DEPARTMENT OF DEFENSE
UNITED STATES ARMY
DRAFT FINDING OF NO SIGNIFICANT IMPACT FOR AIRSPACE AND GROUND-BASED CHANGES AT FORT EISENHOWER, GEORGIA

Fort Eisenhower (formerly Fort Gordon) has prepared an Environmental Assessment (EA) that analyzes and documents the environmental consequences that could result from implementation of airspace and ground-based changes at Fort Eisenhower. The EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 (40 *Code of Federal Regulations [CFR]* §§ 1500-1508), implementing regulations issued by the President's Council on Environmental Quality (43 *Federal Register* 55990, *Regulations for Implementing the Procedural Provisions of NEPA*), and the U.S. Army (Army) (32 *CFR* 651, *Environmental Analysis of Army Actions*). This Draft Finding of No Significant Impact (FONSI) herein references the attached EA and has been developed as the final decision document for the EA.

The EA has been prepared to present and evaluate the proposed action and alternatives, including the No Action Alternative. Airspace, air quality, noise, biological resources, cultural resources, environmental justice, hazardous materials and waste, land use, noise, safety, socioeconomics, soils, water resources, and cumulative impacts are addressed in the EA.

LEAD AND COOPERATING AGENCIES: The Army is the proponent of this proposal and is the lead agency for the preparation of this EA. Congress has charged the Federal Aviation Administration (FAA) with administering all navigable airspace in the public interest as necessary to ensure the safety of aircraft and the efficient use of such airspace. The FAA is the agency with jurisdiction by law and special expertise with respect to changes in the configuration of the National Airspace System. Because the Army's Proposed Action involves the charting of airspace, the FAA has agreed to serve as a Cooperating Agency for this EA. This EA is being prepared to satisfy the procedural requirements of NEPA for both the Army and the FAA.

PROPOSED ACTION: The Proposed Action includes changes to the lateral and vertical configurations of Restricted Areas (RAs) R-3004A/B/C and ground-based changes to the training areas and ranges on Fort Eisenhower. The ground-based changes include widening the tank trails on Fort Eisenhower, the construction of concrete turn pads, and the installation of two new firing points to better support military training requirements.

PROJECT LOCATION: The proposed location is Fort Eisenhower, located in the Augusta-Richmond County area.

PURPOSE AND NEED: The purpose of the Proposed Action is to support the capabilities of the Georgia National Guard, the Electronic Warfare school, and other units that propose to train at Fort Eisenhower. The primary need for the Proposed Action is to improve the training capacity of Fort Eisenhower by maximizing the use of the R-3004 RA Complex in support of a growing and diverse training program with various needs and capabilities.

ALTERNATIVES: Three alternatives were considered: the No Action Alternative, Alternative 1 and Alternative 2. Descriptions of these alternatives follow.

NO ACTION ALTERNATIVE. Implementation of the No Action Alternative would not result in any ground-based changes to the training areas or any changes to the airspace structure above and surrounding Fort Eisenhower. RAs R-3004A/B/C would remain as they are today, preventing

Fort Eisenhower from completing the indirect artillery fire exercises necessary for Soldiers to train using the realistic tactics, techniques, and procedures required for the advanced laser, targeting, and indirect fire systems that are currently being fielded by the Army. The existing tank trail network at Fort Eisenhower would not be able to accommodate the Armored Multi-Purpose Vehicle, and new weapons systems with longer ranges of fire could not be used at Fort Eisenhower, making it difficult for Soldiers to complete necessary training and preventing them from training as they would fight.

Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Proposed Airspace Changes. The proposed airspace modifications include both lateral and vertical changes to the RAs R-3004A/B/C. The proposed lateral changes would include expansion of the lateral limits of R-3004A/B/C farther north and northeast to incorporate the majority of Fort Eisenhower property.

This expansion would be fully contained within the current boundaries of federally owned land above the Fort Eisenhower range complex. In addition, the southwest boundary of the proposed RA would be adjusted so that the boundary is fully contained within the installation property (see Attachment 1 for the latitude and longitude coordinates). The vertical changes would lower the ceiling of R-3004A from 3,500 feet mean sea level (MSL) to 2,500 feet MSL. R-3004B currently extends from 3,500 feet MSL up to but not including 7,000 feet MSL. The floor of R-3004B would be lowered to 2,500 feet MSL, in conjunction with the amended ceiling of R-3004A. The ceiling of R-3004B would be raised from 7,000 feet MSL to but not including 10,000 feet MSL. The floor of R-3004C would be raised from 7,000 feet MSL to 10,000 feet MSL, in conjunction with the amended ceiling of R-3004B. The ceiling of R-3004C would remain at 16,000 feet MSL (88 *Federal Register* 21146–21148).

The time of designation for all three RAs would remain By Notice to Air Missions 24 hours in advance. The current descriptions of R-3004A/B/C contain certain terms and conditions that limit aircraft activities in the airspace as follows:

1. Aircraft activities must not be conducted on weekends, national holidays, or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days if required).
2. Aircraft activities may only be conducted from the surface to 12,000 feet above ground level (AGL).
3. Weather conditions required for aircraft activities are 5 miles visibility and with prevailing clouds or obscuring phenomena no greater than five-tenths coverage of the sky and bases no lower than 3,000 feet AGL.

The proposed airspace changes would remove the restrictions on aircraft activities on weekends, remove the restrictions on aircraft activities above 12,000 feet AGL, and remove the overly restrictive weather minima. However, the following limitations would be retained: ‘‘Aircraft activities must not be conducted on national holidays or from the Sunday prior to the Masters Tournament through the Monday after (and subsequent weather days if required).’’ A Letter of Agreement would be established between the U.S. Department of the Air Force (DAF) and the Army regarding the activation of the Bulldog D Military Operations Area (MOA). The DAF no longer has an operational need to activate the Bulldog D MOA and the R-3004 RA Complex concurrently as one contiguous airspace. The DAF intent is to not change the boundaries of the Bulldog D MOA but to add the following statement to the altitudes portion of the administrative description: “…and, excluding that airspace within the R-3004 RA Complex when activated.”

Therefore, R-3004A/B/C would take precedence when both the Bulldog D MOA and R-3004A/B/C are active.

Proposed Ground-Based Changes. The proposed ground-based changes include the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of tank trails on Fort Eisenhower to 20 meters throughout the installation. The widened tank trails would be designed with stormwater ditches and turnouts and be properly designed and constructed to support the weight and repeated use of tracked vehicles. In addition to the widening of tank trails, construction of various creek crossings on Fort Eisenhower would be required.

Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Alternative 2 consists of the same airspace changes as Alternative 1. Regarding the ground-based changes, Alternative 2 includes construction of the same number of firing points and concrete turn pads as Alternative 1, but all creek crossings would be single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide). In addition, a portion of the tank trail would be widened on the opposite side of a cultural resources site and an alternate route to access the east side of the Small Arms Impact Area would be used to avoid protected natural resources habitat.

ENVIRONMENTAL CONSEQUENCES OF THE ACTION: Implementation of the Preferred Alternative (Alternative 2) has the potential for minor impacts to airspace, biological resources, cultural resources, hazardous materials and waste, land use, safety, soils, and water resources, (Table 1). None of the impacts identified in the EA would be significant.

Table 1. Summary Comparison of Environmental Consequences

Environmental Resources	Alternative 1	Alternative 2	No Action
Airspace	Minor impacts to airspace resources would result from implementation of Alternative 1. Aircraft that operate at low altitudes could be affected when the RA is active. The lateral expansion of RA would reduce the transition area between the R-3004A/B/C complex and the Augusta Class D airspace (about a 3.5-mile gap) for those Visual Flight Rules (VFR) pilots typically flying through this area wanting to avoid the Class D area when transiting to/from the Daniel Field or other airports in this Region of Influence. When the RA is active, the lateral expansion would affect use of the Runway 5 RNAV approach procedures and Runway 23 departure procedures at Daniel Field. Increased R-3004 weekend use could limit the increased VFR operations (including student flights) that generally occur within this area on weekends. To minimize impacts to civil and commercial airspace users, various mitigation measures would be implemented as part of the Proposed Action. These include minimizing RA activation on weekends, publication of Notice to Air Missions and Air Traffic Control advisories, development of a Letter of Procedure between the Army and the FAA and the creation of a new corridor (X-Ray) to accommodate air traffic at Daniel Field. In addition, the Army and the FAA are in the process of upgrading communications systems to provide both primary and alternate communication systems for redundancy and will cross-train with the FAA for future management and coordination of the airspace. With implementation of the proposed mitigation measures, impacts to airspace would not be significant.	Implementation of Alternative 2 would have the same airspace uses, effects, and mitigations as addressed for Alternative 1. Therefore, implementation of Alternative 2 would also minimize the potential for any significant impacts on nonparticipating commercial and general aviation flight activities in the affected area.	No significant impacts to airspace would result from implementation of the No Action Alternative.
Air Quality	Emissions estimated to result from both the airspace and ground-based changes under Alternative 1 would remain below all insignificance indicators and, therefore, result in insignificant air quality impacts within the project region.	Emissions estimated to result from implementation of Alternative 2 would be like those from Alternative 1 and would not be significant.	No significant impacts to air quality would result from implementation of the No Action Alternative.

Table 1. Summary Comparison of Environmental Consequences (continued)

Environmental Resources	Alternative 1	Alternative 2	No Action
Biological Resources	Minor impacts to biological resources are anticipated to result from implementation of Alternative 1. Impacts to biological resources would not be significant and would not result in long-term effects on population viability of biological resources.	Minor impacts to biological resources are anticipated to result from implementation of Alternative 2. Ground-based impacts to biological resources would be the same type as those described for Alternative 1 but with slightly less impacts to habitat. Alternative 2 would impact 5 fewer acres of red-cockaded woodpecker habitat and 5 fewer acres of gopher tortoise habitat as compared to Alternative 1.	No significant impacts to biological resources would result from implementation of the No Action Alternative.
Cultural Resources	Implementation of Alternative 1 would have an adverse effect on an NRHP-eligible property. Additional consultation with the SHPO and Tribes and mitigation would be required should this alternative be implemented.	No historic properties would be affected from implementation of Alternative 2 and there would be no significant impacts to cultural resources.	No historic properties would be impacted with implementation of the No Action Alternative.
Environmental Justice	No disproportionate and adverse impacts are expected to off-installation communities as the noise levels would still be compatible with existing land uses and noise impacts are not anticipated to be significant.	No disproportionate and adverse impacts are expected to off-installation communities as the noise levels would still be compatible with existing land uses and noise impacts are not anticipated to be significant.	No disproportionate and adverse impacts are anticipated as a result of implementing the No Action Alternative.
Hazardous Materials and Waste	No significant impact to hazardous materials and waste would result from implementation of the Alternative 1. Although the use of hazardous materials and the generation of hazardous wastes could temporarily increase during construction, implementation of Alternative 1 would not affect the generator status or negatively affect the hazardous materials and waste program. Proposed airspace changes would have no impacts on the generation or use of hazardous materials and waste.	Impacts to hazardous materials and waste resulting from implementation of Alternative 2 would be the same as those resulting from Alternative 1 and would not be significant.	No significant impacts to hazardous materials and waste are anticipated with implementation of the No Action Alternative.
Land Use	The proposed airspace and ground-based changes are consistent with existing land use plans and policies and would not create off-installation changes that are incompatible with existing land uses. No significant impacts to land use would result from implementation of Alternative 1.	Impacts to land use resulting from implementation of Alternative 2 would be the same as those resulting from Alternative 1 and would not be significant.	No significant land use impacts would result from implementation of the No Action Alternative and all land use plans would remain as they are today.

Table 1. Summary Comparison of Environmental Consequences (continued)

Environmental Resources	Alternative 1	Alternative 2	No Action
Noise	Although large arms firing noise at off-installation locations may be disturbing at times, Noise Zone II and III would not affect noise-sensitive locations and all land uses would remain compatible. There would be no change in small arms usage, and small arms noise would not change relative to baseline conditions. Munitions noise impacts would not be significant. Aircraft operations would remain relatively infrequent, as reflected by the low calculated time-averaged noise level, and noise impacts would not be significant.	Noise impacts resulting from implementation of Alternative 2 would be the same as those resulting from implementation of Alternative 1 and would not be significant.	No significant noise impacts would result from the No Action Alternative and noise levels would remain consistent with baseline conditions.
Safety	Significant impacts to safety would not result from implementation of Alternative 1 because the creation and use of the proposed RAs would segregate air traffic and hazardous activities. All ground-based safety measures would remain in place and Fort Eisenhower range control would continue to implement all of the Army safety requirements.	Impacts to safety would be the same as those resulting from implementation of Alternative 1 and would not be significant.	No significant impacts to safety are anticipated with implementation of the No Action Alternative.
Socioeconomic	No significant impacts to socioeconomics are anticipated as a result of implementing the airspace and ground-based changes associated with Alternative 1.	Impacts to socioeconomics would be the same as those resulting from implementation of Alternative 1 and would not be significant.	Significant impacts to socioeconomics would not result with implementation of the No Action Alternative.
Soils	Short-term, direct soil compaction and disturbances are anticipated from vehicles, foot traffic, and large equipment. Erosion impacts would be temporary and would be minimized through continued adherence to the Integrated Training Area Management program and by employing BMPs for soil erosion and sedimentation. Ground-based changes and training activities would not result in significant soil impacts.	Impacts to soils would be the same type as those described for Alternative 1 with slightly less impact in terms of area. Impacts would not be significant.	Significant impacts to soil would not result from implementation of the No Action Alternative.
Traffic and Transportation	Impacts to traffic and transportation resulting from implementation of Alternative 1 would not be significant. This alternative would not result in and long-term additional vehicle use of transportation resources. The only adverse impacts to transportation resources that would result from implementation of Alternative 1 would be temporary short-term traffic delays during the tank trail widening and firing point and concrete turn pad construction. During construction, appropriate signage and potential flaggers would be used to safely direct traffic around construction zones. In advance of tank trail widening or construction of the firing points and concrete turn pads, Fort Eisenhower would develop specific traffic and transportation plans to safely redirect traffic during the construction timeframe. The traffic and transportation plan would be designed to minimize impacts to traffic and transportation resources on Fort Eisenhower.	Impacts to traffic and transportation would be from the same as those resulting from implementation of Alternative 1 and would not be significant.	Implementation of the No Action Alternative would not result in any changes to traffic and transportation resources on or around Fort Eisenhower and impacts would not be significant.

Table 1. Summary Comparison of Environmental Consequences (continued)

Environmental Resources	Alternative 1	Alternative 2	No Action
Water Resources	Implementation of the ground-based changes associated with Alternative 1 would result in short- and long-term, direct effects on water resources at Fort Eisenhower. Surface waters could be impacted by sedimentation during construction. BMPs would be implemented to reduce impacts to surface waters. Although project designs for tank trails and creek crossings are not finalized, preliminary estimates indicate that up to 1.7 acres of wetlands could be adversely affected. Preliminary estimates indicate that up to 2.9 acres of 100-year floodplain and 0.1 additional acres of 500-year floodplain (outside of the 100-year floodplain) could be disturbed under Alternative 1. None of the ground-based changes would be expected to affect flood hydrology and would not increase the level of flood risk to any existing facilities or activities. All work would be conducted in accordance with permits and would incorporate measures to minimize or offset adverse effects to water resources and impacts would not be significant.	Implementation of the ground-based changes associated with Alternative 2 would result in short- and long-term, direct effects on water resources at Fort Eisenhower. Surface waters could be impacted by sedimentation during construction. BMPs would be implemented to reduce impacts to surface waters. Although project designs for tank trails and creek crossings are not finalized, preliminary estimates indicate that up to 1.4 acres of wetlands could be adversely affected. Preliminary estimates indicate that up to 2.3 acres of 100-year floodplain and 0.1 additional acres of 500-year floodplain (outside of the 100-year floodplain) could be disturbed under Alternative 2. None of the ground-based changes would be expected to affect flood hydrology and would not increase the level of flood risk to any existing facilities or activities. All work would be conducted in accordance with permits and would incorporate measures to minimize or offset adverse effects to water resources and impacts would not be significant.	Implementation of the No Action Alternative would not result in any activities on or around Fort Eisenhower that could impact water resources and impacts would not be significant.
Cumulative Impacts	Cumulative impacts resulting from implementation of Alternative 1 in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower would not be significant.	Cumulative impacts resulting from implementation of Alternative 2 in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower would not be significant.	No significant cumulative impacts would occur with implementation of the No Action Alternative.

Key: BMPs = best management practices; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Officer

PUBLIC OUTREACH: As part of the planning process for this EA on November 29, 2023, Fort Eisenhower mailed introductory project scoping letters to local, state, and federal elected officials, Native American Tribes, agencies, commissioners, and members of the public. Fort Eisenhower received responses from the Georgia State Historic Preservation Officer, the Georgia Department of Transportation, the Georgia Department of Natural Resources, the City of Augusta, the Aircraft Owners and Pilots Association, the Chickasaw Nation and a member of the public concerned about airspace. Information related to each of these letters is contained in the EA.

Due to the potential impacts to wetlands and floodplains, the Army published an early notice of potential impacts to wetlands and floodplains in the *Augusta Chronicle* on December 3 and 4, 2023. As part of the notification for the Draft FONSI/Finding of No Practicable Alternative (FONPA) and EA, the Army mailed postcards to those that received introductory letters, informing them of the availability of the EA and Draft FONSI/FONPA. The public notice advertised to the public the availability of the EA and Draft FONSI/FONPA at the Main Augusta Public Library and the Public Affairs Office at Fort Eisenhower and via the Fort Eisenhower website during the 30-day public review and comment period from August 20, 2024 through September 20, 2024.

FINDING: I conclude that, based upon the results of the EA, implementation of the Alternative 2 would not result in significant impacts per 40 CFR 1501.3(a)(2) and that an environmental impact statement is not required and will not be prepared. My decision is based on the analysis contained within the EA. This decision complies with legal requirements and has been made after taking into account all submitted information and considering a full range of reasonable alternatives and all environmental impacts.

_____ _____

ANTHONY J. KAZOR Date
Colonel, CM
Commanding

DEPARTMENT OF DEFENSE

UNITED STATES ARMY

DRAFT FINDING OF NO PRACTICABLE ALTERNATIVE FOR AIRSPACE AND GROUND-BASED CHANGES AT FORT EISENHOWER, GEORGIA

1.0 Introduction

Fort Eisenhower is proposing airspace and ground-based changes to support the capabilities of the Georgia National Guard, the Electronic Warfare school, and other units that propose to train at the garrison.

To support mission requirements, the Department of the Army (Army) proposes to change the lateral and vertical configurations of Restricted Areas (RAs) R-3004A/B/C and make ground-based changes to the training areas and ranges on Fort Eisenhower. The ground-based changes include widening the tank trails on Fort Eisenhower, the construction of concrete turn pads, and the installation of two new firing points to better support military training requirements.

Floodplains and wetlands have been identified in the Proposed Action area. Executive Order (EO) 11988, Floodplain Management, requires federal agencies to determine whether a proposed action will occur within a floodplain and to avoid floodplains to the maximum extent possible when there is a practicable alternative. The 100-year floodplain is defined as an area adjacent to a water body that has a 1 percent or greater chance of inundation in any given year. EO 11990, Protection of Wetlands, requires that each federal agency, to the extent permitted by law, "shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to such construction and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use." The term "wetlands" means "those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction."

The Fort Eisenhower tank trail network crosses several streams and their associated floodplains and wetlands. Proposed improvements to the trail network could result in wetlands impacts. Construction of firing points or turn pads would not impact wetlands or floodplains.

Due to the potential impacts to wetlands and floodplains, the Army published an early notice of potential impacts to wetlands and floodplains in the *Augusta Chronicle* on December 3 and 4, 2023. This draft finding was made available for public review and comment for 30 days. It was published in *Augusta Chronicle* on [date] which is hereby incorporated by reference. [Description of comments if received]

This draft finding incorporates the analysis in the Environmental Assessment (EA) for Airspace and Ground-Based Changes, Fort Eisenhower, Georgia. Three alternatives were evaluated in the EA. Alternative 2 was identified as the Preferred Alternative to minimize impacts to wetlands, floodplains and cultural resources.

2.0 Preferred Alternative; Alternative 2

The Preferred Alternative (Alternative 2) includes changes to the lateral and vertical configurations of RAs R-3004A/B/C and ground-based changes to the training areas and ranges on Fort Eisenhower. The ground-based changes include widening the tank trails on Fort Eisenhower, the construction of concrete turn pads, and the installation of two new firing points to better support military training requirements. Wetland and floodplain impacts would occur from tank trail widening and are estimated to include 1.4 acres of wetlands and up to 2.3 acres of 100-year floodplain and 0.1 additional acres of 500-year floodplain impacts. In addition to these impacts, up to 3.4 acres of land within the 25-foot stream buffer could be impacted by the tank trail widening and construction of the firing points.

3.0 Impacts and Mitigation Measures

3.1 100-Year Floodplain

EO 11988 states that if the only practicable alternative requires siting in a floodplain, the agency shall, prior to taking action, design or modify its action to minimize potential harm to or within the floodplain.

Implementation of the Preferred Alternative would result in the Army impacting 2.3 acres of 100-year floodplain. Impacts consist of grading and clearing activities within the floodplains but no additional fill material is anticipated to be placed in the floodplains.

Under the Preferred Alternative, the Army would implement Best Management Practices (BMPs) and Low-Impact-Development (LID) measures to reduce the potential for adverse impacts on the 100-year floodplain. BMPs and LID measures are incorporated into the Preferred Alternative to avoid or minimize impacts on floodplains and are collectively described, as follows:

- Realignment of tank trail routes to avoid floodplains to the extent possible
- Only grading and clearing would occur in the floodplain; no additional fill material or construction is planned for these areas.

Taken together, these and other BMPs and mitigation measures would avoid or minimize the loss of and impacts on floodplains at Fort Eisenhower. These measures represent all practicable measures to minimize harm to floodplains.

3.2 Wetlands

EO 11990 states that if the only practicable alternative requires siting in a wetland, the agency shall, prior to taking action, design or modify its action to minimize potential harm to or within the wetland.

Implementation of the Preferred Alternative would result in the Army impacting up to 1.4 acres of wetland. Impacts would include disturbance related to clearing and grading as well as a conversion of forested wetland to emergent wetland.

Under the Preferred Alternative, the Army would implement BMPs and LID measures to reduce the potential for adverse impacts on the wetlands. BMPs and LID measures are incorporated into the Preferred Alternative to avoid or minimize impacts on wetlands and are collectively described as follows:

- Realignment of tank trail routes to avoid wetlands to the extent possible

- Only grading and clearing would occur in the wetland areas; no additional fill material or construction is planned for these areas.

Taken together, these and other BMPs and mitigation measures would avoid or minimize the loss of and impacts on wetlands at Fort Eisenhower. These measures represent all practicable measures to minimize harm to wetlands.

4.0 Finding of No Practicable Alternative

During development of the Preferred Alternative, the Fort Eisenhower Environmental Office worked proactively to ensure the purpose and need of the Preferred Alternative was met while also avoiding as many potential impacts to floodplains and wetlands as practicable. Due to operational requirements, it was determined that complete avoidance of floodplains and/or wetlands was not feasible; however, the Preferred Alternative minimizes potential impacts to the greatest degree practicable while also achieving the required results.

_____ _____

Carla K. Coulson [Date]
Deputy Assistant Secretary of the Army
Installations, Housing, and Partnerships

Title: **Environmental Assessment for Airspace and Ground-Based Changes at Fort Eisenhower, GA**

Date: **August 2024**

Prepared for:

U.S. Army Garrison, Fort Eisenhower
Federal Aviation Administration as a Cooperating Agency

Prepared by:

leidos
13397 Lakefront Drive
Earth City, MO 63045

STELL
Stell
600 Eagleview Blvd, #300
Exton, PA 19341

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

Page

LIST OF APPENDICES

Page

ACRONYMS AND ABBREVIATIONS

%	percent
+	plus
<	less than
>	greater than
a.m.	ante meridiem
ACAM	Air Conformity Applicability Model
ADNL	A-weighted day-night-level
AFB	Air Force Base
AGL	above ground level
AGS	Augusta Approach Control
AL	Alabama
AMPV	Armored Multi-Purpose Vehicle
APE	Area of Potential Effect
AR	Army Regulation
Army	Department of the Army
ARTCC	Air Route Traffic Control Center
ATC	Air Traffic Control
Atlanta Center	Atlanta Air Route Traffic Control Center
AU	Augusta University
BMP	best management practice
CAA	Clean Air Act
CDNL	C-weighted day-night-level
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CO_2e (mt)	carbon dioxide equivalent in metric tons
COC	Community of Comparison
CSRA	Central Savannah River Area
CWA	Clean Water Act
DAF	Department of the Air Force
dB	decibels
dBP	single event peak level
DC	District of Columbia
DoD	Department of Defense
DoDI	DoD Instruction
DOI	Department of the Interior
DPW	Directorate of Public Works
EA	Environmental Assessment
EIC	Environmental Impact Category

EO	Executive Order
EPD	Environmental Protection Division
ESPCP	Erosion, Sedimentation, and Pollution Control Plan
EW	Electronic Warfare
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FRP	Facility Response Plan
GA	Georgia
GA DNR	Georgia Department of Natural Resources
GC	Garrison Commander
GHG	greenhouse gas
HMCP	Hazardous Material Control Point
HMU	habitat management unit
I-	Interstate
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
IFR	Instrument Flight Rules
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
ITAM	Integrated Training Area Management
LRAM	Land Rehabilitation and Maintenance
LUPZ	Land Use Planning Zone
MOA	Military Operations Area
MSL	mean sea level
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Airspace System
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOTAM	Notice to Air Missions
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OK	Oklahoma
p.m.	post meridiem
P2	pollution prevention
PEA	Programmatic Environmental Assessment
PK15(met)	single event peak level exceeded by 15% of events
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter

$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
RA	Restricted Area
RCMP	Range Complex Management Plan
RNAV	area navigation
ROI	region of influence
SAIA	Small Arms Impact Area
SC	South Carolina
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedure
SOx	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasure
SRP	Sustainable Range Program
SUA	Special Use Airspace
TMDL	Total Maximum Daily Load
TRSA	Terminal Radar Service Area
U.S.	United States
USACCoE&FG	U.S. Army Cyber Center of Excellence and Fort Gordon
USAGFG	United States Army Garrison, Fort Gordon
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
VFR	Visual Flight Rules
VOC	volatile organic compound

1. PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (Title 42 of the United States [U.S.] Code [USC] Section 4321 et seq) and implementing regulations issued by the President's Council on Environmental Quality (CEQ). Federal agencies have developed "agency-specific" procedures for implementing the NEPA. The U.S. Department of the Army (Army) is the proponent for this EA and is the lead agency for preparation of the EA. Congress has assigned the Federal Aviation Administration (FAA) with administering all navigable airspace in the public interest as necessary to ensure the safety of aircraft and the efficient use of such airspace. The FAA is the agency with jurisdiction by law and special expertise with respect to changes in the configuration of the National Airspace System (NAS). In accordance with CEQ regulations at 40 Code of Federal Regulations (CFR) Sections 1501.6 and 1508.5, and the Memorandum of Understanding between the FAA and Department of Defense (DoD), *Concerning Environmental Review of Special Use Airspace (SUA) Actions*, included as Appendix 7 of FAA Order Job Order 7400.2P, the FAA is serving as a Cooperating Agency for this EA (see Appendix A for the Cooperating Agency letter). This EA is being prepared to satisfy the procedural requirements of NEPA for both the Army and the FAA. The FAA's federal actions are dependent upon the SUA proposal.

NEPA procedures for the Army are described in 32 CFR Part 651, *Environmental Analysis of Army Actions (AR* [Army Regulation] *200-2)*. This EA analyzes and documents the potential environmental consequences resulting from modifications to the airspace and training infrastructure at Fort Eisenhower in Georgia. The FAA procedures for implementing NEPA are included in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

Army installations are also guided by other relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental compliance, to include natural and cultural resources management and planning. Many of these authorities are addressed in various sections throughout this EA when relevant to particular environmental resources and conditions. Environmental resources are hereafter referred to as "resources."

1.2 BACKGROUND

Fort Eisenhower is located approximately 145 miles east of Atlanta, Georgia. The majority of the 55,550-acre installation is located in the Augusta-Richmond County area, with portions of the installation located in Jefferson, Columbia, and McDuffie Counties (Figure 1-1).

The installation is home to the U.S. Army Cyber Center of Excellence, which includes the Signal School and Cyber School. Numerous Army Reserve and Army National Guard units from Georgia and South Carolina use the weapons ranges and training areas on Fort Eisenhower.

Approximately 90 percent (50,000 acres) of land use at Fort Eisenhower is dedicated to the training missions. The installation is subdivided into 49 training areas (37,000 acres), two restricted small arms and artillery impact areas (13,000 acres), and two cantonment areas (5,500 acres) (Fort Gordon, 2019a). To support training, the installation operates 19 live-fire ranges; one dudded impact area; one demolition pit; one indoor shoot house; one convoy live-fire familiarization course; two Military Operations On Urban Terrain site/building clearings; one drop zone; and one nuclear, biological, and chemical chamber.

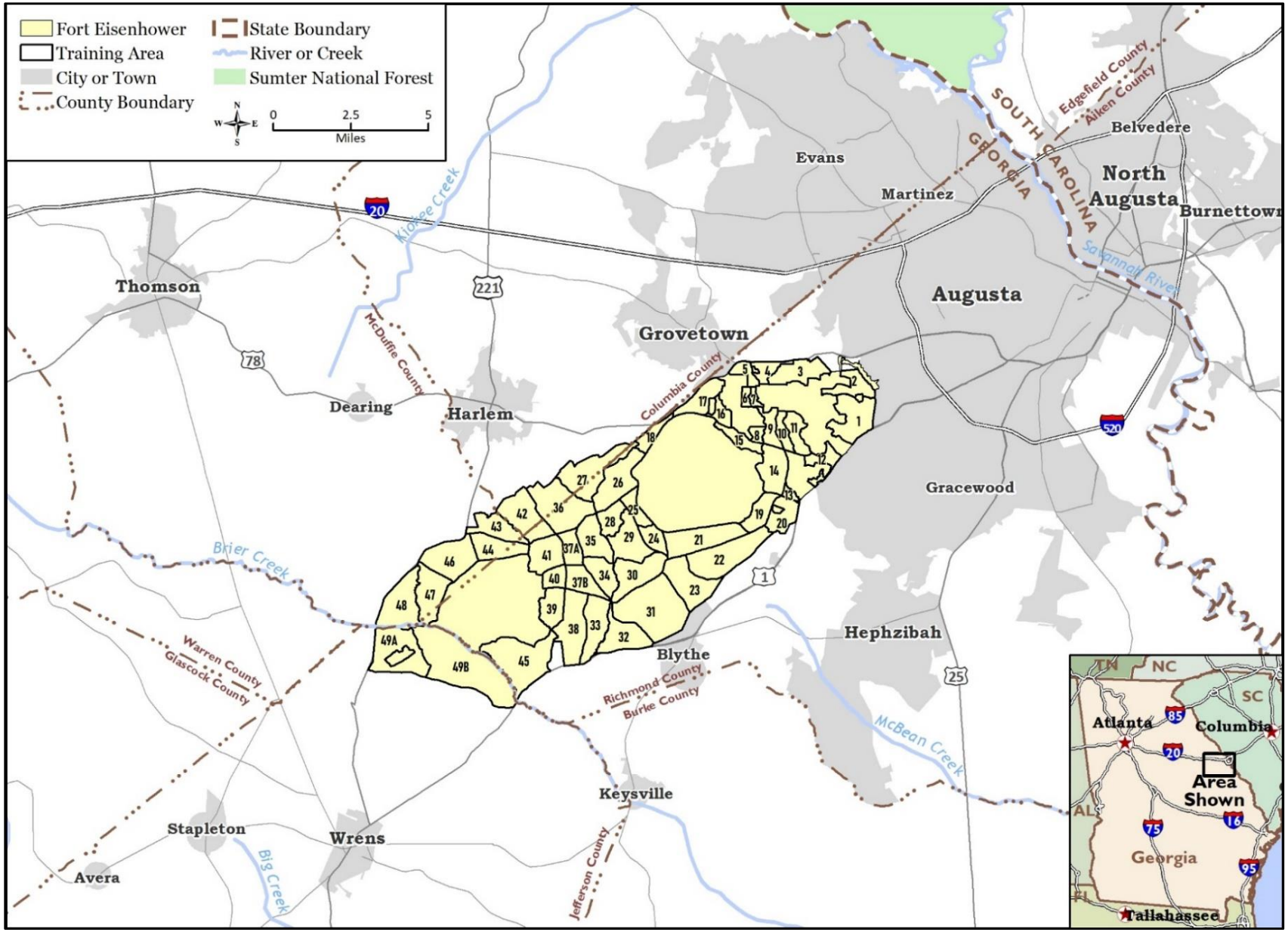


Figure 1-1. Regional Map of Fort Eisenhower

Training primarily consists of advanced individual signal training and unit employment of tactical communications/electronics operations. Additionally, artillery demolition, aerial gunnery load master drop zone, and airborne troop training are conducted on Fort Eisenhower (Fort Gordon, 2019a). Maneuver training at Fort Eisenhower occurs in Light Forces Maneuver Training Areas. Training in these areas is restricted to small units or units having only wheeled vehicles. Tracked or heavy vehicles are restricted to suitable roads or trails. Fort Eisenhower maintains a system of tank trails throughout the installation. Tank trails provide access to established firing points for use in artillery maneuver training (Figure 1-2).

Several types of airspace are located above and around Fort Eisenhower. The airspace above and around Fort Eisenhower supports the training mission. The airspace includes, but is not limited to, Restricted Areas (RAs) (areas within which the flight of aircraft, while not wholly prohibited, is subject to restriction) and Military Operations Areas (MOAs). MOAs consist of areas with defined boundaries established to segregate certain military training activities from instrument flight traffic. Additional airspace details are included in Section 3.1.

The R-3004 RA Complex is primarily located over the western portion of Fort Eisenhower. The R-3004 RA Complex is currently divided into three vertical divisions identified by the FAA as R-3004A, R-3004B, and R-3004C. Table 1-1 describes the SUA near Fort Eisenhower.

Table 1-1. Existing Special Use Airspace Near Fort Eisenhower, Georgia

SUA	Altitudes	Time of Use	Controlling Agency
R-3004A	Surface to but not including 3,500 feet MSL	By NOTAM 24 hours in advance	FAA, Atlanta ARTCC
R-3004B	3,500 feet MSL to but not including 7,000 feet MSL	By NOTAM 24 hours in advance	FAA, Atlanta ARTCC
R-3004C	7,000 feet MSL to 16,000 feet MSL	By NOTAM 24 hours in advance	FAA, Atlanta ARTCC
Bulldog D MOA	500 feet AGL to and including 17,000 feet MSL; excluding certain areas west of R-3004, 1,500 feet AGL and below	Intermittent, 0800–1800 Monday–Friday, in conjunction with R-3004	FAA, Atlanta ARTCC

AGL = above ground level; ARTCC = Air Route Traffic Control Center; FAA = Federal Aviation Administration; MOA = Military Operations Area; MSL = mean sea level; NOTAM = Notice to Air Missions; SUA = Special Use Airspace

Prior to 2017, the R-3004 RA Complex only consisted of R-3004A and R-3004B. In October 2017, the FAA published a rule that vertically segregated the R-3004 RA Complex. The rule amended R-3004A and R-3004B and established R-3004C above R-3004B (Appendix C). The Bulldog D MOA currently adjoins the R-3004 RA Complex to the south Figure 1-3.

The 2017 FAA rule also amended the terms and conditions for use of the R-3004 RA Complex and the Bulldog D MOA. These included:

- Aircraft activities must not be conducted on weekends, national holidays, or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days, if required).
- Aircraft activities may only be conducted from the surface to 12,000 feet above ground level (AGL).
- Weather conditions required for aircraft activities are 5 miles visibility and, with prevailing clouds or obscuring phenomena, no greater than five-tenths coverage of the sky and bases no lower than 3,000 feet AGL.

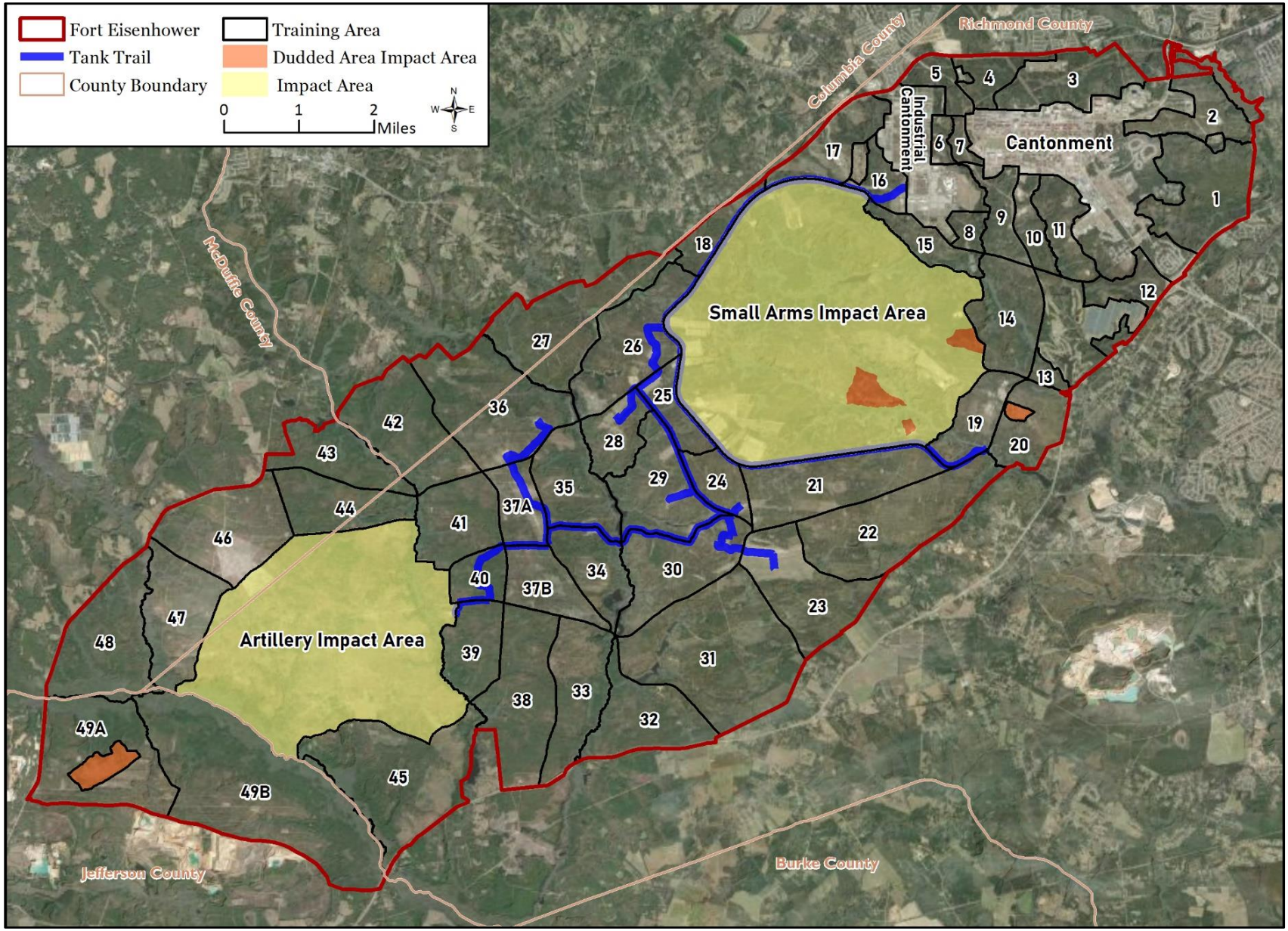


Figure 1-2. Fort Eisenhower Training Areas and Tank Trails

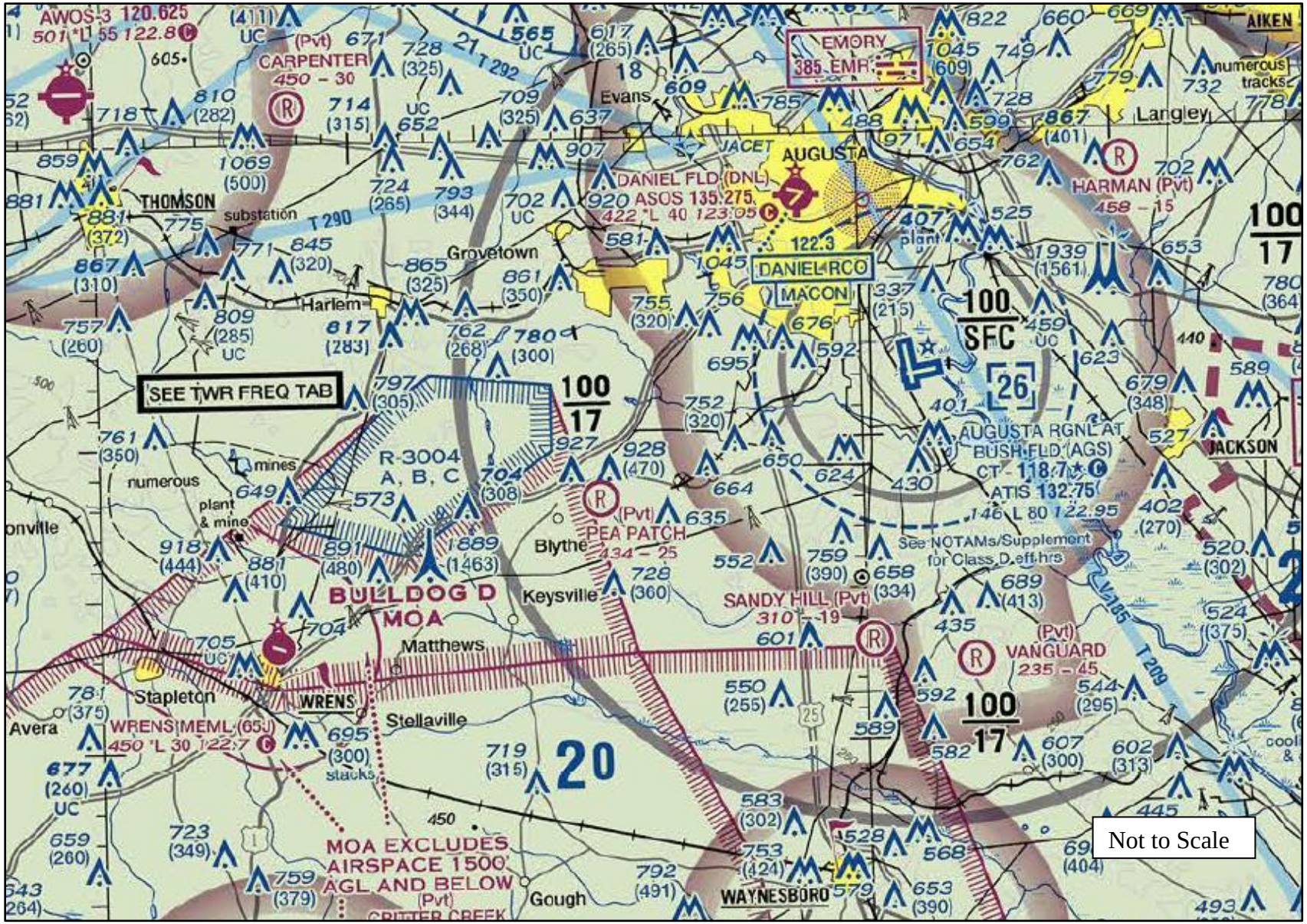


Figure 1-3. Existing Airspace Above and Near Fort Eisenhower

These terms and conditions for aircraft activity were originally implemented in 1984 when the R-3004 RA Complex was amended to support U.S. Department of the Air Force (DAF) training requirements by adding the use of air-to-surface inert and practice ordnance delivery into the record. The DAF use of the R-3004 RA Complex was in addition to the previous use by the Army for artillery fire. Due to interested parties submitting 27 written objections during circulation of the airspace proposal, most in response to the associated Bulldog D MOA, the DAF altered the proposal by agreeing to include the aforementioned operational terms and conditions to resolve the objections over concerns about impacts to local airports and agricultural operations. The restrictions on national holidays and during the Masters Golf Tournament were included to address Air Traffic Control (ATC) interests. A copy of the 1984 amendment is included in Appendix C.

1.3 PURPOSE OF THE PROPOSED ACTION

Fort Eisenhower is in the process of expanding indirect live-fire capabilities in support of the Georgia National Guard (214th Field Artillery) and in support of the establishment of the Electronic Warfare (EW) school at Fort Eisenhower. As part of this expansion and in addition to the airspace changes, Fort Eisenhower proposes to widen tank trails, establish new firing points, and construct concrete turn pads. The purpose of the Proposed Action is to support the capabilities of the Georgia National Guard, the EW school, and other units that propose to train at Fort Eisenhower.

Fort Eisenhower is proposing to change the configuration and operational parameters of the R-3004 RA Complex to better support military training requirements and improve the scheduling, activation, and utilization efficiency of the airspace (Fort Gordon, 2023). This change would include a lateral expansion of the boundaries of the R-3004 RA Complex, as well as vertical changes to R-3004A, R-3004B, and R-3004C and modifications to the existing use limitations (88 Federal Register 21146–21148). The purpose of the lateral expansion and changes to the vertical dimensions of the airspace are to support the firing of all the different configurations that artillery units are required to accomplish, including high-altitude artillery.

The purpose of the new firing points, the concrete turn pads, and the widened tank trails is to support the use of new and emerging artillery training requirements on Fort Eisenhower (Fort Gordon, 2023). Since maneuver training areas at Fort Eisenhower are classified as Light Forces Maneuver Training Areas, tracked vehicles are restricted to tank trails and authorized firing points. The Army is in process of replacing the M113 armored personnel carrier vehicle with the Armored Multi-Purpose Vehicle (AMPV) (Product Manager (PdM) AMPV, 2020). The M113 is approximately 10 feet wide and the AMPV is approximately 13 feet wide, necessitating wider tank trails on Fort Eisenhower. In addition, the M113 weighs approximately 22,000 to 27,000 pounds, whereas the AMPV weighs 75,000 to 80,000 pounds.

1.4 NEED FOR THE PROPOSED ACTION

The primary need for the Proposed Action is to improve the training capacity of Fort Eisenhower by maximizing the use of the R-3004 RA Complex in support of a growing and diverse training program with various needs and capabilities. The current surface area and configuration of firing points are not sufficient to allow for realistic tactics, techniques, and procedures using advanced laser, targeting, and indirect fire systems (88 Federal Register 21146–21148). The Proposed Action is needed to support emerging indirect artillery fire military training requirements and improve the scheduling, activation, and utilization efficiency of the airspace and ranges on Fort Eisenhower (Fort Gordon, 2023).

In its current configuration, the R-3004 RA Complex is not large enough to support the firing of all combat qualification tables that artillery units are required to accomplish (88 Federal Register 21146–21148). This deficiency primarily occurs in the RA above a portion of Fort Eisenhower but also includes deficiencies in range configurations (firing points and tank trails). Specifically, Artillery Tables VI and XIII through XVII require more firing points and tank trails than Fort Eisenhower's current airspace allows both laterally and vertically. The additional distance from the artillery impact area to the firing points would reduce the elevational requirements and contain all munitions below 16,000 feet mean sea level (MSL). The airspace expansion would also ensure that all elements of the firing battery are clear of artillery Surface Danger Zones (SDZs).

An expansion of the RA to the northeast would enable a host of military training requirements while greatly reducing the risk of contact between hazardous military training activities and nonparticipating commercial, general aviation, and privately owned aircraft (Fort Gordon, 2023). An example is the semi-fixed artillery ammunition that has increased trajectories and ranges that are used with current and emerging laser systems. These systems would be used by units and organizations that have been identified to train at Fort Eisenhower, such as the EW school. The R-3004 RA Complex, in the current configuration, does not allow for multiple simultaneous operations to be safely conducted, which is a requirement for the newly established EW school at Fort Eisenhower (Fort Gordon, 2023). These changes would also support training requirements of the Georgia National Guard (214th Field Artillery).

In addition to airspace requirements, emerging artillery systems require established locations at Fort Eisenhower to fire the various weapons systems. These firing points require greater distances and altitudes and different configurations from the existing firing points at the installation. The concrete turn pads are needed because the heavier and wider AMPV vehicles tend to cause erosion and sedimentation of soils due to the friction of the vehicle during turns on loose soils. The concrete turn pads would provide a stabilized structure for the vehicles to make turns without disrupting soils.

The proposed lateral expansion of the R-3004 RA Complex, the new firing points, concrete turn pads, and widened tank trails would not only allow artillery units to conduct the required training but would also allow other DoD units with indirect fire systems from Georgia, South Carolina, and other neighboring states to conduct advanced artillery training at Fort Eisenhower. The ability to shoot the required firing tables at Fort Eisenhower would substantially reduce the cost, in time and expense, for units that currently transport their vehicles and equipment to installations that are farther away (Fort Gordon, 2023).

A secondary benefit/need for this action is that it would simplify and improve the scheduling and utilization efficiency of the airspace. Per the Fort Eisenhower Air Traffic and Airspace Officer, Fort Eisenhower typically requires the activation of RA up to 10,000 feet MSL to support the majority of day-to-day training requirements and a variety of other aviation training, small arms, and indirect fire operations. Indirect fire (artillery) requires RA up to 16,000 feet MSL. The proposed changes to the vertical and lateral configurations of R-3004A, R-3004B, and R-3004C would allow Fort Eisenhower to activate R-3004A only for the majority of training activities. R-3004B and R-3004C would then only need to be activated on those occasions when higher altitudes are necessary. The change in the lateral boundaries would allow for a larger RA above Fort Eisenhower for hazardous activities, such as artillery and rockets. The request is to change the vertical configuration of R-3004A from the surface, up to but not including 3,500 feet MSL, to surface, up to but not including 2,500 feet MSL; the vertical configuration of R-3004B from 3,500 feet MSL, up to but not including 7,000 feet MSL, to 2,500 MSL, up to but not including 10,000 feet MSL; and the vertical configuration of R-3004C from 7,000 feet MSL, up to but not

including 16,000 feet MSL, to 10,000 feet MSL, up to but not including 16,000 feet MSL. These changes are based on Fort Eisenhower's typical RA requirement, which currently requires that R-3004A, R-3004B, and R-3004C be simultaneously activated. Once implemented, only R-3004A would need to be activated on a regular basis (Fort Gordon, 2023).

In addition, 10,000 feet MSL also corresponds to the upper boundary of Augusta Approach Control (AGS) airspace. AGS is the designated ATC liaison station between Fort Eisenhower, the Using Agency, and the Atlanta Air Route Traffic Control Center (hereinafter referred to as "Atlanta Center"), the Controlling Agency for the R-3004 RA Complex. Since AGS's airspace ceiling is 10,000 feet MSL, the activation of RA above 10,000 feet MSL also requires coordination with Atlanta Center. The proposed vertical ceiling boundary change between R-3004B and R-3004C from 7,000 feet MSL to 10,000 feet MSL would preclude having to coordinate with both AGS and Atlanta Center on a daily basis unless R-3004C requires activation for activities above 10,000 feet MSL. The end result would be a simpler and more efficient scheduling process for activation of the airspace (Fort Gordon, 2023).

There is also a need to change the use limitations on the R-3004 RA Complex. Use limitations were included in the charting of the R-3004 RA Complex and the Bulldog D MOA in 1984. The DAF no longer uses the R-3004 RA Complex for the delivery of aerial munitions, and these terms and conditions on the R-3004 RA Complex, which were originally intended in part to facilitate Army training, now restrict combined arms and joint service training opportunities (involving aircraft) for not only tenant units but for a variety of military units from all services across the DoD that consistently train at Fort Eisenhower (88 Federal Register 21146–21148).

The removal of the aircraft weather restriction, altitude restriction, and lateral extension would increase aviation-related training opportunities and provide additional aviation maneuver space as well as provide additional indirect fire training capability and support other surface-to-air operations (88 Federal Register 21146–21148). The removal of the weekend restrictions would provide new training opportunities for National Guard and Reserve units who are required to conduct air operations and airborne training on weekends (Fort Gordon, 2023).

1.5 SCOPE OF THE ANALYSIS

This EA evaluates potential direct, indirect, and cumulative effects of the Proposed Action and alternatives, to include the No Action Alternative. This EA has been prepared in compliance with NEPA, the CEQ NEPA-implementing regulations (40 CFR Parts 1500–1508), and the Army's NEPA-implementing regulations (32 CFR Part 651, Environmental Analysis of Army Actions (AR 200-2)). The information in this EA is intended to determine whether potential impacts to the human environment would be significant and to determine whether mitigation would be appropriate for the potential impacts. Per the Army's NEPA regulations, the environmental analysis in this EA is proportionate to the nature and scope of the action, the complexity and level of anticipated effects on important resources, and the capacity of Army decisions to influence those effects in a productive and meaningful way from the standpoint of environmental quality.

This EA was written with the best data and information available at the time of its development. Any changes to the project scope or its potential impacts require that the project proponent responsible for this project coordinate with the Fort Eisenhower NEPA team to re-evaluate this document for consistency and applicability to the revised project. This re-evaluation shall be performed based on the new information and shall result in either a finding of sufficiency between this EA and the new project scope or the completion of supplemental NEPA analysis to assess the potential impacts of the new project scope. All work on the action exceeding that described in the EA shall not begin until the new assessment is completed.

As described in Section 1.1, federal agencies have developed "agency-specific" procedures for implementing NEPA. As part of those procedures, agencies have different terminology for environmental resources. As described in Section 1.1, for this EA, environmental resources are referred to as resources. The FAA refers to environmental resources as Environmental Impact Categories. Table 1-2 provides a cross-reference of resources between the Army and FAA categories. Environmental resources are referred to as resources throughout this EA.

Table 1-2. Resource Area Cross-Reference

Army Resources	FAA EIC	Resources for this EA
Aesthetics	Visual Effects	Aesthetics and Visual Resources
Airspace Resources	(included as a separate section when applicable)	Airspace Resources
Air Quality	Air Quality	Air Quality
	Climate	
Cultural Resources	Historical, Architectural, Archeological, and Cultural Resources	Cultural Resources
Energy	Natural Resources and Energy Supply	Energy
Facilities	(included as a separate section when applicable)	Infrastructure
Hazardous Materials/Hazardous Wastes	Hazardous Materials, Solid Waste, and Pollution Prevention	Hazardous Materials and Waste
Land Use	Land Use	Land Use
Noise Effects	Noise and Noise-Compatible Land Use	Noise
Safety	(included as a separate section when applicable)	Safety
Socioeconomics	Socioeconomics, Environmental Justice and Children's Environmental Health and Safety Risks	Socioeconomics and Environmental Justice
Soils	Farmlands	Soils
Threatened and Endangered Species	Biological Resources (including fish, wildlife, and plants)	Biological Resources
Traffic and Transportation Systems	Department of Transportation Act, Section 4(f)	Traffic and Transportation
Water Resources Management	Coastal Resources	Water Resources
	Floodplains	
	Groundwater	
	Surface Waters	
	Wetlands	
	Wild and Scenic Rivers	

EA = Environmental Assessment; EIC = Environmental Impact Category; FAA = Federal Aviation Administration

1.6 RESOURCE AREAS NOT CARRIED FORWARD FOR DETAILED ANALYSIS

Several resource areas were considered but were not carried forward for detailed analysis in this EA because potential impacts from the Proposed Action are not expected to occur or would be considered broadly negligible. Consistent with CEQ regulations (40 CFR Section 1501.7) for determining the scope of issues to be addressed, Fort Eisenhower has identified and eliminated from detailed study the resources that would not be affected by the proposed ground-based or airspace changes or those where impacts are not reasonably expected (i.e., no measurable effects) or would be less than significant. Resources not analyzed further in this EA and the reasons for their dismissal are described below.

