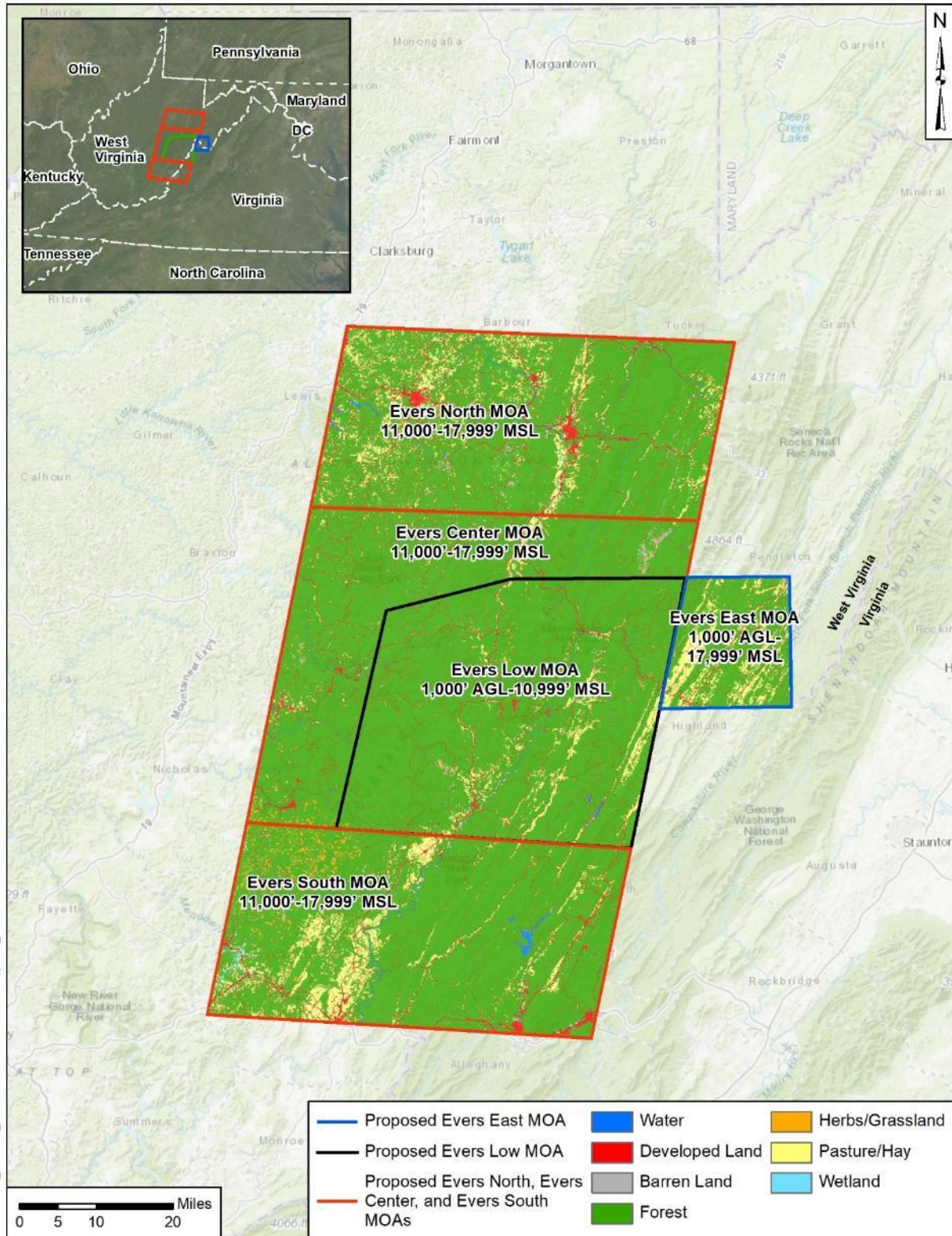


Figure 3-16. Land Cover Beneath the Proposed Evers MOA Complex

The USAF Bird Avoidance Model (BAM) and Avian Hazard Advisory System (AHAS) show the risk of bird hazards for the continental U.S. and Alaska. They use online, near real-time, geographic information system data and data on bird habitat, migration, and breeding characteristics to predict bird movement and the potential risk for bird strikes (USAF 2015). With this information, pilots can informatively schedule flight routes as to minimize the hazard of bird strikes.

Table 3-16 outlines the existing rate of potential bird strikes based on Air Force-wide BASH rates for individual aircraft types as provided from the Air Force Safety Center. Existing mishap rates reflect the air operations in the existing Evers MOA and are differentiated based on altitude blocks. The incidence rate of bird strikes under the existing conditions is low. Overall, existing bird strike rates are small and comparable to USAF-wide rates.

Table 3-16. Bird Strike Rates - Existing Conditions

Altitude Block	Low Level (1,000-11,000)	Mid-Level (11,000-18,000)	High-Level (>FL180)	Total
Training Hours	99.0	147	0.0	246
Strikes Per 100,000 Flying Hours	589.6	5.7	3.0	598

Source: USAF 2019b.

There are four migratory bird flyways recognized in the U.S. that are used during the spring and fall seasons (Figure 3-17). Most of bird migrations occur below 3,000 ft AGL (Lincoln et al. 1998). The Proposed Action lies on the western edge of the Atlantic flyway. Although there is considerable variation, most birds fly below 500 ft AGL except during migration. The AHAS classifies the risk of bird-aircraft strikes in the current Evers MOA Complex as low to moderate during peak spring and fall migration months (USAF 2015).

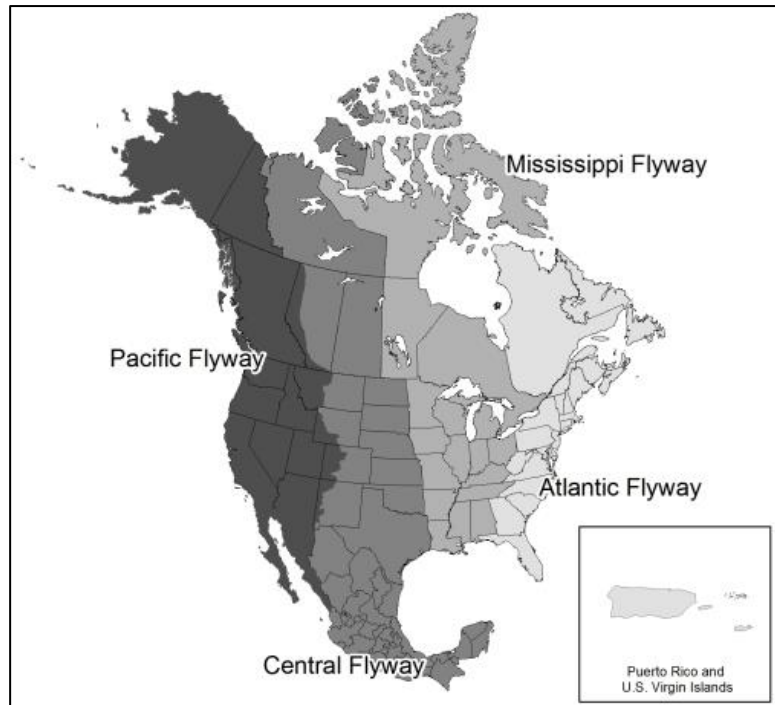


Figure 3-17. Migratory Flyways Over the United States

3.3.2.4 Threatened and Endangered Species

The known or expected range of federally-listed species in the area beneath the proposed Evers MOA Complex includes six plant species and 18 animal species (USFWS 2019a). Animals include four species of bat, one species of salamander, and numerous species of aquatic animals, insects, and isopods. There are no large federally-listed mammals that potentially occur under the proposed Evers MOA Complex (USFWS 2019c). Bat species are described in further detail at the end of this section. Amphibians, insects, and aquatic species are not discussed in detail as the Proposed Action will have negligible effect on them. Two critical habitats, those of the Indiana bat and the Virginia big-eared bat, are located within the region underlying the proposed Evers MOA Complex (USFWS 2019c). Critical habitats are specific geographic areas that contain features essential to the conservation of an endangered or threatened species (USFWS 2018). This federally-listed species and critical habitat data was obtained from USFWS’ Information for Planning and Consultation tool (USFWS 2019c).

There are 18 migratory bird species that are known or expected to occur in the area underlying the Proposed Evers MOA Complex. The majority are passerines or near passerines (perching birds). The remaining species include raptors, such as eagles and owls, and a couple of non-passerines (USFWS 2019c). Bald eagles are no longer protected under the ESA and Section 7 consultation with the USFWS is no longer necessary. However, the bald eagle remains protected under the BGEPA.

The known or expected range of state-listed species in the area underlying the proposed Evers MOA Complex includes six plant species and 18 animal species. The majority of all state-listed species overlap with the federally-listed species with a couple discrepancies. There are no state-listed large mammals that potentially occur under the Proposed Evers MOA Complex. Table 3-17 lists the federal and state listed species in the region underlying the Proposed Evers MOA Complex.