1.6.1 Aesthetics and Visual Resources

Because no construction activities would occur as part of the Proposed Action, no changes to aesthetics, visual resources, or the visual character of Fort Eisenhower or the surrounding areas would occur with implementation of the Proposed Action. Neither the ground-based changes nor

the proposed changes to and use of the RAs would produce any light emissions that would be in the human visual spectrum and have the potential to annoy people or create situations in which visual sight of light emissions would be intrusive. Therefore, detailed analysis of aesthetics, visual resources/visual character, and light emissions is not required, and this resource area is not carried forward.

1.6.2 Energy

Implementation of the ground-based and airspace changes at Fort Eisenhower would not impact utilities or require the use of any resources (water, energy [natural gas and electricity], wastewater treatment, solid waste management) on Fort Eisenhower in addition to those resources currently used on a day-to-day basis. Because no energy resources would be required to implement the ground-based and airspace changes and no additional energy would be needed, detailed analysis of energy is not required, and this resource area is not carried forward.

1.6.3 Infrastructure

No new buildings or other vertical (buildings) or horizontal (parking lots, etc.) construction would be constructed as part of the Proposed Action. Potential impacts to Fort Eisenhower road and trail networks will be analyzed as part of the traffic and transportation resource area. Therefore, detailed analysis of infrastructure is not required, and this resource area is not carried forward.

1.7 PUBLIC AND AGENCY INVOLVEMENT

In accordance with 32 CFR Part 651, the Army provides opportunities for the public, Native American Tribes, and agencies to participate in the NEPA process to promote open communication and improve the decision-making process. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. All agencies, organizations, and members of the public with a potential interest in the Proposed Action are urged to participate in the decision-making process.

Because widening the tank trails has the potential to impact floodplains and/or wetlands, this document is subject to the early notification requirements and objectives of EO 11990, *Protection of Wetlands,* and EO 11988, *Floodplain Management,* as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. The Army published an early public notice that the Proposed Action would occur in a floodplain/wetland in the *Augusta Chronicle* on December 3 and 4, 2023 (Appendix A). The notice identified state and federal regulatory agencies with special expertise that had been contacted and solicited public comment on the Proposed Action and any practicable alternatives.

An introductory scoping letter was sent out on November 29, 2023, to the general public, state, and federal agencies, and Native American Tribes. The purpose of this letter was to inform the agencies and Tribes of the study effort and request:

- Any information the agencies/Tribes had on file that might be pertinent to the analysis
- Information on issues that the agencies/Tribes felt should be considered in the EA process
- Assistance in identifying additional interested parties that should be contacted

Fort Eisenhower received responses from the Georgia State Historic Preservation Officer, the Georgia Department of Transportation, the Georgia Department of Natural Resources, the City of Augusta, the Aircraft Owners and Pilots Association, the Chickasaw Nation and a member of the public concerned about airspace. The comments received during scoping were addressed in the

respective resource area sections of this EA, where applicable. The scoping response letters are included in Appendix A.

The EA and draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) will be made available to federal, state, and local agencies and the public for review and comment for 30 days. During the 30-day public review and comment period, copies of the EA and draft FONSI/FONPA will be made available at the Fort Eisenhower Public Affairs Office, Darling Hall (Building 33720); Woodworth Library (Building 33500) on Fort Eisenhower; and the Richmond County Main (Headquarters) Public Library, 823 Telfair Street, Augusta, Georgia. A Notice of Availability will be published in the Augusta Chronicle. During the public review and comment period, copies of the EA and draft FONSI/FONPA will be made available on Fort Eisenhower's Environmental Division web page: https://home.army.mil/eisenhower/index.php/environmental. Additionally, copies could be obtained by contacting Robert Drumm, Directorate of Public Works (DPW), Environmental Division, 515 15th Street, Building 14600, Fort Eisenhower, Georgia 30905-5040 or by phone at 706-791-6374. During and immediately following this public comment period, the Army will collect, log, and incorporate any substantive comments received into the EA and FONSI/FONPA as necessary. The Army will prepare and release a final FONSI/FONPA and EA to the appropriate local, state, and federal repositories after receiving all comments. The signed FONSI/FONPA and EA will remain on record with the Fort Eisenhower DPW, Environmental Division Office.

1.7.1 Cooperating Agency

NEPA mandates that federal agencies responsible for preparing NEPA analyses and documentation must do so "in cooperation with state and local governments and other concerned public and private organizations" and other agencies with jurisdiction by law or special expertise (42 USC Sections 4331[a] and 4332[c] and 32 CFR Section 651.49). The CEQ regulations addressing cooperating agencies' status (40 CFR Sections 1501.6 and 1508.5) allow federal agencies (as lead agencies) to invite Tribal, state, and local governments, as well as other federal agencies, to serve as cooperating agencies in the preparation of an EA.

The Army is the proponent of this proposal and is the lead agency for the preparation of this EA. Congress has charged the FAA with administering all navigable airspace in the public interest as necessary to ensure the safety of aircraft and the efficient use of such airspace. The FAA is the agency with jurisdiction by law and special expertise with respect to changes in the configuration of the NAS. Because the Army's Proposed Action involves the charting of airspace, the FAA has agreed to serve as a Cooperating Agency for this EA (see Appendix A). This EA is being prepared to satisfy the procedural requirements of NEPA for both the Army and the FAA.

1.7.2 Government-to-Government Consultations

In accordance with 36 CFR Section 800.3, the Army coordinates and consults with Native American Tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized Tribes that are historically affiliated with the geographic region of Fort Eisenhower are invited to consult on proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the Tribes. The Tribal coordination process is distinct from NEPA consultation or interagency coordination processes and requires separate notification of all relevant Tribes. The timelines for Tribal consultation are also distinct from those of intergovernmental consultations. The Fort Eisenhower point of contact for Native American Tribes is the Garrison Commander (GC).

The letters to Native American Tribal governments that have been coordinated or consulted with regarding these actions, their responses, and follow-up logs are included in Appendix A. As described in Section 3.4, Fort Eisenhower has conducted Section 106 consultation with the Tribes as described herein.

1.7.3 Other Agency Consultations

Because widening the tank trails would involve "construction" in floodplains and or wetlands, per EO 11988, *Floodplain Management*, as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, a FONPA would be prepared in conjunction with the FONSI.

Section 7 of the Endangered Species Act requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) when a proposed action may affect a federally listed plant or animal species or designated critical habitat. The Army submitted an interagency letter to the USFWS during the early stages of this project. In addition, a data pull from the Information for Planning and Consultation (IPaC) System was conducted on December 7, 2023. Fort Eisenhower has determined that the Proposed Action may affect but is not likely to adversely affect the red-cockaded woodpecker. Consultation with the USFWS is ongoing.

Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800 require federal agencies to consult with the State Historic Preservation Officer when a proposed action is a type of activity that has the potential to cause effects on historic properties. Fort Eisenhower is in Section 106 Consultation with the Georgia SHPO.

On November 9, 2023, the FAA signed a Categorical Exclusion (see Appendix C) to modify the operational parameters of the Letter of Agreement between the DAF for the Bulldog D MOA and the U.S. Army for the R-3004 Complex. The DAF agreed that use of the R-3004 Complex would take priority over the Bulldog D MOA when they are activated (see Appendix C).

1.8 DECISION TO BE MADE

This NEPA process will end with an Army decision documented in a FONSI/FONPA or a Notice of Intent (NOI) to prepare an Environmental Impact Statement. Prior to making a final decision, the decision-maker will consider environmental and socioeconomic impacts, along with any required mitigation measures and all other relevant information, such as public issues of concern identified during the comment period. If the decision-maker determines that there are no significant environmental impacts the result from implementation of the Proposed Action, the decision will be documented in the final FONSI/FONPA, which will be signed no earlier than 30 days from the publication of the Notice of Availability for this EA and draft FONSI/FONPA. The Army may initiate an NOI for an Environmental Impact Statement if new information warrants the need for additional analysis of potentially significant environmental impacts. The Army decision-maker for this EA is the GC of Fort Eisenhower. It is the responsibility of the GC to review the information and analyses in this EA and decide which alternative to execute.

2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This section describes the process that the Army used to identify alternatives that meet the purpose and need for the Proposed Action, as described in Sections 1.3 and 1.4, respectively.

2.2 SCREENING CRITERIA

Based on the purpose and need for the Proposed Action, the following screening criteria were used to assess reasonable alternatives to consider in this EA. Reasonable alternatives must meet the following four screening criteria:

1. **Airspace Size.** This criterion includes possessing or having access to sufficient airspace to safely support the use of new weapons systems. These weapon systems require airspace with higher vertical limits as well as longer lateral distances than the current RA provides.
2. **Provides for Mission Capability.** Alternative sites should maximize opportunities for training capability. Capability would be enhanced by the ability to schedule and perform training without undue requirements for scheduling the RA.
3. **Provides Efficient Implementation.** Alternatives should provide a training location that minimizes the initial startup costs and requirements for training. The site should be available for training without extensive requirements for the purchase of land, leases, easements, or other agreements that would delay the implementation of training. Due to current FAA requirements for lands under RAs, the Army is required to lease or own all property underlying RAs. In order to avoid the long-term process to acquire lease rights to private land, the alternative should only include RA over DoD-owned property.
4. **Provides Accessible Training.** Training should be located at Fort Eisenhower (or in close proximity) to limit mobilization and travel costs while maximizing time available for training. The EW school at Fort Eisenhower has a need for accessible training areas. Having the ability to train these students as well as other units that currently train at Fort Eisenhower maximizes time available for training and enables the efficient use of training budgets.

Alternatives (except the No Action Alternative) were eliminated from further consideration if they failed to meet any of these selection criteria. Table 2-1 summarizes the results of the alternative screening process. Based on the screening process, Alternatives 1 and 2 were carried through for full assessment in this EA and various alternative airspace configurations were eliminated from consideration.

Table 2-1. Alternatives Evaluated through Screening Criteria

Alternative	Screening Criteria				Carried Forward in this EA
	Airspace Size	Mission Capability	Efficient Implementation	Accessible Training	
Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower	Yes	Yes	Yes	Yes	Yes
Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower	Yes	Yes	Yes	Yes	Yes
Alternate Airspace Configurations	Yes	Yes	No	Yes	No

Table 2-1. Alternatives Evaluated through Screening Criteria

Alternative	Screening Criteria				Carried Forward in this EA
	Airspace Size	Mission Capability	Efficient Implementation	Accessible Training	
No Action Alternative	No	No	No	No	Yes

EA = Environmental Assessment

2.3 PROPOSED ACTION

The Proposed Action includes changes to the lateral and vertical configurations of RAs R-3004A/B/C and ground-based changes to the training areas and ranges on Fort Eisenhower. The ground-based changes include widening the tank trails on Fort Eisenhower, the construction of concrete turn pads, and the installation of two new firing points to better support military training requirements.

2.4 ALTERNATIVES CONSIDERED IN THIS EA

The following alternatives are considered in this EA and are described in detail in the sections that follow:

- **Alternative 1** – consists of both vertical and lateral changes to R-3004A/B/C, the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of tank trails to 20 meters wide.
- **Alternative 2** – consists of the same airspace changes to R-3004 A/B/C and ground-based changes as Alternative 1, with the exception that all creek crossings would be limited to 10 meters wide and the tank trail widening would be routed to avoid sensitive natural and cultural resources.
- **No Action Alternative** – consists of no changes to the existing RA and no ground-based changes. The missions at Fort Eisenhower would continue as they are performed today.

2.4.1 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

2.4.1.1 Proposed Airspace Changes

The proposed airspace modifications include both lateral and vertical changes to the RAs R-3004A/B/C (see Appendix C for coordinates). The proposed lateral changes would include expansion of the lateral limits of R-3004A/B/C farther north and northeast to incorporate the majority of Fort Eisenhower property (Figure 2-1).

This expansion would be fully contained within the current boundaries of federally owned land above the Fort Eisenhower range complex. In addition, the southwest boundary of the proposed RA would be adjusted so that the boundary is fully contained within the installation property (see Appendix C for the latitude and longitude coordinates). The vertical changes would lower the ceiling of R-3004A from 3,500 feet MSL to 2,500 feet MSL. R-3004B currently extends from 3,500 feet MSL up to but not including 7,000 feet MSL. The floor of R-3004B would be lowered to 2,500 feet MSL, in conjunction with the amended ceiling of R-3004A. The ceiling of R-3004B would be raised from 7,000 feet MSL to but not including 10,000 feet MSL. The floor of R-3004C would be raised from 7,000 feet MSL to 10,000 feet MSL, in conjunction with the amended ceiling of R-3004B. The ceiling of R-3004C would remain at 16,000 feet MSL (88 Federal Register 21146–21148).

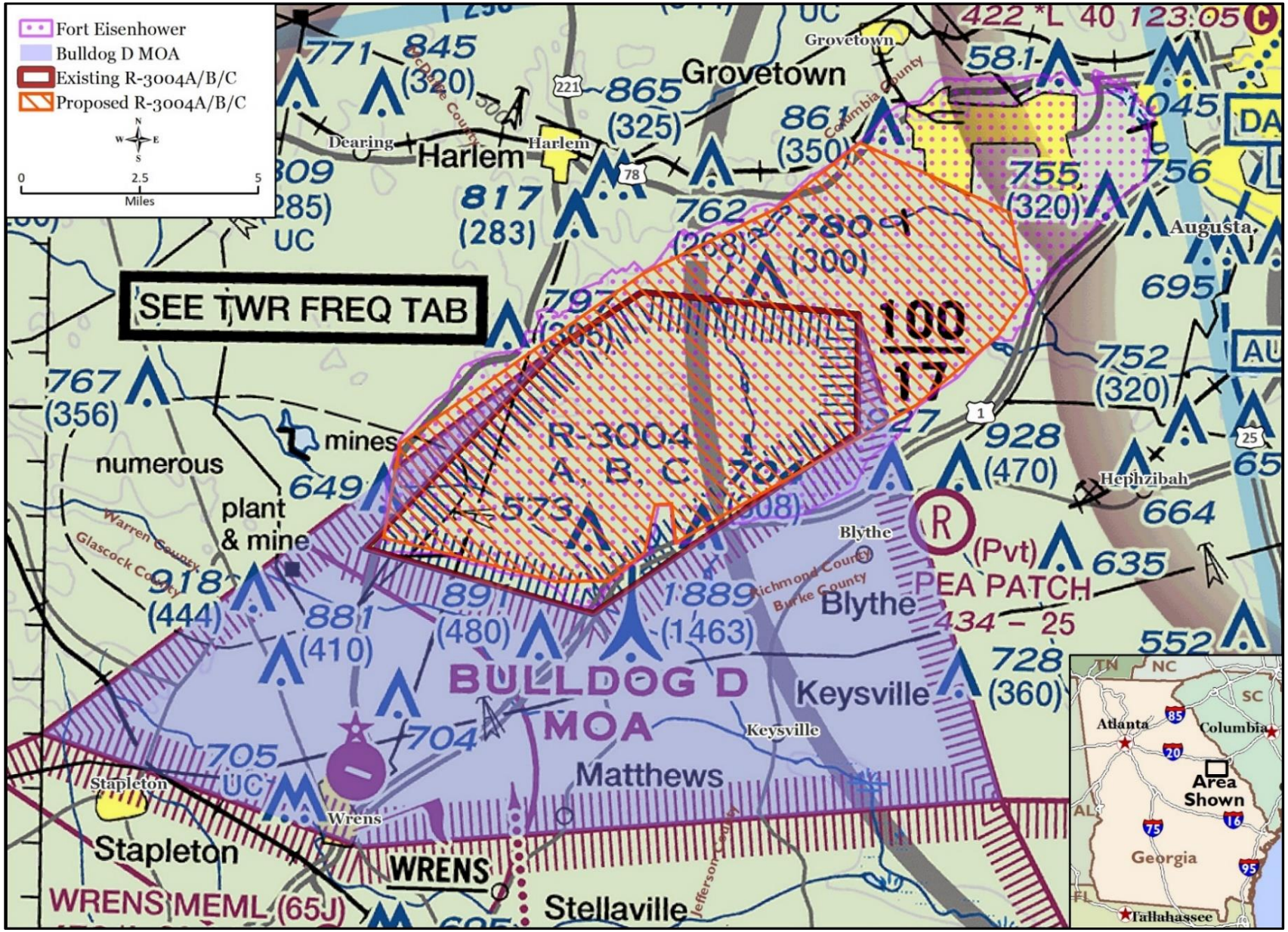


Figure 2-1. Proposed Lateral Airspace Changes on Fort Eisenhower

The time of designation for all three RAs would remain ‘‘By Notice to Air Missions (NOTAM) 24 hours in advance.’’ The current descriptions of R-3004A/B/C contain certain terms and conditions that limit aircraft activities in the airspace as follows:

1. Aircraft activities must not be conducted on weekends, national holidays, or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days if required).
2. Aircraft activities may only be conducted from the surface to 12,000 feet AGL.
3. Weather conditions required for aircraft activities are 5 miles visibility and with prevailing clouds or obscuring phenomena no greater than five-tenths coverage of the sky and bases no lower than 3,000 feet AGL.

The proposed airspace changes would remove the restrictions on aircraft activities on weekends, remove the restrictions on aircraft activities above 12,000 feet AGL, and remove the overly restrictive weather minima. However, the following limitations would be retained: ‘‘Aircraft activities must not be conducted on national holidays or from the Sunday prior to the Masters Tournament through the Monday after (and subsequent weather days if required).’’ A Letter of Agreement would be established between the DAF and the Army regarding the activation of the Bulldog D MOA. The DAF no longer has an operational need to activate the Bulldog D MOA and the R-3004 RA Complex concurrently as one contiguous airspace. The DAF intent is to not change the boundaries of Bulldog D MOA but to add the following statement to the altitudes portion of the administrative description: “…and, excluding that airspace within the R-3004 RA Complex when activated.” Therefore, R-3004A/B/C would take precedence when both the Bulldog D MOA and R-3004A/B/C are active.

2.4.1.2 Proposed Ground-Based Changes

The proposed ground-based changes include the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of tank trails on Fort Eisenhower to 20 meters throughout the installation. The widened tank trails would be designed with stormwater ditches and turnouts and be properly designed and constructed to support the weight and repeated use of tracked vehicles. The ground-based changes proposed for Fort Eisenhower are shown on Figure 2-2. In addition to the widening of tank trails, construction of various creek crossings on Fort Eisenhower would be required.

2.4.2 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Alternative 2 consists of the same airspace changes as Alternative 1. Regarding the ground-based changes, Alternative 2 includes construction of the same number of concrete turn pads and firing points as Alternative 1, but all creek crossings would be single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide) (Figure 2-3). In addition, a portion of the tank trail would be widened on the opposite side of a cultural resources site and an alternate route to access the east side of the Small Arms Impact Area (SAIA) would be used to avoid protected natural resources habitat.

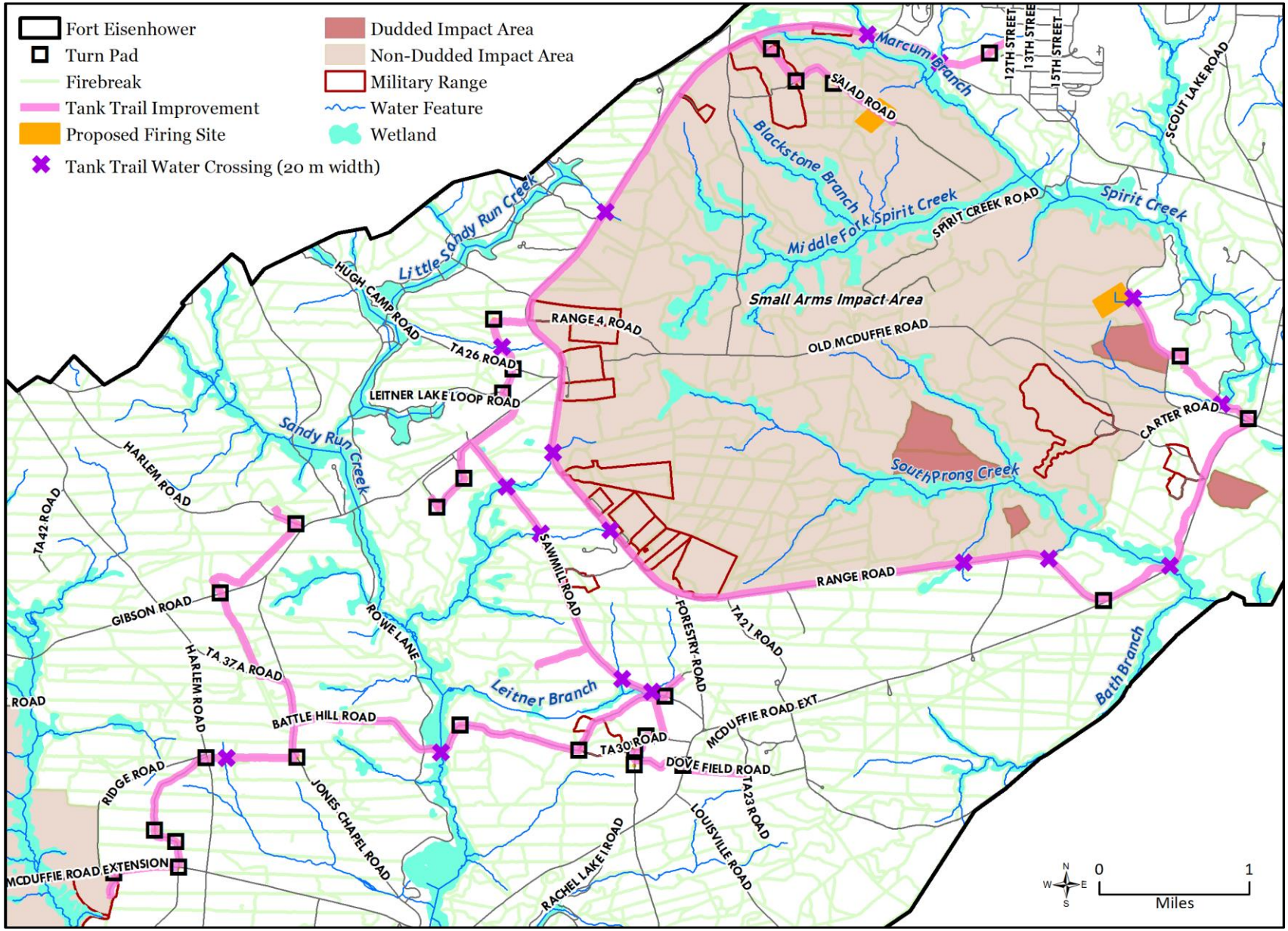


Figure 2-2. Alternative 1. Proposed Ground-Based Changes on Fort Eisenhower

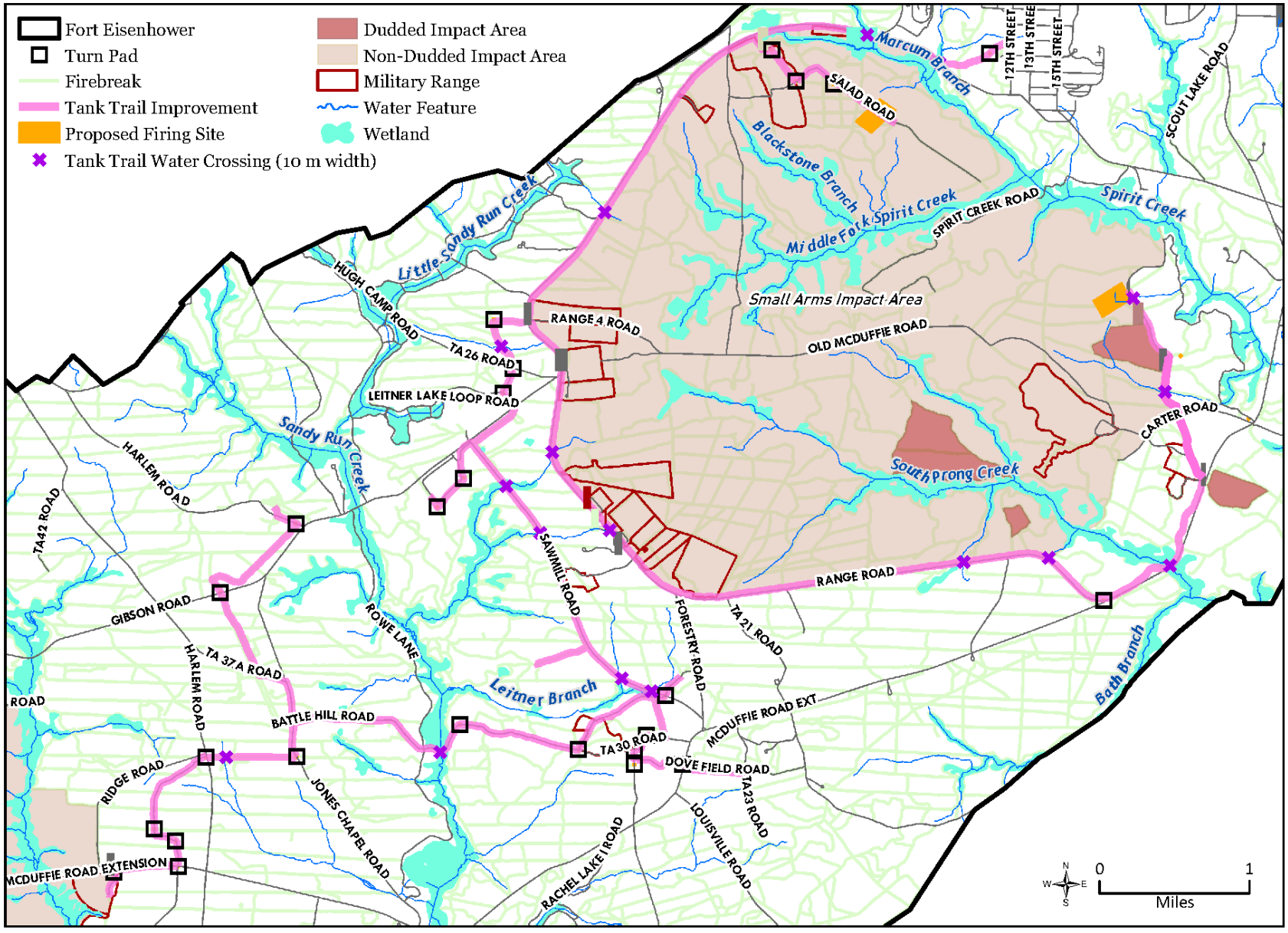


Figure 2-3. Alternative 2. Proposed Minimized Ground-Based Changes on Fort Eisenhower

2.4.3 No Action Alternative

Implementation of the No Action Alternative would not result in any ground-based changes to the training areas or any changes to the airspace structure above and surrounding Fort Eisenhower. RAs R-3004A/B/C would remain as they are today, preventing Fort Eisenhower from completing the indirect artillery fire exercises necessary for Soldiers to train using the realistic tactics, techniques, and procedures required for the advanced laser, targeting, and indirect fire systems that are currently being fielded by the Army. The existing tank trail network at Fort Eisenhower would not be able to accommodate the AMPV, and new weapons systems with longer ranges of fire could not be used at Fort Eisenhower, making it harder for Soldiers to complete necessary training and preventing them from training as they would fight.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

During the planning and development process, various alternative configurations of airspace were considered. These included alterations to the Bulldog MOA, expanding the RA outside the boundaries of Fort Eisenhower, and removing all terms and conditions for the use of the RA. These alternatives would have had greater impacts to airspace than the two alternatives being carried forward or did not comply with FAA regulations.

THIS PAGE INTENTIONALLY LEFT BLANK

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 AIRSPACE RESOURCES

Airspace management and ATC consists of the direction, control, and coordination of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States and its territories. Navigable airspace consists of airspace above the minimum altitudes of flight prescribed by regulations under USC Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the takeoff and landing of aircraft (49 USC Section 40102). The U.S. government has exclusive sovereignty of airspace of the United States (49 USC Section 40103(a)(1)).

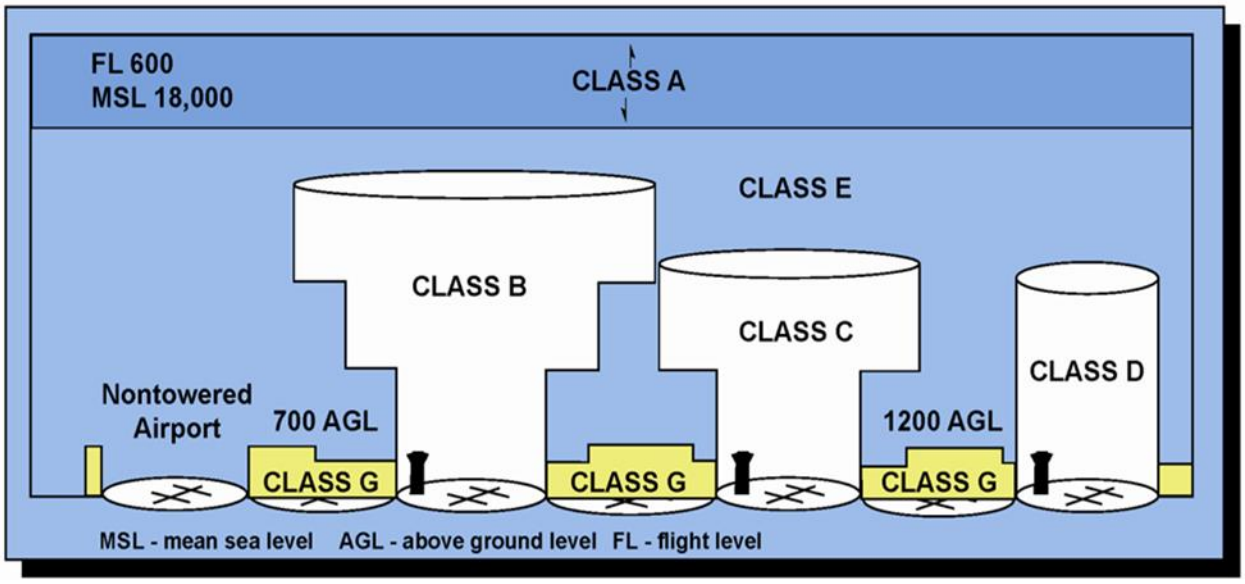
Congress has assigned the FAA the responsibility to develop plans and policy for the use of the navigable airspace and to assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and its efficient use (49 USC Section 40103(b)). SUA identified by the FAA for military and other governmental activities is charted and published by the National Aeronautical Charting Office in accordance with FAA Order Job Order 7400.2P, *Procedures for Handling Airspace Matters*, and other applicable regulations and orders. Airspace management considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation. The FAA considers multiple, and sometimes competing, demands for aviation airspace relative to airport operations, federal airways, jet routes, military flight training activities, and other special needs to determine how the NAS can best be structured to address all user requirements.

3.1.1 Airspace Categories

The FAA defines two categories of airspace—regulatory and nonregulatory—that consist of four types of airspace: (1) Controlled, (2) Special Use, (3) Other, and (4) Uncontrolled. Controlled airspace is airspace of defined dimensions within which ATC service is provided to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) flights in accordance with the airspace classification as described in the FAA *Aeronautical Information Manual* (FAA, 2023a). Controlled airspace is categorized into five separate classes─Classes A through E. The airspace classes are graphically shown on Figure 3-1. Classes A through E identify airspace that supports airport operations and those airways/routes on which IFR air traffic operates while enroute between airports. These classes also dictate pilot qualification requirements, rules of flight that must be followed, and the type of equipment necessary to operate within that airspace. The FAA Aeronautical Information Manual (FAA, 2023a) describes each class as follows:

Class A airspace generally extends from 18,000 feet MSL up to and including Flight Level 600, which is equal to approximately 60,000 feet MSL. Flight operations within Class A is generally conducted by IFR higher performance aircraft. The Proposed Action does not include Class A airspace that overlies the affected airspace environment.

Class B airspace generally extends from the surface to 10,000 feet MSL around the nation's busiest airports where it is tailored to meet the individual needs of the airport air traffic environment. All IFR and VFR aircraft are required to obtain ATC clearance to operate within this airspace. No Class B airspace is located within the affected airspace environment.



Source: (FAA, 2023a)

Figure 3-1. Controlled/Uncontrolled Airspace Schematic

Class C airspace generally extends from the surface up to 4,000 feet above the airport elevation (charted in MSL) within a 5-nautical-mile radius surrounding those airports not having the density of Class B airports. Communications with an ATC facility is required prior to entering this airspace. There are no Class C airports in the affected region.

Class D airspace generally extends from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, such as the Augusta Regional airport. Two-way communications must be made with the control tower prior to entering this airspace. Class D airspace exists within the affected airspace environment.

Class E airspace is controlled airspace that is not Class A, B, C, or D. Areas in which Class E airspace begins is at either the surface or 700 feet AGL. Class E airspace is used to transition to or from the terminal or enroute environment (around non-towered airports). In most areas of the United States, Class E airspace extends from 1,200 feet AGL up to but not including 18,000 feet MSL, the lower limit of Class A airspace. No ATC clearance or radio communication is required for VFR flights in Class E airspace. Class E airspace exists within the affected airspace environment.

Class G airspace is the portion of airspace that has not been designated as Class A, B, C, D, or E and extends from the surface to the base of the overlying Class E airspace. Class G airspace is essentially uncontrolled by ATC except when associated with a temporary control tower. Although ATC has no authority or responsibility to control air traffic, pilots should remember there are VFR minimums that apply to Class G airspace. Class G airspace also exists within the affected region.

Those classes established within the region of influence (ROI) are addressed as relevant to the existing R-3004A/B/C and Bulldog D MOA areas/uses and the airspace modifications proposed for Alternatives 1 and 2.

3.1.1.1 Special Activity and Special Use Airspace

Special Activity Airspace is any airspace with defined dimensions within the NAS wherein limitations may be imposed upon aircraft operations. This airspace could include Prohibited Areas, MOAs, Military Training Routes (Instrument Routes/Visual Routes), aerial refueling

track/anchors, slow routes, low-altitude tactical navigation areas, Air Traffic Control Assigned Airspace, and any other FAA-designated airspace areas.

SUA is defined airspace wherein activities must be confined because of their nature or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. SUA includes Prohibited Areas, RAs, MOAs, Warning Areas, Alert Areas, Controlled Firing Areas, and National Security Areas. The SUA types relevant to the proposed airspace modifications include a MOA (Bulldog D) and RAs (R-3004A/B/C).

MOAs are established to separate or segregate certain nonhazardous military activities from IFR aircraft traffic and to identify to VFR aircraft traffic where these military activities are conducted. MOAs are considered "joint use" airspace and are also used for training missions not associated with use of an RA. Nonparticipating VFR aircraft are not restricted from entering an active MOA where both military and VFR pilots are required to follow see-and-avoid procedures to remain a safe distance from other aircraft. Aircraft operating under IFR must remain clear of an active MOA unless approved by the responsible ATC, in which case that portion of the MOA used for this IFR aircraft would be deactivated.

RAs are regulated under 14 CFR Part 73 as designated airspace that supports ground or flight activities that could be hazardous to nonparticipating aircraft. Therefore, an RA separates and segregates those hazardous activities and military training operations, including air-to-ground and ground-to-ground ordnance training, from all nonparticipating IFR and VFR aircraft during scheduled hours of use. Most RAs are designated "joint use" so that IFR/VFR operations may be authorized by the controlling Air Route Traffic Control Center when the RA is not being utilized by the Using Agency. If necessary to route an IFR aircraft through an active RA for emergency, weather, or other conditions, ATC would coordinate this with the controlling agency to separate this transiting aircraft from military operations.

The airspace analysis considers compliance of the Proposed Action with the airspace modification procedures established in FAA Order Job Order 7400.2P, *Procedures for Handling Airspace Matters*. Regulatory procedures are designed to ensure that the airspace environment is structured and managed in a safe, efficient, and secure manner while also meeting both nonmilitary and military operational needs in the shared NAS. This analysis and the FAA aeronautical study examine the potential for any adverse effects on the safety of all civil and military aircraft operating within the airspace ROI. The analysis accounts for airspace structural and/or procedural measures that are incorporated into the Proposed Action to minimize or eliminate potential impacts.

3.1.2 Affected Environment

ATC, airfield/heliport, and airspace operations are regulated by the Army under AR 95-2, *Department of Defense Notice to Airmen System*. The affected ROI includes the airspace directly above Fort Eisenhower (R-3004A/B/C, the Bulldog D MOA) and the surrounding controlled airspace serving airport and transient air traffic within this region. This ROI is also inclusive of the area where the proposed airspace expansion would be located. Also considered are those facilities/agencies that are responsible for scheduling, managing, and controlling the different airspace uses.

The Fort Eisenhower Commanding Officer is the designated Using Agency for R-3004A/B/C, while Fort Eisenhower Range Operations manages the ground and air training activities conducted within this range/restricted airspace complex. The Shaw Air Force Base 20th Fighter Wing is the Using Agency for the Bulldog D MOA. FAA Atlanta Center is the controlling agency for all IFR air traffic within this region, including the Bulldog MOAs and R-3004 RAs. Scheduled use of the Bulldog D and R-3004 RAs is coordinated between the using and controlling agencies as outlined

in the Local Operating Procedures and Letters of Procedure. Published restrictions for the current scheduled use of this training airspace are identified in Section 2.4.1.1.

One of the primary controlled airspace areas in this region is the charted Terminal Radar Service Area (TRSA) that Atlanta Center has delegated to the Augusta ATC Radar Approach Control facility for controlling airport and transient air traffic within this assigned airspace. The TRSA boundary is shown in Figure 1-3 and Figure 2-1 as the circular gray line that surrounds the Augusta airport by a 10-NM radius and encompasses eastern portions of the R-3004 RAs and the Bulldog D MOA. The TRSA extends from 1,700 to 10,000 feet MSL, where activation of R-3004A/B/C airspace above 10,000 feet MSL requires coordination with Atlanta Center. ATC provides SUA status information and traffic advisories to nonparticipating pilots.

Table 3-1 identifies those public and private airports within approximately a 20-NM radius of R-3004A/B/C and the Bulldog D MOA. Aircraft operating at these airports and others in the broader ROI may routinely transit this RA/MOA airspace when not active. The Wrens Memorial Airport is located beneath the Bulldog D MOA where an exclusion area surrounds this airport at 1,500 feet AGL and below within a 3-NM radius.

Table 3-1. Public and Private Airports in Local Area

Airport/FAA Identifier	Ownership	Instrument Procedures	Aircraft	Airfield Operations[1]
Wrens Memorial, GA (65J)	Public	None	4	38/week
Pea Patch Aerodrome, GA (61GA)	Private	None	27	Not Reported
Sandy Hill, GA (GE30)	Private	None	1	46/year
Vanguard Landing, GA (5GA1)	Private	None	1	Not Reported
Augusta Regional, GA (KAGS)	Public	Yes	18	102/day
Daniels Field, GA (KDNL)	Public	Yes	44	82/day
AU Medical Center Children's Hospital (4GA2)	Private	None	0	Not Reported
Carpenter Airport, GA (0GE7)	Private	None	0	Not Reported
Thomson-McDuffie County, GA (KHQU)	Public	Yes	35	55/day
Louisville Municipal Airport, GA (2J3)	Public	Yes	12	20/day
Critter Creek, GA (GE20)	Private	None	4	Not Reported
Burke County	Public	Yes	11	57/week

AU = Augusta University; FAA = Federal Aviation Administration; GA = Georgia
Note:
1. Source: https://www.airnav.com/

The Augusta Regional, Thomson-McDuffie County, Louisville Municipal, Daniels Field, and Burke County airports have published instrument/area navigation (RNAV) procedures that IFR aircraft use to navigate to/from the respective airport runways. None of these procedural segments are located within the R-3004A/B/C or Bulldog D MOA airspace boundaries. Likewise, the Federal Airways or RNAV routes established for enroute IFR air traffic through this region are sufficiently distant from the RA/MOA areas, where that traffic is not currently affected by the training airspace uses. As noted previously, ATC may route IFR air traffic through the R-3004 RAs and/or the Bulldog D MOA as necessary during active periods where coordination provides separation from military activities. VFR aircraft may operate within the Bulldog D MOA, following see-and-avoid procedures in accordance with 14 CFR Section 91.113.

3.1.3 Environmental Consequences

Implementation of either alternative would change both the lateral and vertical extents of R-3004A/B/C. Although there would be no geographical changes to the Bulldog D MOA, the R-3004A/B/C portions that overlap the Bulldog D MOA would take precedence over the Bulldog

D MOA when both are active. Table 3-2 identifies the existing and proposed altitudes for the SUA analyzed in this section.

Table 3-2. Existing and Proposed Special Use Airspace Near Fort Eisenhower, Georgia

SUA	Existing Altitudes and Times of Use	Proposed Altitudes and Times of Use	Controlling Agency
R-3004A	Surface to but not including 3,500 feet MSL. By NOTAM 24 hours in advance.	Surface to but not including 2,500 feet MSL. By NOTAM 24 hours in advance.	FAA, Atlanta ARTCC
R-3004B	3,500 feet MSL to but not including 7,000 feet MSL. By NOTAM 24 hours in advance.	2,500 feet MSL to but not including 10,000 feet MSL. By NOTAM 24 hours in advance.	FAA, Atlanta ARTCC
R-3004C	7,000 feet MSL to 16,000 feet MSL. By NOTAM 24 hours in advance.	10,000 feet MSL to 16,000 feet MSL. By NOTAM 24 hours in advance.	FAA, Atlanta ARTCC
Bulldog D MOA	500 feet AGL to and including 17,000 feet MSL; excluding certain areas west of R-3004, 1,500 feet AGL and below.	No Change. Same as existing.	FAA, Atlanta ARTCC

AGL = above ground level; ARTCC = Air Route Traffic Control Center; FAA = Federal Aviation Administration; MOA = MSL = mean sea level; NOTAM = Notice to Air Missions; SUA = Special Use Airspace

3.1.3.1 No Action Alternative

The No Action Alternative would have no effect on the existing R-3004A/B/C and Bulldog D MOA airspace structure, and the current uses of this training airspace would remain unchanged. This airspace would continue to be scheduled and managed to meet current training needs while having no additional effects on civilian VFR and IFR air traffic operations in this airspace environment.

3.1.3.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

The proposed airspace modifications include both the lateral and vertical modifications to the existing R-3004A/B/C described in Section 2.4.1.1 and shown on Figure 2-1. The lateral modification would extend this RA complex approximately 5 nautical miles to the north/northeast, where this expansion, coupled with the altitude modification, would better accommodate more extensive military training activities. The times of use for these RAs would be established and published through a NOTAM 24 hours in advance.

The proposed lateral R-3004 modification would extend the restricted airspace into an area that is routinely used by IFR and VFR aircraft transiting to/from the different airports in this region. Since this proposal would not increase the current R-3004A/B/C ceiling altitude (16,000 feet MSL), those aircraft that would typically operate above that altitude may not be adversely affected by this lateral expansion. However, those aircraft that normally operate at lower altitudes may be affected when this airspace is active. The potential effects and means being considered to mitigate those effects are as discussed below.

The Bulldog D MOA and R-3004A/B/C would not require concurrent activation as one contiguous airspace. This would provide for more efficient scheduling and coordination of this airspace between Fort Eisenhower Range Operations, Atlanta Center, Augusta ATC, and the using agencies. This alternative would change the current scheduling of the individual R-3004A, B, and C areas to support the different training activities and their respective altitude requirements. As

previously discussed, modification of the current altitude structure for each RA would result in the less frequent need to activate the higher R-3004B and C altitudes, being most activities would be conducted within R-3004A. Therefore, the less frequent use of the higher R-3004B and R-3004C altitudes would make this overall restricted airspace more available for nonparticipating air traffic at 2,500 feet MSL and above than what currently occurs. When R-3004A/B are activated, the 10,000 feet MSL ceiling would be aligned with the TRSA ceiling where coordination with Atlanta Center may not be required. This would help minimize the potential effects the existing RA and expanded lateral area would have on IFR and VFR air traffic transiting above 10,000 feet MSL within this airspace area.

As noted by the FAA's review of this Proposed Action (88 Federal Register 21146–21148), this lateral expansion would reduce the transition area between the R-3004A/B/C complex and the Augusta Class D airspace (about a 3.5-mile gap) for those VFR pilots typically flying through this area who want to avoid the Class D area when transiting to/from the Daniels Field or other airports in this ROI. However, with only R-3004A being activated the majority of the time, the reduced transition area would have little effect on those VFR aircraft that typically operate above 2,500 feet MSL. If necessary for a VFR pilot to transit the Class D airspace, they would be required to contact Augusta ATC prior to entering this airspace to increase awareness of this traffic relative to airport arrivals/departures.

The Proposed Action would have minimal direct effects on public/private airports in this general region. The R-3004A/B/C modifications would not affect the existing Wren Airport exclusion area that helps protect aircraft operations at this airport. The lateral expansion would affect use of the Runway 5 RNAV approach procedures and Runway 23 departure procedures at Daniel Field when the R-3004 is active. This issue has been addressed by the FAA with mitigations to minimize impacts, as described below.

The R-3004A/B/C weekend restrictions noted in Section 2.4.1.1 would be changed where (1) training activities would be permitted, (2) flight training could be conducted above 12,000 feet AGL, and (3) overly restrictive weather minima would be removed. The other restrictions described in Section 2.4.1.1 currently in place would remain in place. Increased R-3004 weekend use could limit the increased VFR operations (including student flights) that generally occur within this area on weekends. For that reason, Fort Eisenhower and the using agencies would minimize this weekend use to the extent necessary to complete the required training activities. Status updates would be provided on the activation/deactivation times via NOTAMs and other available resources. Attention to the status updates would help minimize weekend impacts on general aviation to include any incidental incursions into the active restricted airspace.

Overall, implementation of this alternative with the proposed FAA mitigation measures discussed below would minimize the potential for any significant impacts on nonparticipating commercial and general aviation flight activities in the affected area.

FAA Proposed Mitigations

Per regulatory requirements, the FAA has completed a preliminary formal review of this airspace proposal through an Aeronautical Study and Safety Risk Management panel review, as well as from reviewing comments from the Aircraft Owners and Pilots Association and other public comments received following the Federal Register Notice of Proposed Rulemaking for this proposal. The FAA study/review processes recognized the potential effects the modified R-3004A/B/C floors, lateral extension, and scheduled uses could have on existing IFR/VFR operations in this area. Based on these concerns/observations, the FAA, U.S. Army, Fort

Eisenhower, and other interests developed mitigation measures to minimize potential impacts pending any additional concerns received following public review of this document.

As previously discussed, a Letter of Procedure defines Fort Eisenhower, Augusta ATC, and Atlanta Center responsibilities for scheduling, coordinating, and controlling the R-3004 RAs. These assigned tasks would be modified to further define the specific practices required to provide for the safe, efficient implementation of the airspace modifications. NOTAMs, ATC advisories, and other means would continue to be used to keep nonparticipating air traffic informed of the real-time active status of the SUA to further minimize any adverse effects on other airspace users in this area.

The Letter of Procedure would also define more specific procedures for coordinating/approving the transit of IFR and authorized VFR traffic through this active airspace, when necessary, in which case Fort Eisenhower would cease operations for transiting air traffic. To facilitate IFR arrivals at Daniel Field and other air traffic needs, ATC would coordinate release of a new corridor (X-Ray) as depicted on Figure 3-2 to accommodate these aircraft. This corridor would be returned as SUA after completion of this IFR transit to continue Fort Eisenhower training operations. Such coordinated use of this corridor for such essential transiting aircraft would further help minimize impacts on overall airspace uses in this area.

This alternative would have the potential to increase ATC workload in coordinating and controlling IFR air traffic within this airspace/airport environment when the R-3004A/B/C is active. However, the real-time activation/deactivation procedures incorporated into the Letter of Procedure and the more limited use of the R-3004B/C higher altitudes would minimize effects on both ATC workload and nonparticipating aircraft. In addition, Fort Eisenhower Range Control and the FAA are in the process of upgrading communication systems to provide both primary and alternate communication systems for redundancy and will cross-train with the FAA for future management and coordination of the airspace. Additional mitigations would be considered as needed in response to any further concerns that are raised following public review of this document.

Ground-Based Changes

The ground-based changes proposed as part of Alternative 1 would not result in any changes or impacts to airspace.

3.1.3.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Implementation of Alternative 2 would have the same airspace uses, effects, and mitigations as addressed for Alternative 1. Therefore, implementation of Alternative 2 would also minimize the potential for any significant impacts on nonparticipating commercial and general aviation flight activities in the affected area.

Ground-Based Changes

The ground-based changes proposed as part of Alternative 2 would not result in any changes or impacts to airspace.

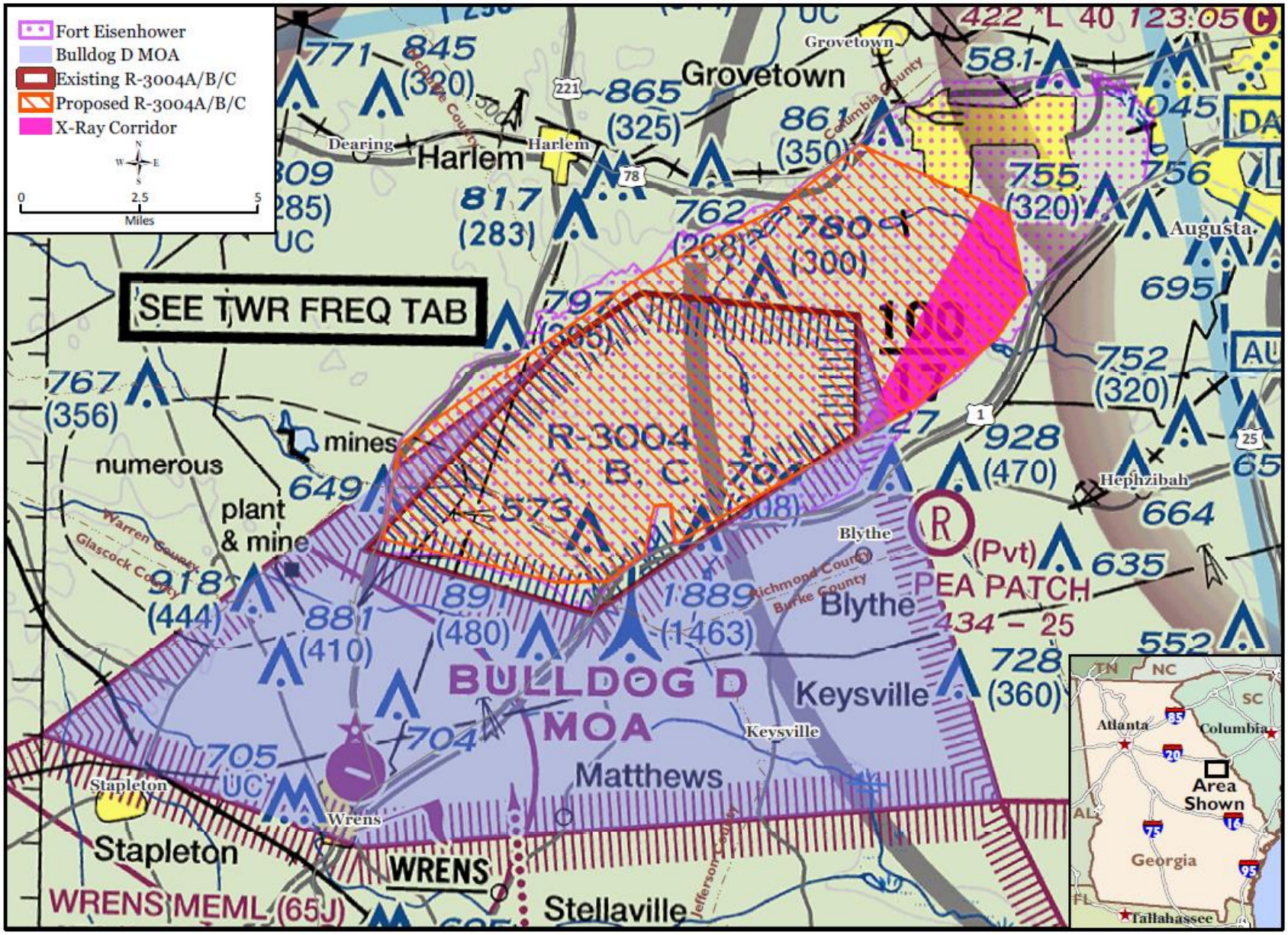


Figure 3-2. Proposed Airspace Changes with the X-Ray Corridor

3.2 AIR QUALITY

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed on a concentration basis in units of parts per million or micrograms per cubic meter. The significance of a pollutant concentration often is determined by comparing its concentration to an appropriate national or state ambient air quality standard. These standards represent the allowable atmospheric concentrations at which the public health and welfare are protected and include a reasonable margin of safety to protect the more sensitive individuals in the population. Under the authority of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) establishes the National Ambient Air Quality Standards (NAAQS) to regulate air quality. The CAA designates standards for the following criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (particulate matter less than or equal to 10 micrometers in diameter [PM_{10}]), fine particulate matter (particulate matter less than or equal to 2.5 micrometers in diameter [$PM_{2.5}$]), and lead (USEPA, 2023). The Georgia Department of Natural Resources (GA DNR) has adopted the NAAQS for purposes of regulating criteria pollutant levels within the state of Georgia.

The USEPA designates all areas of the United States as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Areas where there are insufficient air quality data for the USEPA to form a basis for attainment status are unclassifiable. Thus, such areas are treated as attainment areas until proven otherwise. Former nonattainment areas that have attained NAAQS are designated as maintenance areas.

3.2.1 Climate Change and Greenhouse Gases

Greenhouse gases (GHGs) are air pollutants that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The natural balance of GHGs in the atmosphere regulates the Earth's temperature. Scientific evidence indicates a correlation between the worldwide proliferation of GHG emissions from human activities and increasing global temperatures over the past century. Climate change associated with this global warming is predicted to produce negative environmental, economic, and social consequences across the globe (USGCRP, 2018; IPCC, 2021).

Examples of GHGs from human activities include carbon dioxide, methane, nitrous oxide, and fluorinated gases. These emissions mainly occur from burning fossil fuels (coal, oil, and gas), with contributions from forest clearing, agricultural practices, and other activities. Each GHG has a global warming potential, which is its ability to trap heat in the atmosphere. To account for the global warming potentials of various pollutants, GHG emissions are reported as a carbon dioxide equivalent (CO_2e). CO_2e emissions are commonly expressed in units of metric tons.

Federal agencies address emissions of GHGs by reporting and meeting reductions mandated in federal laws, EOs, and agency policies. On January 9, 2023, the CEQ released interim guidance that describes how federal agencies should consider the effects of GHGs and climate change in their NEPA reviews (CEQ, 2023). The interim guidance explains that agencies should (1) consider the potential effects of project alternatives on climate change, as indicated by its estimated GHG emissions; (2) determine the social cost of project GHGs; (3) determine project consistency with GHG plans and goals; (4) consider mitigations that will reduce project GHGs; (6) consider impacts to environmental justice communities; and (7) consider adaptation measures that would make the actions and affected communities more resilient to the effects of climate change. The air quality analysis for this EA considers aspects of the CEQ 2023 interim guidance.

Atmospheric levels of GHGs and their resulting effects on climate change are due to innumerable sources of GHGs across the globe. Therefore, the ROI and effects of GHG emissions from the project alternatives essentially are global and cumulative. Section 4.2.2 presents the cumulative impact analysis of project GHGs.

3.2.2 Affected Environment

Fort Eisenhower is within the Augusta (Georgia)–Aiken (South Carolina) Interstate Air Quality Control Region (40 CFR Section 81.114). This region is in attainment for all NAAQS. The project ROI for air quality is Richmond County and. because it attains all NAAQS, the General Conformity Rule does not apply to the project alternatives. The General Conformity Rule only applies to actions within regions that are in nonattainment or maintenance of NAAQS.

Army operations at Fort Eisenhower are covered under a Georgia Part 70 Operating Permit (9711-245- 0021-V-04-1) for air emissions. The permit includes requirements for stationary sources of air emissions, which cover emission caps and operating limits, monitoring, record-keeping, and reporting.

The 2022 Air Quality Report for Georgia shows that the air monitoring station nearest to Fort Eisenhower (Augusta) has recorded pollutant levels in recent years that are at least 5 percent below all NAAQS (Air Protection Branch, 2023).

3.2.3 Environmental Consequences

Implementation of the project alternatives would result in air quality impacts from construction and operation activities. Air quality impacts that could result from the proposed construction activities would result from (1) combustive emissions due to the use of fossil-fuel-powered construction equipment and (2) fugitive dust (PM_{10}/$PM_{2.5}$) due to the operation of construction equipment on exposed soil.

The analysis does not include emissions from military tactical vehicles and other mobile sources as they are generally exempt from CAA emissions reporting and permitting requirements per the mobile sources versus stationary source rules and the military/national security exemptions. The analysis of proposed aircraft operations is limited to operations that would occur within the lowest part of the atmosphere known as the mixing layer, because this is where the release of aircraft emissions would affect ground-level pollutant concentrations. In general, aircraft emissions released above the mixing layer would not appreciably affect ground-level air quality. In accordance with the General Conformity Rule, where the applicable State Implementation Plan or Transportation Implementation Plan does not specify a mixing height, the federal agency can use 3,000 feet AGL as a default mixing height. Since the Georgia State Implementation Plan do not specify mixing heights, the analysis used 3,000 feet AGL as a default mixing height.

The air quality analysis estimated the magnitude of emissions that would result from proposed construction and operation activities with the use of the DAF Air Conformity Applicability Model (ACAM) (Version 5.0.18a) (Solutio Environmental, 2022). The ACAM uses widely accepted air emission calculation methods combined with default data that can be used if site-specific information is not available. The estimation of aircraft emissions is based on the net change in operations that would occur below 3,000 feet AGL due to the proposed airspace changes. Specific emission sources evaluated for the project alternatives can be viewed in the ACAM detail report located in Appendix B of this EA.

Insignificance indicators were used in the analysis to provide an indication of the significance of potential impacts to air quality, based on current ambient air quality relative to the NAAQS. The insignificance indicator used to evaluate actions in areas that are clearly in attainment (not within

5 percent of exceeding NAAQS) is the USEPA Prevention of Significant Deterioration permitting threshold of 250 tons per year of a criteria pollutant besides lead. Areas where an air pollutant is within 5 percent of NAAQS are considered near nonattainment, and the insignificance indicator used to evaluate actions in these areas is 100 tons per year for all criteria pollutants besides lead. The insignificance indicator for lead in both areas is 25 tons per year. These indicators do not denote a significant impact; however, they do provide a threshold to identify actions that have insignificant impacts to air quality. Any action with net emissions below the insignificance indicators is considered so insignificant that the action would not cause or contribute to an exceedance of any NAAQS.

3.2.3.1 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Airspace changes proposed for Alternative 1 would result in minor increases in aircraft operations below 3,000 feet AGL compared to existing operations. Table 3-3 presents the net increase in aircraft emissions below 3,000 feet AGL that would occur from Alternative 1. These data show that emissions estimated for airspace changes under Alternative 1 would remain well below all insignificance indicators and, therefore, result in insignificant air quality impacts within the project region.

Table 3-3. Annual Net Change in Emissions from Alternative 1 - Fort Eisenhower

Year (Activity)	Annual Air Polluant Emissions (tons)						
	VOCs	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$	CO_2e (mt)
2024 (Construction)	1.50	8.68	8.77	0.03	148.81	0.13	2,334
2025 (Aircraft operations)	<0.005	0.02	0.39	0.02	0.03	0.02	64
Insignificance Indicator	**250**	**250**	**250**	**250**	**250**	**250**	**None**
Exceed Insignificance Indicator?	**No**	**No**	**No**	**No**	**No**	**No**	**NA**

< = less than; CO = carbon monoxide; CO_2e (mt) = carbon dioxide equivalent in metric tons; NA = not applicable; NO_x = nitrogen oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SO_x = sulfur oxides; VOC = volatile organic compound

Note:

1. Annual emissions of lead would be less than 0.005 tons per year for each activity.

Ground-Based Changes

The air quality analysis assumed that all ground-based changes proposed for Alternative 1 would occur in one calendar year. In addition, ground-disturbing activities associated with the proposed ground-based changes would implement best management practices (BMPs) to minimize fugitive dust emissions. The analysis assumed that these BMPs would reduce $PM_{10}/PM_{2.5}$ by 61 percent from uncontrolled levels (Countess Environmental, 2006). Ground-disturbing activities under Alternative 1 also would comply with GA DNR Rule 391-3-1-.02(2)(n), *Fugitive Dust*.

Table 3-3 presents estimates of emissions that would occur from ground-based changes proposed for Alternative 1. The data in Table 3-3 show that emissions estimated for ground-based changes under Alternative 1 would remain well below all insignificance indicators and, therefore, result in insignificant air quality impacts within the project region.

3.2.3.2 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Alternative 2 would require the same airspace changes as Alternative 1. Therefore, like Alternative 1 and as shown in Table 3-3, emissions estimated for airspace changes under Alternative 2 would remain well below all insignificance indicators and result in insignificant air quality impacts within the project region.

Ground-Based Changes

Alternative 2 would include slightly fewer ground-based changes, which would require slightly lower construction equipment usages and ground-disturbing activities compared to Alternative 1. Therefore, emissions from ground-based changes under Alternative 2 would be slightly less than those estimated for Alternative 1. Like Alternative 1 and as shown in Table 3-3, emissions estimated for ground-based changes under Alternative 2 would remain below all insignificance indicators and result in insignificant air quality impacts within the project region.

3.3 BIOLOGICAL RESOURCES

Biological resources include sensitive and protected plant and animal species and associated habitats that are federally (USFWS) listed or state- (GA DNR) listed for protection. Identifying which species occur in an area affected by an action is accomplished through literature reviews and coordination with appropriate federal and state regulatory agency representatives, resource managers, and other knowledgeable experts. The ROI for biological resources includes the areas proposed for ground-based changes on Fort Eisenhower and areas underlying the proposed airspace changes. The ROI corresponds to the action area, which is defined by federal regulation (50 CFR Section 402.02) as all areas to be affected directly or indirectly by the federal action.

3.3.1 Affected Environment

3.3.1.1 Vegetation

Fort Eisenhower is located in the Upper Coastal Plain and Lower Piedmont Plateau physiographic provinces, and vegetation is characteristic of communities within the transition zone between these provinces. Nearly 78 percent of the installation is in forest cover. Common plant species on the installation include, but are not limited to, longleaf pine (*Pinus palustris*), loblolly pine (*Pinus taeda*), wiregrass (*Aristida* spp.), white oak (*Quercus alba*), hickory (*Carya* spp.), flowering dogwood (*Cornus florida*), blueberry (*Vaccinium* spp.), water oak (*Quercus nigra*), and broomsedge (*Andropogon virginicus*) (Fort Gordon, 2019a). Fort Eisenhower's policy for tree removal is to avoid removal of live trees with a diameter at breast height of 4 inches or greater. If the removal of live trees with a diameter at breast height of 4 inches or greater cannot be avoided, then the Forestry point of contact is to be contacted prior to removal for coordination. Any "merchantable" timber designated for removal will be considered real property and disposal will be in the form of a timber sale. All "non-merchantable" dropped vegetation remaining on site would be mulched/chipped small enough to mitigate the accrual of potential fuels for wildfires.

The forested and other habitats at Fort Eisenhower provide suitable habitat for approximately 31 species of mammals. One hundred and thirty-six species of birds have been identified on the installation along with numerous amphibian and reptiles species. Aquatic species include at least 4 species of stocked fish and an additional 56 species of both native and non-native fish. Additional

descriptions of wildlife common to Fort Eisenhower are included in the Integrated Natural Resources Management Plan (INRMP) (Fort Gordon, 2019a).

3.3.1.2 Special Status Species

Special status plant and wildlife species are subject to regulations under the authority of federal and state agencies. The Endangered Species Act (16 USC 1532 et seq.) of 1973, as amended, was enacted to protect and recover imperiled species and the ecosystems upon which they depend. The USFWS maintains a list of special status species considered endangered, threatened, or candidate. Special status animal species are those that are of special interest due to such reasons as being state-listed, formerly rare, rare elsewhere, potentially rare, or possessing some unusual trait that arouses the interest of some people.

"Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Candidate species include plants and animals that have been studied and proposed for addition by the USFWS to the federal endangered and threatened species list. All federal agencies are required to implement protection programs for endangered and threatened species and to use their authority to further the purposes of the Act.

The Migratory Bird Treaty Act prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. The USFWS maintains a list of designated migratory birds occurring in various regions of the United States. The USFWS regulations allow for the incidental take of migratory birds for military readiness activities.

A USFWS IPaC species lists was obtained to identify federally listed species with the potential to occur within the ROI (Table 3-4). The IPaC pull, dated December 7, 2023 (Appendix A), identified three federally listed species: (1) red-cockaded woodpecker (*Picoides borealis*), (2) monarch butterfly (*Danaus plexippus*), and (3) relict trillium (*Trillium reliquum*). One proposed threatened species, the Ocmulgee skullcap (*Scutellaria ocmulgee*), was also identified by the USFWS. Additional species and status information is shown in Table 3-4. The Fort Eisenhower INRMP identified one additional federally listed species (wood stork [*Mycteria americana*]) and included state-listed species that are known to occur on Fort Eisenhower. These species are shown in Table 3-4. In addition to these species, the GA DNR provided a response to scoping comments that listed natural communities, plants, and animals of highest priority in the vicinity of the project (see Appendix A). This list included two state-listed species that historically occurred at Fort Eisenhower; they have also been added to Table 3-4.

Of the three federally threatened or endangered species shown in Table 3-4, two have been identified as occurring at Fort Eisenhower—the red-cockaded woodpecker and the wood stork. The Ocmulgee skullcap (proposed threatened) was identified by the USFWS as potentially occurring in the ROI, but no known occurrences of that species occur at Fort Eisenhower. One proposed endangered species, the tricolored bat, is known to occur at Fort Eisenhower, and one federal candidate, the monarch butterfly, is also known to occur at Fort Eisenhower. Additional information on the species known to occur at Fort Eisenhower is included below. In addition to the federally listed species, a number of state-listed species occur at Fort Eisenhower. These species are listed in Table 3-4 and in Appendix A.

Table 3-4. Special Status Species with Potential to Occur in the ROI

Common Name	Scientific Name	Protection Status[1]	Habitat	Potential to Occur within ROI	
				Known to Occur on Fort Eisenhower	Potentially Occurring under Airspace
Mammals					
Rafinesque's big-eared bat	*Corynorhinus rafinesquii*	State rare	Pine forests, hardwood forests, caves, abandoned buildings, bridges, bottomland hardwood forests, and cypress-gum swamps	Yes	Yes
Tricolored bat	*Perimytois subflavus*	Proposed endangered	Winter habitat: caves and mines and roadside culverts Spring, summer, and fall roosting habitat: hardwood forests	Yes	Yes
Birds					
Red-cockaded woodpecker	*Picoides borealis*	Federally endangered	Open pine woods and pine savannas	Yes	Yes
Bachman's sparrow	*Peucaea aestivalis*	State rare	Open pine or oak woods, old fields, brushy areas, and young large grassy pine regeneration areas	Yes	Yes
Southeastern American kestrel	*Falco sparverius paulus*	State rare	Open pine grasslands with snags, hayfields, and pasture lands	Yes	Yes
Bald eagle[1]	*Haliaeetus leucocephalus*	State threatened	Edges of lakes and large rivers, and seacoasts	Yes	Yes
Wood stork[1]	*Mycteria americana*	Federally threatened	Cypress/gum ponds, impounded wetlands with islands or emergent cypress, marshes, river swamps, and bays	Yes	Yes
Reptiles and Amphibians					
Gopher tortoise	*Gopherus polyphemus*	State threatened	Sandhills, dry hammocks, longleaf pine-turkey oak woods, and old fields	Yes	Yes
Southern hognose snake	*Heterodon simus*	State threatened	Sandhills, fallow fields, and longleaf pine-turkey oak woods	Yes	Yes
Fish					
Bluebarred pygmy sunfish	*Elassoma okatie*	State endangered	Temporary ponds and stream backwaters with dense aquatic vegetation	Yes	Yes

Table 3-4. Special Status Species with Potential to Occur in the ROI

Common Name	Scientific Name	Protection Status[1]	Habitat	Potential to Occur within ROI	
				Known to Occur on Fort Eisenhower	Potentially Occurring under Airspace
Insects					
Monarch butterfly	*Danaus plexippus*	Federal candidate	Open areas with milkweed and flowering plants	Yes	Yes
Plants					
Ocmulgee skullcap	*Scutellaria ocmulgee*	Proposed threatened	Bluff forests with calcium-rich soils in the Ocmulgee and Savannah watersheds	No	No
Relict trillium	T*rillium reliquum*	Federally endangered	Mesic hardwood forests and lime sink forests, usually with beech and basswood	No	No
Sandhill rosemary	*Ceratiola ericoides*	State threatened	Ohoopee Dunes and deep sandridges	Yes	Yes
Atlantic white cedar	*Chamaecyparis thyoides*	State rare	Clearwater stream swamps in fall line sandhills	Yes	Yes
Pink lady's slipper	*Cypripedium acaule*	State unusual	Upland oak-hickory-pine forests and piney woods	Yes	Yes
Carolina bogmint	*Macbridea caroliniana*	State rare	Bogs, marshes, and alluvial woods	Yes	Yes
Indian olive	*Nestronia umbellula*	State rare	Mixed with dwarf shrubby heaths in oak-hickory-pine woods, often in transition areas between flatwoods and uplands	Yes	Yes
Sweet pitcher plant	*Sarracenia rubra*	State endangered	Seepage bogs and Atlantic Coastal Plain	Yes	Yes
Pickering's morning glory	*Stylisma pickeringii* var. *pickeringii*	State threatened	Open, dry, oak scrub of sandhills	Yes	Yes
Silky camelia	*Stewartia malacodendron*	State rare	Along streams on lower slopes of beech-magnolia or beech-basswood-Florida maple forests	Yes	Yes
Georgia aster	*Symphyotrichum georgianum*	State threatened	Open sunny areas such as prairies or woodland edges	No	No

Sources: (Fort Gordon, 2019a; USFWS, 2023; GA DNR Wildlife Resources Division, 2024)
ROI = region of influence
Note:
1. Transient presence on Fort Eisenhower

The wood stork has been documented as a transient species; no nesting has been documented at Fort Eisenhower. Red-cockaded woodpeckers were once common throughout open, fire-maintained pine ecosystems, particularly longleaf pine that covered approximately 92 million acres before European settlement. The species requires large old pines for nesting and roosting habitat. Fire suppression and lack of cavity trees, along with habitat fragmentation, have led to the decline of the species (87 Federal Register 6118). Red-cockaded woodpeckers are actively managed at Fort Eisenhower in accordance with the *Revised Army-Wide Guidelines for the Management of the Red-Cockaded Woodpecker on Army Installations* (61 Federal Register 33102) and the USFWS 2003 revised Red-cockaded Woodpecker Recovery Plan (Fort Gordon, 2019a). Management includes but is not limited to establishment of habitat management units (HMUs), timber management, restoration and construction of cavities, protection of red-cockaded woodpecker clusters, and population monitoring.

The tricolored bat was proposed for listing on September 14, 2022, and a final listing determination may occur in 2024. During the spring, summer, and fall months, tricolored bats utilize the leaves of hardwood trees for roosting habitat. The tricolored bat is known to use forested habitat at Fort Eisenhower. The primary threats to the species is white-nose syndrome, which has led to dramatic declines in the population of the species.

In a December 17, 2020, 12-month finding (85 Federal Register 81813), the USFWS determined that the monarch butterfly warranted listing as an endangered or threatened species under the Endangered Species Act. However, that listing was precluded by higher priority listing actions (i.e., species then determined to be at greater or more immediate risk). The primary threats to the monarch's biological status include habitat loss and degradation, herbicide use, drought, exposure to insecticides, and various effects of climate change (85 Federal Register 81813).

3.3.2 Environmental Consequences

To determine the potential impacts to biological resources under each alternative, the methodology used focused on the location of species or habitats in proximity to the lands beneath the airspace and within the proposed footprint of new firing points and tank trail improvements. Habitats that could be impacted were quantified, and each was evaluated in the context of importance, species likely to be present, habitat function, sensitivity, and the availability of regionally similar resources. Habitat was considered in the context of the importance (legal, commercial, ecological, or scientific) of the resource where the Proposed Action would occur.

The analysis focused specifically on those animal species that could occur in the airspace and within the lands under the airspace proposed for use at Fort Eisenhower. Animal species that may be affected by changes in aircraft operations, flight patterns, and flight elevations (specifically areas between the Earth and aircraft flying between 500 AGL and 30,000 feet MSL) include avian species (i.e., birds and bats) subject to aircraft strikes. Animal species potentially impacted include those that occur within the habitats proposed for loss due to tank trail improvements.

Effects determinations for wildlife and special status species were concluded based on the projected conditions under each alternative compared against baseline conditions. Per FAA Order 1050.1F, the significance threshold for biological resources is a determination from the USFWS that the Proposed Action "would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat." Significant impacts are defined as follows:

- Adverse impacts to state-listed species, migratory birds, eagles, and species proposed for listing and their habitats
- Long-term or permanent loss of unlisted species

- Substantial reduction, disturbance, degradation, fragmentation, or loss of native species' habitat or their populations
- Adverse impacts on a species' natural mortality rates, non-natural mortality, reproductive success rates, or ability to sustain the minimum population levels necessary for population maintenance

3.3.2.1 No Action Alternative

Under the No Action Alternative, no impacts to biological resources at Fort Eisenhower or the areas under the proposed airspace would occur. Baseline biological resources conditions at Fort Eisenhower would continue.

3.3.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

The potential for impacts to biological resources from the implementation of Alternative 1 would primarily be associated with habitat loss during the widening of tank trails. Minor impacts could also occur during operations within the ROI.

Airspace Changes

Vegetation and Wildlife. Implementation of Alternative 1 would include an increase in munitions use and an increase in aircraft operations. These changes would have no impact to vegetation and only minimal impacts to wildlife. While there could be a slight risk to mid-air collisions with wildlife, the chances of such impacts are considered minimal due to the slight increase in operations. In addition, pilots typically do not fly at dawn and dusk due the increased Bird/Animal Aircraft Strike Hazard potential during these time periods. Operational planning for Bird/Animal Aircraft Strike Hazard at Fort Eisenhower would incorporate procedures to minimize the potential for bird strikes. Direct impacts to birds due to aircraft strikes is considered negligible. Most birds spend the majority of their time below 500 feet AGL, except during migration when they typically occur at 500 to 2,000 feet AGL. Most bird strikes occur at altitudes below 3,000 feet AGL, although strikes at higher altitudes (up to about 7,000 feet AGL) can occur during migration (FAA, 2023b). The incidental take of migratory bird species is covered under 50 CFR Section 21.42, *Authorization of take incidental to military readiness activities.*

Potential indirect impacts to wildlife related to the airspace changes would primarily be associated with increases in noise related to increased flight operations and use of ordnance. Section 3.8 describes the impacts associated with the increase in large arms usage and the increase in the number of aircraft sorties in the airspace. Munitions noise impacts would not be significant. Aircraft operations would remain relatively infrequent, as reflected by the low calculated time-averaged noise level, and noise impacts would not be significant.

Special Status Species. Impacts to special status species (including migratory birds, bald and golden eagles, and threatened and endangered species protected by the GA DNR) would be the same as those described above for wildlife. The only special status species potentially impacted by Alternative 1 airspace changes would be bird and bat species. There have been no known aircraft strikes in the proposed airspace of the red-cockaded woodpecker, the wood stork, or the listed bat species, and the potential for a direct impact on this species due to an aircraft strike is considered negligible.

Ground-Based Changes

Vegetation and Wildlife. Existing tank trails on Fort Eisenhower range from 3.66 to 7.32 meters in width. Under Alternative 1, trails would be widened to 20 meters and two new firing points would be installed. Concrete turn pad would be constructed at various locations along the trails. Vegetation impacted would primarily consist of forested habitat. Table 3-5 includes the types of forest and acres of impact for each alternative. Noise effects related to construction would be short term and could temporarily affect wildlife in the immediate vicinity. Impacts to biological resources are not anticipated to be significant and would not result in long-term effects on population viability of biological resources.

Table 3-5. Estimated Acres of Forest Impacts

Forest Stand	Alternative 1				Alternative 2			
	Concrete Turn Pad	Firing Site	Tank Trail	Tank Trail Water Crossing	Concrete Turn Pad	Firing Site	Tank Trail	Tank Trail Water Crossing
Bottomland Hardwood	0.0	0.0	2.6	0.5	0.0	0.0	2.5	0.2
Loblolly Pine	1.0	6.3	54.4	0.1	1.0	6.3	54.6	0.0
Longleaf Pine	1.0	4.7	49.2	0.3	1.0	4.7	44.4	0.1
Pond Pine	0.2	0.0	3.6	0.0	0.2	0.0	3.6	0.0
Sand Pine	0.0	0.0	0.8	0.0	0.0	0.0	0.8	0.0
Slash Pine	0.2	17.5	6.3	0.0	0.2	17.5	6.8	0.0
Southern Scrub Oak	0.2	0.0	1.9	0.0	0.2	0.0	1.9	0.0
Unknown	0.3	0.0	9.5	0.1	0.3	0.0	9.5	0.1
Upland Hardwood	0.0	0.0	13.1	0.7	0.0	0.0	13.1	0.4

Special Status Species. The only federally listed species potentially impacted by Alternative 1 ground-based changes would be the red-cockaded woodpecker. Implementation of Alternative 1 would impact approximately 145 acres of red-cockaded woodpecker HMU. These impacts would primarily occur in edge habitat along existing trails or within the areas proposed for new firing points. Under the Alternative 1 configuration, one portion of proposed widened trails to the east of the small arms impacts area would go through the middle of a red-cockaded woodpecker HMU. The trail in that location is less than 35 feet from the nearest nesting tree. Informal consultation with the USFWS is ongoing and it is anticipated that the implementation of Alternative 1 may affect but would not adversely affect the red-cockaded woodpecker.

Implementation of Alternative 1 would also have the potential to impact tricolored bat roosting habitat. Removal of deciduous trees, which could provide non-winter roosting habitat for the tricolored bat, would occur prior to the roosting season. It is anticipated that the implementation of Alternative 1 may affect but would not adversely affect the tricolored bat.

In addition to impacting habitat associated with federal species, the project has the potential to impact state-listed species. For example, approximately 138 acres of gopher tortoise HMU would be impacted by the tank trail improvements and construction of firing points. In addition, the construction of tank trails through streams at Fort Eisenhower has the potential to impact aquatic species, such as the bluebarred pygmy sunfish. Management considerations for terrestrial species such as those described in the Fort Eisenhower INRMP would be followed to minimize impacts to state-listed species. Species-specific surveys would be completed as feasible. BMPs as described in Section 3.13 would be implemented to minimize impacts to aquatic species.

Bald eagles are known to nest within the boundaries of Fort Eisenhower. No nests are anticipated to be impacted during the implementation of Alternative 1. Implementation of Alternative 1 would not have a significant impact to on any special status species.

3.3.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Airspace impacts to biological resources would be the same as those described for Alternative 1.

Ground-Based Changes

Ground-based impacts to biological resources would be the same as those described for Alternative 1 but with less impact to habitat. Alternative 2 was selected as the Preferred Alternative to avoid impacts to the red-cockaded woodpecker HMU to the east of the small arms impacts area. This alternative avoids trail improvement in close proximity to a nesting tree. Implementation of Alternative 2 would impact 5 less acres of red-cockaded woodpecker habitat and 5 less acres of gopher tortoise habitat as compared to Alternative 1.

3.4 CULTURAL RESOURCES

The NHPA was passed into law in 1966 to help stop the inadvertent loss of historic properties significant to our heritage. The NHPA includes provisions for the Department of the Interior (DOI) to maintain the National Register of Historic Places (NRHP) (36 CFR Part 60). The NRHP is composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture. The DOI is responsible for designating the "Keeper of the Register" (Keeper). Per 36 CFR Section 60.3(f), the Keeper is the individual who has been delegated the authority by the DOI to list properties and determine their eligibility for the NRHP. The current Keeper is the National Park Service, National Register Chief.

The management of cultural resources is guided by Chapter 6 of AR 200-1. As outlined in AR 200-1, the cultural resources management program at Fort Eisenhower has responsibility for compliance with Sections 106 and 110 of the NHPA, as well as the Archaeological Resources Protection Act; Archeological and Historic Preservation Act; Native American Graves Protection and Repatriation Act (NAGPRA); American Indian Religious Freedom Act; EO 13007, *Indian Sacred Sites*; and EO 13175, *Consultation and Coordination with Indian Tribal Governments.* Responsibilities of the Fort Eisenhower cultural resources management program are outlined in the *Integrated Cultural Resources Management Plan* (ICRMP), which covers a wide diversity of cultural resources on the installation in compliance with ARs, federal legislation, and applicable guidelines.

Impact analysis for cultural resources focuses on assessing whether implementation of an alternative would have the potential to affect cultural resources that are eligible for listing in the NRHP or have traditional significance for Tribes. For this EA, impact analysis for cultural resources focuses on, but is not limited to, guidelines and standards set forth in the implementing regulations (36 CFR Part 800) of NHPA Section 106. Under Section 106 of the NHPA, the proponent of the action is responsible for determining whether any historic properties are located in the area, assessing whether the proposed undertaking would adversely affect the resources, and notifying the State Historic Preservation Officer of any adverse effects. An adverse effect is any action that may directly or indirectly change the characteristics that make the historic property eligible for listing in the NRHP. If an adverse effect is identified, the federal agency consults with

the State Historic Preservation Officer and federally recognized Tribes to develop measures to avoid, minimize, or mitigate the adverse effects of the undertaking.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Impacts could occur through the following:

- Physically altering, damaging, or destroying all or part of a resource
- Altering characteristics of the surrounding environment that contribute to the resource's significance
- Introducing visual or audible elements that are out of character with the property or alter its setting
- Neglecting the resource to the extent that it deteriorates or is destroyed

Direct impacts are assessed by (1) identifying the nature and location of all elements of implementing the alternative; (2) comparing the sites relative to identified historic properties, sensitive areas, and surveyed locations; (3) determining the known or potential significance of historic properties that could be affected; and (4) assessing the extent and intensity of the effects. Indirect impacts occur later in time or farther from the proposed action.

A key component of this analysis is defining the Area of Potential Effect (APE), defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR Section 800.16(d)). The APE for direct construction impacts is the disturbance area associated with tank trail improvements and new firing points. The APE, primarily associated with potential noise impacts, also includes the areas underlying the proposed airspace.

3.4.1 Affected Environment

Cultural resources at Fort Eisenhower include archaeological sites and historic structures/buildings. Surveys for these resources have documented 155 archaeological sites that are eligible or potentially eligible for NRHP listing. Historical building surveys have also documented a number of buildings eligible for NRHP listing. Fort Eisenhower has completed archaeological survey of the majority of its property, with the exception of portions of the disturbed cantonment area, impact areas that contain or are likely to contain unexploded ordnance (UXO), and lake bottoms. The Fort Eisenhower ICRMP contains a full list of all cultural resources documented at Fort Eisenhower (Fort Gordon, 2020a).

Fort Eisenhower has a Memorandum of Understanding with the Chickasaw Nation and continues to consult with other Tribes on a project-by-project basis.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Under the No Action Alternative, there would be no new activities associated with tank trail improvements, firing points, or airspace. Implementation of the No Action Alternative would not result in significant impacts to cultural resources at Fort Eisenhower or the areas under the proposed airspace.

3.4.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Implementation of the airspace changes would not result in any direct or indirect impacts to cultural resources. No construction is associated with the proposed vertical and lateral changes to R-3004A/B/C and, as described in Section 3.8, the proposed operations would not produce noise levels sufficient to damage cultural resources. No Tribal lands are located beneath the proposed RAs.

Ground-Based Changes

Implementation of the ground-based changes would impact one NRHP-eligible site (9Ri618), located on the border of the tank trail. This site is an artifact scatter site in the woodland/Mississippian period. Adverse impacts to this resource could be anticipated should Alternative 1 be implemented. Prior to implementing this alternative, Fort Eisenhower would consult with the SHPO to make a determination of effect for this property. Should there be an adverse effect, Fort Eisenhower would consult with the SHPO and the Tribes. If mitigation is needed to resolve adverse effects, innovative mitigation measures should be considered when appropriate. Standard mitigations for archaeological sites would be the funding and execution of a Phase III data recovery survey. The decision for appropriate mitigation would be coordinated between the SHPO, Fort Eisenhower and the Tribes, where applicable through the negotiations of developing a Memorandum of Agreement. All negotiations and mitigations would need to be completed before any construction or land disturbance could begin.

Although the potential for undiscovered resources is low, inadvertent discoveries would be protected and maintained in accordance with the NHPA, Archaeological Resources Protection Act, and NAGPRA. Should cultural resources be discovered during military training or other activities, all work with the potential to impact the discovery would immediately stop, reasonable effort would be taken to protect cultural resources from further impact, and the Fort Eisenhower Cultural Resources Manager would be immediately contacted. Depending on the nature of the find, the Cultural Resources Office would implement ICRMP Standard Operating Procedure (SOP) 4, *Inadvertent or Emergency Discovery of Archaeological Deposits*, and/or SOP 7, *NAGPRA Compliance*.

This alternative is not the Preferred Alternative for this action and, should it become the Preferred Alternative, Fort Eisenhower would reinitiate consultation with the Georgia SHPO and the Tribes.

3.4.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

There are no changes within the Proposed Action for the airspace between Alternative 1 and Alternative 2. Therefore, there would be no impacts to cultural resources, as previously described for Alternative 1.

Ground-Based Changes

The Fort Eisenhower training areas have all been surveyed for archaeological sites at the Phase I level and there are no facilities within the APE. Shifting the trail improvements to the opposite side of site 9Ri618 would avoid potential impacts to the resource that were described under Alternative 1. In compliance with Section 106 of the NHPA, Fort Eisenhower has initiated consultation with the Georgia SHPO for concurrence on a finding of no effect to cultural resources

as a result of implementing the Preferred Alternative. In a letter dated January 2, 2024, the Georgia SHPO acknowledged receipt of the early coordination letter. In compliance with NEPA, Fort Eisenhower is also consulting with nine Native American Tribes. An initial response was received from the Chickasaw Nation and is included in Appendix A.

Although the potential for undiscovered resources is low, inadvertent discoveries would be protected and maintained in accordance with the NHPA, Archaeological Resources Protection Act, and NAGPRA. Procedures implemented upon such a discovery would be the same as those described under Alternative 1.

3.5 ENVIRONMENTAL JUSTICE

Environmental justice is defined as the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other federal activities that affect human health and the environment. While not specifically part of environmental justice analysis, this section also considers impacts to youth and elderly populations.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to address environmental and human health conditions in minority and low-income communities. In addition to environmental justice issues are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children.

EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, updated the definition of environmental justice and modified terminology from EO 12898, changing "disproportionately high and adverse" to "disproportionate and adverse."

The terms "minority" and "low income" are defined below for purposes of this analysis.

- Minority: The term "minority" for purposes of environmental justice analysis includes those individuals who have identified themselves as having one of the following origins: "Hispanic," "Asian-American," "Native Hawaiian and other Pacific Islander," "Black or African-American," "American Indian or Alaskan Native," or "Some Other Race" (which does not include "White," "Black or African-American," "American Indian or Alaska Native," "Asian," and "Native Hawaiian or Other Pacific Islander" race categories).

- Low Income: the U.S. Census Bureau defines the term "poverty" (also referred to as "low income") as "a set of money income thresholds that vary by family size and composition to determine who is in poverty" (USCB, 2023a). A family and each individual in the family is considered in poverty if the total family income is less than the family's threshold or the dollar amount calculated by the U.S. Census Bureau to determine poverty status.

Although youth (under 18) and the elderly (65 and over) are not specifically included as environmental justice populations, children are identified by EO 12898 for assessment for environmental health and safety risks. For purposes of this analysis, the term "children" refers to any person under 18. The USEPA identifies the importance of considering an elderly person as a sensitive receptor to potential environmental impacts. The term "elderly" refers to any person aged 65 or over (USEPA, 2014).

EO 12898 also directs agencies to analyze populations that principally subsist on fish and wildlife. This is because any actions that may impact the population of fish or wildlife in the area could threaten the survival of any groups subsisting off of these food sources. CEQ's Environmental Justice Guidance (CEQ, 1997a) defines subsistence on fish and wildlife as "dependence by a minority population, low-income population, Indian Tribe or subgroup of such populations on indigenous fish, vegetation and/or wildlife, as the principal portion of their diet.".

The ROI for environmental justice consists of the census tracts located under the proposed airspace and those tracts potentially impacted by noise (Figure 3-3).

3.5.1 Affected Environment

Within the ROI, there are three block groups that have a disproportionate minority population (Census Tract 305.07, Block Group 2; Census Tract 102.07, Block Group 2; and Census Tract 107.11, Block Group 1) and four block groups that are disproportionately low income (Census Tract 305.03, Block Group 2; Census Tract 305.07, Block Group 1; Census Tract 9505, Block Group 1; and Census Tract 109.04, Block Group 1) (Table 3-6). No schools are located within the noise planning zones at Fort Eisenhower, and only one public school (Blythe Elementary) is located within the peak noise level contours for unfavorable weather conditions. There are no known subsistence populations located in the ROI.

Table 3-6. Environmental Justice Communities and Sensitive Populations

Area Name	Total Population	% Minority	Population for whom Poverty is Calculated	% Low Income	% Elderly (Over 65)	% Youth (Under 18)
Census Tract 9502, Block Group 2	1,647	30.5	1,647	9.2	15.2	19.4
Census Tract 305.03, Block Group 2	2,347	50.7	2,347	33.7	17.7	23.5
Census Tract 305.07, Block Group 1	669	41.7	669	18.1	20.9	23.9
Census Tract 305.07, Block Group 2	1,747	68.7	1,747	7.8	9.0	23.7
Census Tract 9601, Block Group 1	993	28.2	993	11.0	10.6	12.0
Census Tract 9505, Block Group 1	1,027	17.0	1,027	20.5	6.8	25.6
Census Tract 102.07, Block Group 2	4,614	82.4	3,611	1.6	1.8	27.2
Census Tract 107.11, Block Group 1	2,282	89.8	2,282	10.3	8.5	38.8
Census Tract 109.03, Block Group 1	1,657	35.1	1,657	13.5	15.3	25.1
Census Tract 109.04, Block Group 1	1,173	28.0	1,173	27.9	10.9	29.6
Burke, Columbia, Jefferson, McDuffie, and Richmond Counties (COC)	***421,712***	***52.3***	***409,288***	***15.6***	***14.4***	***24.1***

Source: (USCB, 2023b)
% = percent; COC = Community of Comparison
Shading indicates disproportionate impacts.

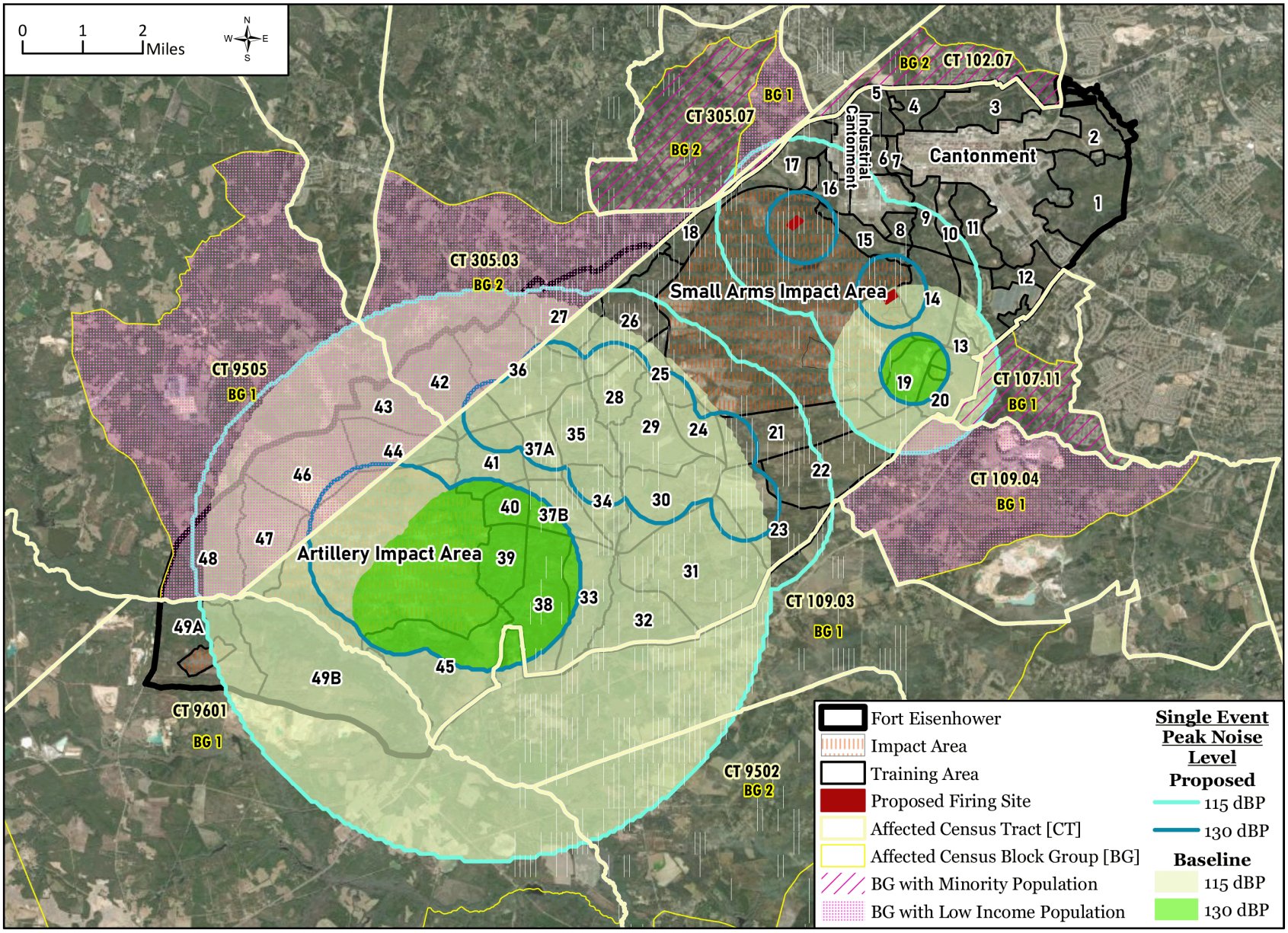


Figure 3-3. Low-Income and Minority Populations within the ROI

3.5.2 Environmental Consequences

Analysis of environmental justice is conducted pursuant to EO 12898 and EO 13045. For environmental justice minority and low-income populations, and for the youth and elderly populations, the most recent American Community Survey 2017–2021 data for block groups were used to calculate the populations in the affected area. The percentage of minority and low-income populations within each block group were compared to the Community of Comparison population (total population of the four-county region). Block groups with a higher percentage of minority or low-income populations than the Community of Comparison were considered disproportionately minority or low income. The presence of environmental justice communities and the potential for impacts to disproportionally impact these communities was assessed for each resource area carried forward for analysis in the EA. Noise was the only resource area determined to have off-installation impacts with the potential to impact minority and low-income populations.

3.5.2.1 No Action Alternative

Under the No Action Alternative, no changes in airspace would occur, no ground-based changes would occur, and there would be no interaction to environmental justice communities from implementing the Proposed Action. Therefore, no adverse impacts to environmental justice communities would occur.

3.5.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Operations for artillery are anticipated to increase with the implementation of the airspace changes, with a resulting increase in noise zones off installation. Off-installation areas newly affected by Noise Zone II are agricultural, open space, or wooded. No residential areas are located within these zones, and therefore there would be no impact to environmental justice or sensitive populations. Peak sound levels between 115 and 130 single event peak level (dBP) generated by artillery firing from the two proposed new firing points would extend approximately 0.3 mile beyond the installation boundary. Noise generated by artillery firing would result in additional off-installation land beyond the western installation boundary and a strip of land beyond the southern boundary being exposed to peak sound levels between 115 and 130 dBP. Land use in areas newly affected by peak noise levels exceeding 115 dBP are primarily agricultural, open space, or wooded with some scattered residences. Operations from additional aircraft operations would have negligible impacts on noise. Section 3.8 includes additional details on noise impacts. One block group (Census Tract 102.07, Block Group 2) identified as a minority community is located within the area affected by peak noise. The portion of the block group within the peak noise contours was previously a small mobile home park but, as of 2022, those homes were no longer occupied. A portion of Census Tract 305.07, Block Group 1, identified as a low-income community, is also located within the new peak noise contours. No disproportionate and adverse impacts are expected to this community, as the noise levels would still be compatible with existing land uses and noise impacts in this region are not significant (see Section 3.8).

Ground-Based Changes

Construction noise would be localized and temporary, affecting areas near the construction site while construction is underway. Proposed construction would occur near training ranges, which generate loud noises on a regular basis in areas that are not noise sensitive. In addition, there are no environmental justice or sensitive populations within range of construction noise. Therefore,

there are no significant impacts to environmental justice or sensitive populations as a result of implementing the Proposed Action.

3.5.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Airspace impacts to environmental justice and sensitive populations would be the same as those described for Alternative 1.

Ground-Based Changes

Ground-based impacts to environmental justice and sensitive populations would be the same as those described for Alternative 1.

3.6 HAZARDOUS MATERIALS AND WASTE

The terms "hazardous materials" and "hazardous waste" refer to substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristic, could present substantial danger to public health or the environment when released into the environment. Products containing hazardous materials that could result in the generation of hazardous waste include fuel, adhesives, sealants, corrosion prevention compounds, hydraulic fluids, lubricants, oils, paints, polishes, thinners, and cleaners.

The key federal regulatory requirements related to hazardous materials and waste include:

- Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC Section 6901 et seq.)
- Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 (42 USC Sections 11001–11050)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 USC Sections 9601–-9675);
- Community Environmental Response Facilitation Act of 1992 (42 USC Section 9620)
- Asbestos Hazard Emergency Response Act (15 USC Section 2651)
- Oil Pollution Prevention (40 CFR Part 112)
- Identification and Listing of Hazardous Waste (40 CFR Part 261)
- Standards for the Management of Used Oil (40 CFR Part 279)
- Designation, Reportable Quantities, and Notification (40 CFR Part 302)
- EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*
- Toxic Substances Control Act (TSCA) of 1976 (40 CFR Parts 700–799)
- CAA of 1970, including the 1990 CAA Amendments (42 USC Section 7401 et seq)

The Army policy for hazardous material and waste management is contained in AR 200-1, *Environmental Protection and Enhancement*.

For the purposes of this hazardous materials and waste analysis, the ROI for the Proposed Action and the No Action Alternative includes Fort Eisenhower, where these substances are used, stored, transported, or disposed.

3.6.1 Affected Environment

Fort Eisenhower is a Large Quantity Generator, as defined by the USEPA, with USEPA identification number of GA0210020368. Hazardous materials and waste on Fort Eisenhower are managed according to the Fort Eisenhower *Hazardous Waste Management Plan* (Fort Gordon, 2018). This plan describes the responsibilities, policies, and procedures for managing hazardous materials and waste on the installation and ensures compliance with applicable federal, state, and local laws and regulations. The *Hazardous Material and Waste Management Plan* applies to all organizations and activities located on or occurring at Fort Eisenhower. All hazardous materials and waste generated or purchased by units and activities should be processed through the Hazardous Material Control Point (HMCP), which receives, tracks, and monitors the use and generation of all hazardous materials and waste at Fort Eisenhower. The HMCP also assists with hazardous materials reutilization and promotes pollution prevention (P2) and hazardous materials and hazardous waste minimization (Fort Gordon, 2018).

Fort Eisenhower manages hazardous substance spills and releases through the implementation of its Spill Prevention, Control, and Countermeasure (SPCC) Plan (Fort Gordon, 2022) and Facility Response Plan (FRP) (Fort Gordon, 2019b). The SPCC Plan and FRP serve to minimize the impacts to human health and the environment, including water resources and wildlife, caused by spills of hazardous materials and waste at Fort Eisenhower. The SPCC Plan (Fort Gordon, 2022) and FRP (Fort Gordon, 2019b) establish the responsibilities, duties, procedures, and resources to be used to contain, mitigate, and clean up oil products and hazardous material or waste spills on the installation.

3.6.2 Environmental Consequences

The qualitative assessment of impacts from hazardous materials and waste management focuses on how (context) and to what degree (intensity) each alternative could affect hazardous materials usage and management, hazardous waste generation and management, and hazardous waste disposal. Potential impacts related to hazardous materials and waste were analyzed for the following five effects:

1. Generation of hazardous material/waste types or quantities that could not be accommodated by the current management system
2. Increased likelihood of an uncontrolled release of hazardous materials that could contaminate the soil, surface water, groundwater, or air
3. Non-compliance with applicable federal and state regulations as a result of the Proposed Action
4. Disturbance or creation of contaminated sites, resulting in adverse effects on human health and/or the environment
5. Established management policies, procedures, and handling capacities that could not accommodate the Proposed Action

3.6.2.1 No Action Alternative

Under the No Action Alternative, the proposed ground-based changes to the training areas and changes to the airspace structure above and surrounding would not occur. Fort Eisenhower would continue to use, manage, and dispose of hazardous materials and waste as described in Section 3.6.1. No impacts to management, use, or generation of hazardous materials and waste would occur.

3.6.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Under Alternative 1, R-3004A/B/C would be expanded vertically and laterally to incorporate the majority of Fort Eisenhower and improve the training capacity in support of a growing and diverse training program with various needs and capabilities. The proposed expansion of R-3004A/B/C would not generate any new hazardous waste or use new hazardous materials and would not affect the generator status or negatively affect the hazardous materials and waste program. Therefore, no significant impacts to hazardous materials and waste management would result from the expansion and modification of R-3004A/B/C.

Ground-Based Changes

No asbestos-containing materials, polychlorinated biphenyls, lead-based paint, radon, and site contamination, including per-and polyfluoroalkyl substances (PFAS) areas of potential interest, would be used and/or are anticipated to be encountered during the construction associated with Alternative 1. The use of potentially hazardous materials (fuels, oils, lubricants, etc.) and the generation of associated hazardous waste is anticipated. No new hazardous materials would be used, and no new potentially hazardous waste would be generated from the construction. All potential hazardous materials and waste would be managed, handled, stored, transported, and disposed of in accordance with the *Hazardous Waste Management Plan* (Fort Gordon, 2018) and applicable federal, state, and local laws and regulations. Hazardous materials and waste would continue to be processed through the HMCP, with an emphasis on P2.

Petroleum products would be used to refuel and lubricate vehicles during construction-related activities, refueling, and maintenance. Refueling would occur in accordance with existing Fort Eisenhower regulations to minimize the potential for petroleum spills. This would include using designated refueling areas with secondary containment systems for refueling trucks or bladders. In accordance with U.S. Army Cyber Center of Excellence and Fort Gordon (USACCoE&FG) Regulation 350-19, *Installation Range and Training Area Operations*, designated fueling areas are prohibited in areas with a shallow water table (within 2.3 feet of the soil surface), within well head protection zones, or within 100 feet of a potable drinking well and would not be established in these zones. In the event of an accidental petroleum or other hazardous material release during construction, proper notifications and actions would be taken in accordance with the Fort Eisenhower SPCC Plan (Fort Gordon, 2022) and FRP (Fort Gordon, 2019b). Spill kits would be available and accessible during refueling.

The proposed tank trail improvements, firing point, and turn pad construction within the SAIA (Figure 2-2) have the potential to encounter UXO. These areas would be cleared of UXO prior to construction. UXO support would also be available during construction activities in these areas. UXO is further discussed in Section 3.9.

3.6.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

The airspace changes from the implementation of Alternative 2 are the same as those for Alternative 1. As described in Section 3.6.2.2, no significant impacts to hazardous materials and waste management would result from the expansion and modification of R-3004A/B/C.

Ground-Based Changes

The ground-based changes from the implementation of Alternative 2 are the same as those for Alternative 1, except with narrower creek crossings and the alternate routing of a tank trail to avoid protected natural resources habitat. The potential impacts from the implementation of Alternative 2 are the same as those described for Alternative 1 in Section 3.6.2.2. No significant impacts to hazardous materials and waste management would occur from the implementation of Alternative 2.

3.7 LAND USE

Land use generally refers to the management and use of the land. Examples of land uses include residential, commercial, industrial, agricultural, military, and recreation. Management plans, policies, ordinances, and regulations determine the types of uses permitted in specific land areas.

Certain types of military training generate conditions that may be incompatible with sensitive land uses. As described in Section 3.8, areas where noise levels exceed thresholds established in AR 200-1, *Environmental Protection and Enhancement*, are designated as Noise Zone II or Noise Zone III. Noise-sensitive land uses, such as housing, schools, and medical facilities, are normally not recommended in Noise Zone II and are never recommended in Noise Zone III. The *Fort Gordon / Central Savannah Area Compatible Use Study* describes areas in which the predominant land use is agriculture as "agricultural-residential" and treats them as compatible with Noise Zone II, even if some low-density single-family housing is included (Central Savannah River Area Regional Commission, 2019).

The ROI for the land use resource area includes lands within and immediately surrounding the Fort Eisenhower ranges and training areas. Land use impacts would be considered potentially significant if an action would (1) deviate substantially from existing plans and policies, (2) would displace existing land uses, or (3) would create conditions off installation (e.g., high noise levels) that are incompatible with current land uses.

3.7.1 Affected Environment

As described in Section 1.2, approximately 90 percent of the land on Fort Eisenhower (50,000 acres) is dedicated to field training, and the remaining 10 percent of the installation (approximately 5,500 acres) is the cantonment area. Field training is supported by 49 training areas totaling approximately 37,000 acres and 2 restricted munitions impact areas comprising approximately 13,000 acres (Fort Gordon, 2019a).

Training on Fort Eisenhower is conducted in accordance with USACCoE&FG Regulation 350-19, *Installation Range and Training Area Operations.* This regulation establishes uniform procedures to maximize the availability of training assets while minimizing safety hazards. It also lays out procedures to minimize environmental damage and/or to address environmental issues that arise during training. Restrictions imposed by the regulation assist in the prevention of uncontrolled fires, conservation of protected species, and minimization of training environment degradation.

Activities other than military training, such as range infrastructure maintenance, forest resource harvests, prescribed burns, and public recreation, are also conducted in the training areas (Fort Gordon, 2019a). These activities are managed in accordance with plans, such as the INRMP, in a manner that supports military training while also advancing environmental goals, such as habitat restoration.

The *Range Complex Management Plan* (RCMP) provides a coordinated road map for future range development. Projects described in the RCMP enhance current training and/or support new mission training requirements (Fort Gordon, 2020b).

Off-installation land uses adjacent to Fort Eisenhower training areas are mostly agricultural and residential (Central Savannah River Area Regional Commission, 2019). As described in Section 3.8, Noise Zone II resulting from demolition and large caliber munitions firing affects 35 off-installation acres that are categorized as "agricultural-residential" (i.e., the predominate land use is agriculture/open space) and are considered compatible with the military training noise (see Appendix E). Aircraft noise levels beneath military training airspace are well below land use compatibility thresholds.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the No Action Alternative, there would be no airspace or ground-based changes, and training operations would continue as they are currently conducted. Noise and other planning factors associated with training would remain the same as baseline conditions. There would be no impacts to land use under the No Action Alternative.

3.7.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

As described in Section 1.3, the proposed airspace changes would increase the utility of the range complex for military training—i.e., the current land use. The airspace changes are included in the RCMP and fully comply with coordinated plans for development of Fort Eisenhower range complex capabilities.

Additional munitions firing would increase off-installation Noise Zone II from 35 to 45 acres, but Noise Zone III would remain entirely within installation boundaries (see Table 3-9 in Noise section). All off-installation areas within Noise Zone II are categorized as "agricultural-residential" (i.e., the predominate land use is agriculture/open space), which is considered a compatible land use.

After the proposed airspace changes, the R-3004 RA Complex would be entirely within the boundaries of Fort Eisenhower (see Figure 2-1). Aircraft noise levels would remain well below land use compatibility thresholds beneath the RAs and in adjacent off-installation areas.

In summary, the proposed airspace changes are consistent with existing plans and policies, would support existing land uses (i.e., military training), and would not create conditions off installation that are incompatible with existing land uses. Land use impacts would not be significant.

Ground-Based Changes

As stated in Section 1.3, the new firing points and concrete turn pads, as well as the widened tank trails, would support new and emerging training requirements on Fort Eisenhower (Fort Gordon, 2023). In accordance with USACCoE&FG Regulation 350-19, *Installation Range and Training Area Operations,* tracked vehicles would continue to operate on tank trails and authorized firing points. The proposed improved creek crossings and turn pads would reduce rutting and erosion, thereby minimizing degradation of the training environment associated with maneuvers training. The proposed ground-based changes would comply with all applicable plans and policies and

would not displace any current land uses or activities within the Fort Eisenhower training areas. The ground-based changes are distant from the installation boundary (see Figure 2-2) and would have no effect on off-installation land uses. Land use impacts associated with ground-based changes would be minimal and not significant.

3.7.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

The proposed airspace changes and subsequent operational changes would be the same under Alternative 1 and Alternative 2. Therefore, land use impacts associated with Alternative 2 airspace changes would be identical to those described in Section 3.7.2.2 and would not be significant.

Ground-Based Changes

Differences in ground-based changes under Alternative 2 relative to Alternative 1 would not result in additional or substantively different land use impacts. The single-lane creek crossings proposed under Alternative 2 are considered sufficient to meet training requirements and would therefore support the current land use. Different routings for certain tank trail segments under Alternative 2 would provide the same level of support to mission training as routings proposed under Alternative 1. Ground-based changes under Alternative 2 would comply with all applicable Fort Eisenhower plans and policies. The ground-based changes would occur relatively far from the installation boundary and would have no effect on off-installation areas.

3.8 NOISE

Noise is considered unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Sound levels in this document are stated in decibels (dB), a logarithmic scale used to simplify communication of a very wide range of audible sound pressure levels. At distances of about 3 feet, normal human speech ranges from 63 to 65 dB, loud kitchen appliances (e.g., blender) range from about 83 to 88 dB, and rock bands can approach 110 dB.

The frequency (i.e., pitch) of a sound is also important in determining how the sound will be perceived. Sound levels that have been adjusted to emphasize frequencies heard best by humans are described as "A-weighted." Firing of large arms munitions generates sounds that are felt as well as heard. To fully account for potential impacts, large arms munitions noise levels are often "C-weighted," an adjustment that de-emphasizes extremely low- and high-frequency sounds to a lesser extent than A-weighting. Small and large arms single-firing-event noise levels are sometimes described using peak sound levels that are "flat-weighted" (i.e., no adjustment for frequency sensitivity). Because A-weighted, C-weighted and flat-weighted dB values quantify noise differently, dB values with different weighting types cannot be summed.

Several metrics (i.e., systems of measure) have been created to describe aspects of a noise source that are relevant to particular categories of impacts. Noise metrics used in this EA are listed in Table 3-7.

Chapter 14 of AR 200-1, *Environmental Protection and Enhancement*, outlines the noise management policy for the Army, defining land use compatibility recommendations for noise-sensitive land uses in four noise zones (Table 3-8). AR 200-1 identifies housing, schools, and medical facilities as examples of noise-sensitive land uses. The Land Use Planning Zone and Zone I are generally compatible with sensitive land uses. Noise Zone II is generally not compatible with sensitive land uses, and Noise Zone III is never compatible with sensitive land uses. The *Fort Gordon / Central Savannah Area Compatible Use Study* categorizes areas where the predominant

land use is agriculture as "agricultural-residential" and treats them as compatible with Noise Zone II, even if some low-density single-family housing is included (Central Savannah River Area Regional Commission, 2019).