Table 3-17. Federally and State Listed Threatened and Endangered Species Beneath the Proposed Evers MOA Complex

Common Name	Scientific Name	Federal Status	State Status
Gray bat	<i>Myotis grisescens</i>	E	E
Indiana bat	<i>Myotis sodalist</i>	E	E
Northern long-eared bat	<i>Myotis septentrionalis</i>	T	T
Virginia big-eared bat	<i>Corynorhinus townsendii virginianus</i>	E	E
Red knot	<i>Calidris canatus rufa</i>	T	T
Cheat mountain salamander	<i>Plethodon nettingi</i>	T	T
Candy darter	<i>Etheostoma osburni</i>	E	E
Diamond darter	<i>Crystallaria cincotta</i>	E	E
Atlantic pigtoe	<i>Fusconaia</i>	PT	PT
Clubshell	<i>Pleurobema clava</i>	E	E
Fanshell	<i>Cyprogenia stegaria</i>	E	E

Common Name	Scientific Name	Federal Status	State Status
James spiny mussel	<i>Pleurobema collina</i>	E	E
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	E
Pink mucket	<i>Lampsilis abrupta</i>	E	E
Rayed bean	<i>Villosa fabalis</i>	E	E
Sheepnose mussel	<i>Plethobasus cyphus</i>	E	
Snuffbox mussel	<i>Epioblasma triquetra</i>	E	E
Spectaclecase mussel	<i>Cumberlandia monodonta</i>	E	
Tubercled blossom	<i>Epioblasma torulosa</i>	E	
Roanoke logperch	<i>Percina rex</i>		E
Rusty patched bumblebee	<i>Bombus affinis</i>	E	E
Madison cave isopod	<i>Antrolana lira</i>		T
Northeastern bulrush	<i>Scirpus ancistrochaetus</i>	E	E
Running buffalo clover	<i>Trifolium stoloniferum</i>	E	E
Shale barren rock cress	<i>Arabis serotina</i>	E	E
Small whorled pogonia	<i>Isotria medeoloides</i>	T	T
Smooth coneflower	<i>Echinacea laevigata</i>	E	E
Virginia spiraea	<i>Spiraea virginiana</i>	T	T

Notes: E= endangered, T-Threatened

A brief description of federally- and state-listed bat and bird species follows:

Gray Bat (*Myotis grisescens*) – The gray bat was listed as federally endangered in 1976 because of human disturbance and habitat loss and degradation. These bats live in caves year-round, hibernating in deep, vertical caves in the winter, and roosting in limestone caves along rivers during the summer. Females give birth to a single pup in late spring. Gray bats are mainly found in limestone karst areas of the southeastern U.S. with some populations also found in parts of the Midwest. They are extremely vulnerable to disturbance due to living in very large numbers in relatively few caves. Human disturbance of hibernating bats, cave flooding, and cave commercialization have all contributed to declining bat numbers. The USFWS has developed a recovery plan to aid the bats’ survival (USFWS 2019b).

Indiana Bat (*Myotis sodalist*) – The Indiana bat was listed as federally endangered in 1973 due to disturbance of their hibernation habitats and loss of their summer habitats. These bats hibernate in large numbers in few caves (20,000-50,000 bats per cave), leaving their population vulnerable to disturbance from even a single event. Almost half of all Indiana bats hibernate in southern Indiana with the rest of the population spread out over the eastern half of the United States. Females give birth to a single pup in the spring. In the summer, Indiana bats migrate to wooded areas to roost under the peeling bark of dead and dying trees in groups of 100 or more. Their habitat in the Evers East MOA as well as small adjacent portions in the Evers Low and Center MOAs has been designated as critical (USFWS 2018).

Northern Long-eared Bat (*Myotis septentrionalis*) – The Northern Long-eared bat was federally listed as threatened in 2015 primarily as a result of the disease known as white-nose syndrome. However, other factors such as hibernation disturbance and summer habitat loss are also possible

causes. During the winter, these bats hibernate in caves and mines with constant temperatures, high humidity, and no air currents. In the summer they roost in cavities or crevices of both live and dead trees. The Northern Long-eared bat has a wide range including much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia (USFWS 2019d).

Virginia Big-eared Bat (*Corynorhinus townsendii virginianus*) – The Virginia Big-eared bat was federally listed as endangered in 1979 because of habitat loss and increased human disturbance of maternity roosts and hibernacula. These non-migratory bats inhabit limestone caves year-round in karst regions dominated by oak-hickory or beech-maple-hemlock forests. In the winter they hibernate in cool, well-ventilated areas of caves. In early spring, females congregate in maternity colonies in the warmer parts of the caves and give birth to a single pup. Even slight disturbances of these bat populations can cause adults to abandon caves, abandon young, and force bats to use valuable energy reserves needed to survive hibernation. Two small pockets in the Evers East MOA as well as one small pocket in the Evers North MOA have been designated as critical habitat (USFWS 2011).

Red Knot (*Calidris canutus rufa*) – The rufa subspecies of the red knot was federally-listed as threatened in 2015 and state-listed as endangered due to habitat loss, disruption of predator/prey cycles on nesting grounds, and asynchronies in the timing of the birds' annual migratory cycle relative to favorable food and weather conditions. Red Knots nest in Canada's Arctic region in dry, slightly elevated tundra locations and migrate to the Southeast U.S., and parts of South America in the winter. Red knots use key staging and stopover areas to rest and feed. Major stopover areas for foraging along the U.S. Atlantic coast include the Virginia barrier islands and Delaware Bay. Their migration pathway crosses over the Proposed Evers MOA Complex from May through the end of September (USFWS 2015).

3.3.2.5 Eastern Region Forester Sensitive Species

The lists of eastern region forester sensitive species for the Monongahela National Forest, and the George Washington and Jefferson National Forests were provided for the Administrative Record. The lists of rare species potentially impacted by the aircraft operation in the proposed Evers MOA Complex were also provided by the U.S. Forest Service, Monongahela, Washington, and Jefferson National Forests.

The eastern region forester sensitive species for the Monongahela National Forest include multiple species of mammals (10), birds (14), reptiles (3), amphibians (3), fishes (8), insects (28), crustaceans (6), bivalves (2), gastropods, (1), other invertebrates (13), vascular plants (69), and non-vascular plants (1). Federally-listed wildlife species potentially occurring under the proposed Evers MOA Complex include three bats and one invertebrate.

The eastern region forester sensitive species for the George Washington and Jefferson National Forests include multiple species of fishes (20), amphibians (8), reptiles (3), birds (1), mammals (9), gastropods (11), mussels (37), spiders (1), amphipods (7), isopods (3), crayfish (1), other invertebrates (26), vascular plants (53), and non-vascular plants (19). State-listed wildlife species potentially occurring under the proposed Evers MOA Complex include three fishes, two amphibians, three birds, three mammals, four invertebrates, and one vascular plant.

3.3.3 Significance Criteria

The Proposed Action would have significant effects on biological resources if it would reduce the distribution or viability of species or habitats of concern. Determination of the significance of potential impacts to biological resources is based on legal protections provided in the Virginia Department of Agriculture and Consumer Services (the Endangered Plant and Insect Species Act of the Code of Virginia); ESA of 1973 (16 U.S.C. §§ 1531-1544, as amended); Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712 as amended); and BGEPA (16 U.S.C 668-668c, as amended.) The state of West Virginia does not currently have legislation protecting threatened and endangered species. Species listed in the state are those listed federally and are protected by the ESA (WV DNR 2003a).

The Virginia Department of Agriculture and Consumer Services Endangered Plant and Insect Species Act protects and manages endangered and threatened plant and insect species in the Commonwealth of Virginia (VDACS 2019). The federal ESA specifies that effects to biological resources would be considered significant if the Proposed Action or its alternatives would: (1) jeopardize the continued existence of a federally listed threatened or endangered species; or (2) result in the destruction of adverse modification of federally designated critical habitat. The Migratory Bird Treaty Act provides that it is unlawful to take any migratory bird (50 CFR §10.13), or any part, nest, egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. Take is defined in regulations as: pursue, hunt, shoot, wound, trap, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect. The BGEPA prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles (pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb), including their parts, nests, or eggs. Disturb means 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: (1) injury to an eagle, (2) a decrease in its productivity, or (3) nest abandonment.

3.3.4 Environmental Consequences of the Proposed Action

The Proposed Action would have less than significant adverse effects to biological resources. These effects could result from direct impacts associated with BASH and indirect impacts associated with noise from aircraft overflights. The land cover beneath the proposed airspace is primarily forest and two national forests cover more than half of the land cover. There would be

no ground-disturbing activities, no supersonic flight activities, no weapons firing, and no ordnance deployment within the Proposed Evers MOA Complex. No habitat disturbances would result from the Proposed Action. Short-term effects would be due to increases in aircraft overflight noise during training exercises. These effects would cease and return to existing conditions during periods when aircraft are not periodically flying overhead. Long-term effects would be similar in nature and overall level as the short-term effects. The Proposed Action would not reduce the distribution or viability of species or habitats of concern; jeopardize the continued existence of a federally listed threatened or endangered species; or result in the destruction or adverse modification of federally designated critical habitat. In addition, the Proposed Action would not disturb a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle, a decrease in its productivity, or nest abandonment.

A scoping letter and description of the Proposed Action was sent to USFWS, Virginia Field Office and West Virginia field Office, in which ANG requested assistance in identifying any potential issues related to the proposal, and concurrence for “no effect” upon federally-listed species. The West Virginia USFWS coordination letter is provided in Appendix A. No response was received from Virginia USFWS; however, no response is required when no effects are anticipated per the Virginia USFWS website. Based on the analysis and regulatory coordination contained in this EA, the Proposed Action would not reduce the distribution or viability of species or habitats of concern or violate biological resources laws or regulations.