Table 3-7. Noise Metrics Used in this Document

Metric	Description
ADNL	ADNL is the 24-hour average A-weighted sound level obtained after addition of 10 dB to noises occurring between 10:00 p.m. and 7:00 a.m. The 10-dB adjustment accounts for increased sensitivity and lower ambient sound levels during the late night and early morning.
CDNL	CDNL is equivalent to ADNL except applied to C-weighted sound levels.
PK15(met)	PK15(met) is a single event sound level metric that is not frequency weighted; it reflects the highest instantaneous level of an event. This metric accounts for the statistical variation caused by weather, stating that the sound level is expected to be exceeded by 15% of all events that might occur. A PK15(met) level of greater than 130 dB has a high risk of complaints, 115–130 dB has a moderate risk of complaints, and a level below 115 dB has a low risk of complaints. In this EA, the abbreviation for peak level "dBP" can be assumed to refer to PK15(met).

% = percent; a.m. = ante meridiem; ADNL = A-weighted day-night-level; CDNL = C-weighted day-night-level; dB = decibels; dBP = single event peak level; EA = Environmental Assessment; p.m. = post meridiem; PK15(met) = single event peak level exceeded by 15% of events

Table 3-8. Land Use Planning Guidelines Stated in AR 200-1

Noise Zone	Aviation ADNL (dB)	Impulsive CDNL (dB)	Small Arms (dBP)	Noise-Sensitive Land Use
LUPZ	60–65	57–62	NA	Generally Compatible
Zone I	<65	<62	<87	Generally Compatible
Zone II	65–75	62–70	87–104	Generally Not Compatible
Zone III	>75	>70	>104	Not Compatible

> = greater than; < = less than; ADNL = A-weighted day-night-level; AR = Army Regulation; CDNL = C-weighted day-night level; db = decibels; dBP = single event peak level; LUPZ = Land Use Planning Zone; NA = not applicable

Because the FAA is a Cooperating Agency, FAA regulations relating to noise impacts assessment are also applicable. In accordance with criteria established in FAA Order 1050.1F, increases in noise levels by more than 1.5 dB A-weighted day-night-level (ADNL) in a noise-sensitive area exposed to noise above 65 dB ADNL would be considered significant. Increases at noise-sensitive locations of 3 dB ADNL or greater to between 60 and 65 dB ADNL, as well as increases of 5 dB or greater to between 45 and 60 dB ADNL, are categorized as "reportable" in FAA Order 1050.1F. Reportable increases do not imply significant impacts but warrant close attention.

3.8.1 Affected Environment

The acoustic environment at Fort Eisenhower includes noise generated by munitions firing, aircraft operations, occasional construction activities, and military ground vehicle maneuvers. The noise ROI includes Fort Eisenhower and surrounding areas where potential noise impacts associated with these noise-generating activities occur. Fort Eisenhower has an active noise program which is described in the *Cyber Center of Excellence, Fort Gordon, 2015 Installation Compatible Use Zone Plan* (U.S. Army Public Health Command, 2015). The 2015 Installation Compatible Use Zone (ICUZ) Plan describes munitions noise levels at and near Fort Eisenhower prior to the temporary cessation of artillery firing due to airspace size constraints. The ICUZ program promotes land use that is compatible with the military noise environment through communication, cooperation, and collaboration between Fort Eisenhower and the surrounding community. Fort Eisenhower has a responsive noise complaint program, which is managed by the Public Affairs Office.

Munitions Firing. Noise associated with current munitions usage noise was assessed by U.S. Army Public Health Center. The assessment report is included in Appendix E.

Large arms (i.e., rounds larger than .50 caliber and explosive charges) munitions usage on Fort Eisenhower is currently limited due to constraints imposed by the existing airspace configuration, as described in Section 1.4. Noise Zone III, associated with ongoing large arms munitions usage, does not extend beyond installation boundaries. Noise Zone II affects 35 off-installation acres that are primarily agricultural, open space, or wooded, although some scattered residences are included. This mixed land use, which is denoted as "agricultural-residential" in the 2019 Compatible Use Study, is considered compatible with Noise Zone II (Central Savannah River Area Regional Commission, 2019).

Under unfavorable weather conditions, large arms peak levels above 130 dBP extend beyond the southern installation boundary by approximately 0.6 miles. Peak levels between 115 and 130 dBP extend beyond the installation boundary towards the south by up to approximately 2.9 miles and towards the north by up to approximately 1.25 miles. Areas exposed to peak levels of 115 to 130 dBP and above 130 dBP are primarily open/agricultural land but also include some scattered residential land uses.

Small arms firing noise is also heard and may be disturbing to people off installation in certain areas.

Aircraft Operations. Baseline aircraft operations noise in R-3004A/B/C was assessed in a report by the U.S. Army Public Health Center, which is included in Appendix F. R-3004A/B/C supports approximately 286 fixed- and rotary-wing military aircraft sorties annually. R-3004A/B/C is located almost entirely over DoD-owned land. Although flight operations are sometimes heard off installation, they are relatively infrequent with less than one sortie occurring per average annual day. The highest predicted ADNL beneath R-3004A/B/C is 36 dB. As described in Section 2.4.1.1, there are currently several restrictions on times during which aircraft operations are permitted to occur in R-3004A/B/C.

Construction Activities. Construction and maintenance activities that involve heavy equipment occur on an occasional basis throughout Fort Eisenhower as needed to support the mission. When they occur, these activities generate localized, temporary increases in noise levels. Construction equipment often generates approximately 85 dB at 50 feet (Federal Highway Administration, 2006).

Military Ground Vehicle Maneuvers. Ground vehicles, which include heavy, armored vehicles, generate localized, temporary increases in noise levels primarily on the tank trails and roads. Noise levels generated by these vehicles are comparable to levels generated by heavy construction equipment. Noise generated by military ground vehicles decrease with increasing distances, particularly when vegetation or topographic relief (e.g., hills) are present along the sound transmission path.

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

Under the No Action Alternative, there would be no airspace or ground-based changes. Training operations that occur currently on Fort Eisenhower would continue to occur. Implementation of the No Action Alternative would not change noise levels relative to baseline conditions, and there would be no significant noise impacts.

3.8.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

As described in Section 1.4, the proposed modifications to the R-3004 RA Complex would allow current and emerging munitions training needs to be met while simultaneously increasing aviation-related training opportunities. The U. S. Army Public Health Center assessments of noise impacts associated with proposed changes to munitions usage and aircraft operations are included in Appendix E and Appendix F, respectively. These assessments include operational details used in noise modeling, such as the specific number of rounds of each type proposed to be fired or the specific numbers of sorties proposed to be flown by each aircraft type. In accordance with DoD Instruction (DoDI) 4715.13, *DoD Operational Noise Program*, noise levels associated with large arms munitions usage were calculated using the program BNOISE2. Aircraft noise levels were calculated using the model MRNmap, as prescribed by DoDI 4715.13 and the FAA Order 1050.1F Desk Reference. It is worth noting that the Alternative 1 munitions usage scenario reflects both airspace modifications (i.e., airspace changes) and the proposed establishment of new firing points (i.e., a ground-based changes).

Munitions Firing. As described in Appendix E, large arms usage would increase from approximately 739 to approximately 3,239 expenditures per year. The resumption of artillery firing, which has been paused for the past several years due to airspace size constraints, would increase the extent of large arms Noise Zones II and III (Figure 3-4). Off-installation acreage would increase by 10 acres from 35 to 45 acres, and Noise Zone III would remain entirely within installation boundaries (Table 3-9). Off-installation areas newly affected by Noise Zone II are agricultural, open space, or wooded and are considered compatible (see Appendix E). This land use, which is denoted as "agricultural-residential" in the 2019 Compatible Use Study, is considered compatible with Noise Zone II (Central Savannah River Area Regional Commission, 2019).

Table 3-9. Demolition and Large Caliber Noise Zone Acreage

Noise Zone	Baseline Conditions		Proposed Action		Change	
	Total Acreage	Off-Installation Acreage	Total Acreage	Off-Installation Acreage	Total Acreage	Off-Installation Acreage
LUPZ	2,382	98	8,943	143	6,561	45
Zone II	2,091	35	5,618	45	3,527	10
Zone III	862	0	2,772	0	1,910	0

LUPZ = Land Use Planning Zone

Single event peak noise levels under baseline and proposed conditions are shown in Figure 3-5. The loudest peak noise levels experienced in most areas near Fort Eisenhower under baseline conditions are generated by demolition charge detonations, which would continue unchanged under Alternative 1. Peak sound levels between 115 and 130 dBP generated by artillery firing from the two proposed new firing points would extend approximately 0.3 mile beyond the installation boundary. Noise generated by artillery firing would result in an additional 0.25-mile-wide strip of off-installation land beyond the western installation boundary and an additional 0.3-mile-wide strip of land beyond the southern boundary being exposed to peak sound levels between 115 and 130 dBP. Land use in areas newly affected by peak noise levels exceeding 115 dBP are primarily agricultural, open space, or wooded, with some scattered residences (see Appendix E). Peak levels between 115 and 130 dB are associated with a moderate risk of complaints. As noted previously, the dBP metric used in this analysis accounts for the effects of weather, stating that the sound level is expected to be exceeded by only 15 percent of all events that might occur. Most events experienced would occur in more favorable weather conditions and would be less loud.

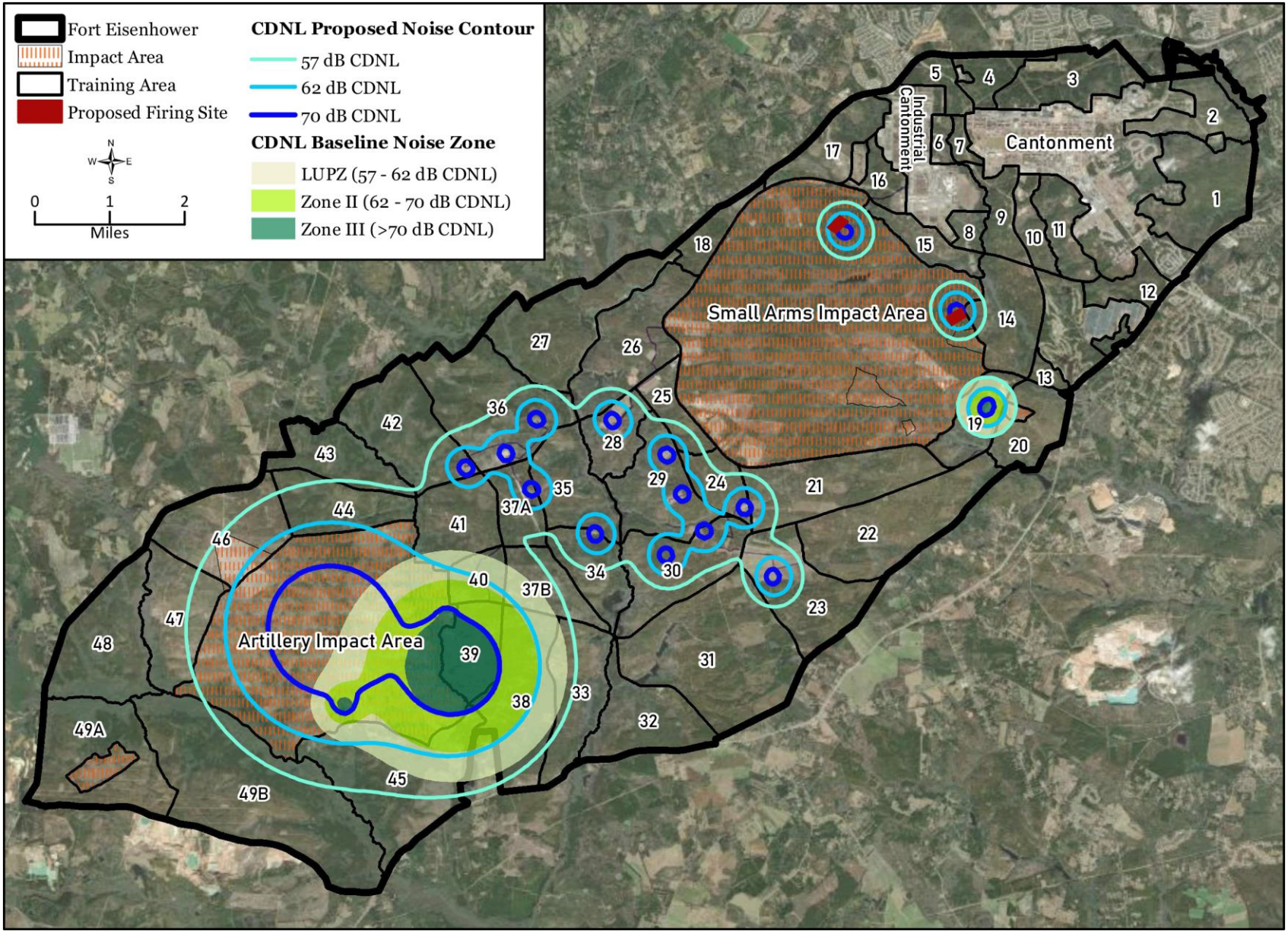


Figure 3-4. Baseline and Proposed Large Caliber Noise Zones

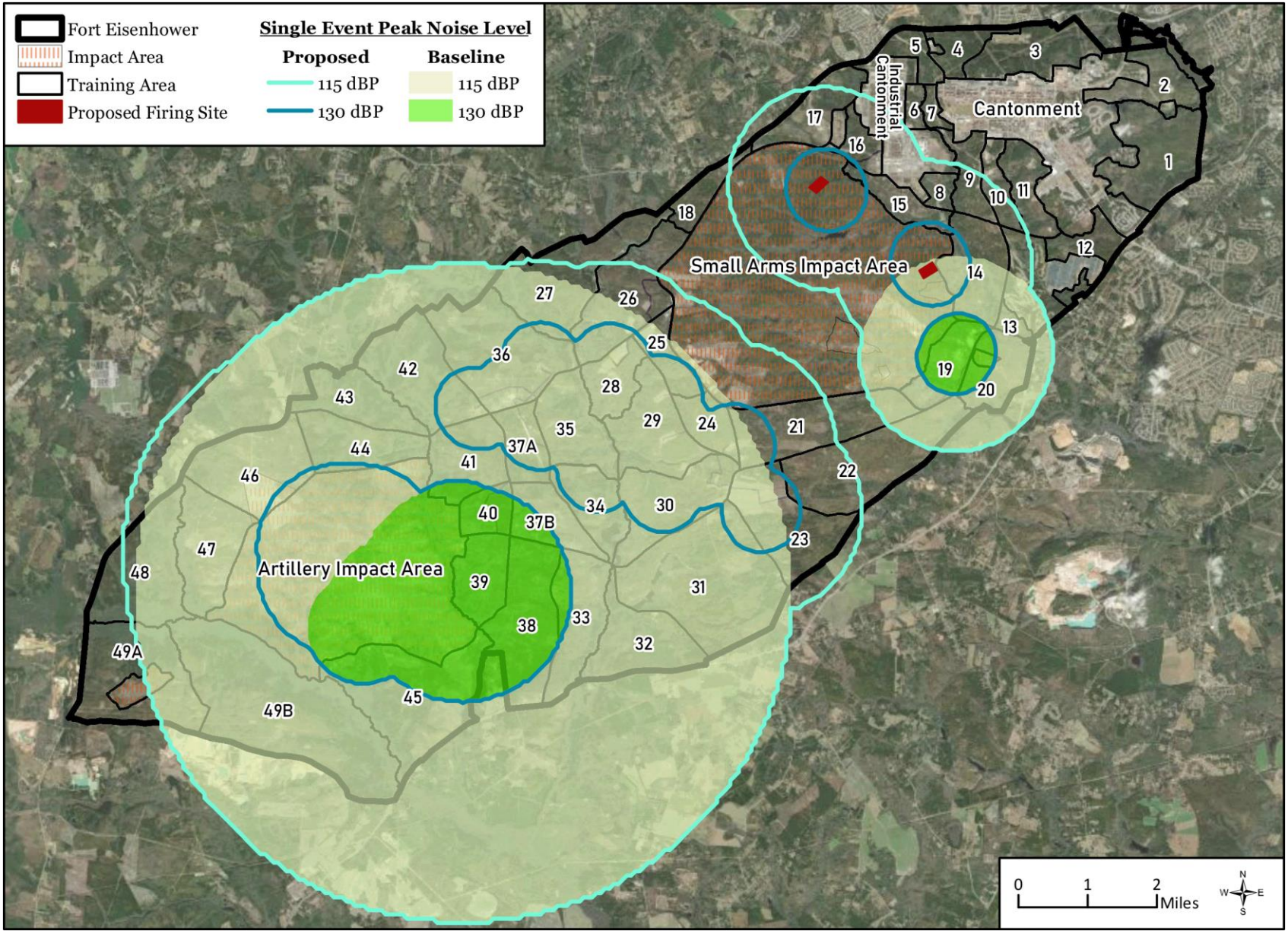


Figure 3-5. Baseline and Proposed Single Event Peak Noise Levels Under Unfavorable Weather Conditions

In conclusion, although large arms firing noise at off-installation locations may be disturbing at times, and all land uses would remain compatible. There would be no change in small arms usage, and small arms noise would not change relative to baseline conditions. Fort Eisenhower would continue its responsive noise complaint program. Fort Eisenhower would also continue its ICUZ program, updating the ICUZ Study as necessary, to communicate with and help guide development in surrounding communities. The Army Public Health Command recommends providing prior public notice of artillery training events, including date(s) and approximate start and stop times (see Appendix E). Munitions noise impacts would not be significant.

Aircraft Operations. The number of sorties conducted annually in R-3004A/B/C would increase by 20 percent, from 286 to 343, and the boundaries of R-3004A/B/C would change as depicted in Figure 2-1. Areas newly beneath R-3004A/B/C are entirely within the boundaries of Fort Eisenhower. Operational parameters are described in greater detail in Appendix F. The highest predicted ADNL within R-3004A/B/C would increase from 36 to 38 dB. Aircraft noise levels would remain well below criteria for significant or reportable impacts established in FAA Order 1050.1F and criteria levels for Noise Zone II or III established in AR 200-1. Removal of restrictions on flying in R-3004A/B/C during weekends and national holidays would result in aircraft being heard during times in which they are not currently heard (e.g., weekends), potentially causing annoyance for some of the people hearing the aircraft. Aircraft operations would remain relatively infrequent, as reflected by the low calculated time-averaged noise level, and noise impacts would not be significant.

Ground-Based Changes

Construction Activities. Construction and associated noise would occur at proposed concrete turn pads and new firing points, as well as along tank trails proposed to be widened. As noted in Section 3.8.1, heavy equipment is used on Fort Eisenhower under baseline conditions as part of construction and maintenance activities that are conducted as needed to support the mission. Construction equipment often generates approximately 85 dBA at 50 feet (Federal Highway Administration, 2006). Construction noise would be localized and temporary, affecting areas near the construction site while construction is underway. Proposed construction would occur near training ranges, which generate loud noises on a regular basis in areas that are not noise sensitive. Noise impacts associated with proposed construction would not be significant.

Military Ground Vehicle Maneuvers. Under Alternative 1, all tank trails would remain in their current alignments. Certain segments of existing tank trails are close to sensitive cultural resources and protected natural resource habitat. Ground vehicle maneuver noise levels would not change relative to baseline conditions, and there would be no additional noise impacts.

3.8.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Alternative 2 is identical to Alternative 1 in terms of airspace changes. Noise impacts associated with airspace changes would be the same as those described for Alternative 1. Noise impacts would not be significant.

Ground-Based Changes

Construction Activities. Under Alternative 2, the same number of concrete turn pads and firing points would be constructed as under Alternative 1, generating the same temporary and localized noise impacts. Creek crossings would be single lane under Alternative 2, requiring less construction equipment activity and noise than the dual-lane crossings proposed under Alternative

1. Noise generated during construction would be localized and temporary. Construction noise would occur in the context of an active military installation where loud sounds are experienced regularly and with no noise-sensitive land uses nearby. Noise impacts would not be significant.

Military Ground Vehicle Maneuvers. Widening of a tank trail on the opposite side of a cultural resources site and establishment of an alternate route to avoid protected natural resource habitat would move ground vehicle maneuvers further from sensitive locations than they are currently. Noise impacts would not be significant.

3.9 SAFETY

This section addresses ground and flight safety for activities and operations on the ground, in the air, and in space that have the potential to affect members of the public and Fort Eisenhower personnel. Protection of human health and the environment has and continues to be an integral part of the Army's mission at Fort Eisenhower. Activities on Fort Eisenhower comply with all applicable federal and state and DoD-, Army-, and installation-level occupational health, safety, and environmental requirements to ensure that activities are conducted with no or minimal risk to persons or the environment, both on and off of Fort Eisenhower.

The Fort Eisenhower Installation Safety Office mission is "to fully support the command's mission while providing the best possible accident and injury prevention programs for all of Team Eisenhower personnel." This mission is fully supported by the Army Installation Management Command safety mission.

3.9.1 Affected Environment

All ranges on Fort Eisenhower are managed in accordance with USACCoE&FG Regulation 385-10, *Safety*, and Regulation 350-19, *Installation Range and Training Area Operations*. These regulations cover all activities on Fort Eisenhower and apply to Soldiers, Airmen, Sailors, Marines, DoD Civilians, dependents, contractors, and tenant personnel assigned or attached to Fort Eisenhower. Further, these regulations establish risk management as the Army's principal risk reduction methodology and ensure regulatory and statutory compliance. They provide for public safety relative to Army operations and activities. USACCoE&FG Regulation 420-5, *Hunting, Fishing, Bicycling, and Training Area Recreation Regulation*, governs the recreational use of training areas on Fort Eisenhower.

The ROI for safety is Fort Eisenhower and surrounding areas, including the associated airspace. Range Operations is responsible for the safe management and operation of ranges on Fort Eisenhower. Range management involves the development and implementation of those processes and procedures required to ensure that Army ranges are planned, operated, and managed safely. The focus of range management is on ensuring the safe, effective, and efficient operation of ranges and safe and efficient use of RAs. The overall purpose of range management is to balance the military need to accomplish realistic testing and training with the need to minimize potential impacts of such activities on human health, the environment, and surrounding communities.

3.9.1.1 Army Health and Safety Regulations

The Army's policies, responsibilities, and procedures to protect Army personnel and property are contained in AR 385-10, *The Army Safety and Occupational Health Program.* AR 385-10 provides for operational safety and safe and healthy work places and assures compliance with applicable laws and regulations. Regulations and guidance pertaining to the safe use of ranges on Army installations is contained in AR 385-63, *Range Safety.* AR 385-63 covers range use from live firing of small arms to rockets, guided missiles, and lasers and provides guidance for minimizing the risk of using these weapons.

3.9.1.2 Fort Eisenhower Health and Safety Regulations

Fort Eisenhower also has its own health and safety regulations, which are contained in USACCoE&FG Regulation 385-10. This regulation implements requirements of the Occupational Safety and Health Act of 1970 as implemented in EO 12196, *Occupational Safety and Health Programs for Federal Employees*; DoDI 6055 Series; and AR 385-10. USACCoE&FG Regulation 385-10 establishes responsibilities, procedures, and rules for all personnel utilizing the installation range complex. Fort Eisenhower Range Operations is responsible for range safety, controls weapons firing and the use of training facilities, and is responsible for the management of aerial operations within the range complex at Fort Eisenhower. Fort Eisenhower Range Operations also provides clearance for aircraft overflights of the RA.

Wide varieties of different weapon systems are currently used at Fort Eisenhower or have been used in the past. These systems range from small arms (e.g., 12-gauge shotgun, M-16, M203, 50-caliber) to anti-tank guns (e.g., the AT4) to larger Field Artillery/Air Defense Artillery systems (e.g., the 155 mm Howitzer, the Avenger missile system, and the High Mobility Artillery Rocket System). Fort Eisenhower Range Operations is responsible for the management and operation of all the ranges to prevent conflicting uses and provides a safe training environment for Soldiers and the public.

Ground Safety. Range Operations requires that the surface area encompassing the weapon safety footprints be protected by purchase, lease, or other restriction to ensure the safety of personnel, structures, and the public from expended rockets, missiles, or target debris and hazardous operations. The lands associated with the Fort Eisenhower training ranges meet these requirements.

Range Operations continually assesses the risks associated with weapons use and establishes mission parameters that minimize the potential safety hazards. Specific weapon safety footprints must be assessed against each intended target to ensure that they can be safely used. Range Operations develops range management plans for the training ranges used and transient aircraft. In addition, Range Operations assigns responsibilities and provides direction regarding range scheduling, maintenance, explosive ordnance disposal, range decontamination, and debris disposal.

SDZs are a key aspect of providing safe ranges. SDZs are designed to minimize the probability of hazardous fragment or round escapement from installation boundaries and to minimize the danger to the public, installation personnel, facilities/equipment, and property. SDZs and associated exclusion areas are off-limits to nonparticipating personnel during active range use (Department of the Army Pamphlet 385-63, *Range Safety*).

Wildfires are a growing natural hazard in most regions of Georgia and throughout the Southeast, posing a threat to life and property, particularly where native ecosystems meet developed areas. Fort Eisenhower maintains a Fire Mitigation Plan and actively maintains firebreaks to help prevent and manage wildfires at the installation. Range Operations personnel monitor weather and fire conditions from resources available for fire intelligence information, including the National Fire Danger Rating System website, and then provide recommendations to operations personnel. These recommendations address the need to alter flight or ground operations and if the risk is excessive as determined on a situational basis.

Flight Safety. ATC, airfield/heliport, and airspace operations are regulated by the Army under AR 95-2, *Department of Defense Notice to Airmen System*. As indicated in Section 3.1.1, FAA Atlanta Center is the controlling agency for all IFR air traffic within this region. R-3004A/B/C are administered by Fort Eisenhower Range Control, and all aircraft scheduling for operations within R-3004A/B/C is done through the Range Facility Management Support System or by contacting

Range Control. There are open lines of communication between Fort Eisenhower Range Control and the FAA (both AGS and Atlanta Center), as they regularly communicate the activation and deactivation of R-3004A/B/C. The FAA (AGS and/or Atlanta Center) will advise Fort Eisenhower Range Control if a nonparticipating aircraft is observed to be on a trajectory to enter, or actually enters, R-3004 when active. When AGS or Atlanta Center inform Fort Eisenhower Range Control of an anticipated or actual penetration of R-3004, Fort Eisenhower Range Control will immediately suspend all live-fire operations through the Range Control safety net. In addition, if there is any observation of a nonparticipating aircraft entering an active range within R-3004, the officer in charge of the range will immediately call a cease fire and contact Fort Eisenhower Range Control.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

The No Action Alternative would have no effect on the existing R-3004A/B/C and Bulldog D MOA airspace structure or operations at Fort Eisenhower. There would be no change to the current flight and ground safety environment.

3.9.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Flight Safety. The creation and use of the proposed RAs would segregate all air traffic from the hazardous activities. The Army would implement a multi-tiered safety program to maintain flight safety during these activities and training. The times of use for these RAs would be established and published through a NOTAM 24 hours in advance. Strict control of RAs, restricted access to range areas, and use of established safety procedures would minimize the potential for safety risks and ensure the separation of range operations from nonparticipants. Significant impacts to aviation safety would not result from the creation and use of the proposed RAs.

Ground-Based Changes

Ground Safety. All safety actions that are in place for existing training ranges would continue to be in place for the proposed operations. Fort Eisenhower maintains detailed emergency and mishap response plans to react to an accident, should one occur. These plans assign agency responsibilities and prescribe functional activities necessary to react to major mishaps, whether on or off the range. The range safety personnel and all other range personnel would continually watch for hazardous conditions such as trespassers, fires, bird activity conditions, etc. Range users would be immediately notified of any hazardous conditions on the range. If safety is in question, the range safety officer or other appropriate authority would immediately stop range operations until the situation is remedied. Widening of tank trails would occur within the boundaries of the SAIA. Applicable regulations would be followed should areas require clearing of UXO prior to construction activities. No unauthorized personal would be allowed access to areas with potential UXO hazards until clearing has occurred. Construction personnel would be accompanied by qualified personnel if required.

3.9.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Airspace impacts to safety would be the same as those described for Alternative 1.

Ground-Based Changes

Ground-based impacts to safety would be the same as those described for Alternative 1.

3.10 SOCIOECONOMICS

Socioeconomics refers to features or characteristics of the social and economic environment. This analysis focuses on the potential impacts that could result from the improvement to tank trails and the creation and modification of airspace. Because socioeconomic impacts are more widespread than within the installation boundaries, the following section provides a regional perspective of where the majority of impacts would be anticipated to occur in addition to on Fort Eisenhower. The ROI for this socioeconomic analysis is defined as Fort Eisenhower and areas of Augusta-Richmond County along with portions of Jefferson, Columbia, and McDuffie Counties that could be affected (directly or indirectly) by the two action alternatives.

Since the Proposed Action does not include changes in personnel or the direct creation or loss of employment opportunities, the socioeconomic analysis will focus on direct (construction) and indirect changes to economic activity and community services. The socioeconomic analysis in this EA also addresses other noise-sensitive social or economic activities and impacts to airports and aviation. The analysis will not include detailed discussions of population and housing availability since there are no personnel changes associated with the Proposed Action.

3.10.1 Affected Environment

3.10.1.1 Economic Activity

In 2022, employment in the Augusta-Richmond County statistical area totaled 348,245 jobs (USBEA 2023). The largest employment sector (by income) in the statistical area was government and government enterprises (17 percent), followed by healthcare and social assistance (7.1 percent) and manufacturing (6.9 percent) (USBEA 2023). In general, the average annual unemployment rate in the statistical area has been declining from a high of 9.7 percent in 2012 to a low of 3.5 percent in 2022 (Federal Reserve, 2023). During this same time, the state average annual unemployment rate also declined annually but generally has been slightly higher than the statistical area. In 2022, per capita personal income in the area was $49,496, which is less than per capita personal income in the state which is estimated at $56,589 (USBEA, 2023).

Fort Eisenhower is the largest employer in the region. As the largest single-site employer in the region, Fort Eisenhower contributes approximately $2.4 billion annually in economic impact to the local economy. According to Realtor.com, year-over-year median list price values have decreased 1 percent in the statistical area (Realtor.com, 2023). Most residential land use is located within Augusta-Richmond County along the northeast, east, and southeast boundaries of the installation. Large areas of residential land use also occur in Columbian County to the north and Burke County to the south. Smaller residential areas are located in McDuffie and Jefferson County (Central Savannah River Area Regional Commission, 2019).

3.10.1.2 Airports

Table 3-1 lists the 12 public and private airports that have been identified in the ROI (see Section 3.1). One notable annual event that has positive economic impacts on the region and on airports in the ROI includes the large number of people as well as private jets that fly into the Master Tournament at Augusta. Augusta Regional airport estimates that 30,000 to 35,000 people pass through the airport during the 10 days of the tournament. Over 1,500 private jets will land at the airport in that same time period. Other airports in the region also see a substantial increase in traffic during the tournament.

3.10.1.3 Community Services

Fort Eisenhower has its own police and fire departments, which are a part of the Directorate of Emergency Services. The police department provides law enforcement and property protection and the fire department provides emergency firefighting and rescue services. The fire department also provides fire prevention services. Fort Eisenhower has its own 911 call center and mutual aid agreements with Richmond and Columbia Counties.

The Dwight D. Eisenhower Army Medical Center, located on post, provides healthcare services for military personnel, military dependents, and to military retirees and their dependents. Dental services are available on post and Fort Eisenhower maintains a contract for additional services at the Trinity Hospital in Augusta.

3.10.2 Environmental Consequences

Socioeconomic resources could be impacted in the ROI if the following were to occur:

- Implementation of the Proposed Action or alternatives causes local business volumes, employment, or population changes that exceed the ROI's historical annual change.
- Implementation of the action results in extensive relocation of community businesses that would create severe economic hardship for the affected communities.
- Implementation of the action results in any known effects on private and public airport services and the surrounding communities.

3.10.2.1 No Action Alternative

Under the No Action Alternative, there would be no new construction and no changes in the airspace. The No Action Alternative would not result in significant impacts to socioeconomics at Fort Eisenhower.

3.10.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

No changes in personnel are anticipated with the implementation of the Proposed Action. Therefore changes related to employment, population, school enrollment, or housing availability are not anticipated.

Peak noise levels would extend beyond the installation boundary in unincorporated areas of Columbia County located north of Fort Eisenhower. Low-density residential area and farmland south of Fort Eisenhower near the city of Blythe would also see a potential for an increase in peak noise levels. The complex nature of property valuation makes any estimation of the potential effects of airspace modifications on land values highly speculative. Socioeconomic factors, such as business activity, employment, interest rates, and land scarcity (or availability), are much more likely to affect property values than training airspace. Given the expected noise levels, it would be anticipated that the Proposed Action would have minimal impacts to existing housing values within the ROI compared to the No Action Alternative.

As described in Section 3.1, there would be no impacts to airports in the region, and therefore there would be no economic impacts associated with airports. Some minor, individual economic impacts could occur to aircraft operators due to increased fuel usage to divert outside of the larger area of the Proposed Action. No significant impacts to socioeconomics are anticipated as a result of implementing the airspace changes associated with Alternative 1.

Ground-Based Changes

Construction activities associated with trail improvements and the construction of new firing points would have minimal, short-term, positive economic impacts due to the purchasing of supplies and some minor labor requirements.

3.10.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Airspace impacts to socioeconomics would be the same as those described for Alternative 1.

Ground-Based Changes

Ground-based impacts to socioeconomics would be the same as those described for Alternative 1.

3.11 SOILS

The term "soils" refers to unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Impacts to soils result from earth disturbance that would expose soil to wind or water erosion. Analysis of impacts on soils and surface water examines the potential for such erosion and describes typical measures employed to minimize erosion.

Criteria for evaluating impacts related to soil resources resulting from implementation of the Proposed Action are impacts on unique soil resources, minimization of soil erosion, and the siting of facilities relative to potential soil limitations. If development proposed in the EA were to substantially affect any of these features, impacts would be considered significant.

For the purposes of this soils analysis, the ROI for the Proposed Action and the No Action Alternative includes the land within and immediately surrounding Fort Eisenhower.

3.11.1 Affected Environment

The soils on Fort Eisenhower are predominantly sandy in character, strongly acidic, and low in organic matter and moisture holding capacity (Fort Gordon, 2019a).

Twenty-six soil classes have been identified on the installation. The upland areas of Fort Eisenhower usually host deep, well-drained, medium-to-fine sandy soils, and the low areas host mostly poorly drained hydric soils. The Troup-Lakeland, Orangeburg-Lucy-Dothan, and Troup-Vaucluse-Ailey series are the predominant soil series on the installation (USDA, 1981). To a lesser extent, the Bibb-Osier series occurs along the creeks and floodplains throughout the installation. Although 12 of the soil types on Fort Eisenhower are identified as prime farmland and 6 soil types are considered Farmland of Statewide Importance, land used for national defense purposes such as that on Fort Eisenhower is not subject to the Farmland Protection Policy Act, and therefore these soils do not require special consideration. Fort Eisenhower operates under a number of different plans, permits, and programs that in conjunction form the Soil Erosion and Sediment Control Component. Approximately 67 miles of improved graded roads are maintained by DPW on Fort Eisenhower. Various culvert crossings are installed on firebreaks and woodland roads to facilitate travel.

3.11.1.1 Fort Eisenhower Land and Rehabilitation and Maintenance

The Fort Eisenhower Land Rehabilitation and Maintenance (LRAM) program is a component of the Integrated Training Area Management (ITAM) program within Range Control (USACCoE&FG Regulation 350-19). USACCoE&FG Regulation 350-19 provides specific

details regarding the responsibilities of various units to minimize soil erosion and sediment impacts from training activities on Fort Eisenhower. The intent of the LRAM program is to sustain a realistic field training environment for continuous and diverse training events and to mitigate environmental impacts caused by realistic training.

The ITAM is an Army-wide core program of the Sustainable Range Program (SRP) designed to provide quality training lands to support the Army's military mission and to help ensure no net loss of training capability (a Sikes Act requirement). The ITAM program is responsible for maintaining the outdoor classroom to help the Army meet its training requirements. The Army-wide goal for ITAM is to "achieve optimum, sustainable use of training lands by inventorying and monitoring land condition, integrating training requirements with land capacity, educating land users to minimize adverse impacts, and providing for land rehabilitation and maintenance."

The ITAM program is governed by AR 350-19, *The Army Sustainable Range Program*, and includes the following:

- The *Training Requirements Integration* component provides trainers and range managers with technical information to balance training needs with land constraints.
- The LRAM component improves and enhances training capacity through repair, maintenance, and reconfiguration of training lands.
- The *Range and Training Land Assessment* component (formerly Land Condition Trend Analysis) collects data to determine training land conditions, identifies areas needing repair or reconfiguration, and supports range operations and modernization planning.
- The *Sustainable Range Awareness* component develops and distributes educational materials to reduce avoidable impacts on range and training land assets and to improve the understanding of land use constraints and training requirements for training land users and managers.
- The *Sustainable Range Program Geographic Information Systems* program is the foundational support element of the SRP. The SRP Geographic Information Systems Program is comprised of people, SOPs, data, hardware, and software. It provides standard mapping and spatial analysis capabilities for ITAM, Range Operations, Range Modernization, and Installation military training.

The LRAM program conducts preventive and corrective LRAM projects within the training areas (i.e., smooth out excessive ruts, repair washed out trails, revegetate heavily disturbed sites). While LRAM efforts are in progress, the Range Officer may temporarily restrict vehicle maneuver on specific tracts of land to minimize safety hazards and ensure the fastest recovery possible for the land. Once the land recovers, the Range Officer will lift the restriction.

3.11.1.2 Erosion Management

Soil is formed over many years. When uncovered or disturbed, soil particles can become detached from the soil column and transported in the air or in water. When detached by rain, soil particles are transported by water in the form of overland flow to surface waters. Once soil particles become suspended in runoff, they change from being natural resources that support plant growth to pollutants in the form of sediment. Soil erosion can be a problem anywhere disturbance occurs. On Fort Eisenhower, soil erosion can result from past clearing activities, establishment of firebreaks, agricultural practices, and maneuver training.

Erosion resulting from both natural and man-made disturbance can take many forms. Fort Eisenhower recognizes the importance of keeping its soils in place to support plant growth, since a variety of vegetation communities are important for training exercises and are mediums for the construction of ranges, maneuvering trails, buildings, etc.

Fort Eisenhower operates under a number of plans, permits, and programs that form the Soil Erosion and Sediment Control Component of the INRMP (Fort Gordon, 2019a). In 2012, Fort Eisenhower conducted soil erosion and depositional geographic information system modeling. This modeling identified potential erosion and sediment deposition hotspots on non-developed lands, and Fort Eisenhower uses the geographic information system database as a tool to track erosion, perform restoration, and maintain BMPs.

Fort Eisenhower recognizes that sedimentation is the number one pollutant of Fort Eisenhower waterways. Sedimentation has also led to indirect impacts to other resources. For these reasons, Fort Eisenhower has adopted an aggressive soil erosion management policy.

The Directorate of Plans, Training, Mobilization and Security via its Range Control Division is a vital component in the implementation of erosion control on the installation. The Fort Eisenhower DPW cooperates with the Directorate of Plans, Training, Mobilization and Security through the ITAM program to ensure the sustainability of land use for the military mission and protection of the environment.

The effects of military training and vegetation management on soil erosion vary widely, depending on the type and intensity of the activity and the location of the activity with respect to soil types and slopes. The two most common types of training conducted at Fort Eisenhower are maneuvers and live-firing exercises. Maneuvering heavy-wheeled or tracked vehicles can cause a high level of disturbance to soils and vegetation, which can cause accelerated soil erosion. In particular, repeated maneuvering in a small area greatly disturbs soils, and compacted soils can be difficult to rehabilitate.

Prior to training, proposed training activities and training site locations are coordinated with the Fort Eisenhower DPW-Environmental Division through Range Control to avoid sensitive areas. Vegetation management (clearing and prescribed burns) within the training areas also impacts soil stability. When the soils become void of vegetation after clearing or prescribed burning, they are very susceptible to erosion until vegetation is reestablished. Disturbance from firing exercises also increases erosion.

3.11.1.3 Environmental Stewardship Guidelines

In an effort to comprehensively manage and protect soil resources on Fort Eisenhower, the INRMP (Fort Gordon, 2019a) contains soil management goals and objectives designed to protect soil resources and prevent soil destabilization and erosion. The impact of training exercises to soil resources is reduced through implementation of the existing soil resource environmental stewardship guidelines contained within the INRMP and the ITAM environmental stewardship guidelines. After training, land evaluations determine the required remediation measures and if training must be rotated to another area while the land recovers.

3.11.2 Environmental Consequences

A significant impact to soils from training activities would occur if one or more of the following occurs:

- substantial soil loss or compaction precluding the reestablishment of vegetation
- erosion causing detrimental effects to aquatic life in adjacent waters
- a violation of applicable federal or state law, regulation, or permit

3.11.2.1 No Action Alternative

Under the No Action Alternative, training operations at Fort Eisenhower would continue as they are currently being conducted. None of the tank trails on Fort Eisenhower would be widened, there would be no concrete turn pads or firing points constructed, and there would be no impacts to soils at Fort Eisenhower from any of the Proposed Actions. In addition, there would be no changes to any of the airspace above Fort Eisenhower and range operations would remain unchanged.

3.11.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Implementation of the airspace changes associated with Alternative 1 would not result in any impacts to soils.

Ground-Based Changes

Implementation of the ground-based changes associated with Alternative 1 would result in short- and long-term, direct effects on soils at Fort Eisenhower. The current tank trail network on Fort Eisenhower varies from 3.5 to 7 meters wide. As part of this alternative, the tank trails would all be widened to approximately 20 meters wide, which would include a total of 16 creek crossings. This alternative also includes the construction of 27 concrete turn pads to prevent soil erosion at locations where tracked vehicles would turn to change direction. The concrete turn pads would be approximately 82 feet long by 82 feet wide. In addition, this alternative requires the construction of two firing points. The firing points would be approximately 675 feet wide by 1,175 feet long. Approximately 20 miles of tank trail would be widened to 20 meters throughout Fort Eisenhower. In total, approximately 156.6 acres would be disturbed as part of this alternative. At Fort Eisenhower, the DPW evaluates creek crossings and determines the appropriate types of construction. The solution for creek crossings where there is intermittent flow, such as some of those on Fort Eisenhower, is to construct a swale with a riprap-bearing surface underlain with filter fabric.

As part of the construction planning for this project, Fort Eisenhower would obtain a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit from the State of Georgia. As part of the compliance with this permit, Fort Eisenhower would implement an *Erosion and Sediment Control Plan*, as well as BMPs, during trail widening and concrete turn pad or firing point construction, which would prevent or mitigate soil erosion. The BMPs that would be constructed to reduce soil erosion are explained in detail in the INRMP (Fort Gordon, 2019a). Additionally, a land disturbance permit would also be required from Augusta-Richmond County before any of the ground-based changes would be implemented. Clearing vegetation would disturb limited areas of soil; however, because surrounding areas would be vegetated, these maintenance activities are not expected to substantially increase the risk of erosion. Clearing vegetation by hand or using other methods that avoid tilling could further reduce the risk of erosion.

As part of the *Erosion and Sediment Control Plan*, Fort Eisenhower would identify a qualified person to conduct the required stormwater inspections. Qualified personnel (a person with knowledge of the principles and practice of erosion and sediment control and P2 with the ability to assess conditions that could impact water quality and the capacity to evaluate stormwater controls) would conduct inspections of disturbed areas at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inch or greater of precipitation.

Summary reports of each inspection would be developed per the required guidelines. Any deficiencies noted in an inspection would be corrected within 7 days and documented in a corrective action report. Inspection and corrective action reports would be retained as part of the *Erosion and Sediment Control Plan* for at least 3 years from the date the site is permanently stabilized. BMPs could include but are not limited to establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Permanent stabilization is a perennial vegetative cover equal to 70 percent of the native background vegetation. Within 30 days of final site stabilization, Fort Eisenhower would file the Notice of Termination with the Georgia Environmental Protection Division (EPD) to terminate coverage under the General Permit.

Short-term, direct soil compaction and disturbances are anticipated from vegetation clearing, vehicles, foot traffic, and large construction equipment used for trail widening. Long-term maintenance efforts could result in additional soil disturbances from mechanized excavation near the proposed firing sites, concrete turn pads, and widened tank trails. Soil from these areas would not be removed from the site but rather used for site restoration after construction is complete. Therefore, no off-site fill material would be required for site restoration. Erosion impacts would be temporary and would be minimized through continued adherence to the LRAM program and by employing BMPs for soil erosion and sedimentation. Once vegetation has been reestablished, impacts from trail widening would be reduced to negligible.

Fort Eisenhower is committed to maintaining the sustainability of its ranges through the LRAM program to both minimize erosion impacts and repair areas that could experience erosion during training activities. Areas experiencing non-sustainable use would be evaluated and BMPs would be applied for sustainable soil uses as funding is available. The selection of and use of BMPs depends upon specific soil types and ground conditions in the areas disturbed by training but could include stabilization of stream crossings, trail stabilizations, revegetation, sediment retention structures, gully repairs, and repairing areas of compacted soil.

In addition to adherence to the LRAM program and the implementation of BMPs, Fort Eisenhower would employ the following training restrictions to minimize erosion and sedimentation issues:

- Tree and vegetation clearing along the tank trails would be confined to an approximately 20-meter corridor.
- Vehicles using the tank trail system would be confined to the tank trails and existing low water crossings.
- The terrain profile shall be restored to its original condition after training completion.

Soils would be temporarily impacted when the tank trails are being widened and the turn pads and firing points are being constructed; but, after construction, the sites would be regraded to pre-activity conditions and vegetation would be reestablished per the INRMP. Training restrictions would be instituted by Range Operations to minimize erosion and sedimentation issues. Therefore, with the use of appropriate BMPs and soil conservation methods described above, implementation of Alternative 1 would not result in significant impacts to soil resources.

3.11.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

Implementation of the airspace changes associated with Alternative 2 would not result in any impacts to soils.

Ground-Based Changes

Implementation of Alternative 2 would result in the same types of impacts to soil resources as described under Alternative 1. However, implementation of Alternative 2 would result in less impacts to soils when compared to Alternative 1 because the width of the tank trails at creek crossings would be minimized to single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide).

Soils would be temporarily impacted when the tank trails are being widened and the turn pads and firing points are being constructed; but, after construction, the sites would be regraded to pre-activity conditions and vegetation would be reestablished per the INRMP (Fort Gordon, 2019a). Training restrictions would be instituted by Range Operations to minimize erosion and sedimentation issues. Therefore, with the use of appropriate BMPs and soil conservation methods described above, implementation of Alternative 2 would not result in significant impacts to soil resources.

3.12 TRAFFIC AND TRANSPORTATION

Traffic and transportation infrastructure includes the installation access points and the installation roadway network. The Proposed Action has the potential to impact transportation resources on the installation. For the transportation analysis, the impact analysis consisted of a qualitative assessment based on available information. Impacts could arise from physical changes to the existing road network and construction-related traffic delays from the widening of tank trails and the construction of turn pads and firing points.

The ROI for the traffic and transportation resource area is limited to the tank trail network and the roads and other trails that would be crossed by vehicles using the tank trails on Fort Eisenhower. Transportation resources located throughout the cantonment areas on Fort Eisenhower would not be affected by implementation of either of the two action alternatives and, therefore, are not part of the ROI.

3.12.1 Affected Environment

This section describes the general traffic and transportation conditions on Fort Eisenhower relative to access and traffic circulation. U.S. Highway 78/State Highway 10 (Eisenhower Highway) bound Fort Eisenhower to the north, and U.S. Highway 221 bounds Fort Eisenhower to the west. On the south, Fort Eisenhower is bounded by U.S. Highway 1. Interstate 20, located 2 miles north of the installation, and Interstate 520 (Bobby Jones Expressway), located 2 miles east of Gate 1, provide access to the installation. The main entrance for Fort Eisenhower is located at Gate 6 off of U.S. Highway 78.

Combat vehicles on Fort Eisenhower must move regularly between the maintenance areas, training areas, and ranges. Tracked vehicles must be provided a separate system of tank trails. These trails have different design characteristics: wider lanes, stronger structure, and harder materials to accommodate wider and heavier vehicles and different traction systems. The use of tank trails and range roads on Fort Eisenhower is scheduled according to priority and safety requirements. Tank

trails and range roads are used for essential personnel only, and traffic on these roads is not anticipated to significantly increase.

The maneuver training and range areas are accessed via the existing road and tank trail network located throughout this area. The current tank trail network on Fort Eisenhower varies from 3.5 to 7 meters wide. The existing tank trails are too narrow to accommodate two vehicles passing in opposite directions. The existing tank trails are primarily comprised of sand. An example of a typical tank (tracked vehicle) trail is shown in Figure 3-6.

Figure 3-6. Typical Tracked Vehicle Trail on Fort Eisenhower

3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

Under the No Action Alternative, there would be no new activities associated with tank trail improvements, firing points, or airspace. Implementation of the No Action Alternative would not result in significant impacts to traffic and transportation resources at Fort Eisenhower or the areas under the proposed airspace.

3.12.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

Implementation of the airspace changes would not result in any direct or indirect impacts to traffic and transportation resources on Fort Eisenhower. No construction is associated with the airspace changes.

Ground-Based Changes

Implementation of either of the action alternatives would not result in additional personnel or government or personal vehicles using transportation resources on Fort Eisenhower. Implementation of Alternative 1 would result in the widening of all tank trails on Fort Eisenhower to 20 meters wide. Tank trails would cross the main road leading onto the installation from Gate 6. To prevent further damage to the tank trail network, 27 concrete turn pads would be constructed at locations where tracked vehicles would be required to make turns to change directions. Two new firing points would also be constructed in the SAIA. Once completed, all tactical combat vehicles would be required to use the tank trail network. This could decrease the wear and tear on primary roads and secondary trails, resulting in beneficial impacts. The only adverse impacts to transportation resources that would result from implementation of Alternative 1 would be temporary short-term traffic delays during the tank trail widening and firing point and concrete turn pad construction. During construction, appropriate signage and potential flaggers would be used to safely direct traffic around construction zones. In advance of tank trail widening or construction of the firing points and concrete turn pads, Fort Eisenhower would develop specific traffic and transportation plans to safely redirect traffic during the construction timeframe. The traffic and transportation plan would be designed to minimize impacts to traffic and transportation resources on Fort Eisenhower.

3.12.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

As with Alternative 1, there would be no impacts to transportation resources resulting from the proposed airspace changes.

Ground-Based Changes

Implementation of Alternative 2 would result in the widening of all tank trails on Fort Eisenhower to 20 meters wide, with the exception of creek crossings where the width would be reduced to 10 meters and the widening of tank trails would be routed to avoid sensitive natural and cultural resources. The same number of concrete turn pads and firing points as Alternative 1 would be constructed. Once completed, all tactical combat vehicles would be required to use the tank trail network. This would decrease the wear and tear on roads and secondary trails, resulting in beneficial impacts. The only adverse impacts to transportation resources that would result from implementation of Alternative 2 would be temporary short-term traffic delays during the tank trail widening and firing point and concrete turn pad construction. During construction, appropriate signage and potential flaggers would be used to safely direct traffic around construction zones. In advance of tank trail widening or construction of the firing points and concrete turn pads, Fort Eisenhower would develop specific traffic and transportation plans to safely redirect traffic during the construction timeframe. The traffic and transportation plan would be designed to minimize impacts to traffic and transportation resources on Fort Eisenhower.

3.13 WATER RESOURCES

Water resources on Fort Eisenhower include surface water, floodplains, wetlands, and groundwater. The ROI for water resources includes portions of the Fort Eisenhower range complex in the vicinity of infrastructure (e.g., tank trails) that would be modified under the Proposed Action.

3.13.1 Affected Environment

Surface water. Streams in the ROI include Spirit, South Prong, Sandy Run, and Boggy Gut Creeks, as well as their tributaries (Figure 3-7). Several lakes and ponds ranging in size from 3 to 32 acres have been created along these streams (Fort Gordon, 2019a).

The Clean Water Act (CWA) establishes federal limits through the NPDES program on the amounts of specific pollutants that can be discharged into waters of the United States to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and non-point sources (i.e., stormwater) of water pollution. The Georgia EPD administers the NPDES program within the state of Georgia and has general permitting authority. Segments of Spirit Creek and Sandy Run Creek are impaired waterways under Section 303(d) of the CWA and do not support their designated uses (i.e., fishing) (USEPA, 2022a; USEPA, 2022b). Probable sources contributing to the Spirit Creek impairment include non-point sources and urban runoff/storm sewers, as indicated by fish bioassessments and the finding of thallium in fish tissue. A Total Maximum Daily Load (TMDL) evaluation conducted by the GA DNR established a target reduction of 1.1 percent in total sediment load. The TMDL evaluation suggests the use of management practices including forestry BMPs, improved unpaved roads maintenance, erosion controls for land-disturbing activities, and measures to minimize stream bank erosion (GA DNR, 2016b). In Sandy Run Creek, the probable source of impairment is a non-point source as indicated by fish bioassessments; no plan has yet been established to restore water quality in Sandy Run Creek (USEPA, 2022b). Activities on Fort Eisenhower are conducted in accordance with applicable permits (e.g., Georgia NPDES permits), plans (e.g., INRMP), and regulations (e.g., USACCoE&FG Regulation 350-19), which minimize impacts to water resources such as erosion.

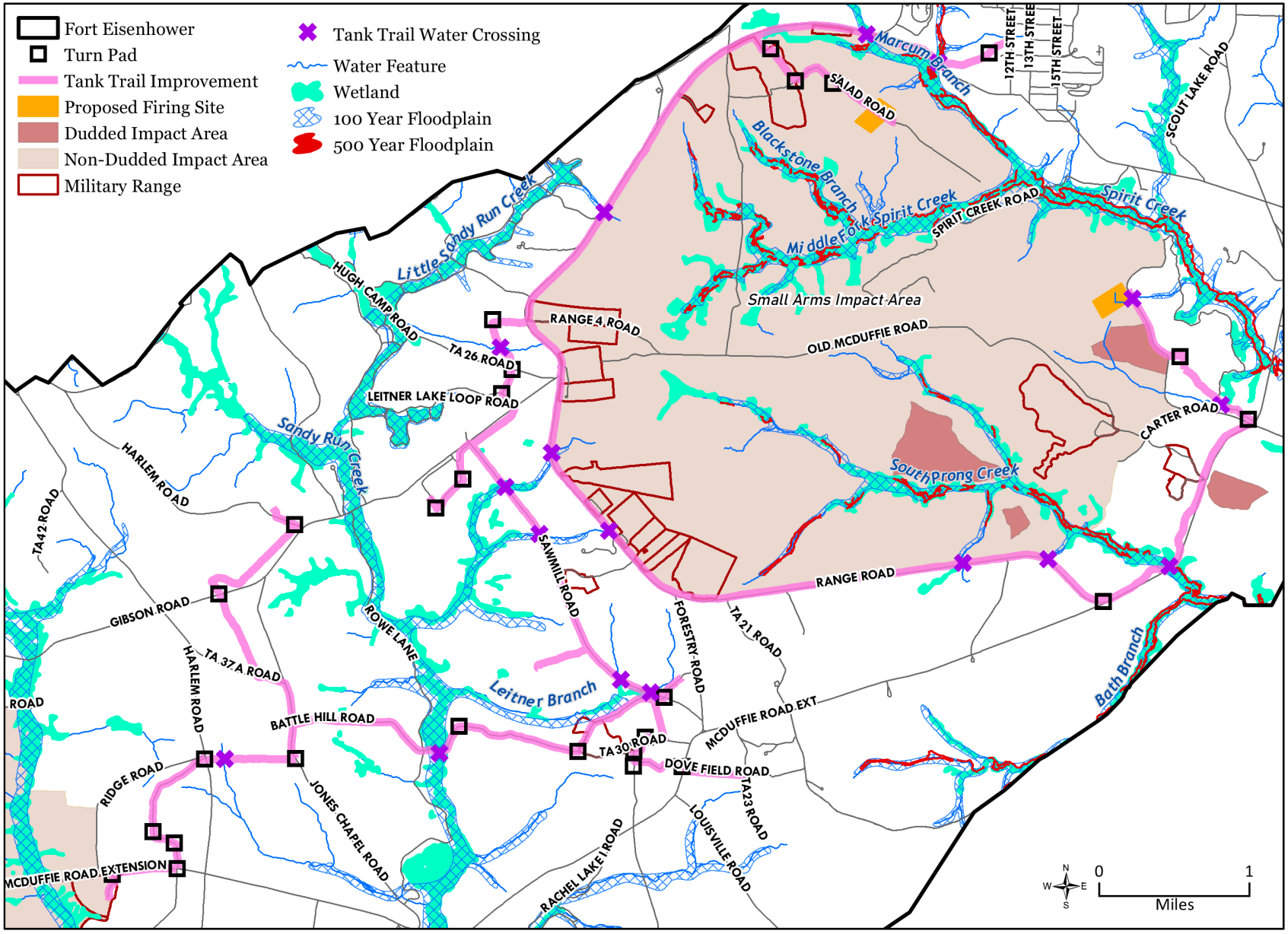


Figure 3-7. Surface Water, Wetlands, and Floodplains on Fort Eisenhower

The Boggy Gut Creek watershed has been designated as high priority for protecting aquatic biodiversity by the GA DNR. These water resources are prioritized for a broad array of conservation activities, including watershed-level protection efforts, riparian restoration, protection or restoration of natural flow regimes, and other conservation activities (GA DNR, 2015). None of the potentially affected streams are designated trout streams as defined in Georgia Rules and Regulations 391-3-6-.03. Georgia's waterways are protected by a 25-foot buffer under the Georgia Erosion and Sedimentation Control Act (Official Code of Georgia Annotated Section 12-7-1), and a buffer variance is required if that buffer cannot be maintained.

Wetlands. Wetlands on Fort Eisenhower are also primarily located along streams, as shown in Figure 3-7. EO 11990, *Protection of Wetlands*, requires that new construction in wetlands be avoided to the extent possible and that all practicable measures be taken to minimize or mitigate impacts on wetlands. Section 404 of the CWA requires additional evaluation, protection, and mitigation of impacts for wetlands that are considered waters of the United States.

Floodplains. The 100-year and 500-year floodplains on Fort Eisenhower that have been delineated by the Federal Emergency Management Agency to date are shown in Figure 3-7. The floodplains are primarily located along streams. EO 11988, *Floodplain Management*, requires federal agencies to avoid (to the extent possible) the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain. EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, amends EO 11988, *Floodplain Management*, and establishes the Federal Flood Risk Management Standard to improve the nation's resilience to current and future flood risks, which are anticipated to increase over time due climate change. EO 13690 requires consideration of potential future flood risk relative to several potential criteria including the 500-year floodplain.

Groundwater. Fort Eisenhower is located in the Coastal Plain hydrogeologic province of Georgia, and the principal groundwater source in this province is the Southeastern Coastal Plain aquifer system. Depth to groundwater ranges from approximately 56 feet to 0 feet below ground surface (Fort Gordon, 2020c). Six drilled potable water wells are located in the Fort Eisenhower training areas (Fort Gordon, 2019a). The wells provide water to facilities such as the Leitner Recreation Area and Fort Eisenhower Natural Resources Management Division facilities.

3.13.2 Environmental Consequences

Water quality impacts would be considered significant if the action would result in the following:

- Violation of any water quality standard or contribution to existing surface water impairments
- Substantial alteration of existing drainage patterns in a manner that would result in increased frequency or severity of flooding
- Non-compliance with the requirements of EO 11988 or EO 13690 regarding actions in floodplains
- A substantial adverse impact on federally protected wetlands that could not be mitigated
- Substantial depletion of groundwater supplies or substantial interference with groundwater recharge

3.13.2.1 No Action Alternative

Under the No Action Alternative, there would be no airspace or ground-based changes at Fort Eisenhower, and training operations would continue to occur as they do currently. The ground-disturbing activities that are included in the Proposed Action would not occur, and there would be no activities in floodplains or wetlands. Maneuvers training within the training areas would continue to result in adverse effects to water quality in the form of increased erosion and sediment transport in surface waters. Because implementation of the No Action Alternative would result in no changes to the current activities and conditions, water resources impacts would not be significant.

3.13.2.2 Alternative 1. Airspace and Ground-Based Changes at Fort Eisenhower

Airspace Changes

The airspace changes proposed under Alternative 1 would not result in any impacts to water resources.

Ground-Based Changes

Implementation of the ground-based changes associated with Alternative 1 would result in short- and long-term, direct effects on water resources at Fort Eisenhower. Potential impacts are described for surface water, wetlands, floodplains, and groundwater.

Surface Water. The proposed trail widening, turn pad construction, and firing point construction would be conducted in compliance with plans and permits mandating measures that minimize potential impacts to water resources. A pre-construction planning process would be followed as spelled out in the *Fort Gordon Storm Water Quality Construction Site Permitting Guidance and Requirements* (Fort Gordon, 2020d). Prior to initiation of construction, Fort Eisenhower would develop a project-specific Erosion, Sedimentation, and Pollution Control Plan (ESPCP) designed in accordance with the *Manual for Erosion and Sediment Control in Georgia* (GA DNR, 2016a). The ESPCP would include BMPs to address sediment load reduction in Spirit Creek as per the applicable TMDL Implementation Plan (GA DNR, 2016b). The ESPCP would also be developed to include BMPs from and to comply with the Fort Eisenhower Stormwater Management Program (General NPDES Permit GAG480000). In accordance with the requirements of the Energy Independence and Security Act, projects larger than 5,000 square feet would incorporate measures to "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow." The ESPCP would require stormwater inspections be conducted while construction is under way. Fort Eisenhower would submit an NOI under the GA DNR general NPDES permit for stormwater discharges associated with stand-alone construction projects. Because the Proposed Action would disturb more than 50 acres, Georgia EPD project justification and approval would be required. A land disturbance permit would also be required from Augusta-Richmond County before any of the ground-based changes could occur. Once construction and site stabilization are complete, a Notice of Termination would be filed to terminate coverage under the general permit.

Training for military maneuvers involves effectively moving Soldiers and equipment across Fort Eisenhower, and this sometimes involves crossing streams. Disturbances of land areas within 25 feet of streams as part of tank trail improvements at creek crossings would require a stream buffer variance approved by the Georgia EPD in accordance with the Georgia Erosion and Sedimentation Act (Official Code of Georgia Annotated Section 12-7-1). A representative of Richmond-Augusta County would visit the sites to confirm the presence of state water, which requires a buffer variance. The variance would specify which state waters would be impacted,

precisely quantify the area impacted, explain why the buffer intrusion cannot be avoided or reduced, and describe measures taken to avoid and/or repair damage within the buffer such that downstream water quality would be maintained or improved (GA DNR Environmental Protection Division, 2016). Under the series of assumptions described in Appendix D, it was estimated that 4.7 acres of land within the 25-foot stream buffer could be affected. Impacts are associated with clearing and grading for trail widening and at the firing point locations. Variances for buffer intrusions upstream and within 10 linear miles of impaired segments of Spirit Creek or Sandy Run Creek would also need to show that the project has no adverse impact relative to the pollutants of concern.

During scoping, the GA DNR indicated concern about streams and other sensitive habitats that could be impacted by the proposed project (see Appendix A). The GA DNR scoping response recommended that the following BMPs, which are endorsed by the State of Georgia, be implemented throughout the construction site at a minimum:

- Design tank trails in such a way that streams do not serve as stormwater or sediment detention areas during project construction or operation (i.e., no scupper or open drains on bridges/arch spans; divert stormwater from the project away from the stream). Off-channel maintained detention ponds or diversion of stormwater across a wide slope are noted as acceptable diversion methods.
- Locate staging areas and equipment maintenance areas at least 200 feet from stream banks to minimize the potential for wash water, petroleum products, or other contaminants from construction equipment entering the watershed.
- Inspect and maintain silt fences and other erosion control devices until soil is stabilized by vegetation.
- Use natural vegetation and grading techniques (e.g., vegetated swale turn-offs, vegetated buffer strips) that will ensure that the road or right-of-way does not serve as a conduit for stormwater or pollutants into the watershed during or after construction.
- If practicable, use erosion control products made of natural, biodegradable materials such as “jute” or “coir” rather than plastic, and ensure that mesh strands are movable as opposed to fixed.

Fort Eisenhower would consider incorporation of the BMPs listed above, which are similar to and/or overlap with BMPs regularly implemented on other Fort Eisenhower construction projects, into the project ESPCP.

Widened tank trails would be designed with stormwater ditches and turnouts to manage water flow and would be designed to support use by heavy tracked vehicles. Creek crossings would be similarly designed to minimize water quality impacts associated with training. At Fort Riley, which also conducts maneuvers training, stream crossings designed with erosion prevention in mind have been shown to reduce water resources impacts relative to unimproved and unplanned crossings (Strategic Environmental Research and Development Program, no date). The improved infrastructure would be used in accordance with applicable regulations (e.g., USACCoE&FG Regulation 350-19) that minimize infrastructure degradation and associated environmental impacts. The Fort Eisenhower LRAM program would continue to take steps to repair any damage incurred through usage, such that water resources impacts associate with use of the improved infrastructure would be minimal.

Wetlands. The Fort Eisenhower tank trail network crosses several streams and their associated wetlands (see Figure 3-7), and proposed improvement to the trail network could result in wetlands

impacts. Prior to construction, a wetlands delineation would be completed in areas where wetlands impacts are possible. Where practicable, trail alignments would be adjusted to avoid the delineated wetlands. If wetlands impacts associated with the Proposed Action cannot be avoided, a CWA Section 404 permit would be obtained. Fort Eisenhower would carry out all mitigation actions required by the permit, such that impacts to wetlands would either be avoided or offset. Although project designs for tank trails and creek crossings are not finalized, preliminary estimates indicate that up to 1.7 acres of wetlands could be adversely affected. Impacts are associated with trail widening. No wetlands are located in areas proposed for firing points or turn pads. The methods used to estimate affected wetland areas are described in Appendix D.

Floodplains. Because the tank trail network crosses floodplains, the proposed improvement to the tank trails would unavoidably affect floodplain areas. Preliminary estimates indicate that up to 2.9 acres of 100-year floodplain and 0.1 additional acres of 500-year floodplain (outside of the 100-year floodplain) could be disturbed under Alternative 1. Tank trail widening would involve clearing vegetation and some grading but would not involve import of fill materials to raise the tank trail elevation. Because no vertical structures would be added and no ground elevations would be changed, tank trail widening would not be expected to have any effect on the movement of floodwaters during a flood event. Creek crossing designs are not yet available but would generally be designed to maintain current hydrology and the capacity for the movement of floodwaters. Neither the proposed turn pads nor the firing points would be in floodplains. None of the ground-based changes would be expected to affect flood hydrology and would not increase the level of flood risk to any existing facilities or activities. Moreover, tank trails and fire breaks are generally resilient to flooding (i.e., floods do not cause permanent damage to tank trails). As such, tank trails are not "critical facilities" as defined in EO 13690, and occasional flooding would typically result only in temporary cessations of certain range activities. Because the proposed improvement of existing facilities (i.e., tank trails and creek crossings) in floodplains would not result in additional flood-related risks, the proposed construction in the floodplains would have limited impacts.

Groundwater. The potential for groundwater contamination (e.g., by accidental spills of hazardous materials or hazardous waste) from construction or subsequent use of improved infrastructure would be prevented through implementation of the installation's existing hazardous waste management procedures (e.g., spill prevention, control, and countermeasures). The Proposed Action would not require the extraction of groundwater or interfere with groundwater supply at the existing wells in the training areas. The construction of 27 concrete turn pads would add approximately 4 acres of impervious surface resulting in localized reductions in the rate of groundwater recharge. Stormwater flow control devices would be installed where required, in accordance with the Energy Independence and Security Act and applicable permits, minimizing or offsetting effects to hydrology. In the context of the 50,000 acres of training area, which consist almost entirely of permeable surfaces, impacts to groundwater recharge associated with the proposed ground-based changes would be minimal.

In summary, impacts to water resources associated with ground-disturbing activities would be minimized through the use of BMPs and low-impacts design in accordance with all applicable laws, regulations, and permits. Water quality standards would not be violated, and existing surface water impairments would not be made worse. Project design would incorporate measures, as needed, to avoid changes in drainage patterns that would increase the frequency or duration of flooding. Ground-based change would be conducted in accordance with EOs 11988, 13690, and 11990 such that impacts to floodplains and wetlands would be minimized to the extent practicable or else mitigated through offset. Effects on groundwater recharge associated with new impermeable surfaces would be minimal due to implementation of stormwater control devices,

where required. Development of creek crossings would result in temporary negative impacts to surface waters while construction is under way but would reduce impacts associated with training activities (i.e., vehicles crossing streams) in the long term. Because all components of the Proposed Action would be conducted in accordance with permits and would incorporate measures to minimize or offset adverse effects, impacts to water resources associated with Alternative 1 would be minimal and not significant.

3.13.2.3 Alternative 2. Airspace and Minimized Ground-Based Changes at Fort Eisenhower (Preferred Alternative)

Airspace Changes

The airspace changes proposed under Alternative 2 would not result in any impacts to water resources.

Ground-Based Changes

Because creek crossings would be single lane under Alternative 2, slightly less land area would need to be disturbed. Water resources impacts under Alternative 2 would be similar to, but slightly less than, impacts under Alternative 1.

Surface Water. The planning and permitting process followed under Alternative 2 would be the same as under Alternative 1. Under the series of assumptions described in Appendix D, it was estimated that 3.4 acres of land within the 25-foot stream buffer (38 percent less than under Alternative 1) could be affected. Improvements design requirements would incorporate BMPs, as needed, to minimize impacts to water quality goals including specific requirements of the TMDL Implementation Plan for Spirit Creek. Because the proposed ground-based changes would be conducted in accordance with permits and regulations, impacts would be minimal and nonsignificant in nature.

Wetlands. Based on preliminary estimates (see Appendix D for estimation methods), up to 1.4 acres of wetland could be affected under Alternative 2, which is 21 percent less than the 1.7 acres potentially affected under Alternative 1. If, after wetland delineation and subsequent project adjustments are complete, wetland impacts are found to be unavoidable, a CWA Section 404 permit would be obtained. Fort Eisenhower would comply with all requirements of the permit, ensuring that there would be no net loss of wetlands or wetland function. Given the presence of streams and associated wetlands along the existing trails, there are no viable alternatives that would completely avoid wetland impacts.

Floodplain. Preliminary estimates indicate that up to 2.3 acres of 100-year floodplain and 0.1 additional acres of 500-year floodplain would be affected by tank trail widening and creek crossings under Alternative 2 (see Appendix D). Approximately 26 percent less floodplain area would be affected than under Alternative 2 than under Alternative 1. Similar to Alternative 1, the improved tank trails would not be "critical facilities," and impacts of occasional flooding on trails or trail users would typically consist of be temporary cessation of activities. Because the proposed tank trail improvements would not add structures or substantially change ground elevation, no substantive changes to the movements of flood waters would be expected. Because the implementation of Alternative 2 would not result in increased flood risk, impacts would be limited and nonsignificant in nature. Given the presence of streams and associated floodplains along the existing trails there are no viable alternatives that would completely avoid floodplain impacts.

Groundwater. Impacts to groundwater under Alternative 2 would be the same as described for Alternative 1. Impacts would be minimal and nonsignificant in nature.

In conclusion, impacts to water resources under Alternative 2 would be less than under Alternative 1. Because actions would incorporate BMPs and low-impacts design in accordance with permits, plans, and regulations, impacts would be minimal and not significant.

THIS PAGE INTENTIONALLY LEFT BLANK

4. CUMULATIVE EFFECTS

CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental consequences resulting from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

Actions that have a potential to interact with the Proposed Action at Fort Eisenhower are included in this cumulative effects analysis. This approach enables decision-makers to have the most current information available so that they can evaluate the range of environmental consequences that would result from implementation of the Proposed Action at Fort Eisenhower.

The assessment of cumulative effects begins with defining the scope of other project actions and the potential interrelationship with the proposed action (CEQ, 1997b). The scope of the analysis must consider other projects that coincide with the location and timetable of implementation of the Proposed Action at Fort Eisenhower. Cumulative effects can arise from single or multiple actions and through additive or interactive processes acting individually or in combination with each other. Actions that are not part of the proposal, but that could be considered as actions connected in time or space (40 CFR Section 1508.25) (CEQ, 1997b), could include projects that affect areas on or near Fort Eisenhower. This analysis addresses three questions to identify cumulative effects:

1. Does a relationship exist such that elements of the Proposed Action might interact with elements of past, present, or reasonably foreseeable actions?
2. If one or more of the elements of the Proposed Action and another action could be expected to interact, would the Proposed Action affect or be affected by impacts of the other action?
3. If such a relationship exists, does an assessment reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

In the following sections, the cumulative significance is based on the context, intensity, and timing of the Proposed Action relative to the past, present, and reasonably foreseeable actions. A summary of the cumulative effects is provided, followed by a discussion of the resource areas that have potentially significant cumulative effects based on the evaluation criteria described herein.

4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

This section provides decision-makers with the cumulative effects of the Proposed Action at Fort Eisenhower, as well as the incremental contribution of past, present, and reasonably foreseeable actions.

Table 4-1 summarizes past, present, and reasonably foreseeable actions within the region that could interact with implementation of the Proposed Action at Fort Eisenhower. Table 4-1 briefly describes each identified action, presents the proponent or jurisdiction of the action and the timeframe (e.g., past, present/ongoing, future), and indicates which resources could potentially interact with the Proposed Action at Fort Eisenhower. No other actions were identified for this EA during the data gathering and field survey phases at Fort Eisenhower.

Past activities are those actions that occurred within the geographic scope of cumulative effects that have shaped the current environmental conditions of the project area. For most environmental resources (e.g., soils, water resources, and biological resources), the impacts of past actions are now part of the existing environment and are incorporated in the description of the affected environment.

Table 4-1. Past, Present, and Reasonably Foreseeable Actions at Fort Eisenhower and Associated Region

Action	Proponent/ Location	Timeframe	Description	Resource Interaction
Military Actions				
Satellite Communications Ground Terminal Facility	Fort Eisenhower	Present, future	Project involves construction of a satellite communications ground terminal facility on a 15-acre site in the northeast portion of Fort Eisenhower. The facility would consist of three antennas with an associated equipment shelter, two permanent emergency generators, perimeter fencing, a sensor equipment tower, and utilities.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Cyber Growth	Fort Eisenhower	Future	Construct or reuse facilities for the main operations building, support facilities for active-duty military personnel, and associated temporary structures associated with the Cyber Warfare Support Battalion. The Proposed Action could include a maximum increase of personnel by up to 5,000 and would require the renovation and/or construction of up to 850,000 square feet of facilities on up to 1,700 acres of land.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Construct Gate 6 and Access Road	Fort Eisenhower	Past, present	Gate 6 is a recently completed access control point and provides the primary means of entry to and exit from the western part of the installation. This construction project, completed in 2021, included a combined command and control center/search office, visitor control center, gatehouse, inspection canopies, bidirectional privately owned vehicle holding area, and a search truck holding area. The project also included construction of an extension of 107th Avenue to the new gate. Gate 6 is located approximately 1,200 feet east of the satellite communications ground terminal facility site.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Cyber Protection Operations Facility	Fort Eisenhower	Past, present	Project involves construction of a 133,079-square-foot Consolidated Brigade Headquarters to support 24-hour remote cyber operations. The headquarters facility will house administrative areas divided into specific security zones and operations areas that include an accredited sensitive compartmented information facility, brigade operations center, network operations center, and data storage center.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Child Development Center	Fort Eisenhower	Past, present	Projects consists of construction of a large child development center at the corner of 15th Street and 110th Avenue; the project involves a daycare facility and playground area. The child	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic

Table 4-1. Past, Present, and Reasonably Foreseeable Actions at Fort Eisenhower and Associated Region

Action	Proponent/ Location	Timeframe	Description	Resource Interaction
			development center is designed to serve up to approximately 330 children between the ages of 6 weeks and 5 years.	and Transportation, Soils, and Water Resources
Western Sanitary Sewer Trunk	Fort Eisenhower	Past, present	The Army is planning to repair a Western Sanitary Sewer Trunk west of the Gordon West District cantonment area extending from Barnes Avenue south to the installation's wastewater treatment plant. This sanitary sewer line crosses undeveloped areas west of the cantonment area. The line increases the capacity of the wastewater collection system in the Gordon West District.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Air Force Comprehensive Airspace Initiative Moody Air Force Base Airspace	Southern Georgia	Past, present, future	The DAF is creating new Military Operations Areas with a 1,000-foot floor with modified lateral boundaries, creating a New Grand Bay Military Operations Area and lowering the floor of Moody 2 North Military Operations Area. The new airspace is located in the vicinity of Moody AFB in south-central Georgia.	Airspace
Fielding of The Armored Multi-Purpose Vehicle (AMPV)	Fort Eisenhower	Future	Field the AMPV to replace five mission roles currently provided by the M113, to include associated operational activities, soldier training, and AMPV maintenance activities. The AMPV is an armored, tracked vehicle, which will provide a platform with sufficient protection, mobility, and network-enabled function to maneuver with and support combat vehicles throughout the range of military operations.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Construction of Additional Family Housing and Unaccompanied Personnel Housing along Brainard Avenue	Fort Eisenhower	Present, future	Construct approximately 375 new homes (94 buildings) designed to house 1,140 people. Homes would be constructed on three parcels (76 acres) along Brainard Avenue to include: (1) a 42-acre parcel between 36th Street and 40th Street of 215 units, housing roughly 860 people (3 bedroom, 4 residents); (2) a 19.8-acre parcel between 38th Street and 41st Street of 100 unaccompanied housing units; and (3) a 14-acre parcel between 36th Street and 38th Street of approximately 60 units, housing 180 people (2 bedroom, 3 residents). The Cyber Growth PEA identifies these areas as having no constraints or minor environmental or other constraints on development. All new access roads would be constructed off Brainard Avenue, 36th Street, 38th Street, 39th Street, or 41st Street. Accompanying infrastructure such as parking, sidewalks, and stormwater conveyances will be constructed within the project footprint.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources

Table 4-1. Past, Present, and Reasonably Foreseeable Actions at Fort Eisenhower and Associated Region

Action	Proponent/ Location	Timeframe	Description	Resource Interaction
Gordon Highway Widening	Fort Eisenhower	Past, present	Improvements include 2.4 miles of widening and reconstruction on Gordon Highway from the future site of USAGFG's new Gate 6 to Robinson Avenue. This project will create a new signalized intersection to accommodate anticipated increased traffic volume and changes to USAGFG's access plan.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
Electronic Warfare Training	Fort Eisenhower	Past, present	The project would consolidate the U.S. Army Cyber School at USAGFG, utilize existing USAGFG facilities for classroom space, and create a 35-acre outdoor training area on the installation.	Noise, Air Quality, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources
INRMP Projected Management Actions	Fort Eisenhower	Past, present, future	Project includes, but is not limited to, marking and harvesting timber, implementing prescribed burns, red-cockaded woodpecker translocation, and installing red-cockaded woodpecker recruitment clusters.	Land Use, Biological Resources, Soils, and Water Resources
State and Local Actions				
Branch Springs Development	Grovetown – Columbia County	Present, future	Project includes proposed housing development with 500+ homes on 338 acres, located just north of Grovetown between Horizon South Parkway and Chamblin Road. Development would also include commercial and light and general industrial use.	Noise, Air Quality, Land Use, Traffic and Transportation, Soils, and Water Resources
Various Highway Improvement Projects	Richmond	Present, future	Project includes Bath Edie Road and Highway 88 intersection improvements, Whiskey Road Improvements from Wrightsboro Road to Guy Drive, and interchange and direct connector off of I-20 and into the new Gate 6 (main entrance to the installation).	Noise, Air Quality, Safety, Biological Resources, Cultural Resources, Land Use, Traffic and Transportation, Soils, and Water Resources

+ = plus; AFB = Air Force Base; AMPV = Armored Multi-Purpose Vehicle; DAF = Department of the Air Force; I- = Interstate; INRMP = Integrated Natural Resources Management Plan; PEA = Programmatic Environmental Assessment; U.S. = United States; USAGFG = United States Army Garrison, Fort Gordon

4.2 CUMULATIVE EFFECTS ANALYSIS

This section evaluates the cumulative effects from the past, present, and reasonably foreseeable future actions (see Table 4-1) relative to the implementation of the Proposed Action and alternatives. Cultural resources, environmental justice, hazardous materials and waste, land use, safety, traffic and transportation, would not negatively contribute to cumulative effects and are not discussed further. Cumulative effects are discussed for airspace resources, air quality, biological resources, noise, socioeconomics, soils, and water resources.

4.2.1 Airspace Resources

There are no known plans or proposals to change any airspace structure or uses in the affected area that would cumulatively impact this airspace environment. Any such plans/proposals that may arise would be examined by the FAA and all concerned for any cumulative effects that could occur with this Proposed Action.

4.2.2 Air Quality

Criteria Pollutants

As shown in Table 3-3, airspace changes under Alternatives 1 and 2 would result in nominal increases in criteria pollutant emissions below 3,000 feet AGL. These air emissions, in combination with emissions from cumulative projects, would not contribute to an exceedance of NAAQS. As a result, airspace changes under Alternatives 1 and 2 would produce insignificant cumulative impacts.

Activities from ground-based changes under Alternatives 1 and 2 would generate emissions that would remain below all insignificance thresholds. The transport of these intermittent emissions off-site would result in dispersed ambient pollutant concentrations at all locations. In combination with emissions from cumulative projects, these cumulative impacts would not contribute to an exceedance of NAAQS. Implementation of BMPs for fugitive dust control by the Army would ensure that PM_{10}/$PM_{2.5}$ emissions would remain below NAAQS levels. As a result, ground-based changes under Alternatives 1 and 2 would produce insignificant cumulative impacts.

GHGs

The potential effects of GHG emissions are by nature global and cumulative impacts because worldwide sources of GHGs contribute to climate change. Table 3-3 shows that airspace and ground-based activities proposed under Alternatives 1 and 2 would result in nominal increases of CO_2e emissions. Therefore, Alternatives 1 and 2 would result in an imperceptible contribution to future climate change.

Climate change could impact implementation of Alternatives 1 and 2 at Fort Eisenhower and the adaptation strategies needed to respond to future conditions. For the Central Georgia region, the main effect of climate change is increased temperature and precipitation, as documented in the *Fourth National Climate Assessment - Volume II - Impacts, Risks, and Adaptation in the United States* (USGCRP, 2018). Central Georgia has not experienced the same increase in temperature as other states in the nation. However, the U.S. Global Change Research Program predicts that annual average temperatures will increase from 3 to 6 degrees Fahrenheit by 2100, based on both low and high global GHG emission scenarios (USGCRP, 2018). In addition, average precipitation for each season will increase over the long term, with the highest increase of 10 to 20 percent occurring in winter (USGCRP 2017). Predictions of climate change impacts to Central Georgia include (1) an increase in extreme rainfall events, which will increase flood risks in low-lying regions; (2) an increase in urban heat and vector-borne disease; and (3) more frequent extreme heat episodes and

changing seasonal climates, which are expected to increase wildfires and exposure-linked health impacts and economic vulnerabilities in the agricultural, timber, and manufacturing sectors (USGCRP, 2018). Current operations at Fort Eisenhower have adapted to their changing climates. However, exacerbation of these conditions in the future could impede proposed activities during extreme events.

4.2.3 Biological Resources

The additional activities and construction projects described in Table 4-1 are anticipated to have similar types of impacts to vegetation, wildlife, and special status species as those impacts described for the Proposed Action. Cumulative impacts to biological resources resulting from implementation of the Proposed Action in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower would not be significant.

4.2.4 Noise

Construction and operation of a satellite communications ground terminal facility at Fort Eisenhower are occurring approximately 1 mile north of one of the new firing points that are part of the Proposed Action. Because the satellite communications facility will be unmanned, munitions noise would not result in disturbances at the facility.

If construction and renovation activities associated with Cyber Growth were to occur in the same times and places as construction activities or ground vehicle maneuvers proposed in this Airspace and Ground-Based Changes EA, combined noise levels would be temporary and localized and would not result in significant noise impacts. Military installations are not considered to be noise sensitive. Therefore, the increases in munitions usage and aircraft operations noise expected as a result of the Proposed Action (see Section 3.8.2) would not be expected to cause noise-related concerns for the additional personnel analyzed in the Cyber Growth Programmatic Environmental Assessment. Cumulative noise impacts would not be significant.

Equipment use as part of the new cyber school, EW Training, and timber harvesting, included as part of INRMP projected management actions, would generate temporary, localized noise increases. These increases would not result in significant noise impacts if they were to occur at the same times and places as activities described in this Airspace and Ground-Based Changes EA.

The Programmatic Environmental Assessment for Fielding of the AMPV is expected to generate noise levels similar to existing systems. Replacement of M113 vehicles with AMPVs at Fort Eisenhower would not be expected to result in significant cumulative impacts with the activities described in this Airspace and Ground-Based Changes EA.

4.2.5 Socioeconomics

Analysis for projects such as the EW Training, Cyber Growth, and the satellite communications ground terminal facility were previously analyzed for socioeconomic impacts and determined to have no impacts, beneficial impacts, or minor adverse impacts to socioeconomics in the region. Implementation of both alternatives for this action would result in beneficial socioeconomic impacts; therefore, no adverse cumulative impacts are anticipated to socioeconomics resulting from implementation of the Proposed Action in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower.

4.2.6 Soils

Construction-related activities associated with the Proposed Action would occur near other construction projects such as the EW Training, Cyber Growth, and the satellite communications ground terminal facility. These projects were previously analyzed for soil impacts and determined

to have no or negligible impacts to these resources. Impacts related to these and other past, present, and reasonably foreseeable actions would continue to have the potential to impact soils through increased potential for erosion. These impacts would be minimized through the use of soil stabilization and BMPs. Cumulative impacts to soils resulting from implementation of the Proposed Action in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower would not be significant, because BMPs would be implemented and erosion controls would be established.

4.2.7 Water Resources

Construction-related activities associated with the Proposed Action would occur near other construction projects such as the EW Training, Cyber Growth, and the satellite communications ground terminal facility. These projects were previously analyzed for impacts to water resources and determined to have no or negligible impacts to this resources. Impacts related to these and other past, present, and reasonably foreseeable actions would continue to have the potential to impact water resources through increased potential for erosion and sedimentation. Cumulative impacts to water resources resulting from implementation of the Proposed Action in conjunction with past, present, and reasonably foreseeable future actions at Fort Eisenhower would not be significant, because BMPs would be implemented and erosion controls would be established.

4.2.8 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the impacts that use of these resources would have on future generations. Irreversible impacts primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals). Irretrievable resource commitments also involve the loss in value of an affected resource that cannot be restored as a result of the action.

No irreversible or irretrievable environmental changes are anticipated to result from the creation and utilization of the proposed RA at Fort Eisenhower. Most impacts would be short term and temporary. Those limited resources that could involve a possible irreversible or irretrievable commitment would be used in a beneficial manner.

Activities would continue to involve the consumption of nonrenewable resources (e.g., gasoline used in vehicles and equipment). None of these activities would significantly decrease the availability of minerals or petroleum resources. Although the amount of these materials used are anticipated to increase slightly, this additional use is not expected to significantly affect the availability of the resources in the Augusta-Richmond region or the nation.

THIS PAGE INTENTIONALLY LEFT BLANK

5. REFERENCES

Air Protection Branch. (2023). *Air Protection Branch - 2022 Air Quality Report*. Retrieved from Georgia Department of Natural Esources Air Protection Branch: https://storymaps.arcgis.com/stories/82bd32c9a67e4a86a3af396801b86564. December 21.

Central Savannah River Area Regional Commission. (2019). *Fort Gordon / Central Savannah River Area Compatible Use Study.*

CEQ. (1997a). *Environmental Justice Guidance Under the National Environmental Policy Act.* Washington, DC: Council on Environmental Quality.

CEQ. (1997b). *Considering Cumulative Effects Under the National Environmental Policy Act.* Washington, DC: Council on Environmental Quality.

Countess Environmental. (2006). *WRAP Fugitive Dust Handbook.* Westlake Village, CA: Prepared for the Western Governors' Association.

FAA. (2023a). *Aeronautical Information Manual: Official Guide to Basic Flight Information and ATC Procedures (Change 1).* Federal Aviation Administration, U.S. Department of Transportation. Retrieved from https://www.faa.gov/air_traffic/publications/media/AIM_Bsc_w_Chg_1_dtd_10-5-23-compressed_v2.pdf. October 5.

FAA. (2023b). *Wildlife Strike Database*. Retrieved from Federal Aviation Administration: wildlife.faa.gov. January 11.

Federal Highway Administration. (2006). *Roadway Construction Noise Model User's Guide.*

Federal Reserve. (2023). *Unemployment Rate in Augusta-Richmond County, GA-SC (MSA).* Retrieved December 4, 2023, from Federal Reserve Bank of St. Louis: https://fred.stlouisfed.org/series/LAUMT131226000000003A.

Fort Gordon. (2018). *Hazardous Waste Management Plan Fort Gordon.* Fort Gordon Environmental Division.

Fort Gordon. (2019a). *Final Integrated Natural Resources Management Plan 2019-2023, United States Army Garrison, Fort Gordon Fort Gordon, Georgia.*

Fort Gordon. (2019b). *Facility Response Plan United States Army Cyber Center, Fort Gordon, Georgia.* Prepared by U.S. Army Environmental Command ESD – Compliance Branch for U.S. Army Garrison and Fort Gordon. September.

Fort Gordon. (2020a). Integrated Cultural Resource Management Plan, Fort Gordon, Georgia. October.

Fort Gordon. (2020b). *US Army Garrison-Ft Gordon FY22-28 Range Complex Master Plan (RCMP).*

Fort Gordon. (2020c). *Development of Electronic Warfare at Fort Gordon, GA.*

Fort Gordon. (2020d). *Fort Gordon Storm Water Quality Construction Site Permitting Guidance and Requirements.*

Fort Gordon. (2022). *Fort Gordon Spill Prevention, Control, and Countermeasure Plan.* Prepared by Cranston LLC for Directorate of Public Works, Environmental Division, U.S. Army Garrison – Fort Gordon. December.

Fort Gordon. (2023). *Memorandum for Record. Updated Boundary and Altitude Changes for the R-3004 Airspace Proposal.* Master Seargent Andrew M. Hennessy. 7 June 2023.

GA DNR. (2015). *Georgia's State Wildlife Action Plan.*

GA DNR. (2016a). *Manual for Erosion and Sediment Control in Georgia.*

GA DNR. (2016b). *Total Maximum Daily Load Evaluation for Seven Stream Segments in the Savannah River Basin for sediment - 5 Fish Community Impacted 2 Fish & Macroinvertebrate Community Impacted.*

GA DNR Environmental Protection Division. (2016). *application for a 25-foot vegetative buffer encroachment on designated warm waters of the state.*

GA DNR Wildlife Resources Division. (2024). *Subject: Known occurrences of natural communities, plants, and animals of highest priority conservation status on or near Fort Eisenhower R-3004 RA Complex Expansion in Richmond County, GA.* Letter from M.A. Hunt, Hunt, Wildlife Biologist, to R. Drumm, Directorate of Public Works, U.S. Army Garrison, Fort Eisenhower. January 5.

IPCC. (2021). *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.* Geneva, Switzerland: Cambridge University Press.

Product Manager (PdM) AMPV. (2020). *Armored Multi-Purpose Vehicle (AMPV) Life Cycle Environmental Assessment (LCEA) and Finding of No Significant Impact.*

Realtor.com. (2023). *Local Market Trends: Market Trends Explorer - Augusta-Richmond County, GA-SC*. Retrieved December 4, 2023, from https://www.realtor.com/research/reports/market-trends/.

Solutio Environmental. (2022). Air Conformity Applicability Model (ACAM). Current ACAM Version: 5.0.18a. Solutio Environmental, Inc.

Strategic Environmental Research and Development Program. (no date). *Overview: Assessing the Impact of Maneuver Training on Nonpoint Source Pollution and Water Quality (Project #CP-1339).*

U.S. Army Public Health Command. (2015). *Cyber Center of Excellence, Fort Gordon, 2015 Installation Compatible Use Zone Plan.*

USBEA. (2023). *BEARFACTS: Economic Profile for Augusta-Richmond County, GA-SC (MSA)*. Retrieved December 4, 2023, from United States Bureau of Economic Analysis: https://apps.bea.gov/regional/bearfacts/.

USCB. (2023a). *How the Census Bureau Measures Poverty*. Retrieved December 11, 2023, from U.S. Census Bureau: https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html. Last revised June 15, 2023.

USCB. (2023b). *ACS Demographic and Housing Estimates, 2017-2021 American Community Survey 5-Year Estimates.* Query for Census Tracts.

USDA. (1981). *Soil Survey of Richmond County Georgia.* U.S. Department of Agriculture, Natural Resources Conservation Service. Retrieved from https://archive.org/details/richmondGA1981/page/n137/mode/2up.

USEPA. (2014). *Guidelines for Preparing Economic Analysis.* USEPA.

USEPA. (2022a). *How's My Waterway: Waterbody Report for Spirit Creek (Assessment Unit ID: GAR030601060307).* Retrieved from U.S. Environmental Protection Agency: https://mywaterway.epa.gov/waterbody-report/21GAEPD/GAR030601060307/2022.

USEPA. (2022b). *How's My Waterway: Waterbody Report for Sandy Run Creek (Assessment Unit ID: GAR030601080210).* Retrieved from U.S. Environmental Protection Agency: https://mywaterway.epa.gov/waterbody-report/21GAEPD/GAR030601080210/2022.

USEPA. (2023). *NAAQS Table*. Retrieved from U.S. Environmental Protection Agency: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Last updated March 15, 2023

USFWS. (2023). *List of threatened and endangered species that may occur in proposed Fort Eisenhower project location or may be affected by proposed project.* U.S. Fish and Wildlife Service Georgia Ecological Services Field Office. December 7.

USGCRP. (2018). *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Vol. II.* Washington, D.C.: U.S. Global Change Research Program. Retrieved from https://nca2018.globalchange.gov/.

THIS PAGE INTENTIONALLY LEFT BLANK

6. LIST OF PREPARERS

Government Agency Development Team	
Name/Title	**Role**
Fort Eisenhower Environmental Division, DPW Rob Drumm, Chief, Environmental Division Renee Lewis, NEPA Coordinator	Environmental Planning/Lead EA Development
U.S. Army Corps of Engineers Rick Darnell	Contract and Document Oversight
Defense Centers for Public Health - Aberdeen Kristy Broska	Operational Noise

Contractor Development Team			
Name/Title	**Project Role**	**Subject Area**	**Qualifications**
Jay Austin, Leidos Noise Analyst M.S. Environmental Science B.A. Biology	Section Author	Land Use, Noise, Water Resources	24 years environmental science
Chris Crabtree, Leidos Air Quality Meteorologist B.A. Environmental Studies	Section Author	Air Quality	29 years environmental science
Tom Daues, PMP, Leidos Biologist M.S. Natural Resources B.S. Biology	Project Manager, Editor	Soils, Traffic, Cumulative Impacts	30 years environmental science
Jennifer Wallin, Leidos Environmental Scientist M.S. Environmental Toxicology B.S. Biology	Document Production	Document Production	23 years environmental science; document production
Heather Stepp, Leidos Environmental Scientist B.S. Environmental Engineering Technology	Document Production	Document Production	26 years environmental science; document production
Heather Gordon, Leidos GIS Specialist M.S. Geography B.A. Environmental Studies	Figures	Geographic Information System (GIS), Environmental Justice	22 years environmental science; GIS applications
Nathan Gross, CHMM, Leidos Environmental Scientist B.S. Wildlife and Fisheries Management	Section Author	Hazardous Materials and Waste	19 years environmental science
Brian Tutterow, Leidos Environmental Scientist B.S. Biology	Section Author	Cultural, Biological, Cumulative Resources	25 years environmental science
Bob Thompson, Leidos Airspace Specialist	Section Author	Airspace	30 years airspace

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A
Correspondence and Outreach

THIS PAGE INTENTIONALLY LEFT BLANK

A.1 Cooperating Agency Letters

The United States (U.S.) Department of the Army (Army) cooperating agency request letter to the Federal Aviation Administration and the response letter from the Federal Aviation Administration are listed below.

A.1.1 U.S. Army Cooperating Agency Request Letter to the Federal Aviation Administration

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY AERONAUTICAL SERVICES AGENCY
9325 GUNSTON ROAD, SUITE N319
FORT BELVOIR, VA 22060-5582

December 11, 2020

Office of the Commander

Mr. George Gonzalez
Acting Manager of AJV-P2, Rules and Regulations
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Mr. Gonzalez:

In accordance with the National Environmental Policy Act (NEPA) Regulations, 40 CFR § 1501.6, Cooperating Agencies, and FAA Order 7400.2, Procedures for Handling Airspace Matters, the United States Army, requests the participation of the Federal Aviation Administration (FAA) as a Cooperating Agency during preparation of an environmental study process for the modification of Restricted Area R3004 at Fort Gordon, Georgia.

As a cooperating agency, the Army requests FAA support in various portions of the environmental study development as may be required. Specifically, the Army asks for your support by participating in the scoping process; assuming responsibility, upon request by the Army, for developing information and by preparing analyses on issues for which your agency has special expertise; making staff support available to enhance interdisciplinary reviews; and ensuring that the document meets NEPA standards.

Please respond in writing to this request. Should you or your staff have any questions regarding this request, please contact Ms. Sydney Tutein, at (703) 806-4863 or email at sydney.e.tutein.civ@mail.mil.

Sincerely,

MORRIS.DANIEL.YOUNG.1150771044
Digitally signed by MORRIS.DANIEL.YOUNG.1150771044
Date: 2020.12.14 14:11:07 -05'00'

Daniel Y. Morris
Colonel, U.S. Army
Commanding

A.1.2 Federal Aviation Administration Cooperating Agency Response Letter to the U.S. Army

U.S. Department
of Transportation
Federal Aviation
Administration

6/25/21

Daniel Y. Morris, Colonel, U.S. Army
Department of the Army,
Headquarters, U.S. Army, Aeronautical Services Agency
9325 Gunston Road, Suite N319
Fort Belvoir, Virginia 22060-5582

Dear Colonel Morris,

Thank you for your letter of December 11, 2020 requesting that the Federal Aviation Administration (FAA) participate as a cooperating agency in the Army's Environmental Assessment (EA) for its project utilizing Special Use Airspace (SUA) Restricted Area (RA) 3004, at Fort Gordon, Georgia for training purposes.

The Army's proposed action includes changes to the parameters of the existing R-3004 Restricted Area complex to support military training requirements and improve scheduling, activation, and utilization efficiency of the airspace. Currently, the airspace is not large enough to allow for realistic tactics, techniques, and procedures using advanced laser, targeting, and indirect fire systems. The Army's proposal includes changes to the vertical delineation between R-3004B and R-3004C from 7,000 feet MSL to 10,000 feet MSL, and the horizontal boundary of R3004 A, B, and C to encompass the majority of the training complex.

The FAA appreciates the Army's recognition of our role as a cooperating agency in the evaluation of SUA and analysis of potential impacts to airspace associated with your project as required by the National Environmental Policy Act (NEPA) and its implementing regulations at 40 CFR Part 1500.

Since this Army project involves the proposed establishment, expansion, and use of SUA, the FAA accepts the Army's request to act as a cooperating agency. FAA performs its role as a cooperating agency in accordance with the guidelines set forth in the Memorandum of Understanding (MOU) between the FAA and the Department of Defense (DoD) "Concerning Environmental Review of Special Use Airspace Actions," and in accordance with the NEPA regulations at 40 C.F.R. Section 1501.6 regarding cooperating agencies, and FAA Order JO 7400.2, Chapter 32, Appendix 8 – *FAA Special Use Airspace Environmental Processing Procedures* which outlines the process by which FAA works with DoD as a cooperating agency on projects involving SUA.

FAA's participation in the development of the Army's EA for this proposed action resides under the jurisdiction of FAA's Eastern Service Center, Operations Support Group (OSG) in

Atlanta, Georgia. Charles Gibson is the OSG's Environmental Team Manager and Lisa Favors is the designated Environmental Protection Specialist who will coordinate with the Army on its NEPA document development and reviews. The Eastern Service Center's environmental specialists are the focal points for matters related to the development and review of the Army's NEPA documentation for this project, including related airspace issues that will be tracked and coordinated by FAA Headquarters Airspace Regulations and Policy Group (AJV-P21).

While Appendix 8 of FAA Order JO 7400.2 indicates that the airspace review and environmental impacts review should be conducted in tandem as much as possible, they are still separate processes. Approval of either the aeronautical portion or the environmental impact analysis portion of the NEPA document does not automatically indicate approval of the entire proposal. Enclosed are Appendices 7 and 8 from FAA Order JO 7400.2 for additional details on coordination of NEPA documentation for projects involving the use of SUA between FAA and the DoD.

A copy of the Army's request for FAA's cooperating agency status and this reply are being forwarded to the Environmental Team Manager, Mr. Charles Gibson of the Eastern Service Center's Operations Support Group. Mr. Gibson can be contacted at Charles.J.Gibson@faa.gov for further review of the NEPA document(s). For questions regarding NEPA document processing and coordination with the Service Center, please contact Paula Miller, Environmental Policy Specialist, Airspace Rules & Regulations Team, AJV-P21, paula.miller@faa.gov.

Sincerely,

Natasha A. Durkins

Digitally signed by Natasha A. Durkins
Date: 2021.06.25 14:51:37 -04'00'

Natasha A Durkins, Director, AJV-P
Mission Support Services,
Air Traffic Organization
Federal Aviation Administration

Cc:

Tutein, Sydney sydney.e.tutein.civ@mail.mil
Lewis, Ruth Renee CIV USARMY IMCOM (USA) ruth.r.lewis8.civ@mail.mil
Gallant, Paul (FAA) paul.gallant@faa.gov
Gauch, Mark E (FAA) mark.e.gauch@faa.gov
Gibson, Charles J (FAA) Charles.J.Gibson@faa.gov
Favors, Lisa (FAA) Lisa.Favors@faa.gov
Johnson, Veronda (FAA) Veronda.Johnson@faa.gov
Miller, Paula (FAA) paula.miller@faa.gov
Gonzalez, George (FAA) george.gonzalez@faa.gov
Cathcart, Matthew (FAA) matthew.cathcart@faa.gov
Almasy, Ryan (FAA) ryan.almasy@faa.gov

Enclosures
FAA Order 7400.2M, Chapter 32, Appendices 7 and 8

Navy	
Director Chief of Naval Operations (N45) 2000 Navy Pentagon (Rm 2E259) Washington, DC 20350-2000	cc: Chief of Naval Operations will direct to appropriate code
Marine Corps	
MCICOM (Attn: NEPA) Headquarters Marine Corps 3000 Marine Corps Pentagon Room 2D153A Washington, DC 20350-3000	
Army	
Asst. Chief of Staff for Installation Management Installation Services, Environmental (DAIM-ISE) 600 Army Pentagon (5A120-1) Washington, DC 20310-0600	cc: Deputy Assistant Secretary of Army, Environmental Safety and Environmental Health (DASA(ESOH)) Headquarters, U.S. Army Aeronautical Services Agency (Attn: Airspace Branch) 9325 Gunston Road, Suite N319, Fort Belvoir, Virginia 22060
Major Range and Test Facility Base (MRTFB)	
Director, Test Resource Management Center (TRMC) 4800 Mark Center Dr., Suite 07J22 Alexandria, VA 22350	

*The MRTFB is managed by the TRMC and includes Army, Navy, and Air Force test ranges and associated airspace as designated by annual issuance. The TRMC will coordinate with the lead or cooperating agency as necessary

IV. Documentation.

A. General. To eliminate unnecessary duplication, reduce paperwork, and reduce delay, the FAA and the DoD will cooperatively develop necessary environmental documentation. The agencies will share and may use, as allowed by their respective regulations/directives, background data and impact analysis prepared by either agency in support of a DoD or FAA SUA Action. Documentation will be developed and processed in accordance with applicable FAA Orders, DoD directives and regulations, and established cooperating agency relationships (40 C.F.R. §1506.1).

The lead agency will provide, within scope (40 C.F.R. §1508.25), project-specific related data supporting the proposed action, alternatives, and impact analyses to the cooperating agency to facilitate the development of a legally defensible NEPA document and support appropriate determinations.

The lead and/or cooperating agency will independently evaluate any information or analysis before using it to support a NEPA review. The intent of the lead and cooperating agency relationship is to ensure mutually adequate documentation that complies with both the lead and cooperating agencies' NEPA-implementing procedures. Deficiencies in information, analysis, or other issues covered within the scope of the documentation will be addressed and corrected during cooperating agency concurrent review(s).

B. Categorical Exclusions.

The DoD and the FAA will address the availability of CATEXs early in the development of DoD and FAA SUA Actions. CATEXs are not interchangeable between the agencies. If the Proponent decides to rely on a

CATEX for its action and the cooperating agency cannot rely on a CATEX for its action, the Proponent will provide information and analysis the cooperating agency identifies as necessary for the cooperating agency's NEPA review. To the extent consistent with the cooperating agency's NEPA-implementing procedures, the cooperating agency may request that the Proponent prepare an EA or fund the preparation of an EA or EIS.

V. General Guidance.

A. Scheduling. To help avoid unnecessary delay in the Environmental Review Process, the DoD and the FAA will establish a mutually agreed-upon schedule that reflects appropriate time limits to ensure that required actions are taken on a timely basis, consistent with the cooperating agency designation (ref. III.C.). The schedule will accommodate both agencies' requirements (e.g., DoD mission requirements, FAA requirements for processing SUA proposals, both agencies' NEPA-implementing procedures). Each agency will promptly notify the other of any difficulty with meeting scheduled deadlines or any need to revise the schedule.

B. Administrative Records. The FAA and the DoD, as either lead or cooperating agency, agree to develop and maintain an administrative record of each SUA project in accordance with their agency's respective administrative record and document retention rules and requirements. In the event either agency's action is timely challenged, the other agency will make its administrative record available to the agency whose action has been challenged.

C. Resolution of disagreements. If the FAA and the DoD fail to reach agreement at the normal working level on any issue relating to environmental processing of proposed SUA Actions, the matter will be referred, in ascending order, as outlined in the table below. At any time, the FAA's Office of the Chief Counsel and the Office of the General Counsel of the Service Department involved shall be consulted for assistance with legal issues.

Equivalent Levels of Responsibility for Resolution of Disagreements	
FAA Administrator	DoD Policy Board on Federal Aviation (PBFA) Chairman
FAA Chief Operating Officer, Air Traffic Organization	DoD PBFA Executive Director Principal Member
FAA VP, Mission Support Services	DoD PBFA Deputy Executive Director
FAA Director, Airspace Services	DoD PBFA Airspace and Procedures Subgroup Chair

D. Funding. Agency budget constraints may delay processing and implementation of DoD and FAA SUA Actions. As part of the lead agency-cooperating agency relationship, the DoD and the FAA will determine responsibilities, consistent with this MOU, for funding the preparation of NEPA documentation (40 CFR §1501.6(b)(5)) and, if appropriate, decision implementation measures (40 CFR §1505.3).

E. Amendments. If either party determines that it is necessary to amend this MOU, it will notify the other party in writing of the specific change(s) desired, with proposed language and the reason(s) for the amendment. The proposed amendment will become effective upon written agreement of both parties.

VI. Effective Date.

This MOU is effective from the last signature date below until rescinded or amended.

SIGNED:

DATE: 30 Sep 2019

SCHATZ.ROWAYNE.A.JR.1177943386 Digitally signed by SCHATZ.ROWAYNE.A.JR.1177943386 Date: 2019.09.30 18:45:49 -04'00'

Executive Director, DoD Policy Board
On Federal Aviation

DATE: OCT 17 2019

ANGELA RENEE MCCULLOUGH Digitally signed by ANGELA RENEE MCCULLOUGH Date: 2019.10.17 06:33:25 -04'00'

VP, Mission Support Services
Federal Aviation Administration

Appendix 8. FAA Special Use Airspace Environmental Processing Procedures

1. GENERAL

This appendix provides guidance for FAA participation in the environmental review of proposed special use airspace (SUA) actions. The requirements in this appendix are in addition to the airspace proposal processing procedures contained in this order and Appendix 4. The aeronautical and environmental processes for SUA proposals involve some overlap; actions taken, or modifications made to a proposal, in one process may affect the actions required and/or the outcome of the other process.

2. BACKGROUND

a. The SUA program is designed to accommodate national security requirements and military training activities wherein activities must be confined to designated airspace because of their nature, or in airspace where limitations are imposed upon aircraft operations.

b. SUA proposals are subject to both NEPA and aeronautical processing requirements. Since the FAA is the approval authority for SUA actions, the agency cannot make a final decision on any particular SUA proposal prior to the completion of the NEPA and aeronautical processing phases.

3. POLICIES

The following policies apply to the processing of SUA proposals:

a. In addition to responsibilities of a cooperating agency as defined in the NEPA implementing regulations at 40 CFR Parts 1500−1508, FAA must:

1. Provide to DoD information and technical expertise within the special expertise and jurisdiction of the FAA as it relates to the proposed action.

2. Resolve or respond to environmental issues raised during the NEPA process relating to aeronautical issues.

3. If an EA or EIS is required, identify and evaluate the environmental impacts relating to the proposal.

4. Furnish to DoD the names of organizations, agencies, or other parties the FAA believes may be interested in the DoD proposal.

5. Notify and coordinate FAA proposed airspace actions with DoD components that may be affected.

b. FAA Participation in NEPA Meetings. The FAA may be required to participate in scoping, interagency, and public NEPA meetings conducted by the Proponent. The Air Traffic Service Center Director (or the Director's Designee) with responsibility for Cooperating Agency participation will determine FAA representation in the meetings. When FAA personnel participate in such meetings:

1. The audience must be informed that FAA participation is to provide aeronautical technical expertise and is not to be construed as FAA endorsement or support of any SUA proposal, and that no decisions concerning the proposal will be made at the meeting.

2. If requested, the FAA will provide an overview of the procedures followed by the FAA for processing SUA proposals.

3. The FAA will advise the audience of the Service Center handling the processing of the aeronautical proposal. Written comments on the aeronautical aspects of the proposal should be submitted during the public comment period associated with the aeronautical circularization.

c. FAA NEPA Compliance Options. In accordance with CEQ regulations at 40 CFR §1501.6, the FAA must participate in the DoD Proponent's NEPA process as a Cooperating Agency in cases where the FAA has jurisdiction by law, and may participate as a Cooperating Agency where the FAA has special expertise. The FAA may adopt an EA or EIS prepared by the DoD Proponent if the FAA independently evaluates the information in the document and takes full responsibility for the scope and content that addresses FAA actions. Where the Proponent's NEPA documentation is deficient and does not meet the requirements for adoption in FAA Order 1050.1, corrections and/or additional NEPA documentation must be made by the Proponent before the FAA can make a final decision to adopt the document. The FAA may ask the DoD Proponent to correct any deficiencies and re−submit the document (see FAA Order 1050.1, Environmental Impacts: Policies and Procedures, paragraphs 2−2.1 and 2−2.2). The FAA must issue its own Adoption EA/FONSI or Adoption EIS/ROD in accordance with FAA Order 1050.1, Paragraph 8−2, Adoption of Other Agencies' National Environmental Policy Act Documents.

d. Time Limits for Final Environmental Impact Statements (EIS). If three years have expired following the approval of a final EIS, and major steps towards implementation of the Proponent's proposed action have not commenced, the Proponent agency must prepare a written reevaluation of the adequacy, accuracy, and validity of the final EIS. Written reevaluations must comply with the requirements set forth in FAA Order 1050.1, paragraph 9−2. The Proponent may also elect to prepare new documentation if circumstances dictate.

4. LEAD AND COOPERATING AGENCIES

The FAA/DoD MOU provides for the application of "lead agency" and "cooperating agency" responsibilities in the SUA environmental process. When the DoD is the Proponent, the DoD will serve as lead agency for the evaluation of SUA environmental impacts and the preparation and processing of environmental documents.

a. The DoD, as lead agency, will determine whether an SUA proposal:

1. Is a major action significantly affecting the quality of the human environment requiring an environmental impact statement (EIS);

2. Requires an environmental assessment (EA); or,

3. Is categorically excluded in accordance with FAA Order 1050.1, paragraphs 5−6.1 through 5−6.5.

These determinations must be coordinated with the FAA at the earliest possible time to prevent delay in preparation of any required NEPA documentation.

b. The appropriate FAA Service Center, as identified in response to the DoD Proponent's request that the FAA participate as a Cooperating Agency, will act as the point of contact during the evaluation of the proposal's environmental study. The FAA should review documents prepared by the Proponent in its environmental process for scope and content of the documentation and assumes responsibility as described in subparagraph 3c, above. (See FAA Order 1050.1, paragraph 8−2.)