3.3.4.1 Noise Effects on Wildlife

The noise analysis conducted for the Proposed Action (Section 3.2) indicated that the overall noise levels from aircraft would exceed existing levels in some areas but would not exceed 65 dBA DNL and would be compatible with all land uses. Noises from individual overflights would generate distinct acoustical events; maximum sound level associated with individual overflights could exceed 75 dBA L_{max} . As the air operations would be distributed throughout the proposed Evers MOA Complex, noise from individual overflights would occur a small percentage of the time. It is possible that some locations could experience these events more often; however, events would be offset with a one-to-one reduction in overflights at other locations. It should be noted that the floor of 1,000 ft AGL is proposed only for the Evers East MOA and the Evers Low MOA; the range of noise would be 42.9 to 47.2 dBA DNL. The remaining MOAs have a proposed floor of 11,000 ft MSL. Noise generated from overflights at this altitude would be approximately 43.0 dBA DNL and 44 L_{dnmr} , considerably lower than the range of noise from aircraft flying in the Evers East and Low MOAs.

Due to the nature of the proposed expansion, overall noise levels from overhead flights are estimated to decrease in some areas. The expansion of the airspace combined with the currently enacted number of flight hours would result in current noise levels spread over a larger area, effectively increasing noise levels in the new proposed Evers MOAs, but decreasing noise levels

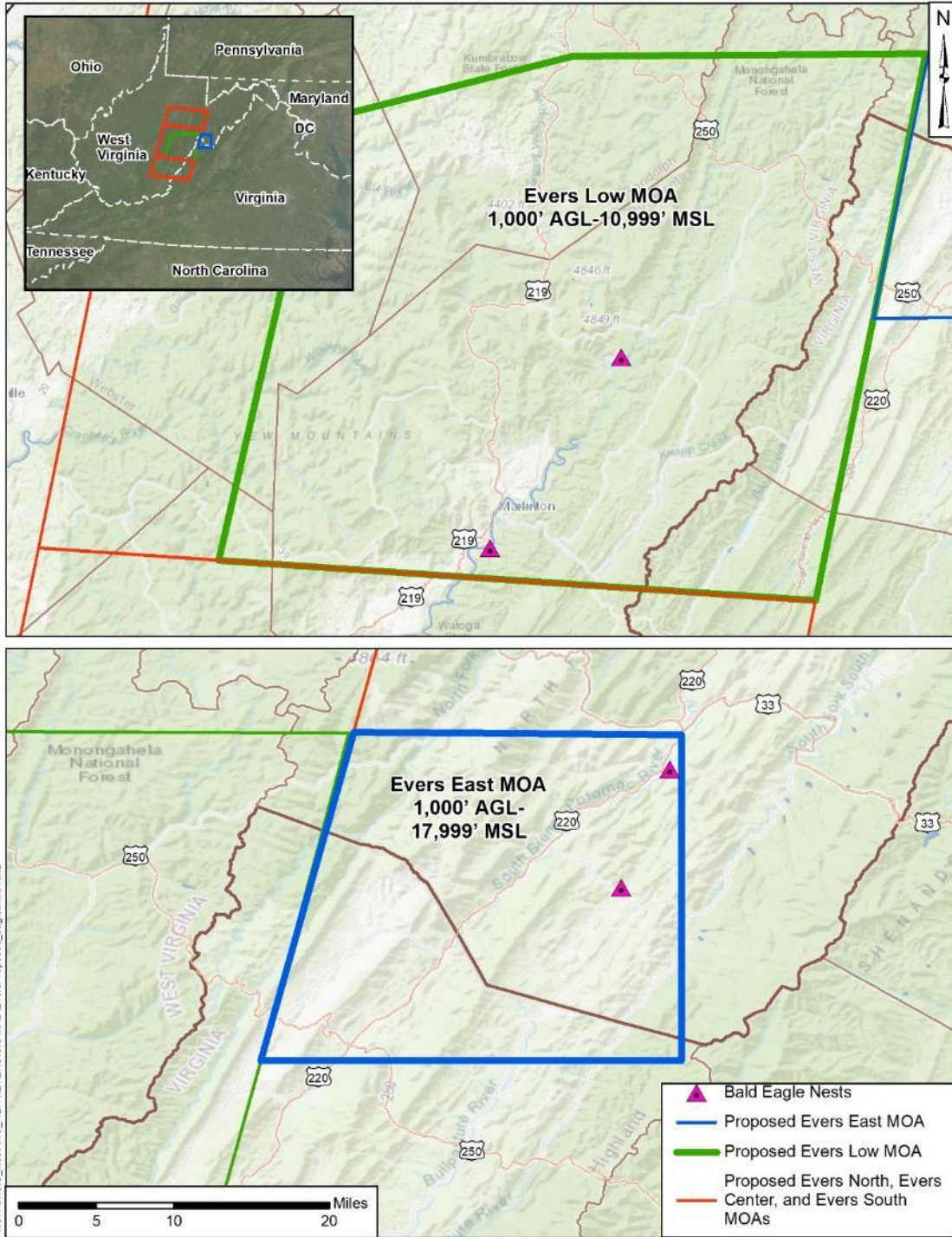
in the existing Evers MOA. The most significant decrease in noise levels would be in the proposed Evers Center MOA (under existing MOA) which would see a reduction in noise levels by 7.8 dBA DNL (i.e., average annual) and 12.2 dBA L_{dnmr} (average busiest month) (Section 3.2).

Noise effects on wildlife can be classified as hearing, masking, physiological, or behavioral (Dufour 1980). Wildlife could habituate to repeated exposure to aircraft noise; however, habituation (i.e., the diminishing of a physiological or emotional response to a frequently repeated stimulus) seems unlikely given the widely dispersed nature of aircraft operations and the infrequency of the activities. The potential noise impacts on wildlife from such events would be limited to startle (behavioral) responses to the sporadic noise events with a subsequent return to normal behavior (Dufour 1980).

There are two bald eagle nest locations under each of the proposed Evers Low MOA and Evers East MOA (Figure 3-18). The noise level increase from the Proposed Action above the nest locations would be 5.2 dBA DNL above the estimated background noise level of 42 dBA DNL (see Table 3-11). Avoidance of low-level flights by 0.5 NM lateral and 1,000 ft vertical over noise-sensitive areas such as the eagle nest locations would be emphasized by 113 WG to all flying units during the flight planning stage to avoid the potential for nest disturbance per the BGEPA.

There are three bald eagle nest locations under each of the proposed Evers North, Evers Center, and Evers South MOAs. The aircraft operations in these MOAs would be more than 5,000 ft AGL above the nest locations (i.e., the existing number of ft above MSL elevation under the proposed North, Center, and South MOAs would result in flight operations being at least 5,000 ft AGL for a floor altitude of 11,000 ft above MSL) and the noise level increase from the Proposed Action would be 0.9 to 1.0 dBA DNL above the estimated background noise level of 42 dBA DNL (see Table 3-11). Therefore, the Proposed Action would not affect bald eagle nests in these MOAs.

Numerous studies have been conducted to evaluate the impact of aircraft noise and sudden visual appearance of aircraft on wildlife (Dufour 1980; Mancini et al. 1988; Ellis et al. 1991). Studies of the noise effects on wildlife have resulted in a wide range of behavioral response ranging from immediate fright response to no visible reaction. Some species appear to be influenced more by sight than by sound of low-flying jet aircraft. Most effects reported in noise-wildlife studies were temporary with no acute (i.e., sudden) effects on reproduction, mortality, or survivorship. Based on the sporadic and infrequent change in sound level from baseline and the predicted wildlife startle responses (Dufour 1980; Mancini et al. 1988; Ellis et al. 1991), the potential for noise disturbance from aircraft operations would have less than significant effects on biological resources.



Sources: Virginia Eagle Nest Locator <https://ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/> and West Virginia Division of Natural Resources

Figure 3-18. Bald Eagle Nest Locations – Evers Low and Evers East MOAs

3.3.4.2 Threatened and Endangered Species

The Proposed Action would have less than significant effects on the federal and state listed species known or expected to occur in the area underlying the Proposed Evers MOA Complex. Due to the fact that no infrastructure changes, no ground-disturbing activities, no supersonic flight activities, no release of chaff and flare, no weapons firing, and no ordnance deployment would occur, no effects to ground-dwelling wildlife (i.e., reptiles, amphibians, fish, and invertebrates) or their associated habitats would result from implementation of the Proposed Action. In addition, water resources (i.e., wetlands, floodplains, surface waters, groundwater, or wild and scenic rivers) were dismissed from detailed analysis for the same reason. All four species of threatened or endangered bats that are found in the region of the Proposed Evers MOA Complex spend the majority of their lives in caves or forests. Some species of bat migrate or hunt at altitudes of 1,100 ft AGL (Peurach 2009), however the known species that do this do not include the threatened and endangered bat species discussed in this EA. Bats are nocturnal animals; therefore, since operations will be nearly always during daylight, contact between bats and aircraft will be unlikely. Therefore, the Proposed Action would have less than significant effect on the bats or their habitats. The migratory path of the red knot, which is federally-listed as threatened and state-listed as endangered, passes over the proposed Evers MOA Complex. However, no preferred nesting or foraging habitat exists beneath the airspace, so it is unlikely that red knots would stop while passing through the region. Potential effects on threatened or endangered species would be limited to noise disturbance and startle response of transient species.

Low-level overflight avoidance of sensitive areas such as wildlife management areas would be emphasized in flight planning to all flying units in the Proposed Evers MOA Complex. Per the BGEPA, nest overflight avoidance would be 0.5 NM laterally and 1,00 ft vertically. Based on the sporadic and infrequent change in sound level from baseline and the predicted wildlife startle response (Dufour 1980; Mancini et al. 1988; Ellis et al. 1991), the potential for noise disturbance from aircraft operations would have less than significant effects on threatened or endangered species. The 113 WG would coordinate with the appropriate regulatory agency subject matter experts to follow standard measures for wildlife impact avoidance to the maximum extent practicable.