A.2 Early Notice Newspaper Display Ad

Public Notices

GROVETOWN, GA 30813
An Answer in writing within 60 days.
This 20TH day of NOVEMBER, 2023.

CINDY MASON
Clerk of Superior Court
Columbia County, Georgia

IN THE PROBATE COURT
OF RICHMOND COUNTY
STATE OF GEORGIA

IN RE: ESTATE OF
JOHN KENNETH
SHELTON, DECEASED
ESTATE NO.
2023-RCGP-380

LETTERS
TESTAMENTARY
(Relieved of Filing Returns)

At a regular term of probate court, the last will and testament dated July 8, 1983 of the above-named decedent, who was domiciled in this county at the time of his death or was domiciled in another state but owned property in this county at the time of his death, was legally proven in solemn form to be the Decedent's Will and was admitted to record by order, and it was further ordered that GLORIA ENIEDA SHELTON, named as Executrix in said Will, be allowed to qualify, and that upon so doing, letters testamentary be issued to such Executrix.

THEREFORE, the Executrix, having taken the oath of office and complied with all necessary prerequisites of the law, is legally authorized to discharge all the duties and exercise all powers of Executrix under the Will of said deceased,

Public Notices

according to the Decedent's Will and the law.
Given under my hand and official seal, the 24th day of October 2023.

Harry B. James, III
Judge of the Probate Court
Richmond County, Georgia

NOTICE OF FILING OF
PETITION TO CHANGE
NAME OF MINOR

STATE OF GEORGIA
COLUMBIA COUNTY
SUPERIOR COURT

IN RE: MICHAEL SEAN
NEAL JR
PETITION OF: JESSICA
LYNN DAVIS

CIVIL ACTION NO.:
2023EDR1017

Notice is hereby given that JESSICA LYNN DAVIS, filed their Petition in the Superior Court of Columbia County, Georgia, on the 15th day of November, 2023, praying for a change in name of the following minor child:
MICHAEL SEAN NEAL JR
to
MICHAEL LEE GOLDEN
Notice is hereby given pursuant to law (O.C.G.A 19-12-1) to any interested of affected party to appear in said Court and/or file objections to such name change. Objections must be filed with said Court within 30 days of the filing of said petition.
This 15TH day of
NOVEMBER, 2023
/s/ CINDY MASON
Clerk of Superior Court,
Columbia County

NOTICE OF INTENT TO
INCORPORATE Notice is hereby given that Articles of Incorporation which will incorporate MOAB Enterprises, Inc., a Domestic Profit Corporation, will be delivered to the Secretary of State for filing in accordance with the Georgia Business

Public Notices

Corporation Code. The initial registered office of the corporation will be located at 6645 Ponderosa Lane, Harlem, Columbia County, Georgia 30814 and its initial registered agent at such address is April Sterling Bell.

SUPERIOR COURT OF
RICHMOND COUNTY,
GEORGIA
CIVIL ACTION FILE NO.
2023RCD01892

In re the Name Change of:
Oral Kenneth Davis

NOTICE OF PETITION TO
CHANGE NAME OF ADULT

Notice is hereby given that Oral Kenneth Davis, the undersigned filed his Petition to Change Name of Adult to the Superior Court of Richmond County on the 27th Day of October 2023, praying for change in the name of petitioner from Kenneth Oral Davis to Oral Kenneth Davis. Notice is hereby given pursuant to law to any interested or affected party to appear in said Court and to file objections to such name change. Objections must be filed with said Court within 30 days of the filing of said petition.

Dated:27th day of October 2023

/s/ Oral K. Davis
PETITIONER
Oral K. Davis
3003 Eagle Dr.
Augusta, GA 30906
706-627-5789

DEBTOR'S AND
CREDITOR'S

STATE OF GEORGIA
RICHMOND COUNTY

All persons having claims against PATRICIA MAE BRUCE and her estate, are required to present the same

Public Notices

to the undersigned, properly itemized and proven, within the time required by Law. And all persons indebted to said deceased, or her estate, are requested to make immediate payment to the undersigned.

This 7th day of November 2023.
MICHAEL E. WHEELER
Administrator

Attorney: MUKTI PATEL
Address: 3540-WHEELER ROAD, SUITE 616
AUGUSTA, GA 30906
Estate of: PATRICIA MAE BRUCE

NOTICE OF PROPOSED
TELECOMMUNICATIONS
FACILITY to be located at
5019 High Meadows Drive,
Columbia County, Georgia
The facility would consist of a 195-foot overall height self-supporting monopole telecommunications structure. A balloon test will be conducted for eight consecutive hours on Sunday, December 17, 2023, between the hours of 7:00 am and 4:00 pm. And again for eight consecutive hours on Monday, December 18, 2023, at the same location between the hours of 7:00 am and 4:00 pm. During the test, a 4-foot in diameter red balloon will be flown.

Bids & Proposals

Reeves Construction Company is soliciting Local Small Business subcontractors and vendors for Local Small Businesses that are registered and approved through the Augusta-Richmond County Compliance Department Local Small Business Opportunity Program (LSBOP). Reeves Construction is seeking these businesses for the following project:
Bid Item # 23-238: Wrightsboro Road Improvements Phase I for Augusta Engineering Department
Project Bid Date: December 20, 2023 3:00 p.m.
Scopes of work include: Concrete sidewalks, curb and gutter, asphalt paving, signs, traffic signals, erosion control, and pavement markings
Interested Firms please contact the Reeves Construction Estimating Team by no later than Wednesday December 13, 2023. You may contact Greg Hamilton or Brandon Cooper at (706) 731-5230 Monday-Friday from 8:00 a.m. until 5:00 p.m. or via email: eastestimating@reevescc.com.

Public Notices

Early Notice
of Potential Impacts to Floodplains and
Wetlands from Ground-Based Changes at
Fort Eisenhower

This notice is to comply with Section 2(b) of EO 11990 and Section 2(a)(4) of EO 11988, which requires early notice for actions that could potentially affect wetlands and floodplains. Consistent with these EOs, state and federal regulatory agencies with special expertise in wetlands and floodplains are being contacted to request comments. This notice initiates early public review of the proposed action and alternatives which have the potential to affect wetlands and/or floodplains on Fort Eisenhower. The proposed projects will be analyzed in the forthcoming Environmental Assessment (EA) and agencies and the public will have an opportunity to comment on the EA when it is released. Fort Eisenhower is proposing airspace and ground-based changes to support training. The ground-based changes include the construction of 27 concrete turn pads, two new firing points, and the widening of tank trails on Fort Eisenhower to 20 meters wide throughout the installation. If you have any questions regarding this project, within 30 days of this notice, please contact:
Mr. Robert Drumm
Environmental Division Chief Building 14500
Fort Eisenhower, GA 30905-5209
Phone: (706) 791-4374
e-mail: robert.l.drumm4.civ@mail.mil

A.3 General Stakeholder Involvement

Table A-1 includes the list of agencies, elected officials, interested organizations, and others who received notification from the U.S. Army regarding the Proposed Action.

Table A-1. General Stakeholder Contact List

Title/Department	Name	Agency/Organization/Tribe	City	State
Deputy Field Supervisor, Georgia Ecological Services Field Offices	John Doresky	USFWS-West Georgia Sub Office	Fort Moore	GA
Director, Planning and Development	Carla Delaney	Augusta-Richmond County Planning and Development Department	Augusta	GA
Planning and Development	Ronnie Kurtz	City of Grovetown	Grovetown	GA
	David Jenkins	City of Harlem	Harlem	GA
Department of Planning	Scott Sterling	Columbia County Government Center	Evans	GA
Director of Planning	Regina Pyles	CSRA Regional Commission	Augusta	GA
Wildlife Conservation	Kevin Lowry	Georgia Department of Natural Resources	Social Circle	GA
Office of Environmental Services	Amber Phillips	Georgia Department of Transportation	Atlanta	GA
Executive Director	Lillian Easterlin	Jefferson County Chamber of Commerce	Louisville	GA
County Manager	David Crawley	McDuffie County Planning Commission	Thomson	GA
ATTN: CESAS-OP-F, Regulatory Division	Jade Bilyeu	U.S. Army Corps of Engineers	Savannah	GA
NEPA Program Office, Atlanta Federal Center	Ntale Kajumba	USEPA	Atlanta	GA
Chair, Feral Swine Committee	Tom Mims	Briar Creek Soil and Water Conservation District	Waynesboro	GA
Director of Airspace, Air Traffic and Security	Jim McClay	Aircraft Owners and Pilots Association	Washington	DC
ATC Manager	Maurice Nelson	Augusta ATC Tower	Augusta	GA
ATC Manager	Torrance L Branch	Atlanta ARTC Center	Hampton	GA
Airport Manager	Ken Warnock	Emanuel County Airport	Swainsboro	GA
City Administrator	Richard Sapp	Louisville Municipal Airport	Louisville	GA
Airport Manager	Ray Lawrence	Kaolin Field Airport	Sandersville	GA
City Manager	Artie Thrift	Wrens Municipal Airport	Wrens	GA
Owners	Dennis Allen	Pea Patch Aerodome Inc.	Augusta	GA
Owners	Don and Virginia Bush	Sandy Hill Private Field	Hephzibah	GA
Airport Manager	Merv Waldrop	Burke County Airport	Waynesboro	GA
Airport Manager	Grady Saxon	Millen-Jenkins County Airport	Millen	GA
Owner	Ralph Sandeford	Midville International Airport	Midville	GA
Owner	Don Gay Sr.	Hacienda de Gay Airstrip	Garfield	GA
Airport Manager	Keith Claxton	Paces South Farms Airport	Swainsboro	GA
Chief	Wilson Yargee	Alabama-Quassarte Tribal Town	Wetumka	OK
Tribal Historic Preservation Officer	Rovena Yargee	Alabama-Quassarte Tribal Town	Wetumka	OK
Tribal Historic Preservation Officer	Wenonah Haire	Catawba Indian Nation	Rock Hill	SC

Table A-1. General Stakeholder Contact List

Title/Department	Name	Agency/Organization/Tribe	City	State
Chief	Bill Harris	Catawba Indian Nation	Rock Hill	SC
Chief	Chuck Hoskin Jr.	Cherokee Nation	Talequa	OK
Tribal Historic Preservation Officer	Elizabeth Toombs	Cherokee Nation	Talequa	OK
Governor	Bill Anoatubby	The Chickasaw Nation	Ada	OK
Tribal Historic Preservation Officer	Karen Brunso	The Chickasaw Nation	Ada	OK
Tribal Historic Preservation Officer	David Cook	Kialegee Tribal Town	Wetumka	OK
Mekko	Brian Givens	Kialegee Tribal Town	Wetumka	OK
Principal Chief	David Hill	Muscogee (Creek) Nation	Okmulgee	OK
Tribal Historic Preservation Officer	Corain Lowe-Zepeda	Muscogee (Creek) Nation	Okmulgee	OK
Tribal Chair	Stephanie Bryan	Poarch Band of Creek Indians	Atmore	AL
Tribal Historic Preservation Officer	Larry Haikey	Poarch Band of Creek Indians	Atmore	AL
Tribal Historic Preservation Officer	Gaylen Cloud	Thlopthlocco Tribal Town	Okema	OK
Town King	Ryan Morrow	Thlopthlocco Tribal Town	Okema	OK
Chief	Joe Bunch	United Keetoowah Band of Cherokee Indians	Tahlequah	OK
Tribal Historic Preservation Officer	Whitney Warrior	United Keetoowah Band of Cherokee Indians	Tahlequah	OK
Deputy	Jennifer Dixon	Historic Preservation Division	Atlanta	GA

AL = Alabama; ATC = Air Traffic Control; CSRA = Central Savannah River Area; DC = District of Columbia; GA = Georgia; NEPA = National Environmental Policy Act; OK = Oklahoma; SC = South Carolina; U.S. = United States; USEPA = United States Environmental Protection Agency; USFWS = United States Fish and Wildlife Service

A.3.1 General Stakeholder Involvement Letter

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND HEADQUARTERS
UNITED STATES ARMY GARRISON, FORT EISENHOWER
307 CHAMBERLAIN AVENUE
FORT EISENHOWER, GEORGIA 30905-5730

November 29, 2023

Mr. Rune Duke
Aircraft Owners and Pilots Association
Senior Director of Government Affairs]
50 F St. NW, Ste 750
Washington, DC 20001

Dear Mr. Duke:

The purpose of this letter is to inform you of a Proposed Action to expand Fort Eisenhower's restricted airspace. The restricted airspace expansion will involve extensive ground disturbance, with the construction of two additional artillery firing points and improvements to the 21-mile tank trail on Fort Eisenhower.

The purpose of the Proposed Action is to support the capabilities of the Georgia National Guard, the Electronic Warfare school, and other units that propose to train at Fort Eisenhower. The Proposed Action is needed to improve the training capacity of Fort Eisenhower by maximizing the use of the R-3004 Restricted Area (RA) Complex in support of a growing and diverse training program with various needs and capabilities. A few alternatives will be evaluated in an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). These alternatives are as follows:

Alternative 1: Airspace and Ground-Based Changes at Fort Eisenhower:
The proposed airspace changes would include expansion of the lateral limits of R-3004A/B/C farther north and northeast to incorporate the majority of Fort Eisenhower property. This expansion would be fully contained within the current boundaries of federally owned land above the Fort Eisenhower range complex. In addition, the southwest boundary of the proposed RA would be adjusted so that the boundary is fully contained within the installation property. In addition, there will be vertical changes that raise and lower the existing ceilings of R-3004A/B/C.

The proposed ground-based changes include the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of the tank trail on Fort Eisenhower to 20 meters throughout the installation. The tank trail varies in width from 3.66 to 7.32 meters. The widened tank trail would be designed with stormwater ditches and turnouts as well as be properly designed and constructed to support the weight and repeated use of tracked vehicles. The tank trail crosses various creeks and these crossings would be impacted by the widening.

Alternative 2 (Preferred Alternative): Airspace and Minimized Ground-Based Changes at Fort Eisenhower:
Alternative 2 consists of the same airspace changes as Alternative 1. Regarding the ground-based changes, Alternative 2 includes construction of the same number of concrete turn pads and firing points as Alternative 1, but all creek crossings would be minimized to single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide), minimizing potential impacts to sensitive water resources. There will be additional modifications of the tank trail route and widening to avoid adverse impacts to cultural and natural resources on Fort Eisenhower.

Alternative 3: No Action Alternative:
Under the No Action Alternative, the existing RA would remain unchanged, there would be no concrete turn pads or firing points constructed, and all tank trails on Fort Eisenhower would not be changed.

Additional details on the assessment of affects to various resource areas will be included in the EA currently being developed. This scoping letter is to inform you of the proposed project and solicit any additional concerns that you want included in the EA's analysis. The EA will be provided during the 30-day public comment.

Fort Eisenhower looks forward to receiving any information and input you may have on the project. Please submit any information no later than 5 January 2024 to have it considered in the EA. Your response should be sent to:

Mr. Robert Drumm
U.S. Army Garrision, Fort Eisenhower
Directorate of Public Works
515 15th Street (Building 14600)
Fort Eisenhower, GA 30905-5209

If you have any questions or require additional information, please do not hesitate to contact Mr. Robert Drumm at (706) 791-6374 or robert.l.drumm6.civ@army.mil.

Sincerely,

Robert L. Drumm
Chief, Environmental Division
Directorate of Public Works

Enclosures

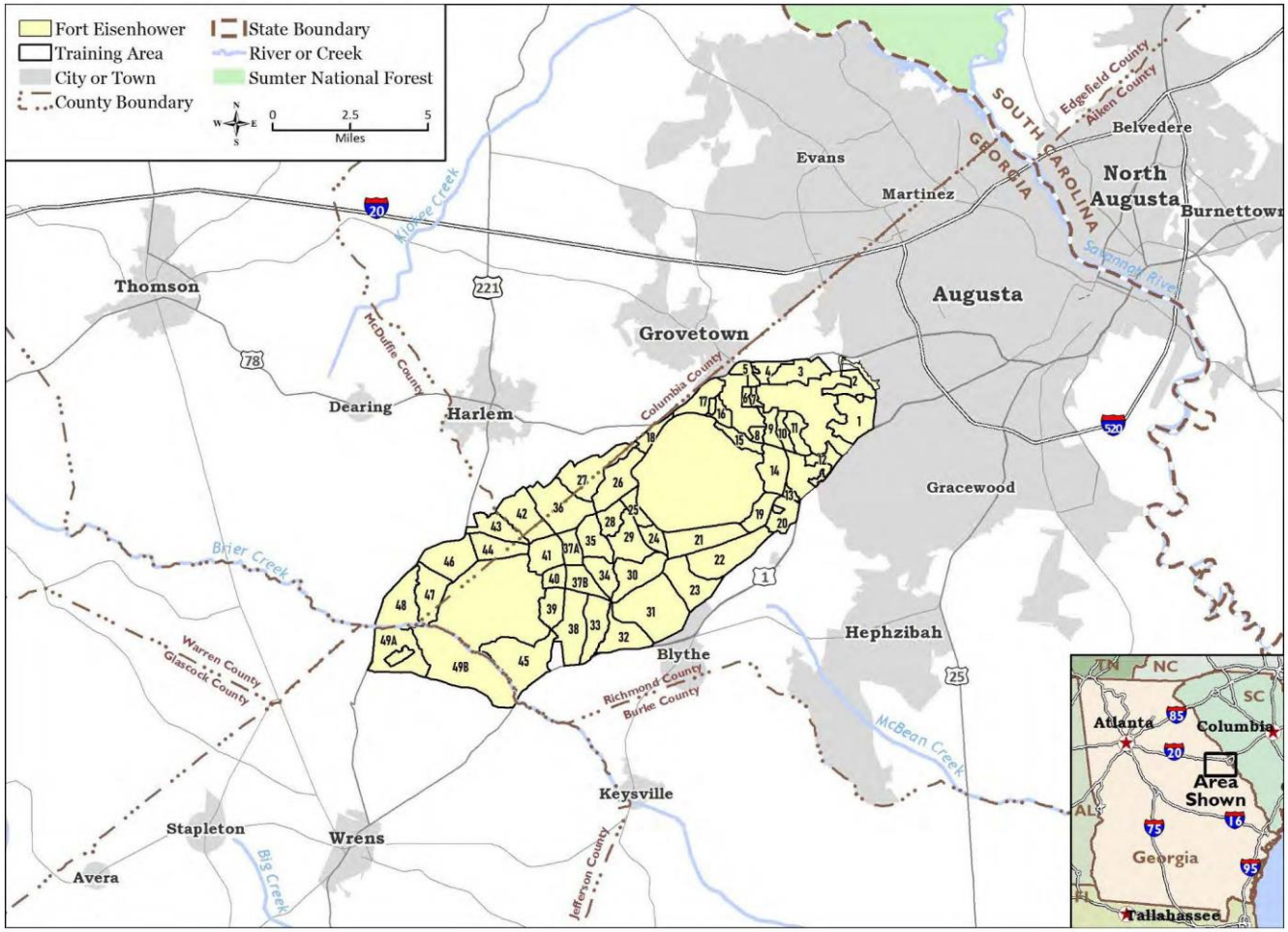


Figure1 . Regional Map of Fort Eisenhower

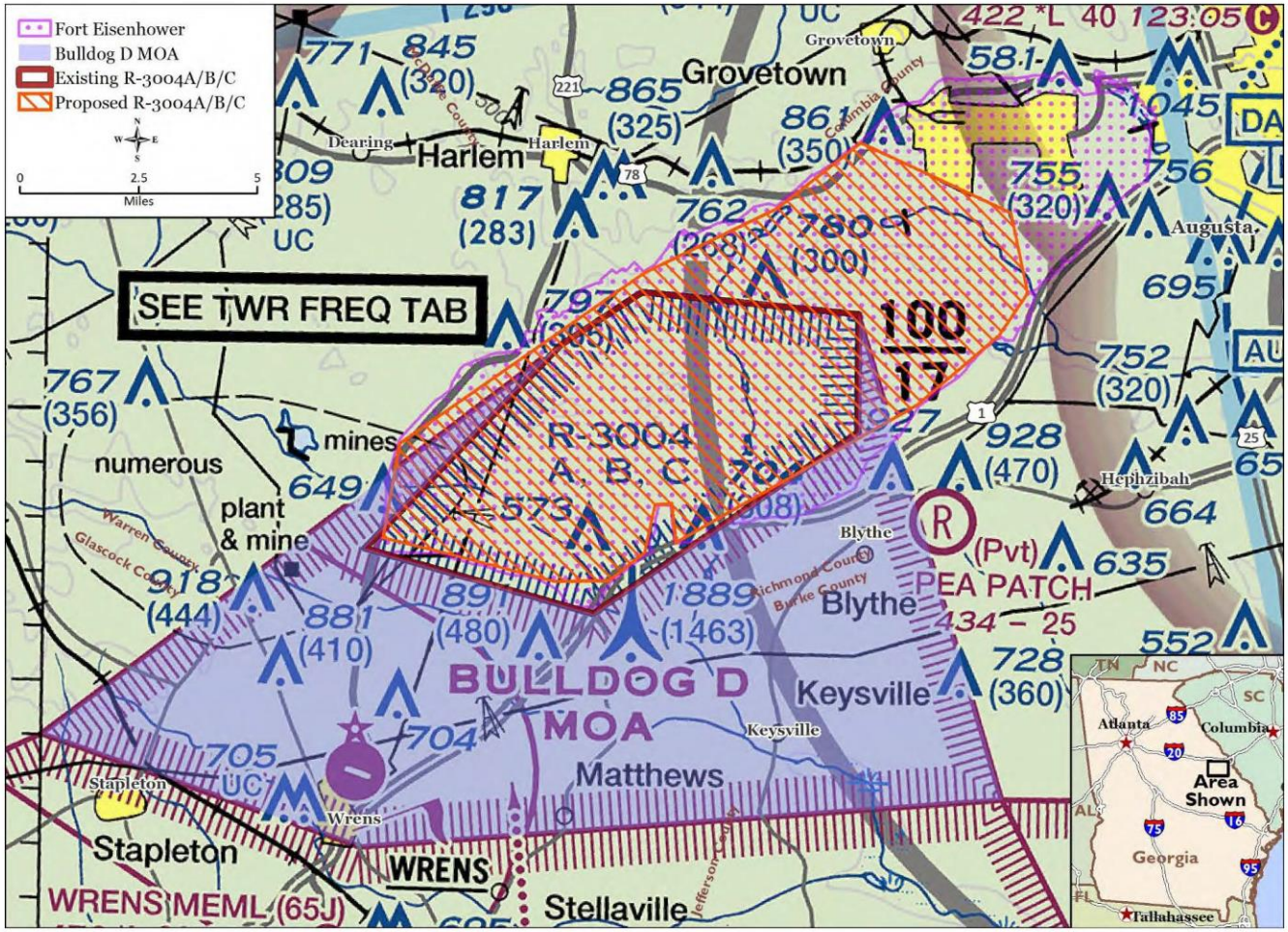


Figure 2. Proposed Lateral Airspace Changes on Fort Eisenhower

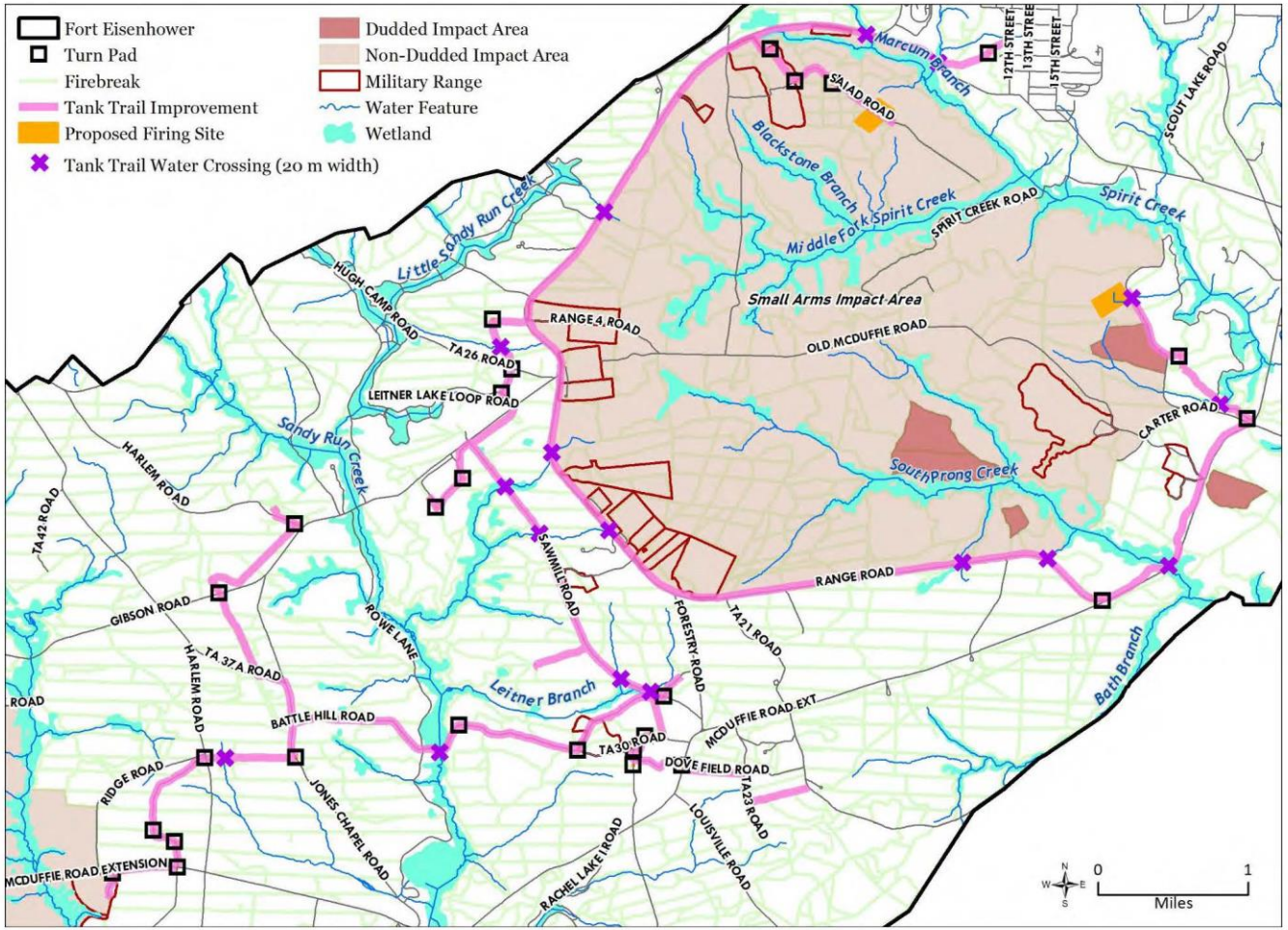


Figure 3. Alternative 1. Proposed Ground-Based Changes on Fort Eisenhower

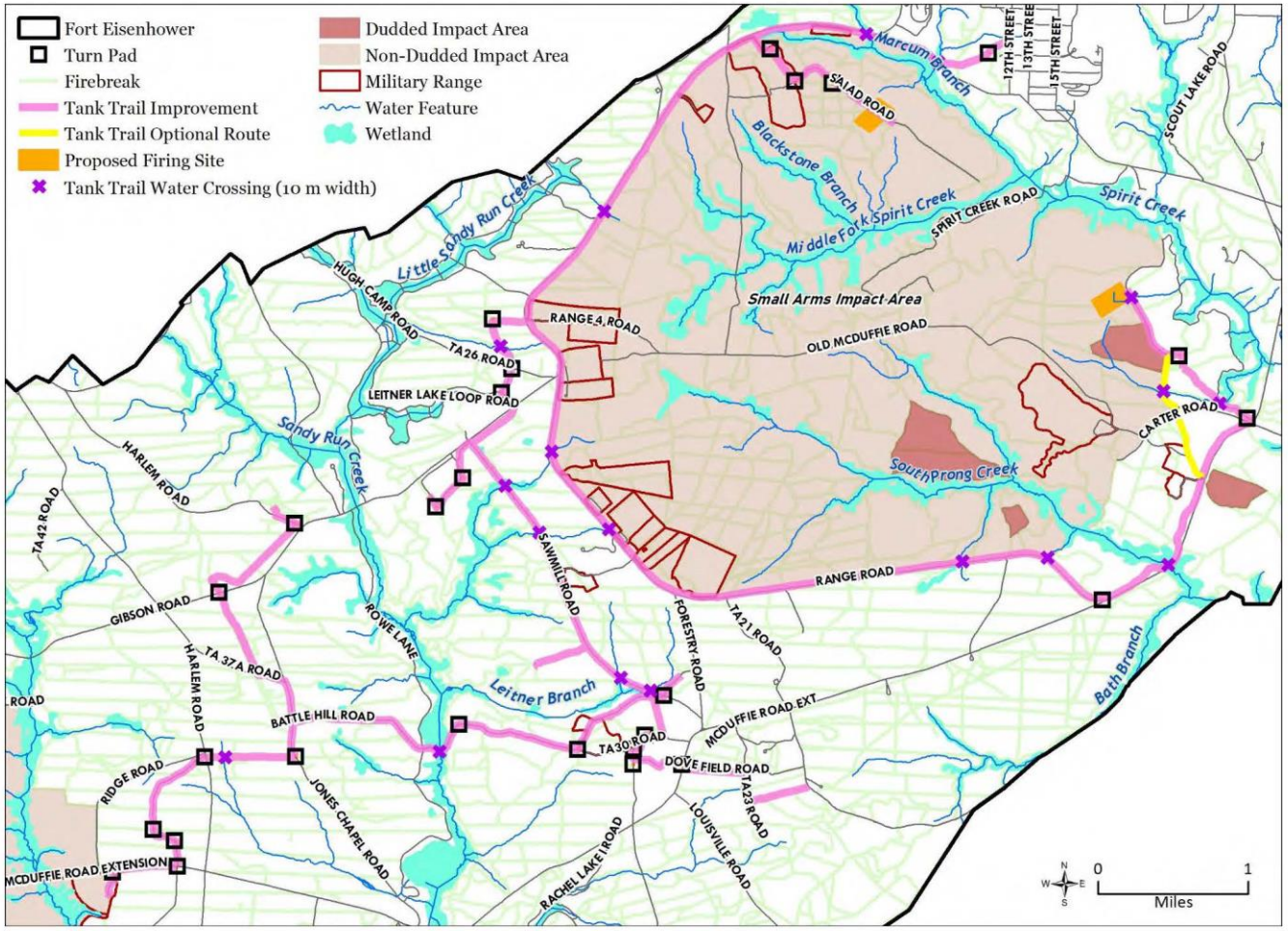


Figure 4. Alternative 2. Proposed Minimized Ground-Based Changes on Fort Eisenhower

A.3.2 Stakeholder Responses

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

TED WILL
DIRECTOR

January 05, 2024

Robert Drumm
Directorate of Public Works
U.S. Army Garrison, Fort Eisenhower
515 15th Street
Building 14600
Fort Gordon, GA 30905-5209

Subject: Known occurrences of natural communities, plants, and animals of highest priority conservation status on or near Fort Eisenhower R-3004 RA Complex Expansion in Richmond County, GA

Dear Robert Drumm:

This is in response to your request received on December 12, 2023. The following Georgia natural heritage database element occurrences (EOs) were selected for the current site using the local Hydrologic Unit Code (HUC) 10 watershed for elements whose range distribution is limited by aquatic systems (AQ) and within 3 miles for all other EOs (TR).

Concrete Turn Pads (-82.237827, 33.383988, WGS84)

US *Dryobates borealis* (Red-cockaded Woodpecker) (TR), approx. 0.3 mi W of site
GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Sandy Run Creek (AQ), approx. 0.4 mi E of site
GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Sandy Run Creek (AQ), approx. 0.4 mi NW of site
GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Sandy Run Creek (AQ), within immediate vicinity of site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 2.4 mi W of site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), on site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 0.3 mi E of site
GA *Heterodon simus* (Southern Hognose Snake) (TR), approx. 1.6 mi NE of site
***Myotis austroriparius* (Southeastern Bat) [Historic] (TR), within immediate vicinity of site**
Myotis lucifugus (Eastern Little Brown Bat) [Historic] (TR), approx. 0.4 mi E of site
Perimyotis subflavus (Tricolored Bat) (TR), approx. 0.4 mi E of site
Pituophis melanoleucus mugitus (Florida Pine Snake) [Historic] (TR), approx. 0.5 mi SE of site
Pituophis melanoleucus mugitus (Florida Pine Snake) [Historic] (TR), approx. 0.9 mi E of site
Stylurus ivae (Shining Clubtail) [Historic] in Brier Creek (AQ), approx. 6.5 mi S of site
GA *Symphyotrichum georgianum* (Georgia Aster) [Historic] (TR), approx. 2.6 mi E of site

WILDLIFE CONSERVATION SECTION
2065 U.S. HIGHWAY 278 S.E. | SOCIAL CIRCLE, GEORGIA 30025-4743
770.918.6411 | FAX 706.557.3033 | WWW.GEORGIAWILDLIFE.COM

Proposed Firing Sites (-82.165542, 33.386412, WGS84)

***Ambystoma tigrinum* (Eastern Tiger Salamander) (TR), in an uncertain location near or at site**

***Chlosyne gorgone* (Gorgone Checkerspot) [Historic] (TR), in an uncertain location near or at site**

GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Spirit (Mccoy's) Creek (AQ), approx. 0.7 mi N of site

***Erynnis martialis* (Mottled Duskywing) [Historic] (TR), in an uncertain location near or at site**

US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 0.7 mi SW of site

Liatris secunda (Sandhill Gay-feather) [Historic] (TR), approx. 2.8 mi NE of site

Myotis lucifugus (Eastern Little Brown Bat) [Historic] (TR), approx. 0.7 mi N of site

GA *Nestronia umbellula* (Indian Olive) (TR), approx. 0.7 mi N of site

GA *Nestronia umbellula* (Indian Olive) (TR), approx. 0.9 mi NE of site

Pituophis melanoleucus mugitus (Florida Pine Snake) [Historic] (TR), approx. 0.4 mi N of site

GA *Sarracenia rubra ssp. gulfensis* (Gulf Sweet Pitcherplant) (TR), approx. 0.7 mi NE of site

Brier Creek 3 (0306010802) [SWAP High Priority Watershed] (TR), approx. 1.3 mi W of site

Tank Trail Widening (-82.276197, 33.334735, WGS84)

***Ambystoma tigrinum* (Eastern Tiger Salamander) (TR), in an uncertain location near or at site**

Anguilla rostrata (American Eel) in Spirit Creek (AQ), approx. 3.8 mi E of site

Anguilla rostrata (American Eel) in Boggy Gut Creek (AQ), approx. 2.3 mi S of site

Anguilla rostrata (American Eel) in South Prong Creek (AQ), approx. 0.9 mi SE of site

Anguilla rostrata (American Eel) in Kiokee Creek (AQ), approx. 13.5 mi N of site

Autochton cellus (Golden-banded Skipper) [Historic] (TR), approx. 2.4 mi E of site

Bombus pensylvanicus (American Bumblebee) [Historic] (TR), approx. 1.7 mi E of site

Carphephorus bellidifolius (Sandhill Chaffhead) (TR), approx. 2.2 mi NW of site

GA *Ceratiola ericoides* (Rosemary) (TR), approx. 2.3 mi SE of site

GA *Chamaecyparis thyoides* (Atlantic White-cedar) (TR), approx. 0.5 mi NW of site

GA *Chamaecyparis thyoides* (Atlantic White-cedar) (TR), approx. 1.6 mi S of site

GA *Corynorhinus rafinesquii* (Rafinesque's Big-eared Bat) (TR), approx. 1.2 mi S of site

GA *Corynorhinus rafinesquii* (Rafinesque's Big-eared Bat) (TR), approx. 1.2 mi NW of site

GA *Corynorhinus rafinesquii* (Rafinesque's Big-eared Bat) (TR), approx. 2.8 mi SW of site

GA *Cypripedium acaule* (Pink Ladyslipper) (TR), approx. 2.0 mi NE of site

US *Dryobates borealis* (Red-cockaded Woodpecker) (TR), approx. 0.3 mi E of site

US *Dryobates borealis* (Red-cockaded Woodpecker) (TR), approx. 0.5 mi NE of site

US *Dryobates borealis* (Red-cockaded Woodpecker) (TR), approx. 1.1 mi S of site

US *Dryobates borealis* (Red-cockaded Woodpecker) (TR), on site

GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Brier Creek (AQ), approx. 2.7 mi SW of site

GA *Elassoma okatie* (Bluebarred Pygmy Sunfish) in Sandy Run Creek (AQ), on site

Etheostoma fricksium (Savannah Darter) in unnamed tributary to Brushy Creek (AQ), approx. 10.7 mi S of site

IR 23976-mah-2024-01-05-12-09-29

Etheostoma fricksium (Savannah Darter) in Flat Rock Branch (AQ), approx. 6.5 mi SW of site
Etheostoma fricksium (Savannah Darter) in Boggy Gut Creek (AQ), approx. 1.1 mi NW of site
Etheostoma fricksium (Savannah Darter) in South Prong Creek (AQ), approx. 0.9 mi SE of site
Etheostoma serrifer (Sawcheek Darter) in Fort Gordon Military Base (AQ), approx. 1.1 mi NW of site
***Erynnis martialis* (Mottled Duskywing) [Historic] (TR), in an uncertain location near or at site**
US *Gopherus polyphemus* (Gopher Tortoise) (TR), on site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 1.6 mi NW of site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 0.8 mi S of site
US *Gopherus polyphemus* (Gopher Tortoise) (TR), approx. 2.0 mi SE of site
GA *Haliaeetus leucocephalus* (Bald Eagle) (TR), approx. 2.5 mi E of site
GA *Haliaeetus leucocephalus* (Bald Eagle) (TR), approx. 0.4 mi W of site
GA *Heterodon simus* (Southern Hognose Snake) (TR), approx. 0.2 mi N of site
GA *Heterodon simus* (Southern Hognose Snake) (TR), approx. 0.2 mi SW of site
GA *Heterodon simus* (Southern Hognose Snake) (TR), approx. 0.7 mi S of site
GA *Heterodon simus* (Southern Hognose Snake) (TR), on site
Liatris pauciflora (Few-flower Gay-feather) (TR), approx. 1.7 mi NW of site
Liatris secunda (Sandhill Gay-feather) [Historic] (TR), on or immediate vicinity of site
GA *Macbridea caroliniana* (Carolina Bogmint) (TR), approx. 2.8 mi SW of site
***Myotis austroriparius* (Southeastern Bat) [Historic] (TR), on site**
Myotis austroriparius (Southeastern Bat) [Historic] (TR), approx. 1.1 mi S of site
Myotis lucifugus (Eastern Little Brown Bat) [Historic] (TR), approx. 0.8 mi W of site
Myotis lucifugus (Eastern Little Brown Bat) [Historic] (TR), on or immediate vicinity of site
Necturus punctatus (Dwarf Waterdog) in Fort Gordon (AQ), approx. 1.1 mi S of site
Necturus punctatus (Dwarf Waterdog) in Richmond Factory Pond on Spirit Creek (AQ), approx. 4.8 mi E of site
Necturus punctatus (Dwarf Waterdog) in S of Wrens (AQ), approx. 9.9 mi SW of site
GA *Nestronia umbellula* (Indian Olive) (TR), approx. 0.4 mi W of site
Notropis chalybaeus (Ironcolor Shiner) in Brushy Creek (AQ), approx. 10.4 mi S of site
***Perimyotis subflavus* (Tricolored Bat) (TR), within immediate vicinity of site**
Perimyotis subflavus (Tricolored Bat) (TR), approx. 0.3 mi S of site
Perimyotis subflavus (Tricolored Bat) (TR), approx. 1.2 mi NW of site
Perimyotis subflavus (Tricolored Bat) (TR), approx. 2.8 mi SW of site
***Pituophis melanoleucus mugitus* (Florida Pine Snake) [Historic] (TR), on site**
Pituophis melanoleucus mugitus (Florida Pine Snake) [Historic] (TR), approx. 0.6 mi S of site
Plethodon savannah (Savannah Slimy Salamander) [Historic] (TR), approx. 1.1 mi NW of site
Portulaca umbraticola ssp. coronata (Wingpod Purslane) [Historic] (TR), approx. 1.5 mi N of site

IR 23976-mah-2024-01-05-12-09-29

GA *Sarracenia rubra ssp. gulfensis* (Gulf Sweet Pitcherplant) (TR), on or immediate vicinity of site
GA *Sarracenia rubra ssp. gulfensis* (Gulf Sweet Pitcherplant) [Extirpated?] (TR), approx. 1.8 mi N of site
Scutellaria altamaha (Altamaha Skullcap) [Historic] (TR), approx. 1.6 mi SE of site
GA *Stylisma pickeringii var. pickeringii* (Pickering's Morning-glory) (TR), approx. 0.2 mi SW of site
GA *Stylisma pickeringii var. pickeringii* (Pickering's Morning-glory) (TR), approx. 0.1 mile S of site
GA *Stylisma pickeringii var. pickeringii* (Pickering's Morning-glory) (TR), approx. 1.1 mi S of site
Stylurus ivae (Shining Clubtail) [Historic] in Brier Creek (AQ), approx. 2.7 mi SW of site
Wading Bird Colony (Wading Bird Colony) (TR), approx. 1.6 mi NW of site
Savannah River Middle 4 (0306010603) [SWAP High Priority Watershed] (TR), approx. 0.2 mi NW of site
Savannah River Middle 3 (0306010605) [SWAP High Priority Watershed] (TR), approx. 1.3 mi NE of site

Recommendations:

Federally listed species have been documented at or within three miles or within the watershed(s) of the proposed project. To minimize potential impacts to federally listed species, we recommend consultation with the United States Fish and Wildlife Service. Please email GAES_Assistance@fws.gov for project consultation and survey recommendations.

Please note that the tricolored bat (*Perimyotis subflavus*) was proposed for listing under the Endangered Species Act (ESA) on September 14, 2022, by the United States Fish and Wildlife Service. A final listing determination is anticipated in 2024. We recommend consultation with the USFWS for this species in anticipation of the species being listed as endangered under the ESA.

Please be aware that state protected species have been documented near the proposed project. For information about these species, including survey recommendations, please visit our webpage at http://georgiawildlife.com/conservation/species-of-concern#rare-locations.

The following biologists can provide additional recommendations and assistance regarding the following groups:

Plants: Lisa Kruse (Lisa.Kruse@dnr.ga.gov)
Fishes: Bryant Bowen (Bryant.Bowen@dnr.ga.gov)
Crayfish & Mussels: Matt Rowe (Matthew.Rowe@dnr.ga.gov)
Reptiles & Amphibians: Daniel Sollenberger (Daniel.Sollenberger@dnr.ga.gov)
Mammals: Trina Morris (Katrina.Morris@dnr.ga.gov)
Birds: Nathan Klaus (Nathan.Klaus@dnr.ga.gov) or Tim Keyes (Tim.Keyes@dnr.ga.gov)
Terrestrial Invertebrates: Anna Yellin (Anna.Yellin@dnr.ga.gov)

IR 23976-mah-2024-01-05-12-09-29

Species listed above that have no "GA" or "US" status are considered Georgia species of concern. Locations of these species are tracked until enough information is gathered to determine if they should be added to the state list or if their populations do not warrant tracking. It is important to consider these species when planning projects. Please let us know if you have any questions regarding Georgia species of concern.

There is a record of a nesting bald eagle (*Haliaeetus leucocephalus*) within three miles of the proposed project site. Although bald eagles are no longer listed as federally endangered, this species is still protected by the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the Georgia Endangered Species Act. This legislation continues to protect bald eagles from potentially harmful human activities. For more information on how to prevent impacts to bald eagles, please review the National Bald Eagle Management Guidelines and other information located at: https://www.fws.gov/birds/management/managed-species/eagle-management.php.

If the applicant is willing to assume presence and implement provisions to protect state-listed aquatic species identified during this review, it may not be necessary to complete additional surveys for state listed aquatic species. Please refer to our Aquatic Survey Determination Protocol for State Listed Species in determining whether surveys are recommended. Although this document was prepared for use on Georgia Department of Transportation (GDOT) projects, it may be applicable to other projects as well. For any additional questions about state-listed aquatic species, please contact Bryant Bowen (Bryant.Bowen@dnr.ga.gov) for fishes on large mainstem rivers; Chad Kaiser (Chad.Kaiser@dnr.ga.gov) for fishes in wadeable streams; and Matt Rowe (Matthew.Rowe@dnr.ga.gov) for aquatic invertebrates.

Suitable, occupied habitat for the gopher tortoise (*Gopherus polyphemus*) has been observed at the proposed project site. The gopher tortoise eastern Distinct Population Segment is no longer a candidate for federal listing but remains listed as "threatened" in the state of Georgia under the Georgia Endangered Wildlife Act (1973). We recommend a complete survey to map the extent of the populations of this species at the project site and development of a mitigation plan before any construction activities take place. Please contact James Hunt (James.Hunt1@dnr.ga.gov) for more information.

We have the following recommendations for the applicant to consider. We are concerned about streams and other sensitive habitats that could be impacted by the proposed project. At a minimum, we recommend implementing best management practices (BMPs) endorsed by the State of Georgia for erosion, sediment, and stormwater control throughout the construction site. Please design road or utility right-of-way (ROW) in such a way that streams do not serve as stormwater or sediment detention areas during project construction or operation (i.e., no scupper or open drains on bridges/arch spans; divert stormwater from the project away from the stream). Off-channel maintained detention ponds or diversion of stormwater across a wide slope are acceptable diversion methods. Locate staging areas and equipment maintenance areas at least 200 feet from stream banks to minimize the potential for wash water, petroleum products, or other contaminants from construction equipment entering the watershed.

Silt fences and other erosion control devices should be inspected and maintained until soil is stabilized by vegetation. Please use natural vegetation and grading techniques (e.g. vegetated

IR 23976-mah-2024-01-05-12-09-29

swales, turn-offs, vegetated buffer strips) that will ensure that the road or right-of-way does not serve as a conduit for stormwater or pollutants into the watershed during or after construction. These measures will help protect water quality near the project as well as in downstream areas.

Please be aware that the type of erosion control material used during construction can impact wildlife. We strongly recommend using natural, biodegradable materials such as 'jute' or 'coir'. Mesh strands should be movable, as opposed to fixed. Use of plastic fencing frequently leads to wildlife entrapment and death.

Given the presence of rare species at and near the proposed project site, we recommend the proposed alternative 2 (the preferred alternative) for minimized ground-based changes. Please coordinate with our staff to avoid or minimize impacts to the gopher tortoise and bluebarred pygmy sunfish. Our staff can also provide assistance regarding other species, but please be sure to coordinate with the USFWS Athens Field Office for federally protected species such as the red-cockaded woodpecker and tricolored bat. Thank you for the opportunity to comment.

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Wildlife Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Wildlife Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (http://georgiawildlife.com/conservation/species-of-concern#rare-locations) or by contacting our office. If we can be of further assistance, please let us know.

Sincerely,

Maggie Aduddell Hunt, Wildlife Biologist
maggie.hunt@dnr.ga.gov, (706) 557-3228

IR 23976-mah-2024-01-05-12-09-29

Data Available on the Wildlife Conservation Section Website

- Georgia protected plant and animal species profiles are available on our website. These profiles cover basics such as species physical descriptions, preferred habitat, and life history, as well as threats, management recommendations, and conservation status. To view these profiles, visit: http://georgiawildlife.com/conservation/species-of-concern#rare-locations
- Rare species and natural community information can be viewed by Quarter Quad, County, and HUC 8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: http://georgiabiodiversity.org/
- Downloadable files of rare species and natural community data by Quarter Quad and County are also available. These can be downloaded at: http://georgiabiodiversity.org/natels/natural-element-locations.html

IR 23976-mah-2024-01-05-12-09-29

Augusta
GEORGIA
PLANNING & DEVELOPMENT DEPARTMENT

January 4, 2024

Mr. Robert Crumm
U.S. Army Garrison, Fort Eisenhower
Directorate of Public Works
515 15th Street (Building 14600)
Fort Eisenhower, GA 30905-5209

Dear Mr. Drumm,

Augusta-Richmond County is in receipt of the Proposed Action to Expand Fort Eisenhower's Restricted Airspace. We are always delighted to collaborate with Fort Eisenhower and its initiatives. There were three options presented in the letter along with four maps. The second page of the letter was incomplete; the first few words on every line are missing. Therefore, my comments/recommendations are based on the portion of the letter that is legible.

Partnership and collaboration with Fort Eisenhower is essential to the sustainability and growth of our city and region. It is our intent to be responsive and cooperative whenever possible. We respectfully request more information regarding the impact of the proposed 16 tank trail widenings across the creeks and waterways.

Since all the improvements will be within the existing boundary of Fort Eisenhower, if no further information can be divulged at this time than our preference is for Alternative #2 provided the impact to the creeks and waterways will not disrupt environmentally sensitive areas and species. However, we would like to be informed if there are any changes and provided with a copy of the NEPA-EA when the draft and final version are ready.

If you have any questions or concerns, please contact me via email at cdelaney@augustaga.gov or phone at (706)821-1796.

Regards,

Carla Delaney
Director
Augusta Georgia Planning & Development

601 Pennsylvania Ave NW
North Building, Suite 250
Washington, D.C. 20004

T. 202-737-7950

www.aopa.org

January 19, 2024

Mr. Robert Drumm
U.S. Army Garrison, Fort Eisenhower
Directorate of Public Works
515 15th Street (Building 14600)
Fort Eisenhower, GA 30905-5209

Re: Proposed Action to expand Fort Eisenhower's restricted airspace (Docket FAA-2023-0504)

Mr. Drumm,

The Aircraft Owners and Pilots Association (AOPA) is the world's largest aviation membership association representing individuals who collectively operate 85% of all general aviation (GA) aircraft in the United States. AOPA respectfully submits these comments regarding the proposed action to expand Fort Eisenhower's restricted airspace.

Since 1939, AOPA's mission has been to protect the freedom to fly while keeping aviation safe, fun, and affordable. We have long been strong advocates for the military and its needs for real-world training, understanding that there are occasional needs to modify Special Use Airspace (SUA) and Special Activity Airspace (SAA). However, our responsibility is to advocate for policies and rules that grow and protect general aviation and our freedom to fly.

With that in mind, AOPA has some concerns about the proposal, based on feedback we have gotten from local members. The points below summarize the general themes we observed in the comments we received, but it should be noted that, in just the two-week period after we solicited for them, the number of responses that AOPA received from the local pilot community was significant.

Lower airspace floors impact general aviation operations

Recently, AOPA has been responding to, and commenting on, a flurry of proposals from the military that seek to lower military operations area (MOA) floors closer to the surface. This is extremely problematic for our members who fly at lower altitudes and are being, essentially, squeezed out of the airspace. In those situations, however, pilots at least have the option to fly through the active MOAs.

In this case, your preferred alternative would lower the floor of two out of three restricted areas (R-3004A and R-3004B) to such a degree that many pilots will no longer be able to fly under them. This is made worse by the fact that, as restricted areas, the option for pilots to fly through them when active is removed. The only remaining option would be detours around the area, which translates to increased time, cost, and carbon emissions.

Beyond these concerns, the simple fact that more aircraft would be getting squeezed into a smaller corridor to traverse the area raises safety concerns for us as well. According to the Federal Aviation Administration, the Southern Region leads, and is projected to continue to lead, the nation through at least 2050 in flight operations

and passenger activity[1]. Reducing airspace in these areas is counter to safety considerations as it restricts flexibility for the flying public.

AOPA recommends that the current floors of R-3004 be retained.

Expansion of R-3004 impacts Daniel Field (DNL) RNAV (GPS) RWY 5 approach and Runway 23 departures

The proposed expansion of R-3004 will make the initial approach fix for the RNAV (GPS) RWY 5 approach into DNL, TASPE, inaccessible from the north and west without extensive vectoring when R-3004 is active. In fact, the expansion will even crowd the final approach fix, CABOM, raising concerns about the availability of the RNAV (GPS) RWY 5 approach.

This approach is the only one into DNL available to all IFR pilots for night arrivals, but has higher minimums. Furthermore, frequent low ceilings and restricted visibility at DNL require the lower minimums of the RNAV (GPS) RWY 5 approach to avoid inconvenient and costly diversions to Augusta Regional (AGS).

We also have concerns about VFR departures from Runway 23 and arrivals to Runway 5 at DNL. The narrow corridor between R-3004 and the AGS Class D will be reduced in size from about 8 miles to about 3 miles, creating the potential for an increase in the number of incursions into R-3004, particularly by inexperienced student pilots conducting training flights from DNL.

For IFR departures from Runway 23, the reduced distance between DNL and R-3004 will reduce the number of options for ATC radar vectors after departure, which in turn may affect the IFR departure rate from that airport.

Finally, we are concerned about the potential impact that the expansion will have on the frequent medivac flights to and from DNL, which is the primary airport for 5 local hospitals and associated emergency flights.

AOPA recommends that the expansion of R-3004 to the northeast be reduced in size and that Fort Eisenhower coordinate with FAA to ensure that any IFR aircraft needing to utilize the initial or final approach fixes for the RNAV (GPS) RWY 5, or needing radar vectors after departing Runway 23, be cleared through the restricted area to the maximum extent possible. In addition, we recommend that every effort be made to prioritize medivac flights when needed.

The removal of restrictions on weekend activities will negatively impact general aviation

Since we typically see a significant increase in general aviation activities, including flight training, on the weekends, it is logical to assume that there will be more general aviation flying in the vicinity of R-3004 during those times. This means that the expected impacts laid out above are likely to be magnified for pilots on Saturdays and Sundays.

AOPA understands the periodic requirement for weekend training activities. However, we recommend that the proponent be cognizant of the resulting impacts on general aviation and limit the number of weekend activations of R-3004 as much as possible.

Priority must be placed upon timely updates of R-3004 activation status

With the proposed increase in the size, as well as the activation times, of R-3004, it is critical that the proponent make every effort to release the airspace promptly when it is no longer in use.

It is common practice for SUA to be scheduled for use, but for the activities to be either cancelled outright or concluded early. AOPA places a high value on ensuring that unused SUA be returned for use by civil aviation promptly in order to maintain the highest level of airspace access and efficiency possible.

[1] https://taf.faa.gov/Downloads/2022_TAF_Executive_Summary.pdf

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA recommends that the proponent create and implement (if not already in place) specific policies to ensure that R-3004 is promptly made available to civil aviation whenever it is not in use.

Conclusion

AOPA has long been a strong supporter of the military and its need for the resources required to conduct its vital mission. At the same time, we must also work to mitigate the impacts of these needs for those flying general aviation aircraft. We look forward to working with the proponent to ensure a positive outcome for all airspace users.

If you have any questions, please feel free to contact me at 202-509-9515 or at james.mcclay@aopa.org.

Sincerely,

Jim McClay
Director, Regulatory Affairs
Airspace, Air Traffic, and Security

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

From: John Mills
Sent: Friday, January 19, 2024 11:27 AM
To: Drumm, Robert L CIV USARMY USAG (USA) <robert.l.drumm6.civ@army.mil>
Subject: [Non-DoD Source] R-3004 expansion adjacent to KDNL

Dear Mr. Drumm,

I apologize for the tardiness of this letter. I was just made aware of yesterday's deadline.

I'm writing to express my concern with the proposed expansion of R-3004 over Fort Eisenhower. While the plan may seem reasonable to those who are not familiar with aviation, I fear that this expansion doesn't fully contemplate the negative effects that it will have on operations at Daniel Field Airport.