3.3.4.3 Bird-Aircraft Strike Hazard

The Proposed Action would have less than significant effects on bird strike risk. Radar studies have demonstrated that most bird migrations occur under 3,000 ft AGL and for most small birds the preferred altitude is between 500 and 1,000 feet AGL during migration (Lincoln et al. 1998), which is below the floor of 1,000 feet AGL set forth in the Proposed Action. The calculated number of bird strikes for the existing MOA, based on the number of training hours in the low-level airspace and using the USAF-wide BASH rates for individual aircraft types, indicated that the bird strike potential is comparable to USAF-wide rates. Table 3-18 outlines the rate of potential bird

strikes based on USAF-wide BASH rates for operations under the Proposed Action. Rates reflect the air operations in the existing Evers MOA and are differentiated based on altitude blocks. In the low-level airspace, there would be an incremental decrease in the rate of bird strikes from 58 to 44 BASH events every 100 years, or a decrease to one event every two years. Overall, bird strike rates would remain small and comparable to USAF-wide rates. These effects would be negligible.

Table 3-18. Bird Strike Rates - Proposed Action

Altitude Block	Low Level (1,000- 11,000)	Mid-Level (11,000- 18,000)	High- Level (>FL180)	Total
Training Hours				
Existing	99	147	0	246
Proposed	75	179	112	366
Change	-24	33	112	121
Strikes Per 100,000 Flying Hours				
	589.6	5.7	3.0	598
Total Number of Bird Strikes per Hundred Years				
Existing	58	1	0	59
Proposed	44	1	0	46
Change	-14	0	0	-13

Source: USAF 2019b.

In addition to bird strikes, there is potential for bat-aircraft strikes given the nature of some bat species to fly at high altitudes. The number of bat strikes peaks during the spring and fall migration months when the mammals are most active with the majority of collisions in the U.S. occurring at night between the hours of 1900 and 0200. A study that looked at 147 recorded bat strikes concluded that 36 percent occurred above 984 ft AGL and the average altitude of bat-aircraft strike occurrence was approximately 1,132 feet AGL (Peurach 2009). Given that the proposed airspace extends from 1,000 ft AGL to 17,999 ft MSL, most flight operations would take place above the average range of 1,132 ft AGL, thereby reducing the potential for bat/aircraft strikes. There are four threatened or endangered species of bats located in the region of the Evers MOA Complex, but none are recognized as species commonly found involved in bat-aircraft strikes. However, it should be noted that only 49 percent of bats in USAF reported bat-strikes have been identified to the species level (Peurach 2009).

The analysis indicates that the environmental impact as well as safety impact are minimal. By implementing a BASH plan with an AHAS and BAM, pilots in the Evers MOA Complex could effectively plan flights that reduce the potential for bird and wildlife strikes to less than significant levels.

3.3.4.4 Eastern Region Forester Sensitive Species

The Proposed Action would have less than significant effects on the eastern region forester sensitive species known or expected to occur in the area underlying the Proposed Evers MOA

Complex. Negligible effects to ground-dwelling wildlife (i.e., small mammals, reptiles, amphibians, fish, and invertebrates), plants, or their associated habitats would result from implementation of the Proposed Action because the calculated mishap potential (Table 3-7) is low (approximately 1 mishap every 100 years), and no infrastructure changes, no ground-disturbing activities, no release of chaff and flare, no weapons firing, and no ordnance deployment would occur under the Proposed Action. The potential for adverse effects on birds and bats would be negligible because the calculated BASH under the Proposed Action would be low (approximately 1 event every 2 years). These effects would be less than significant, as they would not reduce the distribution or viability of species or habitats of concern.

3.3.5 No Action Alternative

Selecting the No Action Alternative would result in no new or changed effects on biological resources. The modification and expansion of the Evers MOA Complex would not occur. Habitat conditions would remain unchanged when compared to existing conditions.

3.4 CULTURAL RESOURCES

3.4.1 Definition of Resource

Cultural resources are physical evidence of past human activities and may take the form of a site, object, structure, or natural feature such as a landscape that defines communities and links them to their surroundings. The area of potential effects (APE) for cultural resource considerations encompasses the area beneath the existing and proposed MOAs within the Evers MOA Complex.

The NRHP is a listing maintained by the federal government of prehistoric, historic, and cultural buildings, structures, sites, districts, and objects that are considered significant at a national, state, or local level. Listed resources can have significance in the areas of history, archaeology, architecture, engineering, or culture. Cultural resources listed in the NRHP, or determined eligible for listing, have been documented and evaluated according to uniform standards, found in 36 CFR §60.4, and have been found to meet criteria of significance and integrity. Cultural resources that meet the criteria for listing on the NRHP, regardless of age, are called *historic properties*. Resources that have undetermined NRHP eligibility are treated as historic properties until a determination otherwise is made.

Several federal laws, regulations, and EOs address cultural resources and federal responsibilities regarding them. Foremost among these statutory provisions, and most relevant to the current analysis, is the NHPA (54 U.S.C. 300101 et seq.). Section 106 of the NHPA requires federal agencies to consider the effect of their undertakings on historic properties. The Advisory Council on Historic Preservation regulations that implement Section 106 (36 CFR Part 800) describe the process for identifying and evaluating historic properties; assessing effects of federal actions on historic properties; and consulting to avoid, minimize, or mitigate any adverse effects.

As a federal agency, DOD has a trust responsibility to American Indian Tribes (Tribes) to protect tribal cultural resources and to consult with Tribes on a government-to-government basis regarding those resources. Section 101(d)(6) of the NHPA mandates that federal agencies consult with Tribes and other Native American groups who either historically occupied the project area or may attach religious or cultural significance to historic properties in the region. The NEPA implementing regulations link to the NHPA, as well as to the American Indian Religious Freedom Act (42 U.S.C. 1996), EO 13007 Indian Sacred Sites (61 Federal Register [FR] 26771), EO 13175 Consultation and Coordination with Indian Tribal Governments (65 FR 67249), and the Executive Memorandum on Government-to-Government Relations with Native American Tribal Governments (59 FR 22951). These requirements call on agencies to consult with American Indian tribal leaders and others knowledgeable about cultural resources important to them.

3.4.2 Affected Environment

The cultural and historical setting, national- and state-listed historic sites, and tribally-significant cultural resources within the region of influence are discussed below.

3.4.2.1 Cultural and Historical Setting

The following provides a broad overview of the culture history of the region beneath the existing and proposed Evers MOA Complex (EReferenceDesk 2019a-d). The first known inhabitants in the region were the Paleo-Indians, early hunters and gatherers who arrived sometime before 11,000 B.C. In the Appalachian region, the mountain slopes were bare and tundra-like. The first people lived in small family units or bands. These extended families moved seasonally throughout a broad territory to hunt and forage.

When Europeans arrived in the early 17th century, they found a flourishing population of Native peoples. The Piedmont of Virginia was inhabited by two Siouan confederacies, the Monacan and Mannahoac. Organized tribes such as a Delaware and Shawnee had moved into West Virginia, and the powerful Iroquois Confederacy – an alliance of five Iroquois-speaking nations (Mohawk, Oneida, Onondaga, Cayuga, and Seneca) – began exerting its influence on the region. Once the Europeans arrived, the Native peoples found themselves in competition for land and resources (EReferenceDesk 2019a-d).

West Virginia became the 35th state in the Union on June 20, 1863. After the Civil War ended, the railroads expanded throughout West Virginia, lumber and coal production increased dramatically, and new industries such as chemical, glass, and steel manufacturing moved into the state to use the huge amounts of natural gas produced there. Despite reforms to develop safer working conditions and address other problems experienced by industry laborers, many workers left West Virginia from the 1940s to the 1970s in search of better economic conditions. The 1980s and beyond have seen renewed population growth due to increased retirement to West Virginia, spurred by a wealth of natural resources (EReferenceDesk 2019a-d).

3.4.2.2 Nationally Listed Historic Properties

The NRHP was searched to identify historic properties located under the Evers MOA Complex (NPS 2019a and 2019b). There are 126 listed properties beneath the Evers MOA Complex – 97 in West Virginia and 29 in Virginia (Tables 3-19 and 3-20). Seven of the historic properties within the APE are National Historic Landmarks; two in Virginia and five in West Virginia (NPS 2019c; Tables 3-19 and 3-20).