As the pilot of a Citation Mustang (CE-510) based at KDNL I almost exclusively use runway 5/23 because of its length and gradient advantages. Assuming cooperating winds, Runway 23 lends itself to a safer takeoff because of its length, the downhill gradient, as well as the topographic advantage of a left hand turn to Bush Field should an emergency arise. At the same time, runway 5 lends itself to a safer approach and landing because of the uphill nature and improved ability to stop. Consequently, this makes the southwestern quadrant of the field a naturally more used section of airspace for larger and faster aircraft.

The problem is further compounded when considering the effects on the GPS approach to Runway 5. The changes will lead to extensive vectoring and added workload to local controllers. It will also lead to shorter, less stabilized approaches. While every size plane should strive for stabilized approaches, the issue is exacerbated by the fact that the largest of visiting aircraft need to use Runway 5, and the issue gets even worse when you consider that the GPS 5 approach is the only nighttime approach available to those without FSDO authorization to use runway 11.

While the concerns above apply to my use of Daniel Field, I would be remiss if I didn't address the fact that training activities have long been provided at Daniel Filed. The concentration of student and/or low time pilots around the airport will inevitably lead to airspace incursions with a mere 3 miles of separation between the field and an expanded R-3004.

As a native of Augusta and a local business owner, I always want to see Fort Eisenhower grow and flourish. Having said that, it needs to be accomplished without adding risk to the local aviation community and I'm confident that a better plan that what has been proposed can be created.

Thank you for your consideration.

John Mills
[redacted]
SOUTHEASTERN
DEVELOPMENT · BROKERAGE · CONSULTING

1

A.4 Tribal Consultation

To support this Environmental Assessment, the Army is consulting on a government-to-government basis with potentially affected federally recognized Native American Tribes with historic cultural association to Fort Eisenhower. Section A.4.1 provides an example of the letter and attachments sent to the Native American Tribes identified on Table A-2.

Table A-2. Native American Tribes Consultation Record

Tribe	NEPA Notification Letter	Summary Response	Section 106 Letter	Follow-Up Correspondence (email/phone calls)
Alabama-Quassarte Tribal Town	12/5/23			
Catawba Indian Nation	12/5/23			
Cherokee Nation	12/5/23			
The Chickasaw Nation	12/5/23	No further correspondence necessary		
Kialegee Tribal Town	12/5/23			
Muscogee (Creek) Nation	12/5/23			
Poarch Band of Creek Indians	12/5/23			
Thlopthlocco Tribal Town	12/5/23			
United Keetoowah Band of Cherokee Indians	12/5/23			

NEPA = National Environmental Policy Act

A.4.1 Tribal Notification Letter (Example Letter and Attachments)

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON,
FORT EISENHOWER
307 CHAMBERLAIN AVENUE
FORT EISENHOWER, GEORGIA 30905-5730

November 30, 2023

Ms. Karen Brunso
Tribal Historic Preservation Officer
The Chickasaw Nation
P.O. Box 1548
Ada, Oklahoma 74820

Dear Ms. Brunso:

The purpose of this letter is to initiate consultation with your office as required by Section 106 of the National Historic Preservation Act, as amended, on a proposed undertaking to expand Fort Eisenhower's restricted airspace. The restricted airspace expansion will involve extensive ground disturbance with the construction of two additiona artillery firing points and improvements to the 21-mile tank trail.

The purpose of the proposed undertaking is to support the capabilities of the Georgia National Guard, the Electronic Warfare school, and other units that propose to train at For Eisenhower. The Proposed Action is needed to improve the training capacity of Fort Eisenhower by maximizing the use of the R-3004 Restricted Area (RA) Complex in suppo of a growing and diverse training program with various needs and capabilities. A few alternatives will be evaluated in an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). These alternatives are as follows:

Alternative 1: Airspace and Ground-Based Changes at Fort Eisenhower:
The proposed airspace changes would include expansion of the lateral limits of R-3004A/B/C farther north and northeast to incorporate the majority of Fort Eisenhower property. This expansion would be fully contained within the current boundaries of federally owned land above the Fort Eisenhower range complex. In addition, the southwest boundary of the proposed RA would be adjusted so that the boundary is fully contained within the installation property. In addition, there are also vertical changes that raise and lower the existing ceilings of R-3004A/B/C.

The proposed ground-based changes include the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of the tank trail on Fort Eisenhower to 20 meters throughout the installation. The tank trail varies in width from 3.66 to 7.32 meters. The widened tank trail would be designed with stormwater ditches and turnouts and be properly designed and constructed to support the weight and repeated use of tracked vehicles. The tank trail crosses various creeks and these crossings would be impacted by the widening.

Alternative 2 (Preferred Alternative): Airspace and Minimized Ground-Based Changes at Fort Eisenhower:
Alternative 2 consists of the same airspace changes as Alternative 1. Regarding the ground-based changes, Alternative 2 includes construction of the same number of concrete turn pads and firing points as Alternative 1, but all creek crossings would be single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide) minimizing potential impacts to sensitive water resources. There will be additional modifications of the tank trail route and widening to avoid adverse impacts to a National Register eligible archaeological site and protect endangered species habitat.

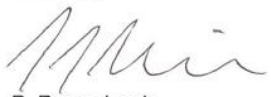
Alternative 3: No Action Alternative:
Under the No Action Alternative, the existing RA would remain unchanged, there would be no concrete turn pads or firing points constructed and all tank trails on Fort Eisenhower would not be changed.

The Fort Eisenhower training areas have all been surveyed for archaeological sites at the Phase I level and there are no facilities within the project footprint. Based on an initial review of the proposed project footprint only one National Register of Historic Places eligibl site, on the border of the tank trail, has the potential to be adversely affect under Alternative 1. However, with the modifications to the tank trail widening in Alternative 2 (preferred alternative), avoiding any ground disturbance at this archaeological site, there will be No Historic Properties Affected by the proposed undertaking.

Additional details on the assessment of affects, for Cultural Resources, will be included in the EA currently being developed. This initial Section 106 letter is to inform you of the proposed project and solicit any additional concerns your office wants included in the EA analysis. Please submit any information no later than 5 January 2024 to have it considered in the EA. The EA will be provided to your office during the 30-day public comment period, as part of the Section 106 consultation.

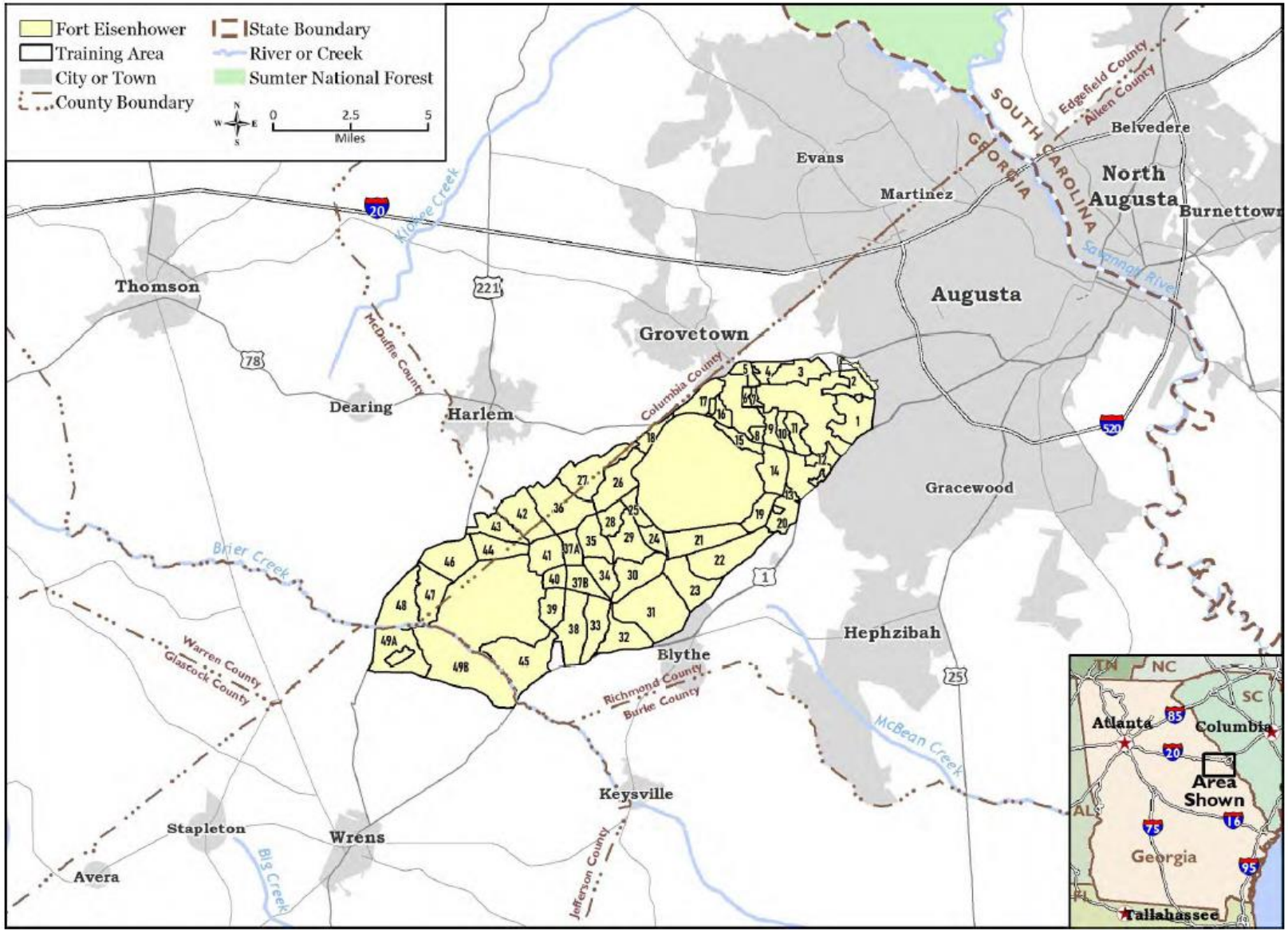
If you have any questions or require additional information, please do not hesitate t contact Mrs. Renee Lewis at (706) 791-2403 or ruth.r.lewis8.civ@army.mil.

Sincerely,

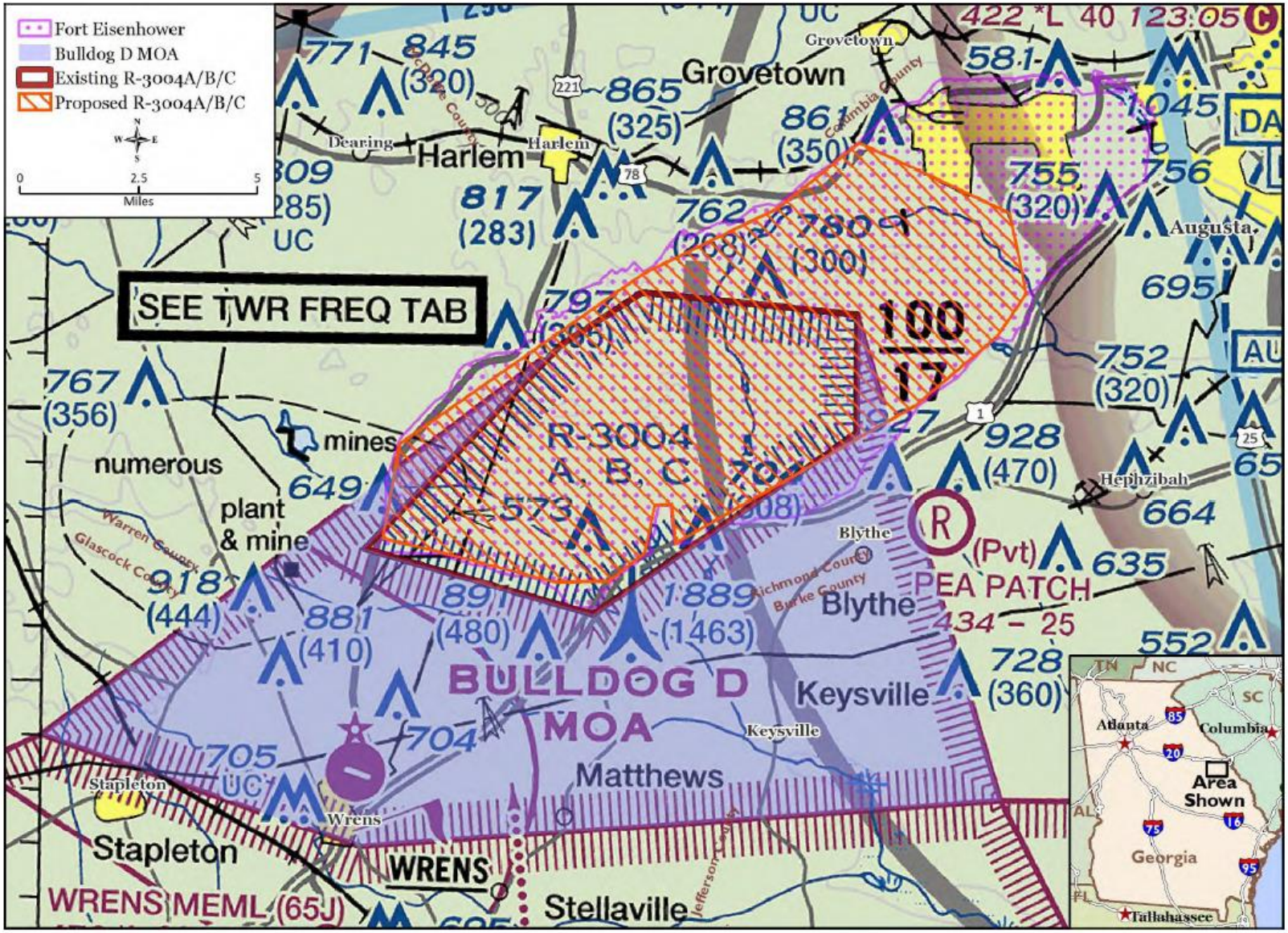


R. Renee Lewis
Cultural Resource Manager
Environmental Division
Directorate of Public Works

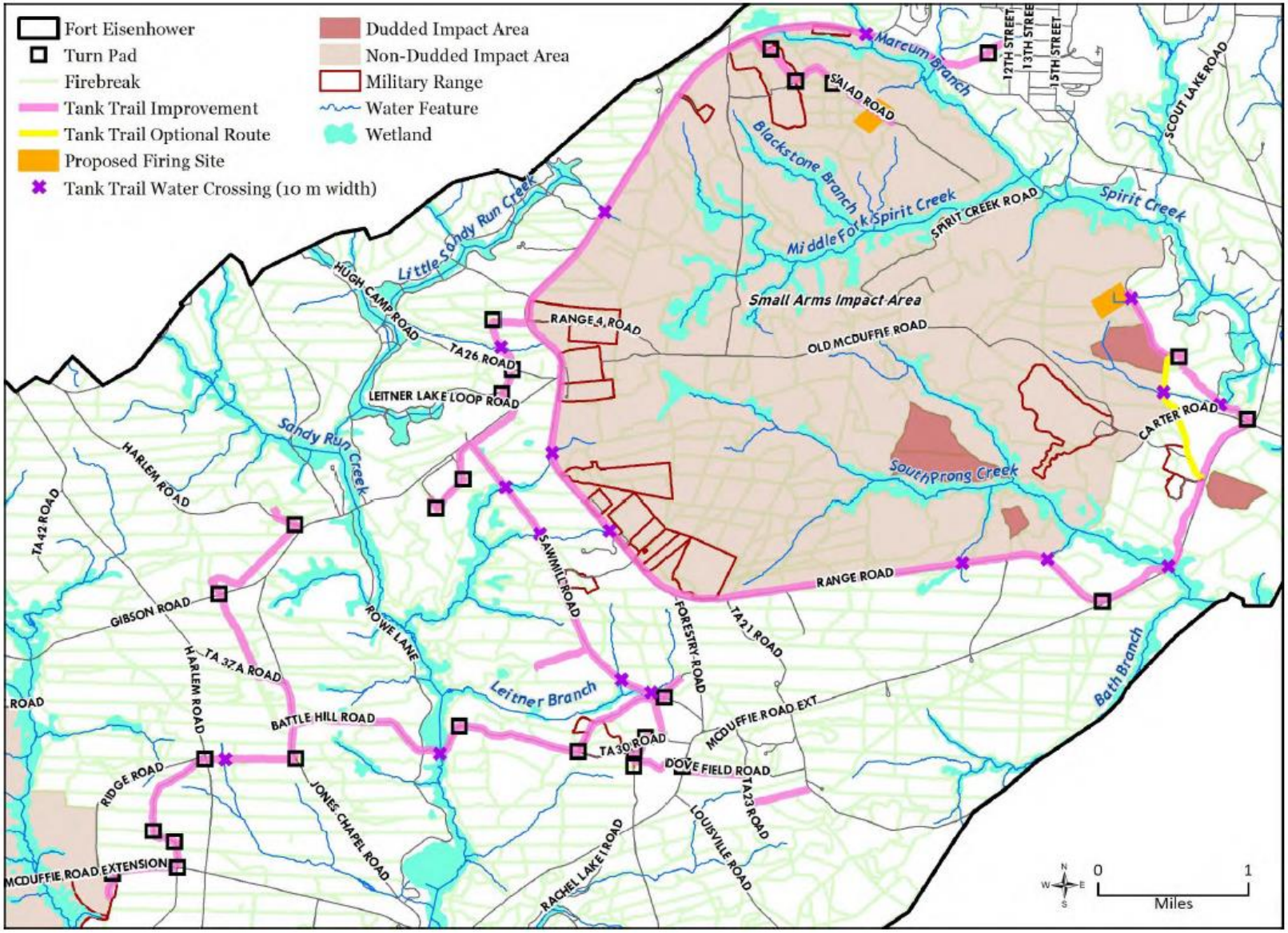
Enclosures



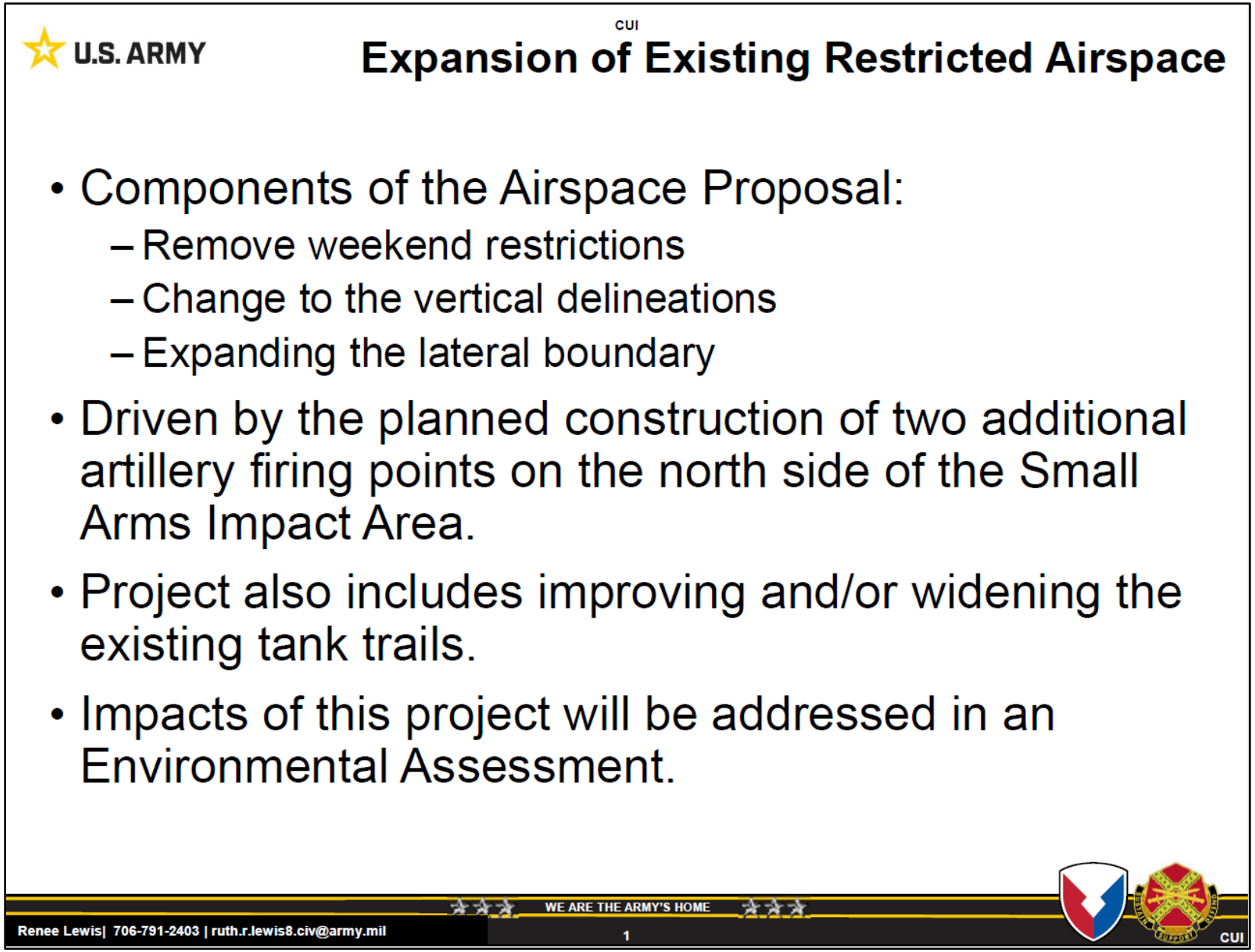
Regional Map of Fort Eisenhower

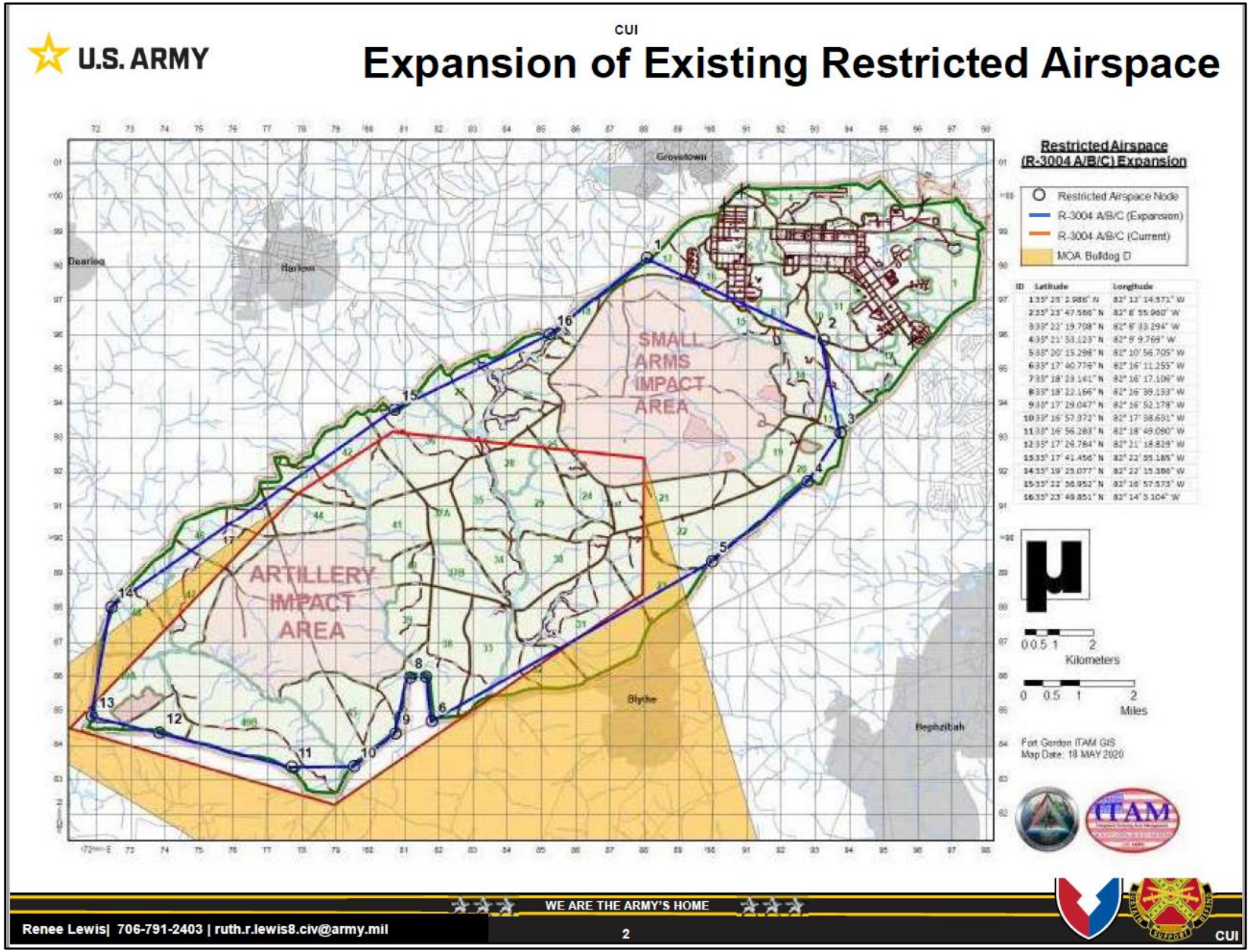


Proposed Lateral Airspace Changes on Fort Eisenhower



Alternative 2. Proposed Minimized Ground-Based Changes on Fort Eisenhower

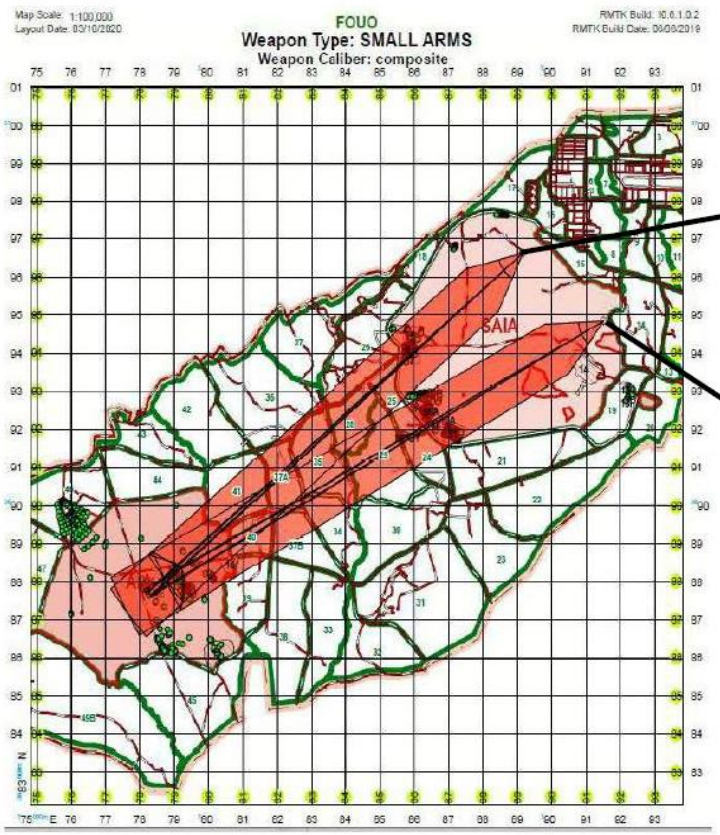

CUI
U.S. ARMY
Expansion of Existing Restricted Airspace
• Components of the Airspace Proposal:
– Remove weekend restrictions
– Change to the vertical delineations
– Expanding the lateral boundary
• Driven by the planned construction of two additional artillery firing points on the north side of the Small Arms Impact Area.
• Project also includes improving and/or widening the existing tank trails.
• Impacts of this project will be addressed in an Environmental Assessment.
WE ARE THE ARMY'S HOME
Renee Lewis| 706-791-2403 | ruth.r.lewis8.civ@army.mil
1
CUI


CUI
U.S. ARMY
Expansion of Existing Restricted Airspace
Restricted Airspace
(R-3004 A/B/C) Expansion
Restricted Airspace Node
R-3004 A/B/C (Expansion)
R-3004 A/B/C (Current)
MOA Bulldog D
SMALL ARMS IMPACT AREA
ARTILLERY IMPACT AREA
Glenwood
Dearing
Harlem
Blythe
Hephzibah
Kilometers
Miles
Fort Gordon ITAM GIS
Map Date: 18 MAY 2020
ITAM
WE ARE THE ARMY'S HOME
Renee Lewis| 706-791-2403 | ruth.r.lewis8.civ@army.mil
2
CUI

CUI

U.S. ARMY

Expansion of Existing Restricted Airspace



Locations of new firing points

WE ARE THE ARMY'S HOME

Renee Lewis| 706-791-2403 | ruth.r.lewis8.civ@army.mil

3

CUI

A.4.2 Tribal Responses

December 18, 2023

Ms. R. Renee Lewis
Department of the Army
Fort Eisenhower
307 Chamberlain Avenue
Fort Eisenhower, Georgia 30905-5730

Dear Ms. Lewis:

Thank you for the letter of notification regarding the proposed expansion of Fort Eisenhower's restricted airspace in Columbia and Richmond Counties, Georgia.

The project is located outside of our area; therefore, we do not request government-to-government consultation with the United States Department of the Army. While we have no objection to the undertaking, we respectfully defer to the federally recognized First American tribe(s) that have identified a connection to the project area.

We appreciate your efforts to preserve and protect significant historic properties. If you have any questions, please contact Ms. Karen Brunso, tribal historic preservation officer, at (580) 272-1106 or by email at hpo@chickasaw.net.

Sincerely,

Kirk Perry, Executive Officer
Division of Historic Preservation

cc: ruth.r.lewis8.civ@army.mil

A.5 State Historic Preservation Office (SHPO) Section 106 Consultation

Consultation with the Georgia SHPO is being completed in accordance with Section 106 of the National Historic Preservation Act. Listed below is the Section 106 letter and associated attachments sent to the SHPO.

A.5.1 Section 106 SHPO Notification Letter

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON,
FORT EISENHOWER
307 CHAMBERLAIN AVENUE
FORT EISENHOWER, GEORGIA 30905-5730

November 30, 2023

Ms. Jennifer Dixon
Division Director/SHPO
Historic Preservation Division
60 Executive Park, NE
Atlanta, GA 30329

Dear Ms. Dixon:

The purpose of this letter is to initiate consultation with your office as required by Section 106 of the National Historic Preservation Act, as amended, on a proposed undertaking to expand Fort Eisenhower's restricted airspace. The restricted airspace expansion will involve extensive ground disturbance, with the construction of two additional artillery firing points and improvements to the 21-mile tank trail, which makes up the Area of Potential Effect (APE).

The purpose of the proposed undertaking is to support the capabilities of the Georgia National Guard, the Electronic Warfare school, and other units that propose to train at Fort Eisenhower. The Proposed Action is needed to improve the training capacity of Fort Eisenhower by maximizing the use of the R-3004 Restricted Area (RA) Complex in support of a growing and diverse training program with various needs and capabilities. A few alternatives will be evaluated in an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). These alternatives are as follows:

Alternative 1: Airspace and Ground-Based Changes at Fort Eisenhower:
The proposed airspace changes would include expansion of the lateral limits of R-3004A/B/C farther north and northeast to incorporate the majority of Fort Eisenhower property. This expansion would be fully contained within the current boundaries of federally owned land above the Fort Eisenhower range complex. In addition, the southwest boundary of the proposed RA would be adjusted so that the boundary is fully contained within the installation property. In addition, there will be vertical changes that raise and lower the existing ceilings of R-3004A/B/C.

The proposed ground-based changes include the construction of 27 concrete turn pads, the construction of two new firing points, and the widening of the tank trail on Fort Eisenhower to 20 meters throughout the installation. The tank trail varies in width from 3.66 to 7.32 meters. The widened tank trail would be designed with stormwater ditches and turnouts and be properly designed and constructed to support the weight and repeated use of tracked vehicles. The tank trail crosses various creeks and these crossings would be impacted by the widening.

Alternative 2 (Preferred Alternative): Airspace and Minimized Ground-Based Changes at Fort Eisenhower:
Alternative 2 consists of the same airspace changes as Alternative 1. Regarding the ground-based changes, Alternative 2 includes construction of the same number of concrete turn pads and firing points as Alternative 1, but all creek crossings would be single-lane crossings versus two-lane crossings (i.e., narrower than 10 meters wide) minimizing potential impacts to sensitive water resources. There will be additional modifications of the tank trail route and widening to avoid adverse impacts to a National Register eligible archaeological site and protect endangered species habitat.

Alternative 3: No Action Alternative:
Under the No Action Alternative, the existing RA would remain unchanged, there would be no concrete turn pads or firing points constructed and all tank trails on Fort Eisenhower would not be changed.

The Fort Eisenhower training areas have all been surveyed for archaeological sites at the Phase I level and there are no facilities within the APE. Based on an initial review of the proposed project footprint only one National Register of Historic Places eligible site, on the border of the tank trail, has the potential to be adversely affect under Alternative 1. However, with the modifications to the tank trail widening in Alternative 2 (preferred alternative), which will avoid any ground disturbance at this archaeological site, there will be No Historic Properties Affected by the proposed undertaking.

Additional details, on the assessment of affects for Cultural Resources, will be included in the EA currently being developed. This initial Section 106 letter is to inform you of the proposed project and solicit any additional concerns your office wants included in the EA analysis. Please submit any information no later than 5 January 2024 to have it considered in the EA. The EA will be provided to your office during the 30-day public comment period, as part of the Section 106 consultation.

If you have any questions or require additional information, please do not hesitate to contact Mrs. Renee Lewis at (706) 791-2403 or ruth.r.lewis8.civ@army.mil.

Sincerely,

R. Renee Lewis
Cultural Resource Manager
Environmental Division
Directorate of Public Works

Enclosures

A.5.2 Section 106 SHPO Response Letter

Brian P. Kemp
Governor

Georgia® Department of Community Affairs
HISTORIC PRESERVATION DIVISION

Christopher Nunn
Commissioner

January 2, 2024

R. Renee Lewis
Cultural Resource/NEPA Program Manager
Department of Public Works Environmental Division
Fort Eisenhower
307 Chamberlain Avenue
Fort Eisenhower, Georgia 30905-5730

RE: Fort Eisenhower: Expand Restricted Airspace, Construct Firing Point, Tank Trail
Richmond County, Georgia
HP-231204-010

Dear Ms. Lewis:

The Historic Preservation Division (HPD) has received the early coordination documentation dated November 30, 2023, for the above referenced project. Our comments are offered to assist the U.S. Department of the Army and Fort Eisenhower in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Thank you for notifying our office of this proposed project. We look forward to receiving Section 106 compliance documentation when it becomes available and to working with you as this project progresses.

Please refer to project number **HP-231204-010** in future correspondence regarding this project. If we may be of further assistance, please contact me at Stacy.Rieke@dca.ga.gov or (470) 522-7979 or Noah Bryant, Compliance Review Archaeologist, at Noah.Bryant@dca.ga.gov or (404) 679-0649.

Sincerely,

Stacy Rieke, MHP
Program Manager
Environmental Review & Preservation Planning

60 Executive Park South, NE | Atlanta, GA 30329-2231 | 404-679-4940
www.dca.ga.gov | An Equal Opportunity Employer

A.6 Endangered Species Act (ESA) Section 7 Consultation

A.6.1 U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) Report for Fort Eisenhower

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601-2523
Phone: (706) 613-9493 Fax: (706) 613-6059

In Reply Refer To:
Project Code: 2024-0024174
Project Name: Fort Eisenhower

December 07, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design if you determine those species or designated critical habitat may be affected by your proposed project.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency, project proponent, or their designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally listed threatened or endangered fish or wildlife species without the appropriate permit. If you need additional information to assist in your effect determination, please contact the Service.

If you determine that your proposed action may affect federally listed species, please consult with the Service. Through the consultation process, we will analyze information contained in a biological assessment or equivalent document that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a Habitat Conservation Plan) may be necessary to exempt harm or harass federally listed threatened or endangered fish or wildlife species. For more information regarding formal consultation and HCPs, please see the Service's Section 7 Consultation Library and Habitat Conservation Plans Library Collections.

Action Area. The scope of federally listed species compliance not only includes direct effects, but also any indirect effects of project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations). The action area is the spatial extent of an action's direct and indirect modifications or impacts to the land, water, or air (50 CFR 402.02). Large projects may have effects to land, water, or air outside the immediate footprint of the project, and these areas should be included as part of the action area. Effects to land, water, or air outside of a project footprint could include things like lighting, dust, smoke, and noise. To obtain a complete list of species, the action area should be uploaded or drawn in IPaC rather than just the project footprint.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. An updated list may be requested through IPaC.

ESA Section 7 consultation (and related tools such as the EDGES and/or DKeys) apply to projects being permitted or funded by a Federal agency. However, please note that a lead federal agency may consider an action area that excludes portions of the project footprint. In these cases, further coordination with our office may be required to ensure compliance with the ESA. It is the responsibility of the project proponent to coordinate with the lead federal agency to understand the action and action area being reviewed as part of ESA Section 7 consultation.

How to Submit a Project Review Package. If you determine that your action may affect any federally listed species and would like technical assistance from our office, please send us a complete project review package. A step by step guide is available at the Georgia Ecological Services Project Planning and Review page (https://www.fws.gov/office/georgia-ecological-services/project-planning-review).

Beginning April 1, 2023, requests for threatened and endangered species project reviews must be submitted to our office using the process described below. (If you are not emailing us to submit a project for review, your email will be forwarded to the appropriate staff.) This is a three-step process. All steps must be completed to ensure your project is reviewed by a biologist in our office and you receive a timely response. In brief the steps are:

Step 1. Request an official species list for your project through IPaC (Done!)
Step 2. Complete applicable Determination Keys
Step 3. Send your complete project project review package to **GAES_Assistance@FWS.gov** for review if no DKey is applicable or all aspects of the project are not addressed by DKeys, i.e. a species returned by IPaC does not have a DKey to address impacts to it. A complete project review package should include:

1. A description of the proposed action, including any measures intended to avoid, minimize, or offset effects of the action. The description shall provide sufficient detail to assess the effects of the action on listed species and critical habitat, such as the purpose of the action; duration and timing of the action; location (latitude and longitude); specific activities involving disturbance to land, water, and air, and how they will be carried out; current description of areas to be affected directly or indirectly by the action; and maps, drawings, or similar schematics of the action.
2. An updated Official Species List and DKey results
3. Biological Assessments (may include habitat assessments and information on the presence of listed species in the action area);
4. Description of effects of the action on species in the action area and, if relevant, effect determinations for species and critical habitat;
5. Conservation measures and any other available information related to the nature and scope of the proposed action relevant to its effects on listed species or designated critical habitat (e.g., management plans related to stormwater, vegetation, erosion and sediment plans). Visit the Georgia Conservation Planning Toolbox (https://www.fws.gov/story/conservation-tools-georgia) for information about conservation measures.
6. In the email subject line, use the following format to include the Project Code from your IPaC species list and the county in which the project is located (Example: Project Code: 2023-0049730 Gwinnett Co.). For Georgia Department of Transportation related projects, please work with the Office of Environmental Services ecologist to determine the appropriate USFWS transportation liaison.

The Georgia Ecological Services Field Office will send a response email within approximately 30 days of receipt with technical assistance or further recommendations for specific species.

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value. We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website (https://www.fws.gov/program/national-wetlands-inventory) integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for

permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Birds Program (https://fws.gov/program/migratory-birds). To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction. It can be found at the Service's Migratory Birds Conservation Library Collection (https://fws.gov/library/collections/migratory-bird-conservation-documents).

Information related to best practices and migratory birds can be found at the Service's Avoiding and Minimizing Incidental Take of Migratory Birds Library Collection (https://fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds).

BALD AND GOLDEN EAGLES

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at the Service's Bald and Golden Eagle Management Library Collection (https://fws.gov/library/collections/bald-and-golden-eagle-management).

NATIVE BATS

If your species list includes Indiana bat (*Myotis sodalis*) or northern long-eared bat (*M. septentrionalis*) and the project is expected to impact forested habitat that is appropriate for maternity colonies of these species, forest clearing should occur outside of the period when bats may be present. Federally listed bats could be actively present in forested landscapes from April 1 to October 15 of any year and have non-volant pups from May 15 to July 31 in any year. Non-volant pups are incapable of flight and are vulnerable to disturbance during that time.

Indiana, northern long-eared, and gray (*M. grisescens*) bats are all known to utilize bridges and culverts in Georgia. If your project includes maintenance, construction, or any other modification or demolition to transportation structures, a qualified individual should complete a survey of these structures for bats and submit your findings via the Georgia Bats in Bridges cell phone application, free on Apple and Android devices. Please include these findings in any biological

assessment(s) or other documentation that is submitted to our office for technical assistance or consultation.

Additional information can be found at Georgia Ecological Services' Conservation Planning Toolbox and Bat Conservation in Georgia pages.

MONARCH BUTTERFLY

On December 20, 2020, the Service determined that listing the Monarch butterfly (*Danaus plexippus*) under the Endangered Species Act is warranted but precluded at this time by higher priority listing actions. With this finding, the monarch butterfly becomes a candidate for listing. The Service will review its status each year until we are able to begin developing a proposal to list the monarch.

As it is a candidate for listing, the Service welcomes conservation measures for this species. Recommended, and voluntary, conservation measures for projects in Georgia can be found at our Monarch Conservation in Georgia (https://www.fws.gov/project/monarch-conservation-georgia) page.

EASTERN INDIGO SNAKE

Our office has published guidance documents to assist project proponents in avoiding and minimizing potential impact to the eastern indigo snake. The Visual Encounter Survey Protocol for the Eastern Indigo Snake (*Drymarchon couperi*) in Georgia is recommended for project proponents or their designees to evaluate the possible presence of the Eastern indigo snake at a proposed project site. The Standard Protection Measures for the Eastern Indigo Snake (*Drymarchon couperi*) include educational materials and training that can help protect the species by making staff working on a project site aware of their presence and traits. In Georgia, indigo snakes are closely associated with the state-listed gopher tortoise (*Gopherus polyphemus*), a reptile that excavates extensive underground burrows that provide the snake shelter from winter cold and summer desiccation.

SOLAR ENERGY DEVELOPMENT

The Recommended Practices for the Responsible Siting and Design of Solar Development in Georgia were published in September 2023 and are intended to provide voluntary guidance to support consideration of natural resources during the development of photovoltaic solar in Georgia. Furthermore, the Georgia Low Impact Solar Siting Tool (LISST) is available as a web application and as a map layer in IPaC (Find it in the “Layers” Box > “Environmental Data”) to provide project managers with the data to identify areas that may be preferred for low-impact development. The tool seeks to support the acceleration of large-scale solar development in areas with less impact to the environment.

STATE AGENCY COORDINATION

Additional information that addresses at-risk or high priority natural resources can be found in the State Wildlife Action Plan (https://georgiawildlife.com/WildlifeActionPlan), at Georgia Department of Natural Resources, Wildlife Resources Division Biodiversity Portal (https://georgiawildlife.com/conservation/species-of-concern), Georgia's Natural, Archaeological, and

Historic Resources GIS portal (https://www.gnahrgis.org/gnahrgis/index.do), and the Georgia Ecological Services HUC10 Watershed Guidance page.

Thank you for your concern for endangered and threatened species. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please email gaes_assistance@fws.gov and reference the project county and your Service Project Tracking Number.

This letter constitutes Georgia Ecological Services' general comments under the authority of the Endangered Species Act.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

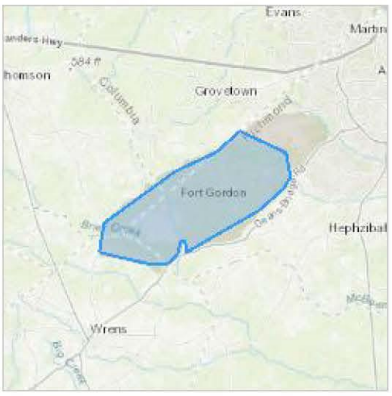
Georgia Ecological Services Field Office
355 East Hancock Avenue
Room 320
Athens, GA 30601-2523
(706) 613-9493

PROJECT SUMMARY

Project Code: 2024-0024174
Project Name: Fort Eisenhower
Project Type: Military Operations
Project Description: Airspace revision over the Fort Eisenhower installation. Project is planned for implementation in 2023-2024. Project also includes the improvement of tank trails on the installation.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.348390300000005,-82.24883692794398,14z



Counties: Georgia

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Red-cockaded Woodpecker *Picoides borealis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Ocmulgee Skullcap *Scutellaria ocmulgee* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6796	Proposed Threatened
Relict Trillium *Trillium reliquum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8489	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

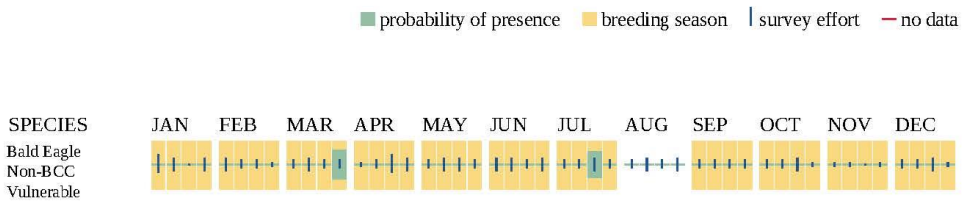
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Kestrel *Falco sparverius paulus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9587	Breeds Apr 1 to Aug 31
Bachman's Sparrow *Aimophila aestivalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6177	Breeds May 1 to Sep 30
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Brown-headed Nuthatch *Sitta pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9427	Breeds Mar 1 to Jul 15
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25

NAME	BREEDING SEASON
Coastal (waynes) Black-throated Green Warbler *Setophaga virens waynei* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11879	Breeds May 1 to Aug 15
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9511	Breeds Apr 25 to Aug 15
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1Ch
- PEM1Fh
- PEM1C
- PEM1B
- PEM1Fx
- PEM1Ah
- PEM1Cb
- PEM1F
- PEM1Fb

FRESHWATER FORESTED/SHRUB WETLAND

- PFO4A
- PFO1Ch
- PFO1/2Ch
- PFO4/SS3B
- PSS1A
- PFO4Ah
- PFO1Fh
- PFO4/1Ah
- PFO1Cb
- PSS1Ah

- PSS3/FO4B
- PSS1B
- PFO1F
- PFO1/3B
- PFO1/4B
- PSS4B
- PFO3/4B
- PFO4B
- PFO1/SS3B
- PFO1B
- PFO3B
- PFO1/4A
- PFO1Ab
- PSS1Fh
- PSS1Ch
- PFO1Ah
- PSS3B
- PFO4/1A
- PFO1Fb
- PSS3/4B
- PSS1Fx
- PFO1/2Fh
- PFO1/2F
- PSS1Fb
- PSS1C
- PFO4/1B
- PFO1/4C
- PFO1C
- PFO1A

FRESHWATER POND

- PUBHh
- PUBHx
- PUBHb
- PUBH
- PAB3Fh
- PAB4Hb

RIVERINE

- R4SBC
- R5UBH
- R2UBH

LAKE

- L1UBHh

IPAC USER CONTACT INFORMATION

Agency: Army
Name: Brian Tutterow
Address: 13397 Lakefront Avenue
City: Earth City
State: MO
Zip: 63045
Email btutterow100@gmail.com
Phone: 3146203426

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B
Air Quality

THIS PAGE INTENTIONALLY LEFT BLANK

B.1 Air Conformity Applicability Model Report Record of Air Analysis (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:
Base: AF PLANT 6
State: Georgia
County(s): Cobb (Surrogate)
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Airspace and Ground-Based Changes, Fort Eisenhower, Georgia

c. Project Number/s (if applicable):

d. Projected Action Start Date: 7 / 2024

e. Action Description:

Fort Eisenhower would expand indirect live-fire capabilities in support of the Georgia National Guard (214th Field Artillery) and in support of the establishment of the Electronic Warfare (EW) school at Fort Eisenhower. This action would expand airspaces, widen tank trails, establish new firing points, and construct concrete turn pads.

f. Point of Contact:

Name:	Chris Crabtree
Title:	Air Quality Meteorologist
Organization:	Leidos Corp
Email:	crabtreec@leidos.com
Phone Number:	805-566-6422

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQS). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action

will not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators see Chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.499	100	
NOx	8.772	100	
CO	8.683	250	
SOx	0.026	250	
PM 10	381.547	250	Yes
PM 2.5	0.343	250	
Pb	0.000	25	No
NH3	0.004	250	
CO2e	2592.6		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.001	100	
NOx	0.391	100	
CO	0.024	250	
SOx	0.024	250	
PM 10	0.025	250	
PM 2.5	0.022	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	71.0		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.001	100	
NOx	0.391	100	
CO	0.024	250	
SOx	0.024	250	
PM 10	0.025	250	
PM 2.5	0.022	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	71.0		

The estimated annual net emissions associated with this action temporarily exceed the insignificance indicators. However, the steady state estimated annual net emissions are below the insignificance indicators showing no significant long-term impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQS. No further air assessment is needed.

_____ _____

Chris Crabtree, Air Quality Meteorologist

B.2 Detail Air Conformity Applicability Model Report

1. General Information

- Action Location
Base: AF PLANT 6
State: Georgia
County(s): Cobb (Surrogate)
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Airspace and Ground-Based Changes, Fort Eisenhower, Georgia

- Project Number/s (if applicable):

- Projected Action Start Date: 7 / 2024

- Action Purpose and Need:
The purpose of the Proposed Action is to support the capabilities of the Georgia National Guard and other units that propose to train at Fort Eisenhower.

- Action Description:
Fort Eisenhower would expand indirect live-fire capabilities in support of the Georgia National Guard (214th Field Artillery) and in support of the establishment of the Electronic Warfare (EW) school at Fort Eisenhower. This action would expand airspaces, widen tank trails, establish new firing points, and construct concrete turn pads.

- Point of Contact
Name: Chris Crabtree
Title: Air Quality Meteorologist
Organization: Leidos Corp
Email: crabtreec@leidos.com
Phone Number: 805-566-6422

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Aircraft Ops below 3,000' AGL
3.	Construction / Demolition	Widen Tank Tracks
4.	Construction / Demolition	Construct concrete turn pads
5.	Construction / Demolition	Construct Firing Points
6.	Aircraft	Aircraft ops below 3,000' AGL.
7.	Aircraft	Aircraft ops below 3,000' AGL.
8.	Aircraft	Aircraft ops below 3,000' AGL
9.	Aircraft	Aircraft ops below 3,000' AGL

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Cobb

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Aircraft Ops below 3,000' AGL

- Activity Description:
MV-22 - Net increase in aircraft ops below 3,000' AGL.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.000016
SO_x	0.000761
NO_x	0.005596
CO	0.001294
PM 10	0.001123

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.001010
Pb	0.000000
NH_3	0.000000
CO_2e	2.3

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: MV-22A
Engine Model: T406-AD-400
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	362.00	0.10	1.07	4.15	8.35	1.58	1.42	3234
Approach	663.00	0.02	1.07	6.05	3.47	1.58	1.42	3234
Intermediate	948.00	0.02	1.07	7.87	1.82	1.58	1.42	3234
Military	2507.00	0.01	1.07	18.03	0.29	1.58	1.42	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		1
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	45
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Widen Tank Tracks

- Activity Description:
The current tank trail network on Fort Eisenhower varies from 12 to 24-feet wide. As part of this alternative, the tank trails would be widened to approximately 66-feet wide which would include a total of 16 creek crossings.
Assume 20 miles of trail, average width of 18 feet and clearing to 66 feet, so 48 feet of grading. 20 x 5280 x 48 = 5,068,800 sf. 5,068,800/43560 = 116 acres.

- Activity Start Date
Start Month: 7
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.953786
SO_x	0.015795
NO_x	5.682373
CO	5.074578
PM 10	302.771237

Pollutant	Total Emissions (TONs)
PM 2.5	0.225753
Pb	0.000000
NH_3	0.001433
CO_2e	1584.4

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 6
Number of Days: 0

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 5068800
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	3	8
Scrapers Composite	6	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130

Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

VMT_{WT} = WD * WT * 1.25 * NE

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- Activity Location

County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Construct concrete turn pads

- Activity Description:

Construct 27 concrete turn pads to prevent soil erosion at locations where tanks would turn to change direction. The concrete turn pads would be approximately 82 feet long by 82 feet wide.

Grading of turn pads = 82' x 82' X 27 = 181,548 sq feet or 4.16 acres.

Trenching of turn pads for concrete = 181,548 sq feet x 1’ = 6,724 cy / 27 cf/cy = 337 truck trips.

Concrete for turn pads = 181,548 sq feet x 1’ = 6,724 cy / 27 cf/cy = 337 truck trips.

- Activity Start Date

Start Month: 7
Start Month: 2024

- Activity End Date

Indefinite: False
End Month: 10
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.156852
SO_x	0.002992
NO_x	0.884842
CO	1.135017
PM 10	10.869200

Pollutant	Total Emissions (TONs)
PM 2.5	0.032935
Pb	0.000000
NH_3	0.000878
CO_2e	303.0

4.1 Site Grading Phase

4.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 3
Number of Days: 0

4.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 181548
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	7

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

4.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4.2 Trenching/Excavating Phase

4.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 3
Number of Days: 0

4.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 181548
Amount of Material to be Hauled On-Site (yd^3): 6724
Amount of Material to be Hauled Off-Site (yd^3): 6724

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

4.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5. Construction / Demolition

5.1 General Information & Timeline Assumptions

- Activity Location
County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Construct Firing Points

- Activity Description:
Grading of firing points = 675’ x 1175’ x 2 = 1,568,250 sq feet or 36.4 acres.

Trenching of firing points for concrete = 181,548 sf.

Concrete = 181,548 sq feet x 1’ = 6,724 cy / 20 cy/ truck trip = 337 truck trips.

- Activity Start Date
Start Month: 7
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 12
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.388645
SO_x	0.007027
NO_x	2.204521
CO	2.473224
PM 10	67.906533

Pollutant	Total Emissions (TONs)
PM 2.5	0.084778
Pb	0.000000
NH_3	0.001251
CO_2e	705.2

5.1 Site Grading Phase

5.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 4
Number of Days: 0

5.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 1568250
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	3	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

5.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5.2 Trenching/Excavating Phase

5.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 3
Number of Days: 0

5.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 181548
Amount of Material to be Hauled On-Site (yd^3): 6724
Amount of Material to be Hauled Off-Site (yd^3): 6724

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8

Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

5.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

5.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Aircraft ops below 3,000' AGL.

- Activity Description:
C-17 - Net increase in aircraft ops below 3,000' AGL.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.000139
SO_x	0.003712
NO_x	0.113517
CO	0.001110
PM 10	0.008014

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.007216
Pb	0.000000
NH_3	0.000000
CO_2e	11.2

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: C-17A
Engine Model: F117-PW-100
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	978.00	0.37	1.07	3.76	22.70	10.67	9.60	3234
Approach	4645.00	0.05	1.07	15.49	0.51	5.53	4.98	3234
Intermediate	10408.00	0.04	1.07	32.72	0.32	2.31	2.08	3234
Military	13905.00	0.01	1.07	35.04	0.32	0.06	0.05	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		1
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	10
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)

60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Aircraft ops below 3,000' AGL.