Table 3-19. NRHP-Listed Properties in West Virginia Beneath the Evers MOA Complex

Historic Property Name by MOA	Location
Evers North MOA	
Bernard E. Wilmouth House	Bellington, Barbour County
Carrolton Covered Bridge	Carrolton, Barbour County
Upper Glady School	Crawford, Lewis County
Walkersville Covered Bridge	Walkersville, Lewis County
Annamede	Walkersville, Lewis County
Beverly Historic District (boundary increase)	Beverly, Randolph County
Blackman-Bosworth Store	Beverly, Randolph County
Beverly Historic District	Beverly, Randolph County
Butcher Hill Historic District	Beverly, Randolph County
Rich Mountain Battlefield	Beverly, Randolph County
Tygart Valley Homesteads Historic District (<i>also in Evers Center MOA</i>)	Dailey, Randolph County
Gov. H. Guy Kump House	Elkins, Randolph County
Elkins Milling Company	Elkins, Randolph County
Wees Historic District	Elkins, Randolph County
Scott Hill	Elkins, Randolph County
First Ward School	Elkins, Randolph County
Riverside School	Elkins, Randolph County
Graceland **	Elkins, Randolph County
Albert and Liberal Arts Halls	Elkins, Randolph County
Pinecrest	Elkins, Randolph County
Randolph County Courthouse and Jail	Elkins, Randolph County
Senator Stephen Benton Elkins House **	Elkins, Randolph County
Taylor-Condry House	Elkins, Randolph County
Davis Memorial Presbyterian Church	Elkins, Randolph County
West Virginia Children’s Home	Elkins, Randolph County
Downtown Elkins Historic District	Elkins, Randolph County
Davis and Elkins Historic District **	Elkins, Randolph County
Warfield-Dye Residence	Elkins, Randolph County
Baldwin – Chandlee Supply Company – Valley Supply Company	Elkins, Randolph County
Dr. John C. Irons House	Elkins, Randolph County
Glady Presbyterian Church and Manse	Glady, Randolph County
Day-Vandevander Mill	Harmon, Randolph County
Fred A. Perly House	Jenningston, Randolph County
Middle Mountain Cabins	Wymer, Randolph County
Tucker County Bank Building	Parsons, Tucker County
Tucker County Courthouse and Jail	Parsons, Tucker County
Western Maryland Depot	Parsons, Tucker County
Fidler’s Mill	Arlington, Upshur County
Downtown Buckhannon Historic District	Buckhannon, Upshur County
Buckhannon Central Residential Historic District	Buckhannon, Upshur County
Agnes Howard Hall	Buckhannon, Upshur County
Southern Methodist Church Building	Buckhannon, Upshur County
William Post Mansion	Buckhannon, Upshur County

Historic Property Name by MOA	Location
French Creek Presbyterian Church	French Creek, Upshur County
Evers Center MOA	
Downtown Richwood Historic District	Richwood, Nicholas County
Helvetia	Helvetia, Randolph County
Fort Marrow	Huttonsville, Randolph County
E. E. Hutton House	Huttonsville, Randolph County
Tygarts Valley Church	Huttonsville, Randolph County
Cheat Summit Fort	Huttonsville, Randolph County
See-Ward House	Mill Creek, Randolph County
Laurel Run Rockshelter	Coe, Webster County
Camp Caesar	Cowen, Webster County
New Deal Resources in Holly River State Park Historic District	Hacker Valley, Webster County
Craig Run East Fork Rockshelter	Mills Mountain, Webster County
Mollohan Mill	Replete, Webster County
Morton House	Webster Springs, Webster County
Lowther Store	Wheeler, Webster County
Evers Center and Low MOAs	
Camp Alleghany	Bartow, Pocahontas County
Camp Bartow Historic District	Bartow, Pocahontas County
Cass Scenic Railroad	Cass, Pocahontas County
Cass Historic District	Cass, Pocahontas County
Reber Radio Telescope **	Green Bank, Pocahontas County
GW Jeep Site	Green Bank, Pocahontas County
Huntersville Presbyterian Church	Huntersville, Pocahontas County
IOOF Lodge Building	Marlinton, Pocahontas County
Marlinton Opera House	Marlinton, Pocahontas County
Frank and Anna Hunter House	Marlinton, Pocahontas County
Pocahontas Times Print Shop	Marlinton, Pocahontas County
Marlinton Chesapeake and Ohio Railroad Station	Marlinton, Pocahontas County
Pocahontas County Courthouse and Jail	Marlinton, Pocahontas County
Evers East MOA	
McCoy House	Franklin, Pendleton County
Franklin Historic District	Franklin, Pendleton County
McCoy Mill	Franklin, Pendleton County
Evers South MOA	
Blue Bend Forest Camp	Alvon, Greenbrier County
Hopkins Mountain Historic District	Alvon, Greenbrier County
Blue Sulphur Springs Pavilion	Blue Sulphur Springs, Greenbrier County
Homeplace	Frankford, Greenbrier County
Tuckwiller Tavern	Lewisburg, Greenbrier County
Alexander W. Arbuckle, I House	Lewisburg, Greenbrier County
Morlunda	Lewisburg, Greenbrier County
Lewisburg Historic District	Lewisburg, Greenbrier County
Herns Mill Covered Bridge	Lewisburg, Greenbrier County
Deitz Farm	Meadow Bluff, Greenbrier County
Edgefield	Renick, Greenbrier County
Renick Farm	Renick, Greenbrier County
Sam Black Church	Smoot, Greenbrier County
Oakhurst Links	White Sulphur Springs, Greenbrier County
The Greenbrier District **	White Sulphur Springs, Greenbrier County
Richard Beard House	Hillsboro, Pocahontas County
Pearl Buck House	Hillsboro, Pocahontas County
Locust Creek Covered Bridge	Hillsboro, Pocahontas County
New Deal Resources in Watoga State Park Historic District	Marlinton, Pocahontas County
Droop Mountain Battlefield	Marlinton, Pocahontas County
McNeel Mill	Mill Point, Pocahontas County
Pleasant Green Methodist Episcopal Church	Seebert, Pocahontas County
Seebert Lane Colored School	Seebert, Pocahontas County

Note: ** denotes a property also listed as a National Historic Landmark

Source: NPS 2019a; NPS 2019c

Table 3-20. NRHP-Listed Properties in Virginia Beneath the Evers MOA Complex

Historic Property Name by MOA	Location
Evers North MOA	
None	
Evers Center MOA	
None	
Evers Center and Low MOAs	
None	
Evers East MOA	
Monterey High School	Monterey, Highland County
C. P. Jones House and Law Office	Monterey, Highland County
Monterey Hotel	Monterey, Highland County
Evers South MOA	
Humpback Bridge **	Callaghan, Alleghany County
Wood Hall	Callaghan, Alleghany County
Jefferson School	Clifton Forge, Alleghany County
Clifton Forge Historic District	Clifton Forge, Alleghany County
Clifton Forge Commercial Historic District	Clifton Forge, Alleghany County
Clifton Forge Commercial Historic District (boundary increase)	Clifton Forge, Alleghany County
Persinger House	Covington, Alleghany County
Luke Mountain Historic District	Covington, Alleghany County
Rosedale Historic District	Covington, Alleghany County
Covington Historic District	Covington, Alleghany County
Oakland Grove Presbyterian Church	Selma, Alleghany County
Hidden Valley	Bacova, Bath County
Mustoe House	Hot Springs, Bath County
The Yard	Hot Springs, Bath County
Garth Newel	Hot Springs, Bath County
Barton Lodge	Hot Springs, Bath County
Switchback School	Hot Springs, Bath County
Ashwood School	Hot Springs, Bath County
The Homestead **	Hot Springs, Bath County
Homestead Dairy Barns	Warm Springs, Bath County
Oakley Farm	Warm Springs, Bath County
Three Hills	Warm Springs, Bath County
John Wesley Methodist Episcopal Church and Cemetery	Warm Springs, Bath County
Warm Springs Bathhouses	Warm Springs, Bath County
Hidden Valley Rockshelter	Warm Springs, Bath County
Warm Springs Mill	Warm Springs, Bath County

Note: ** denotes a property also listed as a National Historic Landmark
 Source: NPS 2019b; NPS 2019c

3.4.2.3 Other Known Cultural Resources

Research was conducted of the online files of the Virginia Department of Historic Resource’s Cultural Resource Information System and the West Virginia State Historic Preservation Officer’s map portal to identify known cultural resources located under the Evers MOA complex. Varying levels of information were available about the resources. The follow discussion summarizes the general nature of these resources.

- Evers East MOA – Recorded resources include 35 archaeological sites that include prehistoric lithic scatters, quarries, mounds, rock shelters, and camps, and historic farmsteads, cemeteries, and mills. In addition, 384 architectural properties have been recorded, including houses, commercial buildings, government buildings, mills with

dams, religious properties, community properties, farms, and bridges. Three historic districts and one battlefield have also been recorded.

- Evers North MOA – Recorded resources include 700 archaeological sites, 2,758 architectural properties, 8 historic districts, and 5 battlefields.
- Evers Center MOA – Recorded resources include 299 archaeological sites, 831 architectural properties, 4 historic districts, and 2 battlefields.
- Evers Center and Low MOA – Recorded resources include 655 archaeological sites that include prehistoric camps, mounds, petroglyphs, artifact scatters, and rock shelters, and historic dwellings, farmsteads, church and school sites, railroads, mills, bridges, and cemeteries. In addition, 814 architectural properties have been recorded, including houses, farm buildings, bridges, commercial buildings, government buildings, and religious properties. Four historic districts and eight battlefields have also been recorded.
- Evers South MOA – Recorded resources include 958 archaeological sites that include prehistoric rock shelters, camps, artifact scatters, villages/settlements, mounds, quarries, and burials, and historic dwellings, bridges, farmsteads, mills, furnaces, cemeteries, schools, railroads, mines, and collier pits. In addition, 1,616 architectural properties have been recorded, including houses, commercial properties, government buildings, industrial buildings, community buildings, religious properties, farm buildings, and bridges. Thirteen historic districts and three battlefields have also been recorded.

3.4.2.4 Tribally-Significant Cultural Resources

No Indian reservations are beneath the proposed Evers MOA Complex, and no tribes are known to have tribal lands beneath the MOAs (USGS 2019a and 2019b). The area beneath the proposed Evers MOA Complex was historically occupied at various times by the Shawnee, Iroquois, Delaware, Monacan, Meherrin, Susquehanna, Mannahoac, Moneton, Conoy, Honniasont, Tutelo, and Saponi tribes. Tribal consultation has been initiated by the ANG with the following tribes to determine the presence of tribally-significant cultural resources or concerns the tribes may have regarding the Proposed Action (see Appendix A, *Agency Coordination*).

- Chickahominy Indian Tribe
- Chickahominy Indians – Eastern Division
- Delaware Tribe
- Delaware Nation
- Cherokee Nation
- Monacan Indian Nation
- Nansemond Indian Tribe
- Rappahannock Tribe
- Seneca Nation of Indians
- Seneca-Cayuga Nation
- Tuscarora Nation
- United Keetoowah Band of Cherokee Indians
- Upper Mattaponi Indian Tribe

3.4.3 Significance Criteria

The Proposed Action would have significant effects to cultural resources if: (1) it resulted in impacts to an historic property that meets one or more of the Section 106 Criteria of Adverse Effects (36 CFR §800.5), or (2) a tribe determines that a culturally significant place or property

would be adversely affected. The Proposed Action would not include construction, demolition, ground disturbance, renovation, infrastructure upgrades, chaff or flares, weapons firing, ordnance deployment, or supersonic aircraft operations. As such, the Proposed Action would not have the potential to impact archaeological resources, including the 2,647 sites found under the Evers MOA complex.

Section 106 regulations provide specific criteria for identifying effects on historic properties, including:

- Physical destruction of or damage to all or part of a property;
- Physical alteration of a property;
- Removal of a property from its historic location;
- Change in the character of a property's use or of physical features within a property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or auditory elements that diminish the integrity of a property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance; or
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of a property's historic significance (36 CFR §800.5[a][2]).

As stated above, noise can adversely affect cultural resources. Implementation of aircraft operations under the Proposed Action would expose cultural resources and their settings to short-term increases in sound levels from low- and mid-altitude aircraft overflights. This is applicable to those resources whose setting plays an integral part in conveying the property's significance; for the Proposed Action, this would include many of the architectural, district, and battlefield properties described in Section 3.1.2.3. Low-altitude overflights would be added to the areas underlying the Evers Low and East MOAs. Mid-altitude overflights would be added to the Evers North, Central, South, and East MOAs.

Noise from low-altitude 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. Based on experimental data and models, noise and vibrations from subsonic aircraft overflights do not cause structural damage to buildings. Under the Proposed Action, individual low-altitude and mid-altitude overflights within the MOA Complex would not be supersonic and would not generate sonic booms above 140 dB; therefore, there would be no potential for damage to structures.

3.4.4 Environmental Consequences of the Proposed Action

The Proposed Action would not include construction, demolition, ground disturbance, renovation, infrastructure upgrades, chaff or flares, weapons firing, ordnance deployment, or supersonic aircraft operations. As such, the Proposed Action would have no potential to impact archaeological resources. Individual low-altitude and mid-altitude overflights within the MOA Complex would not be supersonic and would not generate sonic booms above 140 dB; therefore, there would be no potential for damage to structures.

The analysis of the potential impacts of the Proposed Action to historic property settings from noise generated by low-altitude and mid-altitude overflights is based on the noise assessment presented in Section 3.2. The Proposed Action would introduce additional noise to the settings of historic properties located within the APE in the form of distinct and temporary noise from individual overflights. While the noise from these overflights would be perceptible, due to the infrequency of these events in any one location and short duration of exposure, it would not compromise those attributes that make the properties eligible for listing in the NRHP. Changes in the overall noise environment and individual overflights would have no adverse effect on historic properties (see Section 3.2.4), and the impacts to historic property settings would be long-term and less than significant.

Section 106 consultation with the West Virginia State Historic Preservation Officer (SHPO) and Virginia SHPO was conducted to determine if historic properties eligible for or listed in the NRHP would be adversely affected by the proposed undertaking. The Virginia and West Virginia SHPO concurred that the Proposed Action would have no adverse effect on historic properties and that no further consultation is necessary. (see Appendix A, *Agency Coordination*).

3.4.4.1 Tribal Concerns

NGB invited 13 Tribal Nations to consult on the Proposed Action through a letter dated 13 June 2019. Tribal coordination was done through certified mail; follow-up phone calls to tribal recipients were conducted at 2 weeks and at 2 months after receipt verification to ask if there are any questions or concerns regarding the Proposed Action. Eight of the 13 Nations responded that they have no concerns with the project as described. The five remaining Nations did not comment or respond (see Appendix A, *Agency Coordination*).

3.4.5 No Action Alternative

The No Action Alternative would have no adverse effect to cultural resources. Cultural resources would remain unchanged when compared to existing conditions.

3.5 LAND USE

3.5.1 Definition of Resource

“Land use” is the term used to describe the human use of land. It represents the economic and cultural activities (e.g., agricultural, residential, industrial, mining, and recreational uses) that are practiced at a given place. Public and private lands frequently represent very different uses. For example, urban development seldom occurs on publicly owned lands (e.g., parks, wilderness areas), while privately owned lands are infrequently protected for wilderness uses.

Land use differs from land cover in that some uses are not always physically obvious (e.g., land used for producing timber but not harvested for many years and forested land designated as wilderness will both appear as forest-covered, but they have different uses). Natural land use categories include state and national forests, state and national parks, wilderness areas, and other similar areas. Human-modified land categories include recreation areas, agricultural areas, research areas, pipelines and powerlines, airports and private airstrips, and other areas developed from natural land cover conditions. Sensitive land use includes those uses intended to preserve natural or cultural resources, contain recreational opportunities and public access, or provide for the management of public lands.

3.5.2 Affected Environment

Almost 90 percent of the land use/land cover under the proposed Evers MOA Complex is forestland (see Figure 3-16). Most of the proposed Evers MOA Complex is in West Virginia. Chapter 8A of the West Virginia Code provides for county planning commissions to develop comprehensive plans for land development and zoning ordinances. The remainder of the proposed Evers MOA Complex is in Virginia. The Code of Virginia mandates that jurisdictions prepare and regularly update a comprehensive plan for the development of their communities. The counties or planning regions under the proposed Evers MOA Complex have comprehensive plans that include land use planning at the local and state levels⁴. The existing land uses common in the comprehensive plans are primarily forestry and agriculture. Steep terrain and the high proportion of public ownership restrict the land area feasible for development. The common vision outlined in the comprehensive plans is for a sustainable, rural environment and effective growth management. The population density for most of the area under the proposed Evers MOA Complex is less than 25 people per square mile (see Figure 3-10).

The Wilderness Act of 1964, Public Law 88-577 (16 U.S.C. 1131-1136) established the National Wilderness Preservation System. The U.S. Congress directed that designated wilderness areas

⁴Alleghany County (2019), Bath County (2014), Greenbrier County (2014), Harrison County (2016), Lewis County (2013), Planning and Development Council (2016), West Virginia University (2019)

“shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.” Official wilderness has the highest form of protection of any federal wildland. Except as specifically provided for in the Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any designated wilderness area and, except as necessary to meet minimum requirements for the administration of the area for the purpose of the Act (including measures required in emergencies involving health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment, or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such areas⁵.

The national forests and wilderness areas beneath the proposed Evers MOA Complex are under federal jurisdiction by the U.S. Forest Service. The shared vision and common goals include efforts to improve and maintain recreation areas, improve watersheds, care for wilderness areas, and achieve sustainable stewardship of national forests⁶. These plans and policies determine the type and extent of land use allowable in specific areas and protect specially designated areas. There are no wind development projects, designated wild and scenic rivers, national historic trails, national recreation areas, Indian reservations, or tribal lands (see Section 3.4.2.3) under the proposed Evers MOA Complex. No appreciably different planned/future land use changes are expected.

3.5.2.1 Evers East and Evers Low MOAs

The human modified land uses under the proposed MOAs include 130 bridges, seven dams, eight state recreation areas, one ski resort, 93 oil/gas wells, and 66,557 acres of pasture/hay agricultural areas. The natural land uses under the proposed MOAs include 1,104,780 acres of national forest, 47,337 acres of state parks/forest, and one wilderness area. There are four private airports beneath the proposed Evers Low and Evers East MOAs (see Figure 3-8). Three of the airports are beneath the existing Evers MOA. (refer to Section 3.1, Airspace Management). Figure 3-19 shows land use features under the proposed MOAs.

The 47,815-acre Cranberry Wilderness in the Monongahela National Forest is part of the National Wilderness Preservation System and is the largest in the Eastern U.S. It is under the proposed Evers Low MOA. The area includes the entire drainage of the Middle Fork of the Williams and the North Fork of the Cranberry rivers. Elevations range from 2,400 ft to 4,600 ft above MSL. As shown in Figure 3-15, the Cranberry Wilderness Area is beneath the southwest corner of the proposed Evers Low MOA. All other charted wilderness areas are underneath the proposed 11,000

⁵ <https://www.justice.gov/enrd/wilderness-act-1964>

⁶ USDA Forest Service (2011), USDA Forest Service (2014)

ft MSL floor. As part of the Proposed Action and incorporated into flight guidance, aircraft operations over the Cranberry Wilderness Area would be conducted at least 2,000 ft AGL.

3.5.2.2 Evers North, Center, and South MOAs

The human modified land uses under the proposed MOAs include 666 bridges, 24 dams, 35 state recreation areas, one ski resort, 9,383 oil/gas wells, 265 miles of gas pipelines, and 177,740 acres of pasture/hay agricultural areas. The natural land uses under the proposed MOAs include 3,359,452 acres of national forest, 196,866 acres of state parks/forest, and four wilderness areas. There are eight public and private airports beneath the proposed Evers North, Center, and South MOAs (see Figure 3-8).

The four wilderness areas in the Monongahela National Forest under the proposed MOAs are part of the National Wilderness Preservation System. The 20,698-acre Otter Creek Wilderness is under the proposed Evers North MOA. It lies in a bowl formed by Shavers Mountain and McGowan Mountain. Elevations range from 1,800 ft to 3,900 ft above MSL. The 11,839-acre Laurel Fork North Wilderness is under the proposed Evers North and Center MOAs. It is characterized by a narrow valley floor with regularly dissected slopes and long narrow ridges. Elevations range from 2,900 ft to 3,700 ft above MSL. The 6,030-acre Spice Run Wilderness Area is under the proposed Evers South MOA. Elevations range from 2,000 ft to 2,800 ft above MSL. The 5,144-acre Big Draft Wilderness is also under the proposed Evers South MOA. It is characterized by long ridges with narrow summits and mountain slopes. Elevations range from 1,800 ft to 3,100 ft above MSL.

3.5.3 Significance Criteria

The Proposed Action would have significant effects on land use if the Proposed Action would: 1) be inconsistent with applicable land use plans or policies; 2) preclude an existing land use; 3) preclude continued use of an area; or 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is endangered. The analysis of environmental effects includes assessment of the regulatory setting for existing land uses and spatial analysis of land uses.

In accordance with FAA Order 1050.1F, a land use impact would occur if a noise level over a land use was greater than the compatible noise levels associated with a range of land use activities presented in FAA Order 1050.1F. For FAA purposes, a significant impact would occur if noise levels increased by 1.5 dB or more at or above 65 DNL.

3.5.4 Environmental Consequences of the Proposed Action

The Proposed Action would have less than significant adverse effects to land use. Effects would be due to the introduction of low- to mid-altitude military overflights beneath the proposed Evers Low MOA. There would be no short- or long-term changes in land use due to the Proposed Action. There would be no changes in personnel, no construction, and no changes in ground-based

operations or training due to the Proposed Action. The Proposed Action would not 1) be inconsistent with applicable land use plans or policies; 2) preclude an existing land use; 3) preclude continued use of an area; or 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is endangered. All land uses would remain unchanged when compared to existing conditions.

Changes in the natural or constructed environment that alter, detract, or eliminate use or enjoyment of a place affect land use. Since the Proposed Action would not involve ground disturbance, the potential effects on land use would be associated with noise from aircraft operations in the proposed Evers MOA Complex. Aircraft operating within the ATCAAs would be comparable to high altitude civilian aircraft, and would not generate sound levels loud enough to affect land use or land users; therefore, they were not carried forward for detailed evaluation.

In accordance with 14 CFR § 91.119, *Minimum Safe Altitudes*, aircraft would continue to follow low-level guidance and remain 1,000 ft above the highest obstacle and 2,000 ft laterally when over congested or populated areas, as well as 500 ft above all known or observed antennas and obstacles.

The FAA considers 65 dBA DNL as the threshold of significance for assessing noise impacts (refer to Section 3.2, Noise). Under the Proposed Action, no areas beneath the Evers MOA Complex would experience noise levels greater than or equal to the 65 dBA DNL threshold. In addition, noise levels would remain under 55 dBA DNL which would be considered loud in outdoor areas and other places in which quiet is a basis for use. Noise effects are described in greater detail in Section 3.2, Noise.

3.5.4.1 Evers East and Evers Low MOAs

The proposed MOAs extend above land uses considered sensitive. Sensitive areas include historic properties (refer to Section 3.4.2.2), parks and recreation areas, state and national forests, wilderness, and research areas. Aircraft operations and the periodic occurrence of aircraft-generated noise above sensitive land use settings could be perceived as intrusive. The Proposed Action would not affect the utilization of any part of the existing physical landscape and any land use effects associated with aircraft noise would be short-term.

The Proposed Action would decrease noise levels by 4.6 dBA DNL beneath the existing Evers MOA. Aircraft operations would be distributed throughout the proposed MOAs. The maximum estimated DNL under the Evers East and Evers low MOAs would be below the FAA threshold of significance (65 dBA DNL); therefore, effects on land use would be less than significant.

Brief and intermittent noise from individual overflights within the proposed low MOAs could be in excess of 75 dBA L_{max} at any given point on the ground (refer to Section 3.2). Flight operations could include aircraft diving to 1,000 ft AGL for a small amount of time and then returning to higher altitudes (refer to Section 3.2, Noise). Aircraft operations would normally not occur

repeatedly at any one location. While individual flyover events would be loud at times, due to the infrequency of these events in any one location and the short duration of exposure, the land use under the proposed MOAs would not be subject to increases in overall noise level that would result in a significant effect on the land use or land users.

The noise level increase from the Proposed Action above the Cranberry Wilderness would be 5.2 dBA DNL above the estimated background noise level of 42 dBA DNL (see Table 3-11). Avoidance of noise-sensitive areas such as the Cranberry Wilderness to the maximum extent practicable would be emphasized by the 113 WG to all flying units during the flight planning stage so as not to appreciably increase the noise environment in the wilderness area. A restriction to flying below 2,000 ft AGL over the Cranberry Wilderness would be incorporated into flight guidance. See Appendix A for IICEP coordination and response from the U.S. Forest Service.

The noise level increase from the Proposed Action above the human modified land uses would be 5.2 dBA DNL above the estimated background rural/remote noise level of 42 dBA DNL. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL and, in accordance with FAA Order 1050.1, would be compatible with the human modified land uses.

Aircraft using the airports under the proposed Evers East and Evers Low MOAs would arrive and depart essentially unimpeded; however, some revectoring may be required during periods when the Evers MOAs are active (refer to Section 3.1, Airspace Management). These effects would be less than significant on the existing airport land use.

3.5.4.2 Evers North, Center, and South MOAs

The proposed MOAs extend above land uses considered sensitive. Sensitive areas include historic properties (refer to Section 3.4.2.2), parks and recreation areas, state and national forests, wilderness, and research areas. Aircraft operations and the periodic occurrence of aircraft-generated noise above sensitive land use settings could be perceived as intrusive. Aircraft operations would be more than 5,000 ft AGL. The existing number of ft above MSL elevation under the proposed North, Center, and South MOAs would result in flight operations being at least 5,000 ft AGL for a floor altitude of 11,000 ft above MSL. The Proposed Action would not affect the utilization of any part of the existing physical landscape and any land use effects associated with aircraft noise would be short-term.

The maximum estimated DNL under the MOAs would be below the FAA threshold of significance (65 dBA DNL); therefore, effects on land use would be less than significant. (see Section 3.2.4). Brief and intermittent noise from individual overflights within the proposed MOAs would range from approximately 50 to 80 dBA (see Figure 3-12 and Table 3-13). Aircraft operations would normally not occur repeatedly at any one location. While individual flyover events would be loud at times, due to the infrequency of these events in any one location and the short duration of

exposure, the land use under the proposed MOAs would not be subject to increases in overall noise level that would result in a significant effect on the land use or land users.

The noise level increase from the Proposed Action above the four wilderness areas under the proposed MOAs would be 0.9 to 1.0 dBA DNL above the estimated background noise level of 42 dBA DNL (see Table 3-11). Although, overflights may be visible to the wilderness user at times, the Proposed Action would not appreciably increase the noise environment in the wilderness areas.

The noise level increase from the Proposed Action above the human modified land uses would be slightly greater than the estimated background rural/remote noise level of 42 dBA DNL. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL and, in accordance with FAA Order 1050.1, would be compatible with the human modified land uses.

Aircraft using the airports under the proposed MOAs would arrive and depart essentially unimpeded; however, some revectoring may be required during periods when the Evers MOAs are active (refer to Section 3.1, Airspace Management). These effects would be less than significant on the existing airport land use.

3.5.5 No Action Alternative

Selecting the No Action Alternative would result in no additional effects on land use or land users. The modification and expansion of the Evers MOA Complex would not occur. There would be no changes in the natural or built environment that could alter, detract, or eliminate use or enjoyment of a place. Land use conditions would remain unchanged when compared to existing conditions.

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4.0 CUMULATIVE IMPACTS

Cumulative impacts on environmental resources result from the Proposed Action when combined with other past, present, and reasonably foreseeable projects in an affected area. Cumulative impacts can result from minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, or local) or persons. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the near future is required.

4.1 APPROACH TO CUMULATIVE EFFECTS ANALYSIS

In accordance with CEQ guidelines for considering cumulative effects under NEPA (CEQ 1997b), this cumulative impact analysis includes three major considerations, including: (1) determine the scope of the cumulative analysis, including relevant resources, geographic extent, and timeframe; (2) conduct the cumulative effects analysis; and (3) determine the cumulative impacts to relevant resources.

4.1.1 Scope of Cumulative Effects Analysis

CEQ guidelines require that potential cumulative impacts be considered over a specified period (i.e., from past through future). The appropriate time for considering past, present, and reasonably foreseeable future projects can be the design life of a project, or future timeframes used in local master plans and other available predictive data. Determining the timeframe for the cumulative impacts analysis requires estimating the length of time the impacts of a Proposed Action would last and considering the specific resource in terms of its history of degradation. The Proposed Action includes the future military training exercises within the Evers MOA Complex. While training and testing requirements change over time – in response to world events and several other factors – the general types of activities addressed in this EA would be conducted as often as annually, and the potential impacts associated with those operations would occur as often as annually. Therefore, the cumulative impacts analysis presented herein is not bound by a specific future timeframe.

Per CEQ guidelines, to assess the influence of a given action, a cumulative impact analysis should be conducted using existing, readily available data and the scope of the cumulative impact analysis should be defined, in part, by data availability. Consequently, only past projects or reasonably foreseeable future projects with the potential to contribute to cumulative impacts of the Proposed Action or its alternatives have been evaluated in this section. While the cumulative impacts analysis is not limited by a specific timeframe, it should be recognized that available information, uncertainties, and other practical constraints limit the ability to analyze cumulative impacts for the indefinite future. Consequently, future actions that are speculative are not considered in this EA.

Cumulative effects may occur when there is a relationship between an action and other actions expected to occur in a similar location or during a similar period. Actions overlapping with or in close proximity to the Proposed Action could reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide temporally would tend to offer a greater potential for cumulative effects.

4.1.2 Past, Present, and Reasonably Foreseeable Actions

Two past, present, and reasonably foreseeable future actions related to airspace use and management were identified. One reasonably foreseeable future action is the proposed Rocky Forge Wind Project in Eagle Rock, VA, which would be located approximately seven miles southeast of the proposed airspace. Apex Clean Energy in its proposal to build a wind farm project, coordinated with the DOD on siting and mitigation in order to avoid potential impacts to airspace use and management. The agreed-upon terms allow the goals of both parties to be accomplished. The second reasonably foreseeable future action is a proposed military “hot pit” refueling station located at Yeager Airport, WV, which could draw additional military aircraft operations on the MTRs though the Evers MOA area.

4.1.3 Cumulative Effects Analysis and Potential Effects

For the purposes of this EA, two projects with the potential to affect or interact with the proposed airspace complex were identified. The proposed Rocky Forge Wind Project in Eagle Rock mentioned above was coordinated with DOD to avoid potential impacts to airspace use and management. The Yeager Airport mentioned above has the potential to increase MTR flight route use through the area. No other projects that typically affect or interact with airspace proposals were identified. For example, review of recently completed, in-progress, and planned projects did not identify any proposed federally designated critical habitat, or proposed protected areas (e.g., recreation areas, natural areas, etc.). Consequently, as no other projects have been identified as either in close proximity to the Evers MOA Complex or as having a cumulative impact on shared resources, implementation of the Proposed Action would not contribute to any significant adverse cumulative impacts. A review of cumulative effects under each resource carried forward for detailed analysis in the EA is provided below.

4.1.3.1 Airspace Management

The Proposed Action would have less than significant adverse effects on airspace management. Proposed airspace operations would pose constraints to existing and future commercial and civilian air traffic when activated. Cumulative effects on airspace management in the proposed Evers MOA Complex would be less than significant when compared to existing conditions.

4.1.3.2 Noise

The Proposed Action would have less than significant adverse effects on noise. Effects would be due to noise from the introduction of low- to mid-altitude military overflights in the proposed Evers Low MOA. The Proposed Action would not increase noise levels by more than 1.5 dBA DNL in a noise sensitive area that is exposed to noise above 65 dBA DNL or generate individual acoustic events loud enough to damage hearing or structures. Cumulative effects on the noise environment beneath the proposed Evers MOA Complex would be less than significant when compared to existing conditions.

4.1.3.3 Biological Resources

The Proposed Action would have less than significant adverse effects on biological resources. Effects would be due to the introduction of low- to mid-altitude military overflights in the proposed Evers Low MOA. The Proposed Action would not reduce the distribution or viability of species or of critical habitats. Effects on wildlife and their habitats beneath the proposed Evers MOA Complex would be negligible, and not measurably different when compared to existing conditions. Cumulative effects on biological resources beneath the proposed Evers MOA Complex would be less than significant when compared to existing conditions.

4.1.3.4 Cultural Resources

While effects resulting from the introduction of noise into historic property settings are expected from the Proposed Action, those effects would not significantly affect the features of those properties that make them eligible for listing in the NRHP; therefore, the proposed action would have no adverse effects to historic properties or culturally significant places.

4.1.3.5 Land Use

The Proposed Action would have less than significant adverse effects on land use or land users. Effects would be due to the introduction of low- to mid-altitude military overflights in the proposed Evers Low MOA. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL and would be consistent with all land uses. This includes being compatible with wilderness area, residential area, church, school, and recreational area guidelines. Cumulative effects on land use beneath the proposed Evers MOA Complex would be less than significant when compared to existing conditions.

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5.0 MANAGEMENT ACTIONS AND SPECIAL PROCEDURES

This section summarizes special operating procedures associated with this EA. Evaluations contained in this EA have determined that no significant environmental effects would result from implementation of the Proposed Action; therefore, no mitigation would be required. This determination is based on thorough review and analysis of existing resource information, coordination with installation personnel, and relevant agency coordination.

The following management actions and special procedures are currently or would be implemented:

- The Evers MOAs would only be activated on an as-needed basis – allowing for more responsible stewardship of the regional airspace, allowing use by others when not needed for training exercises, and helping to minimize potential conflicts with other users.
- The proposed airspace (ATCAA, North, Center, South) would be activated individually or all together depending on mission. Aircrews will not use airspace that has not been previously scheduled.
- The schedule for the Evers MOA Complex would be maintained on the FAA Special Use Airspace v4.0 application at: <https://sua.faa.gov/sua/siteFrame.app>.
- Flying schedules would normally be transmitted to ZDC the day prior to activation, but no later than 4 hours prior, at which time a NOTAM is generated.
- Standard preflight mission planning requirements would include monitoring the Avian Hazard Advisory System and modifying or cancelling sorties in areas or periods with “moderate” to “severe” Bird Aircraft Strike Hazard risks.
- The 113 WG would coordinate with the appropriate regulatory agency subject matter experts to follow standard measures for wildlife impact avoidance to the maximum extent practicable.
- As part of the Proposed Action and incorporated into flight guidance, aircraft operations over the Cranberry Wilderness Area would be conducted at least 2,000 ft AGL.
- Military aircraft training in the proposed Evers MOA Complex would maintain contact with the controlling agency to ensure proper separation with all non-participating aircraft.
- The proposed MOAs would only be activated and used during VMC, whereas VFR flight rules would always be permitted. (i.e., Pilots would always have sufficient visibility to maintain visual separation from terrain and other aircraft during approach and departure from the airports.)

- Military safety officers would continue to utilize the Mid-Air Collision and Avoidance educational and outreach program to conduct public awareness and outreach.
- Upon request from the FAA or airports affected, written procedures would be established (per FAA JO 7400.2) to ensure proper IFR separation.
- The 113 WG will be responsible for scheduling and managing airspace usage. The 113 WG will provide GBO an airspace schedule the week prior and notify of any changes or additions to the maximum extent.
- To minimize noise and radio interference to the GBO, the 113 WG will propose a chart modification to establish a no-fly zone around the GBO facility that has a radius of 2.5 statute miles and a ceiling of 2,500 ft AGL. The proposed Evers MOA flight information is not inclusive of all possible military overflights.
- To address notification requirements requests from GBO, the 113 WG will provide notification to the GBO via email and via telephone of proposed activity every Friday with the proposed flight schedule for the following week. When circumstances warrant, weather changes and/or last-minute changes will be forwarded to the GBO via telephone as soon as practicable but no later than one hour prior to the change occurring.
- The 113 WG aircraft using the Evers MOA will be prohibited from targeting the GBO facility intentionally with any electromagnetic pulses.
- The 113 WG would coordinate with U.S. National Forest, Regions 8 and 9, to avoid potential conflicts with wildland fire and prescribed fire operations within the Evers MOA Complex.
- The 113 WG would post a noise complaint line on their website for information and complaint communication avenues for the public.

In addition, the USAF and FAA outline other ongoing management requirements and special procedures for SUAs. The Proposed Action would proceed in full compliance with current USAF and FAA requirements, including:

- FAA Order JO 7610.4, Special Operations;
- FAA Order JO 7110.65, Air Traffic Control;
- FAA Order JO 7400.2, Procedures for Handling Airspace Matters;
- FAA Order 1050.1, Environmental Impacts: Policies and Procedure;
- AFI 13-201, Airspace Management;

- AFI 32-7063, Air Installation Compatible Use Zones Program;
- AFI 11-214, Air Operations Rules and Procedures; and
- AFI 11-200, Aircrew Training, Standardization/Evaluation, and General Operations Structure.

This listing is not all-inclusive; the ANG and users of the Evers MOA Complex would continue to comply with all applicable regulations and guidance.

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Appendix A Public and Agency Coordination

Appendix B Record of Non-Applicability

RECORD OF NON-APPLICABILITY
In Accordance with the Clean Air Act - General Conformity Rule for the
Proposed Environmental Assessment for Modification and/or Addition of
Airspace Utilization of the Evers Military Operating Airspace

10 December 2020

This Record of Non-Applicability supports ANG's Environmental Assessment for Modification and/or Addition of Airspace Utilization of the Evers Military Operating Airspace. The proposed airspace would replace the existing Evers MOA and creates four MOAs (Evers North, Evers Central, Evers South [11,000ft MSL to 18,000ft MSL], and Evers Low [1,000ft AGL to 11,000ft MSL]) and three Air Traffic Control Assigned Airspaces (ATCAA) [Diesel North, Diesel Central, and Diesel South [FL180 to FL230)]. ATCAA boundaries are coincidental with the proposed boundaries of Evers North, Central, and South.

General conformity under the Clean Air Act, Section 176 has been evaluated according to the requirements of 40 CFR §93, Subpart B. The requirements of this rule are not applicable to the Proposed Action because:

Activities would occur within areas designated full attainment for the National Ambient Air Quality Standards, and partially include emissions that were clearly *de minimis*, such as emissions from aircraft operations above the mixing height of 3,000 ft AGL (i.e. the height above which air emissions do not directly affect individuals on the ground.) (40 CFR §93.153 (c) (xxii)).

Supported documentation and emission estimates:

- Are Attached
- Appear in the NEPA Documentation
- Other (Not Necessary)

Appendix C Aeronautical Proposal

Appendix D Noise Model