- Activity Description:
C-130 - Net increase in aircraft ops below 3,000' AGL.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.000012
SO_x	0.000621
NO_x	0.005313
CO	0.001126
PM 10	0.000848

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000761
Pb	0.000000
NH_3	0.000000
CO_2e	1.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

PM 10	0.000000		

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: NC-130E
Engine Model: T56-A-7A
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 4

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	724.00	0.08	1.07	7.58	5.06	3.64	3.28	3234
Approach	880.00	0.06	1.07	7.54	3.89	3.85	3.47	3234
Intermediate	1742.00	0.02	1.07	9.15	1.94	1.46	1.31	3234
Military	2262.00	0.01	1.07	12.46	2.30	1.22	1.10	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

7.3 Flight Operations

7.3.1 Flight Operations Assumptions

- Flight Operations
Number of Aircraft: 1
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 1
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)
Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 10
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test
Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

7.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

8. Aircraft

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Cobb

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Aircraft ops below 3,000' AGL

- Activity Description:
P-8 - Net increase in aircraft ops below 3,000' AGL.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.000952
SO_x	0.008857
NO_x	0.196189
CO	0.004139
PM 10	0.000886

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000795
Pb	0.000000
NH_3	0.000000
CO_2e	26.8

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000
CO_2e	0.0

8.2 Aircraft & Engines

8.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: C-40B
Engine Model: CFM56-7B27
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

8.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	921.00	1.96	1.07	4.80	17.90	0.05	0.04	3234
Approach	2770.00	0.12	1.07	11.00	1.40	0.04	0.04	3234
Intermediate	8278.00	0.12	1.07	23.70	0.50	0.11	0.10	3234
Military	10191.00	0.12	1.07	30.90	0.20	0.12	0.11	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

8.3 Flight Operations

8.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:		1
Flight Operation Cycle Type:	LFP (Low Flight Pattern)	
Number of Annual Flight Operation Cycles for all Aircraft:		1
Number of Annual Trim Test(s) per Aircraft:		0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	60
Takeoff [Military] (mins):	0
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	0
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

8.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Cobb
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Aircraft ops below 3,000' AGL

- Activity Description:
All helicopter - Net increase in aircraft ops below 3,000' AGL. Used MV-22 as a surrogate aircraft.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.000205
SO_x	0.009552
NO_x	0.070255
CO	0.016247
PM 10	0.014105

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.012676
Pb	0.000000
NH_3	0.000000
CO_2e	28.9

- Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO_x	0.000000
NO_x	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH_3	0.000000

CO	0.000000
PM 10	0.000000

CO_2e	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: MV-22A
Engine Model: T406-AD-400
Primary Function: Transport - Bomber
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	362.00	0.10	1.07	4.15	8.35	1.58	1.42	3234
Approach	663.00	0.02	1.07	6.05	3.47	1.58	1.42	3234
Intermediate	948.00	0.02	1.07	7.87	1.82	1.58	1.42	3234
Military	2507.00	0.01	1.07	18.03	0.29	1.58	1.42	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 1
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 1
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 565
Takeoff [Military] (mins): 0
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year
AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year
$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year
$AEPS_{POL}$ = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year
$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C

Airspace - Legal Description and Boundaries

THIS PAGE INTENTIONALLY LEFT BLANK

C.1 R-3004A/B/C SUA LEGAL DESCRIPTION AND BOUNDARIES

The Federal Aviation Administration proposes to amend 14 CFR part 73 as follows:

R–3004A Fort Eisenhower, GA [Amended]

Boundaries. Beginning at lat. 33°25′03″N, long. 82°12′15″W;
to lat. 33°23′48″N, long. 82°08′56″W;
to lat. 33°22′20″N, long. 82°08′33″W;
to lat. 33°21′33″N, long. 82°09′10″W;
to lat. 33°20′15″N, long. 82°10′57″W;
to lat. 33°17′41″N, long. 82°16′11″W;
to lat. 33°18′23″N, long. 82°16′17″W;
to lat. 33°18′22″N, long. 82°16′39″W;
to lat. 33°17′29″N, long. 82°16′52″W;
to lat. 33°16′57″N, long. 82°17′39″W;
to lat. 33°16′56″N, long. 82°18′50″W;
to lat. 33°17′27″N, long. 82°21′19″W;
to lat. 33°17′41″N, long. 82°22′35″W;
to lat. 33°19′26″N, long. 82°22′15″W;
to lat. 33°22′37″N, long. 82°16′58″W;
to lat. 33°23′50″N, long. 82°14′03″W;
to the point of beginning.

Designated Altitudes. Surface to but not including 2,500 feet MSL.

Time of designation. By NOTAM 24 hours in advance.

Controlling agency. FAA, Atlanta ARTCC.

Using agency. U.S. Army, Commanding Officer, Fort Eisenhower, GA.

Remarks. Aircraft activities must not be conducted on national holidays or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days if required).

R-3004B Fort Eisenhower, GA [Amended]

Boundaries. Beginning at lat. 33°25′03″N, long. 82°12′15″W;
to lat. 33°23′48″N, long. 82°08′56″W;
to lat. 33°22′20″N, long. 82°08′33″W;
to lat. 33°21′33″N, long. 82°09′10″W;
to lat. 33°20′15″N, long. 82°10′57″W;
to lat. 33°17′41″N, long. 82°16′11″W;
to lat. 33°18′23″N, long. 82°16′17″W;
to lat. 33°18′22″N, long. 82°16′39″W;
to lat. 33°17′29″N, long. 82°16′52″W;
to lat. 33°16′57″N, long. 82°17′39″W;
to lat. 33°16′56″N, long. 82°18′50″W;
to lat. 33°17′27″N, long. 82°21′19″W;
to lat. 33°17′41″N, long. 82°22′35″W;
to lat. 33°19′26″N, long. 82°22′15″W;
to lat. 33°22′37″N, long. 82°16′58″W;
to lat. 33°23′50″N, long. 82°14′03″W;
to the point of beginning.

Designated Altitudes. 2,500 feet MSL to but not including 10,000 feet MSL.

Time of designation. By NOTAM 24 hours in advance.

Controlling agency. FAA, Atlanta ARTCC.

Using agency. U.S. Army, Commanding Officer, Fort Gordon, GA.

Remarks. Aircraft activities must not be conducted on national holidays or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days if required).

R-3004C Fort Eisenhower, GA [Amended]

Boundaries. Beginning at lat. 33°25′03″N, long. 82°12′15″W
to lat. 33°23′48″N, long. 82°08′56″W;
to lat. 33°22′20″N, long. 82°08′33″W;
to lat. 33°21′33″N, long. 82°09′10″W;
to lat. 33°20′15″N, long. 82°10′57″W;
to lat. 33°17′41″N, long. 82°16′11″W;
to lat. 33°18′23″N, long. 82°16′17″W;
to lat. 33°18′22″N, long. 82°16′39″W;
to lat. 33°17′29″N, long. 82°16′52″W;
to lat. 33°16′57″N, long. 82°17′39″W;
to lat. 33°16′56″N, long. 82°18′50″W;
to lat. 33°17′27″N, long. 82°21′19″W;
to lat. 33°17′41″N, long. 82°22′35″W;
to lat. 33°19′26″N, long. 82°22′15″W;
to lat. 33°22′37″N, long. 82°16′58″W;
to lat. 33°23′50″N, long. 82°14′03″W;
to the point of beginning.

Designated Altitudes. 10,000 feet MSL to 16,000 feet MSL.

Times of designation. By NOTAM 24 hours in advance.

Controlling agency. FAA, Atlanta ARTCC.

Using agency. U.S. Army, Commanding Officer, Fort Gordon, GA.

Remarks. Aircraft activities must not be conducted on national holidays or from the Sunday prior to the Masters Golf Tournament through the Monday after (and subsequent weather days if required).

C.2 Federal Aviation Administration Memorandum for Record

DEPARTMENT OF THE ARMY
EASTERN SERVICE AREA REPRESENTATIVE
FEDERAL AVIATOIN ADMINISTRATION
1701 COLUMBIA AVE
COLLEGE PARK, GEORGIA 30337

DAMO-AVA-E 7 June 2023

MEMORANDUM FOR Record

SUBJECT: Updated Boundary and Altitude Changes for the R-3004 Airspace Proposal

1. The FAA, Army, and other parties met on 20 September 2022 to participate in a Safety Risk Management (SRM) Proposal Meeting for the expansion of the R-3004 Restricted Area. During this meeting, the FAA and Fort Gordon, GA made changes to the original airspace proposal in order to reach compromise.

a) Altitude levels of R-3004A, R-3004B, and R-3004C were amended in order to facilitate civilian air traffic approaches into Daniel Field Airport (KDNL), Augusta, GA.

b) Verbiage was agreed upon with the US Air Force to clarify the slight overlap of R-3004 and Bulldog MOA, which resulted in the R-3004 portions taking precedence over Bulldog MOA when both are active.

2. The R-3004 airspace expansion proposal made it through Notice of Proposed Rulemaking (NPRM) without comment. The proposal is being packaged for the Eastern Service Area's Operations Support Group (OSG) approval, and will soon be at FAA Headquarters for approval.

3. Enclosure 1, "Federal Register / Vol. 88, No. 68 / Monday, April 10, 2023 / Proposed Rules", shall be used as the guiding document for the updated and correct boundaries of R-3004's airspace proposal.

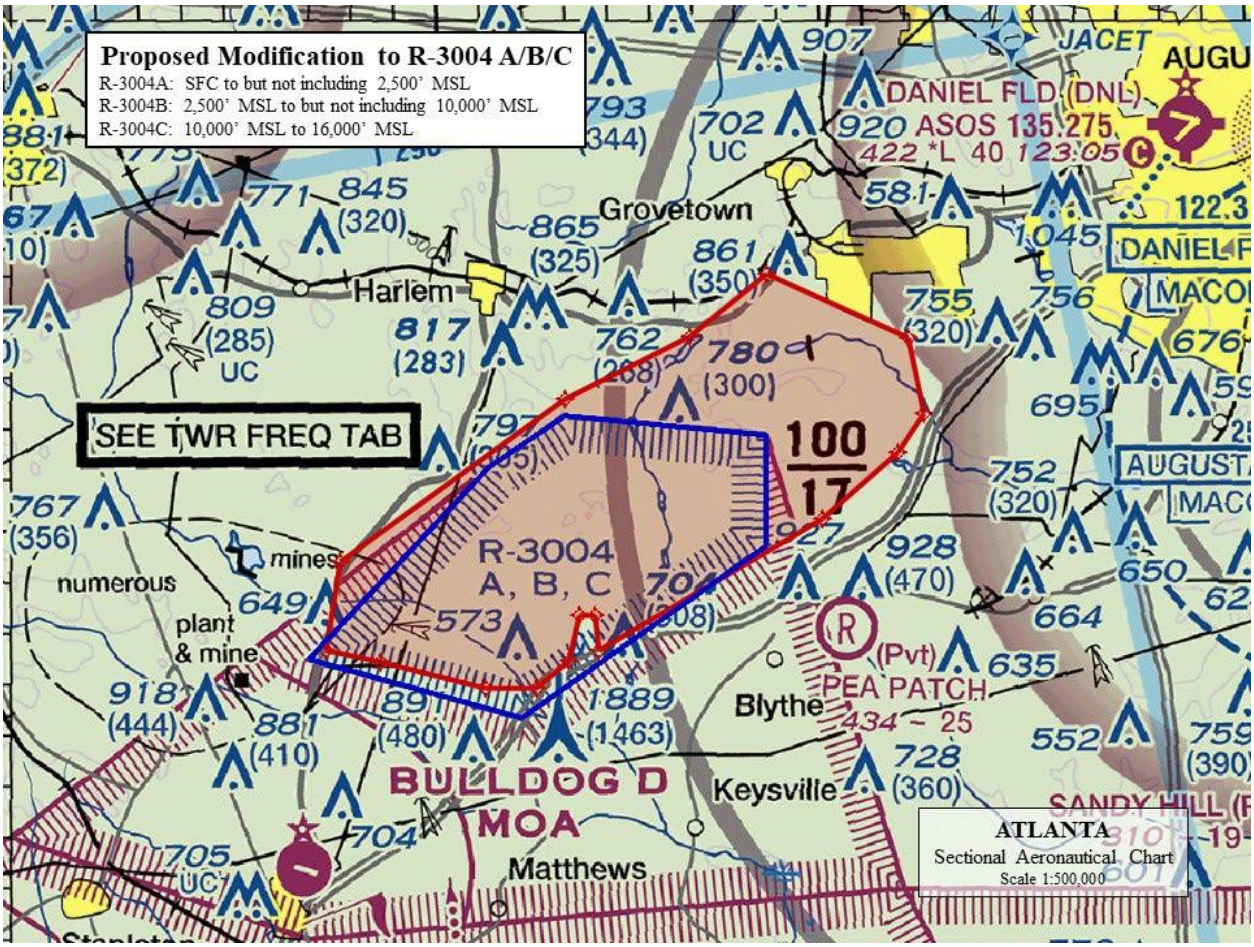
4. POC for this memorandum is MSG Hennessy, Andrew M. at 334-494-1488, email: andrew.m.hennessy@faa.gov.

HENNESSY.ANDREW.MARK.1258160602
Digitally signed by HENNESSY.ANDREW.MARK.1258160602
Date: 2023.06.07 10:48:48 -04'00'

2 Encls (imbedded to PDF file)
1. Updated Proposal, NPRM Approved
2. Original Proposal

ANDREW M. HENNESSY
MSG, USA
DARR NCO – FAA Eastern Service Area

Attachment


Proposed Modification to R-3004 A/B/C
R-3004A: SFC to but not including 2,500' MSL
R-3004B: 2,500' MSL to but not including 10,000' MSL
R-3004C: 10,000' MSL to 16,000' MSL
SEE TWR FREQ TAB
R-3004
A, B, C
100
17
Grovetown
Harlem
DANIEL FLD (DNL)
ASOS 135.275
Blythe
Keysville
Matthews
PEA PATCH
BULLDOG D
MOA
numerous
plant
& mine
mines
ATLANTA
Sectional Aeronautical Chart
Scale 1:500,000

4910-13

Title 14-Aeronautics and Space

CHAPTER I-FEDERAL AVIATION ADMINISTRATION
DEPARTMENT OF TRANSPORTATION

[Airspace Docket No. 83-ASO-3]

PART 73 - SPECIAL USE AIRSPACE

Amendment to Restricted Area R-3004
Fort Gordon, GA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This rule amends Restricted Area R-3004, Fort Gordon, GA, by changing the controlling agency from Jacksonville Air Route Traffic Control Center (ARTCC) to Atlanta ARTCC, authorizing an additional activity in the restricted area, and placing operating restrictions on the using agency. This action does not increase the restricted area's size or time of use.

EFFECTIVE DATE: March 15, 1984.

FOR FURTHER INFORMATION CONTACT:

Boyd V. Archer, Airspace and Air Traffic Rules Branch (AAT-230), Airspace-Rules and Aeronautical Information Division, Air Traffic Service, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone: (202) 426-8626.

SUPPLEMENTARY INFORMATION:

HISTORY

On February 17, 1983, the FAA proposed to amend Part 73.30 of the Federal Aviation Regulations (14 CFR Part 73) to amend Restricted Area R-3004, Fort Gordon, GA, by changing the controlling agency from Jacksonville ARTCC to

Atlanta ARTCC, and to enter in the record the addition of air to surface inert and practice ordnance delivery to the current use of the area for artillery firing (48 FR 6991). The controlling agency change reflects a relocation of the Jacksonville and Atlanta ARTCC boundaries. The need for the addition of aircraft activities within the restricted area is a result of significant increases in the using agency's operational readiness training requirements that cannot be accommodated in other existing restricted areas wherein aircraft activity is authorized, or without the establishment of an additional restricted area. Interested parties were invited to participate in this rulemaking proceeding by submitting written comments on the proposal to the FAA. Tventy-seven objections were received as a result of circulation of the subject proposal, however, most of these objections were in response to the associated Bulldog D Military Operations Area (MOA), GA, and involved environmental issues, impact to local airport operations and impact to agricultural operations related to the MOA.

In order to resolve all objections, the U.S. Air Force has altered the proposal by agreeing to a series of operational terms and conditions. Therefore, except for editorial changes, and the operational terms and conditions, this amendment of the restricted area is the same as that proposed in the notice. Section 73.30 of Part 73 of the Federal Aviation Regulations was republished in Advisory Circular AC 70-3A dated January 3, 1983.

THE RULE

This amendment to §73.30 of Part 73 of the Federal Aviation Regulations is to amend Restricted Area R-3004, Fort Gordon, GA, by changing the controlling agency from Jacksonville ARTCC to Atlanta ARTCC, and to enter in the record the addition of air to surface inert and practice ordnance delivery to the current use of the area for artillery firing. The controlling agency change

reflects a relocation of the Jacksonville and Atlanta ARTCC boundaries. The need for the addition of aircraft activities within the restricted area is a result of significant increases in the using agency's operational readiness training requirements that cannot be accommodated in other existing restricted areas wherein aircraft activity is authorized or without the establishment of an additional restricted area.

This additional activity is limited to the following terms and conditions:

1. Aircraft activities will not be conducted on weekends, National holidays or the entire week of the Masters Golf Tournament.

2. Aircraft activities will be limited to surface to 12,000 feet AGL.

3. Weather conditions required for aircraft activities are 3,000 feet ceiling and 5 miles visibility.

The United States Air Force has planned to commence their training activity in Restricted Area R-3004 on March 15, 1984. The city of Wrens, GA, and the Georgia State Aviation Office have been so advised. The Air Force has advised the FAA that their crews have been trained and all necessary equipment is in place for a March 15 operation. Any delay would significantly impact this important training activity. Therefore, I find that good cause exists for making this amendment effective in less than 30 days.

LIST OF SUBJECTS

PART 73: RESTRICTED AREAS

ADOPTION OF THE AMENDMENT

Accordingly, pursuant to the authority delegated to me, §73.30 of Part 73 of the Federal Aviation Regulations (14 CFR Part 73), is amended, effective 0901 GMT, March 15, 1984, as follows:

[83-ASO-3]

E-3004 Fort Gordon, GA [Amended]

By deleting the words "Controlling agency. FAA, Jacksonville ARTCC." and substituting for them the words "Controlling agency. FAA, Atlanta ARTCC."

By adding the words "Aircraft activity is limited to the following terms and conditions:
1. Aircraft activities may not be conducted on weekends, National holidays or the entire week of the Masters Golf Tournament.
2. Aircraft activities may only be conducted from the surface to 12,000 feet AGL.
3. Weather conditions required for aircraft activities are 5 miles visibility and with prevailing clouds or obscuring phenomena no greater than five-tenths coverage of the sky and bases no lower than 3,000 feet above the surface."

(Secs. 307(a) and 313(a), Federal Aviation Act of 1958 (49 U.S.C. 1348(a) and 1354(a)); (49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983)); and 14 CFR 11.69.)

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. It, therefore - (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

Issued in Washington, D.C., on February 24, 1984

Original Signed By
John W. Baier
Acting Manager, Airspace-Rules and
Aeronautical Information Division

Federal Aviation Administration Categorical Exclusion Declaration

Date: 10/30/2023

Request ID: Ft Eisenhower R-3004 and Bulldog D MOA

There is currently a proposed modification by the United States Army to modify the boundary of SUA R-3004; however, there will be an overlap between the boundary of R-3004 and the United States Air Force's Bulldog D MOA which is adjacent to R-3004. USAF has agreed that R-3004 would be the airspace priority over Bulldog D MOA when they are activated. Bulldog D MOA will stay as it currently exists.

This Categorical Exclusion is in reference to modifying the language of the legal description of Bulldog D MOA's Special Use Airspace Legal Description to identify that R-3004 would be priority SUA airspace when activated.

The legal description is currently written as follows:

Boundaries. Beginning at lat. 33°14'01"N., long. 82°29'59"W.; to lat. 33°21'16"N., long. 82°18'46"W.; to lat. 33°17'30"N., long. 82°22'59"W.; to lat. 33°16'21"N., long. 82°17'59"W.; to lat. 33°19'44"N., long. 82°12'14"W.; to lat. 33°21'54"N., long. 82°12'14"W.; to lat. 33°13'01"N., long. 82°08'59"W.; to lat. 33°12'01"N., long. 82°22'59"W.; to the point of beginning.

The legal description will be modified as follows:

Boundaries. Beginning at lat. 33°14'01"N., long. 82°29'59"W.; to lat. 33°21'16"N., long. 82°18'46"W.; to lat. 33°17'30"N., long. 82°22'59"W.; to lat. 33°16'21"N., long. 82°17'59"W.; to lat. 33°19'44"N., long. 82°12'14"W.; to lat. 33°21'54"N., long. 82°12'14"W.; to lat. 33°13'01"N., long. 82°08'59"W.; to lat. 33°12'01"N., long. 82°22'59"W.; to the point of beginning, and excluding that airspace within restricted areas R-3004A/B/C when activated.

Declaration of Exclusion:
The FAA has reviewed the above referenced proposed action and it has been determined, by the undersigned, to be categorically excluded from further environmental documentation according to FAA Order 1050.1, "Environmental Impacts: Policies and Procedures." The implementation of this action will not result in any extraordinary circumstances in accordance with FAA Order 1050.1.

Basis for this Determination:
This review was conducted in accordance with policies and procedures in Department of Transportation Order 5610.1, "Procedures for Considering Environmental Impacts" and FAA Order 1050.1.

The applicable Categorical Exclusion is:

5-6.5.d: Modification of the technical description of special use airspace (SUA) that does not alter the dimensions, altitudes, or times of designation of the airspace (such as changes in designation of the controlling or using agency, or correction of typographical errors). (ATO)

Concurrence/Reviewed By:
SHELBY M REGISTER
Digitally signed by SHELBY M REGISTER
Date: 2023.10.30 14:42:11 -04'00'
Title: Environmental Protection Specialist

Approved By:
LISA FAVORS
Digitally signed by LISA FAVORS
Date: 2023.11.09 12:49:59 -05'00'
Title: Team Manager, ECINA, Eastern Service Center, Operations Support Group

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix D

Wetland and Floodplain Area Estimation Method

THIS PAGE INTENTIONALLY LEFT BLANK

D.1 Purpose

This appendix describes the method used to estimate wetland and floodplain and 25-foot stream buffer areas affected by ground-disturbing activities under each alternative.

D.2 Data Sources

Tank trails, surface water features, and wetlands geospatial datasets were provided by the Fort Eisenhower Directorate of Public Works (DPW) (DPW, 2021a; DPW, 2021b). Geospatial data for the Flood Insurance Rate Map for City of Augusta, Richmond County, Georgia (DFIRM ID 13245C), was downloaded from the Federal Emergency Management Agency (FEMA) website.

The FEMA data downloaded, which is the latest information available from FEMA for the region of influence (ROI), included 1 percent annual chance flood hazard zones for the entire ROI but only included 0.2 percent annual chance flood hazard zones within the eastern portion of the range complex. Specifically, the Middle Savannah River watershed included 500-year floodplain delineation, while the Briar Creek watershed did not.

D.3 Process and Assumptions

In this analysis, the term "affected" only implies that some changes are made and does not imply that the ground elevation or hydrologic regime of the ground area would be altered. Widening of the tank trails would, for the most part, be limited to clearing vegetation (including the grubbing of stumps) along with minor grading. The "affected" area would not necessarily lose any wetlands or floodplain or vegetated buffer ecosystem functionality.

Tank Trails and Creek Crossings. Because tank trail and creek crossing design has not been finalized at the time of this analysis, assumptions need to be made to allow estimation of acreage of wetlands and floodplain affected. The tank trails would be widened to 20 meters under Alternative 1. Under Alternative 2, the trails would be widened to 20 meters except at stream crossings, where they would be widened to 10 meters. For the purposes of this analysis, the width of the stream crossing (perpendicular to the stream) was assumed to be 10 meters for all streams crossed. Because some creek crossings do not require physical alterations, this estimate provides a conservative estimate of surface area affected.

Wetlands. Wetland area disturbed was calculated by overlaying tank trails, with trail widths described above, on wetlands polygons.

Floodplains. The 100-year and 500-year floodplain affected was calculated by overlaying the tank trails with FEMA floodplain polygons. As noted previously, no 500-year floodplains have been defined to date within the Briar Creek watershed. The hydrologic regime is fairly homogenous throughout the ROI, primarily consisting of rolling hills drained by low-order streams. Based on this homogeneity, the following process was used to estimate the amount of 500-year floodplain affected in the Briar Creek watershed:

1. Calculate the total 100-year and 500-year floodplain area in the Middle Savannah River watershed. These areas are 923 acres and 33 acres, respectively.
2. Take the ratio of these two numbers, which is 0.035 acres of 500-year floodplain for every acre of 100-year floodplain.
3. Apply that ratio to the calculated 100-year floodplain area in the Briar Creek watershed. The estimated overall 500-year floodplain area affected remains less than 0.1 acres.

Twenty-five-foot Stream Buffer. The affected area within the 25-foot (7.6-meter) buffer was estimated by overlaying the tank trails with a polygon formed by buffering 50 feet (15 meters)

from streams. The available streams spatial data represents streams as linear features (i.e., the stream centerline) and does not include information on stream width. The 50-foot (15-meter) buffer to the left and right of the centerlines includes 25 feet (7.6 meters) for the stream buffer and also a 50-foot (15 meters) conservative assumed width for the stream itself. The analysis assumes that all streams crossed are state waters.

Results of the 100-year floodplain, 500-year floodplain, wetland, and 25-foot (7.6-meter) stream buffer analyses are listed in Table D-1. The table includes a percent difference between the total areas (acres) affected under Alternatives 1 and 2.

Table D-1. Wetland and Floodplain Areas Affected

Area Designation	Alternative 1 (acres)				Alternative 2 (acres)				Difference (%)
	Firing Site	Tank Trail	Water Crossing	Total	Firing Point	Tank Trail	Water Crossing	Total	
100-year floodplain	0	1.8	1.1	2.9	0	1.8	0.5	2.3	26%
500-year floodplain[1]	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
wetland	0	1.2	0.5	1.7	0	1.2	0.2	1.4	21%
25-foot stream buffer	1.9	0.3	2.5	4.7	1.9	0.2	1.3	3.4	38%

< = less than; % = percent; NA = not applicable

D.4 References

DPW. 2021a. Personal Communication via e-mail from Ms. Reneé Lewis (Fort Eisenhower Environmental Division Directorate of Public Works NEPA Coordinator/ Cultural Resource Manager) to Tom Daues (Leidos) via e-mail on August 25, 2021.

DPW. 2021b. Personal Communication via e-mail from Ms. Reneé Lewis (Fort Eisenhower Environmental Division Directorate of Public Works NEPA Coordinator/ Cultural Resource Manager) to Tom Daues (Leidos) via e-mail on May 7, 2021.

FEMA. 2022. Flood Insurance Rate Map for City of Augusta, Richmond County, Georgia (DFIRM ID 13245C) Geospatial data. Published on: 11/15/2019; Updated on: 12/20/2022; Last downloaded on 12/15/2023; downloaded from: https://msc.fema.gov/portal/availabilitySearch?addcommunity=13245C&communityName=RICHMOND%20COUNTY#searchresultsanchor

Appendix E

Munitions Noise Assessment

THIS PAGE INTENTIONALLY LEFT BLANK

The following document, which was prepared by the United States Army Public Health Center, assesses noise impacts associated with munitions usage under the Proposed Action. Specifically, demolition and large caliber munitions noise impacts are discussed in Section 8, while information on numbers of large arms expenditures is included in Section B.3. Munitions noise levels at a proposed Scout/Reconnaissance Gunnery Complex are also discussed. The Scout Reconnaissance Gunnery Complex is not a component of the Proposed Action, and the action is not scheduled to take place until at least 2029.

DEPARTMENT OF THE ARMY
US ARMY PUBLIC HEALTH CENTER
BUILDING 5158
8252 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MARYLAND 21010-5403

MCHB-PH-WMG (500A) 14 September 2021

MEMORANDUM FOR Directorate of Public Works, Environmental Division, (IMGO-PWE/Ms. Renee Lewis), 515 15th St, Fort Gordon, GA 30905-5209

SUBJECT: Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, Noise Assessment for Proposed Scout/Reconnaissance Gunnery Complex and Artillery Firing Points, Fort Gordon, Georgia, 23 July 2021

1. Subject document is enclosed.

2. The U.S. Army Public Health Center (APHC) strives to provide high quality products and services in a timely manner. We would appreciate a few moments of your time to tell us how we did. Please visit the following link: https://usaphcapps.amedd.army.mil/Survey/se.ashx?s=25113745052C38DC. To help ensure we evaluate the proper project:

a. For Question 1 "Directorate/Division" please indicate:

(1) Directorate: Environmental Health Sciences and Engineering

(2) Division: Environmental Health Sciences

b. For Question 2 "Type of product or service received," please indicate: Technical or Surveillance Report

3. Our points of contact for this consultation are Ms. Kristy Broska, Environmental Protection Specialist, or Mr. Dan Reichard, Branch Chief, Environmental Noise, APHC, commercial 410-436-1029 or DSN 584-1029, or email: kristy.a.broska.civ@mail.mil or daniel.k.reichard.civ@mail.mil.

FOR THE DIRECTOR:

SMITH.ALICK.E.1030355985 Digitally signed by SMITH.ALICK.E.1030355985 Date: 2021.09.14 15:35:56 -04'00'

Encl

ALICK E. SMITH
COL, MS
Director, Environmental Health Sciences and Engineering

U.S. ARMY PUBLIC HEALTH CENTER
8252 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, July 2021
Environmental Health Sciences and Engineering

Noise Assessment for Proposed Scout/Reconnaissance Gunnery Complex and Artillery Firing Points, Fort Gordon, Georgia, 23 July 2021

Prepared by Ms. Kristy Broska, Environmental Protection Specialist

General Medical: 500A, Public Health Surveys

APHC FORM 433-E, JAN 18

EXECUTIVE SUMMARY
ENVIRONMENTAL HEALTH SCIENCES
ENVIRONMENTAL NOISE CONSULTATION
NO. S.0054859c-21
NOISE ASSESSMENT FOR
PROPOSED SCOUT/RECONNAISSANCE GUNNERY COMPLEX
AND ARTILLERY FIRING POINTS
FORT GORDON, GEORGIA
23 JULY 2021

1. PURPOSE

The U.S. Army Public Health Center, Environmental Noise Branch, completed this consultation to assess operational noise exposure for a proposed Scout/Reconnaissance (SCOUT/RECCE) Gunnery Complex, and expanded Artillery firing at Fort Gordon.

2. CONCLUSIONS

2.1 General

In this assessment, current firing operations are referred to as baseline conditions and the proposed firing actions are referred to as projected conditions. One of the proposed actions includes the introduction of two new Artillery firing boxes, in the northern portion of the Fort. In general, a firing box is a large fixed area that allows indirect fire units to choose multiple Artillery Firing Points (AFP) within the box. Although Fort Gordon has several existing AFP's and/or firing boxes in the central portion of the Fort, there have been no artillery firing operations in over 5-years due to airspace conflicts. This assessment addresses the return of artillery activity to the existing and the proposed firing areas should the airspace conflicts be resolved.

2.2 Small Arms Caliber Activity

For small arms baseline activity, Noise Zone III (incompatible with noise-sensitive land use) remains within the Fort Gordon boundary. Zone II (normally incompatible) extends beyond the northern boundary up to 1 kilometer (km) (0.6 mile), encompassing primarily agricultural land, with some scattered residences.

The addition of the SCOUT/RECCE Complex to baseline activity produces only isolated changes to the immediate range area. There are no measureable changes to the Noise Zones extending offpost.

2.3 Demolition and Large Caliber Activity

Cumulative (annual average) Noise Zones show that baseline activities are compatible with the surrounding land use. Zone III remains within the installation boundary. Zone II and the Land Use Planning Zone (LUPZ) extend beyond the southern boundary approximately 350 meters (0.2 mile) and 1 km (0.6 mile) respectively. However, land use within these Noise Zones is considered compatible.

ES-1

EXSUM, Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Although the Noise Zones are compatible with the surrounding area, there is potential for individual events to generate noise complaints, in particular from demolition activity. Peak sound level modeling shows that under unfavorable weather, citizens within approximately 4.6 km (2.9 miles) of the southern boundary, and within 2 km (1.25 mile) of the northern boundary, may find the noise from single events noticeable and distinct. Additionally, citizens adjacent to George Claussen Pond may find, on occasion, the demolition activity loud and startling. Under neutral weather conditions, Peak metric contours contract considerably. The activity may be noticeable to those residents adjacent to Route 1 in the vicinity of the demolition range.

Under both projected artillery-firing conditions, changes to the Noise Zones from additional operations primarily occurs onpost within range/training lands. Zone III remains within the Fort boundary. Beyond the boundary, there are minor increases to the Noise Zones, specifically; Zone II increases to 450 meters (0.3 mile) from 350 meters (0.2 mile), and the LUPZ increases to 1.3 km (0.8 mile) from 1 km (0.6 mile). As was the case with baseline conditions, the land use within the Noise Zones is considered compatible.

Peak sound level contours for projected activity show the primary driver of high single event noise levels remains demolition activity. Proposed artillery activity produces only minor changes to the baseline contours, the majority of which occurs inside range and/or training lands. Nevertheless, under unfavorable weather conditions the closest firing positions (existing AFP-G and the proposed northern firing box) to the boundary generate Peak sound levels between 115 and 130 decibel that extend approximately 500 meters (0.3 mile) offpost. The majority of land in these areas is undeveloped (agricultural, open space, or wooded) with some scattered residential use.

3. RECOMMENDATIONS

Include the information from this consultation in the environmental analysis documentation for the proposed action(s).

Provide prior public notice of artillery training events, including date(s) and approximate start and stop times. It is worth noting that although longtime residents may have been previously accustomed to artillery training, the return of these operations, after such a long period of inactivity may be disruptive. This is particularly true for nighttime training activities.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21,
23 July 2021

TABLE OF CONTENTS

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

FIGURES

TABLES

ENVIRONMENTAL HEALTH SCIENCES
ENVIRONMENTAL NOISE CONSULTATION
NO. S.0054859c-21
NOISE ASSESSMENT FOR
PROPOSED SCOUT/RECONNAISSANCE GUNNERY COMPLEX
AND ARTILLERY FIRING POINTS
FORT GORDON, GEORGIA
23 JULY 2021

1. PURPOSE

The U.S. Army Public Health Center, Environmental Noise Branch, completed this consultation to assess operational noise exposure for a proposed Scout/Reconnaissance (SCOUT/RECCE) Gunnery Complex, and expanded Artillery firing at Fort Gordon.

2. REFERENCES AND TERMS

Appendix A contains a list of references used to prepare this consultation. The glossary provides definitions for acronyms, abbreviations, and terms.

3. GENERAL

In this assessment, current firing operations are referred to as baseline conditions and the proposed firing actions are referred to as projected conditions. One of the proposed actions includes the introduction of two new Artillery firing boxes, in the northern portion of the Fort. In general, a firing box is a large fixed area that allows indirect fire units to choose multiple Artillery Firing Points (AFP) within the box. Although Fort Gordon has several existing AFP's and/or firing boxes in the central portion of the Fort, there have been no artillery firing operations in over 5-years due to airspace conflicts. This assessment addresses the return of artillery activity to the existing and the proposed firing areas should the airspace conflicts be resolved.

4. NOISE ASSESSMENT GUIDELINES

Noise Zones are defined in Army Regulation (AR) 200-1. Per AR 200-1 (chapter 14), noise-sensitive land uses, such as housing, schools, and medical facilities are acceptable within the Land Use Planning Zone (LUPZ) and Noise Zone I, generally not compatible in Noise Zone II, and not compatible in Noise Zone III (Department of the Army, 2007). Table 1 lists the land use planning guidelines.

Average noise levels are the best tool for long-term land use planning, but they may not adequately assess the probability of community complaint risk. As recommended in AR 200-1, this assessment includes supplemental metrics to identify where noise from demolition and large caliber activity may periodically reach levels high enough to generate complaints. In many instances, complaints are registered from areas where the Noise Zones indicate land use compatibility. Noise complaints from impulsive noise, often referred to as blast noise, typically are attributable to a specific event rather than annual average noise levels. Peak

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

levels are useful for estimating the risk of receiving a noise complaint from blast noise, as they correlate with the receiver's perception of the sound. Table 2 lists the Army's complaint risk guidelines.

Table 1. Land Use Planning Guidelines

	Noise Limits			
Noise Zone	Aviation ADNL (dB)	Impulsive CDNL (dB)	Small Arms Peak (dB)	**Noise-Sensitive Land Use**
LUPZ	60 – 65	57 – 62	n/a	Generally Compatible
I	< 65	< 62	< 87	Generally Compatible
II	65 – 75	62 – 70	87 – 104	Generally Not Compatible
III	> 75	> 70	> 104	Not Compatible

Source: AR 200-1
Legend: n/a = not applicable, dB = decibel, ADNL = A-weighted Day-Night average sound Level, CDNL = C-weighted Day-Night average sound Level, LUPZ = Land Use Planning Zone

Table 2. Complaint Risk Guidelines

Perceptibility[a]	**dB Peak**	**Risk of Receiving Noise Complaints**
May be Audible	< 115	Low
Noticeable, Distinct	115 – 130	Moderate
Very Loud, May Startle	> 130	High

Legend:
dB = decibel
Note:
[a] Perceptibility is subjective. The classifications are based on how a typical person might describe the event.

Peak sound levels relate to many of the unique characteristics of military blast noise and the difficulties encountered in assessing their impact, which include the following:

- People in an area experiencing peak levels between 115 and 130 decibels (dB) may describe events as noticeable and distinct. From within this area, there is a moderate risk of receiving noise complaints. The magnitude of the complaint risk is dependent upon frequency of occurrence in addition to factors such as time of day activity occurs, propagation conditions under which activity takes place, and noise sensitivity of individuals in these areas.
- Peak sound pressure levels above 130 dB are generally objectionable and are often described as very loud and startling. These levels correlate with a high risk of noise complaints. If the operations that generate high peak sound pressure levels in the community are very infrequent, land use controls may not be warranted. However, prior public notification is important for mitigating complaint risk and is an important role of being good neighbors.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

- Peak sound pressure levels directly correlate with airborne vibration, which is the dominant cause of structural response from military training. Peak sound pressure levels above 120 dB may rattle windows or loose ornaments (e.g., pictures on walls) and annoy occupants but will not cause structural damage.
- Peak levels can vary significantly and are highly dependent on weather conditions. Thus, the supplemental peak noise levels included in this study have the following weather conditions applied:
  - Unfavorable Weather Conditions: Peak 15 Metric (PK15(met)) is the Peak sound level, factoring in statistical variations caused by weather, that is likely to be exceeded only 15% of the time (i.e., 85% certainty that sound will be within this range). This "85% solution" gives the installation and the community a means to consider the areas that at times may be impacted by training noise. PK15(met) levels would occur under unfavorable weather conditions that enhance sound propagation.
  - Neutral Weather Conditions: Peak 50 Metric (PK50(met)) is the Peak sound level that is likely to be exceeded 50% of the time (i.e., 50% certainty that sound will be within this range). These levels would be seen during neutral weather conditions. It should be noted that if activities take place under favorable weather conditions, such as the wind blowing away from the receiver, noise levels would be lower.

The unfavorable weather conditions PK15(met) metric is a good tool to indicate areas that may periodically be exposed to high noise levels. However, since the complaint risk areas are based on single event levels and are not dependent on the number of events, planners should also consider frequency of operations when making land use decisions.

5. NOISE CONTOURING PROCEDURES

The Blast Noise Version 2 (BNOISE2™) modeling program calculates noise levels generated by firing large caliber weapons (20 millimeters (mm) and greater) and high-explosive charges (U.S. Army Engineer Research and Development Center, 2009). The sounds from large caliber weapons, demolitions, and other impulsive sounds generally create the largest complaint risk because the sound can travel far, is difficult to mitigate, and can be accompanied by vibration that may increase annoyance. Noise Zones for large caliber weapons are addressed using the C-weighted Day-Night average sound Level (CDNL) with an assessment period of 250 days. This is the Army standard assessment period for all U.S. Army active installations per AR 200-1 guidance. Appendix B lists the data used to generate the Noise Zones.

The noise simulation program used to assess small arms weapons (.50 caliber and below) noise is the Small Arms Range Noise Assessment Model (SARNAM™) (U.S. Army Construction Engineering Research Laboratories, 2003). The SARNAM program requires the weapon type being utilized and the range layout. The SARNAM calculation algorithms assume wind direction that favors sound propagation. Appendix B lists the data used to develop the Noise Zones.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

6. PROPOSED ACTIVITY DESCRIPTION

The proposed SCOUT/RECCE Complex would be located in the central area of Fort Gordon. The proposed artillery firing boxes would be located within the small arms impact area (Figure 1). The projected weapons activity at the SCOUT/RECCE Complex includes various ammunition for small arms weapons (.50 caliber and below) and the 40mm Grenade Launcher Target Practice (TP) rounds.

7. SMALL ARMS ACTIVITY

7.1 Baseline Small Arms Operations

Figure 2 depicts the small arms Noise Zones for baseline conditions. Zone III remains within the Fort Gordon boundary and does not extend into the cantonment area. Zone II extends beyond the northern boundary up to 1 kilometer (km) (0.6 mile), encompassing primarily agricultural land with some scattered residences. Zone II also extends beyond the southern boundary, encompassing wooded land. On post, Zone II extends into an undeveloped area of the cantonment.

7.2 Projected Small Arms Operations

The addition of the SCOUT/RECCE Complex to baseline activity produces only isolated changes to the immediate range area. There are no measureable changes to the Noise Zones extending beyond the boundary, or within the cantonment area (Figure 3 and Table 3).

Table 3. Small Arms Noise Zones Acreage

	Baseline Conditions			Projected Conditions with SCOUT/RECCE Complex		
Noise Zone	Total Acreage	Cantonment Area Acreage	Offpost Acreage	Total Acreage	Cantonment Area Acreage	Offpost Acreage
Zone II (87–104 dB Peak)	18,625	119	785	20,424	119	785
Zone III (> 104 dB Peak)	2,862	0	0	3,853	0	0

Legend:
dB = decibel
SCOUT/RECCE = Scout/Reconnaissance

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

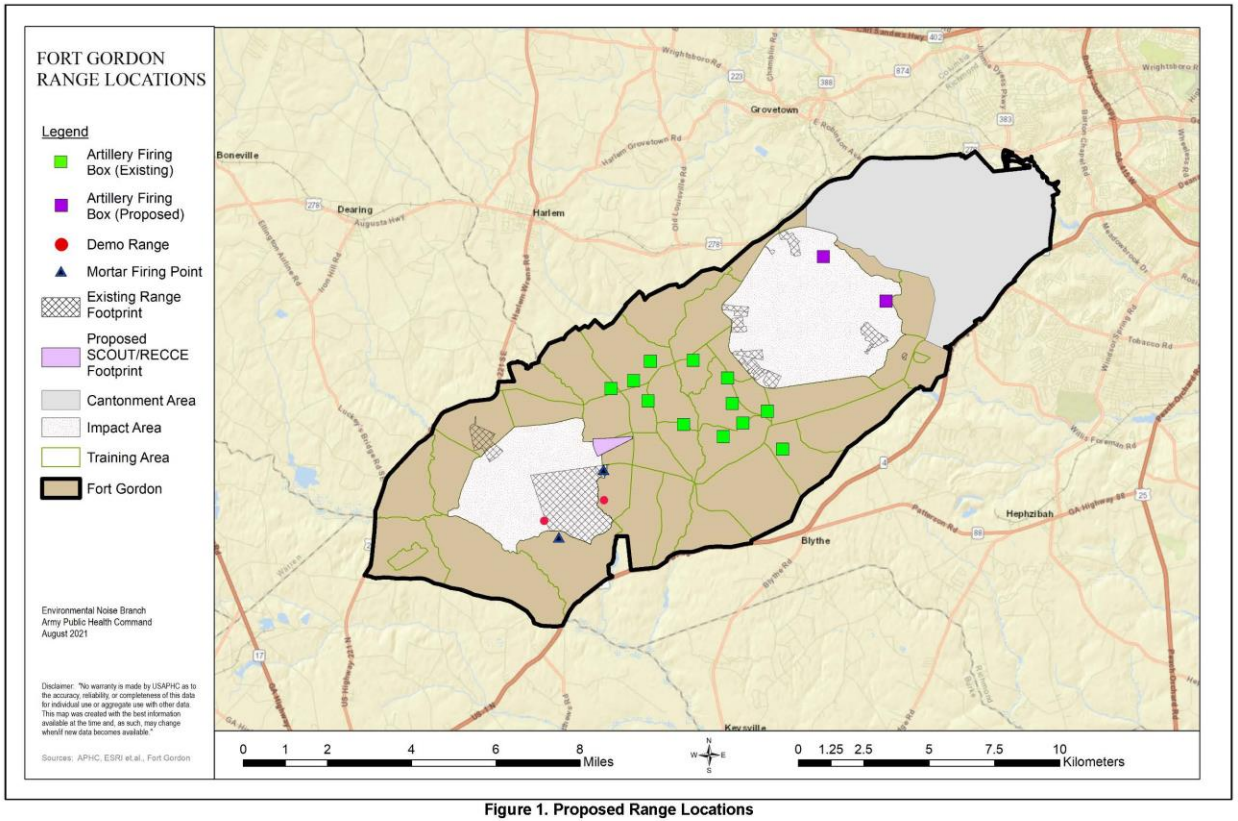


Figure 1. Proposed Range Locations

5

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

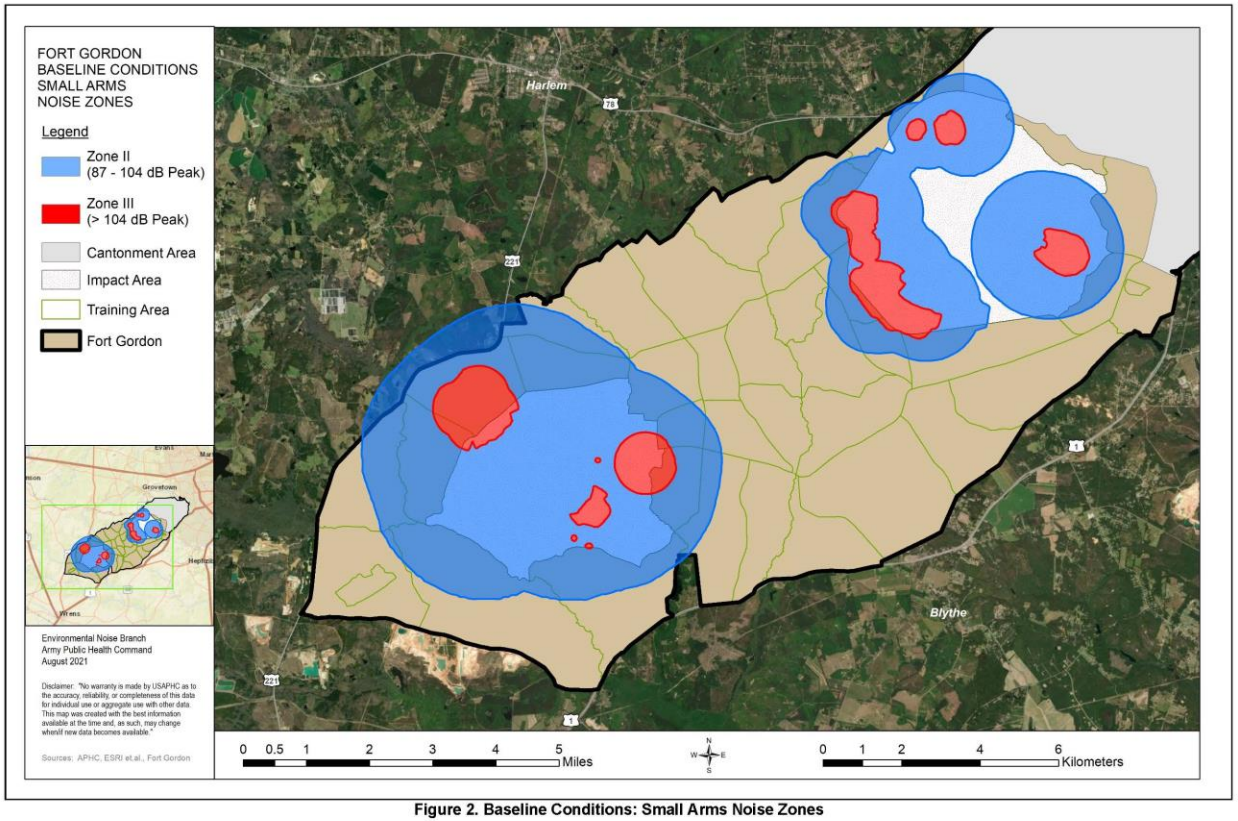


Figure 2. Baseline Conditions: Small Arms Noise Zones

6

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

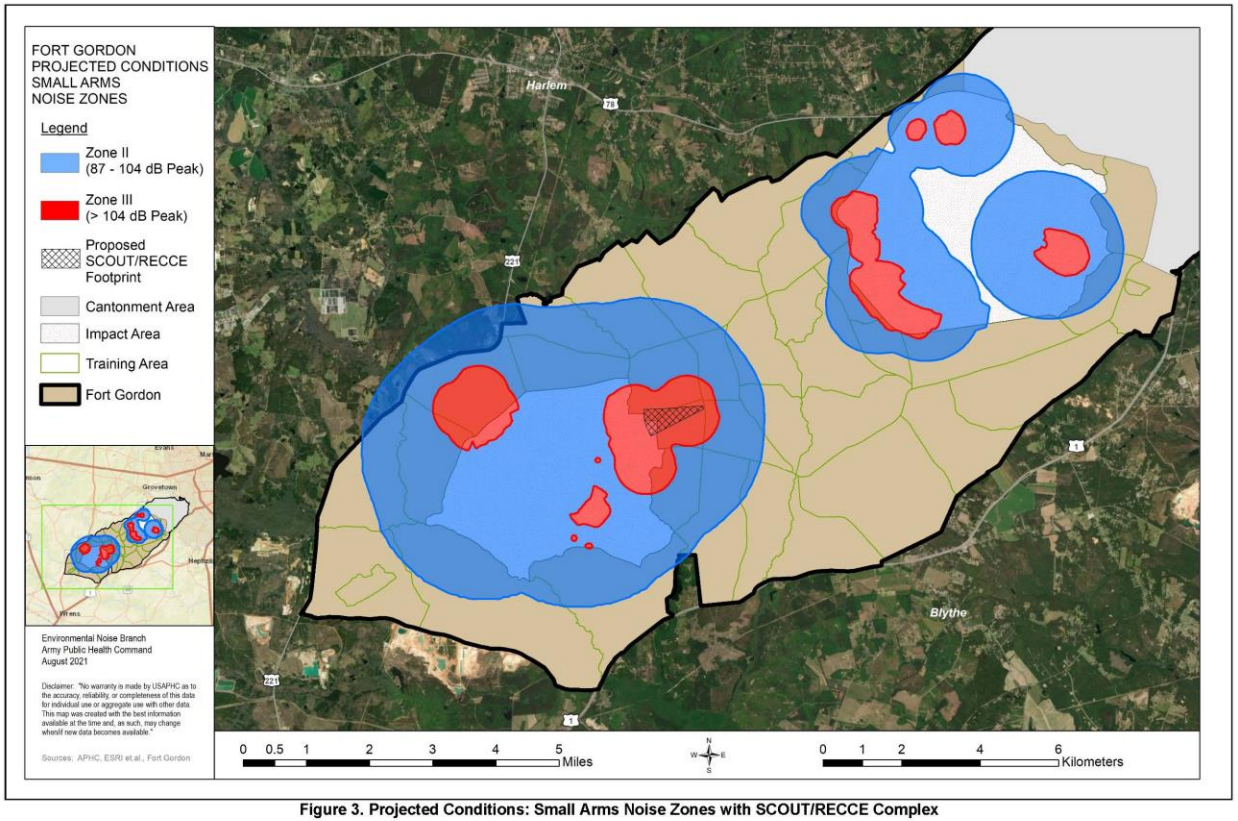


Figure 3. Projected Conditions: Small Arms Noise Zones with SCOUT/RECCE Complex

7

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

8. DEMOLITION AND LARGE CALIBER ACTIVITY

8.1 Baseline Conditions

Figure 4 depicts the Noise Zones for baseline activity. Zone III remains within the installation boundary. Zone II and the LUPZ extend beyond the southern boundary approximately 350 meters (0.2 mile) and 1 km (0.6 mile) respectively. Land use within the Noise Zones is compatible (agricultural, open space, or wooded). The Noise Zones do not extend into the cantonment area or affect any noise-sensitive land use onpost.

Although the land use guidelines indicate compatibility, under adverse weather conditions, individual events may cause annoyance and potentially generate noise complaints. Figure 5 illustrates the baseline demolition and large caliber single event Peak sound level contours.

Under unfavorable weather conditions, Peak levels above 130 dB extend beyond the southern boundary approximately 1 km (0.6 mile) towards Route 1. These elevated levels are driven primarily by demolition activity. The majority of land inside the 130 dB Peak and greater area is undeveloped (agricultural, open space, or wooded); however, several homes are present. On occasion, and depending upon weather conditions these homes have the potential to be subjected to high noise levels. Peak levels between 115 and 130 dB also extend beyond the boundary south up to 4.6 km (2.9 miles) and north approximately 2 km (1.25 mile). Again, these areas consist primarily of undeveloped (agricultural, open space, or wooded) lands, with some scattered residential use.

Under neutral weather conditions, the Peak sound level contours contract considerably. Peak levels above 130 dB remain confined to Fort Gordon. Peak levels between 115 and 130 dB extend beyond the southern boundary crossing Route 1. Within these areas there are scattered homes however, the majority of the land is undeveloped (agricultural, open space, or wooded).

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

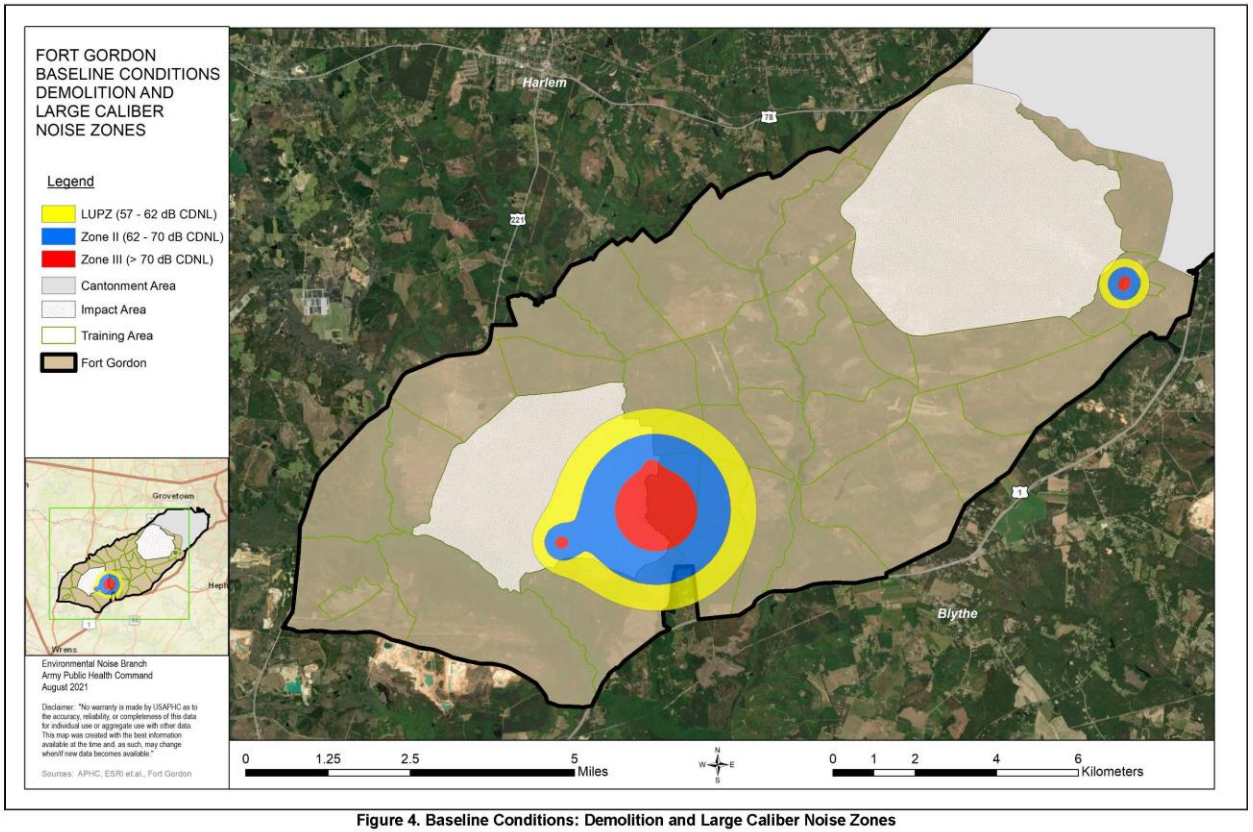


Figure 4. Baseline Conditions: Demolition and Large Caliber Noise Zones

9

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

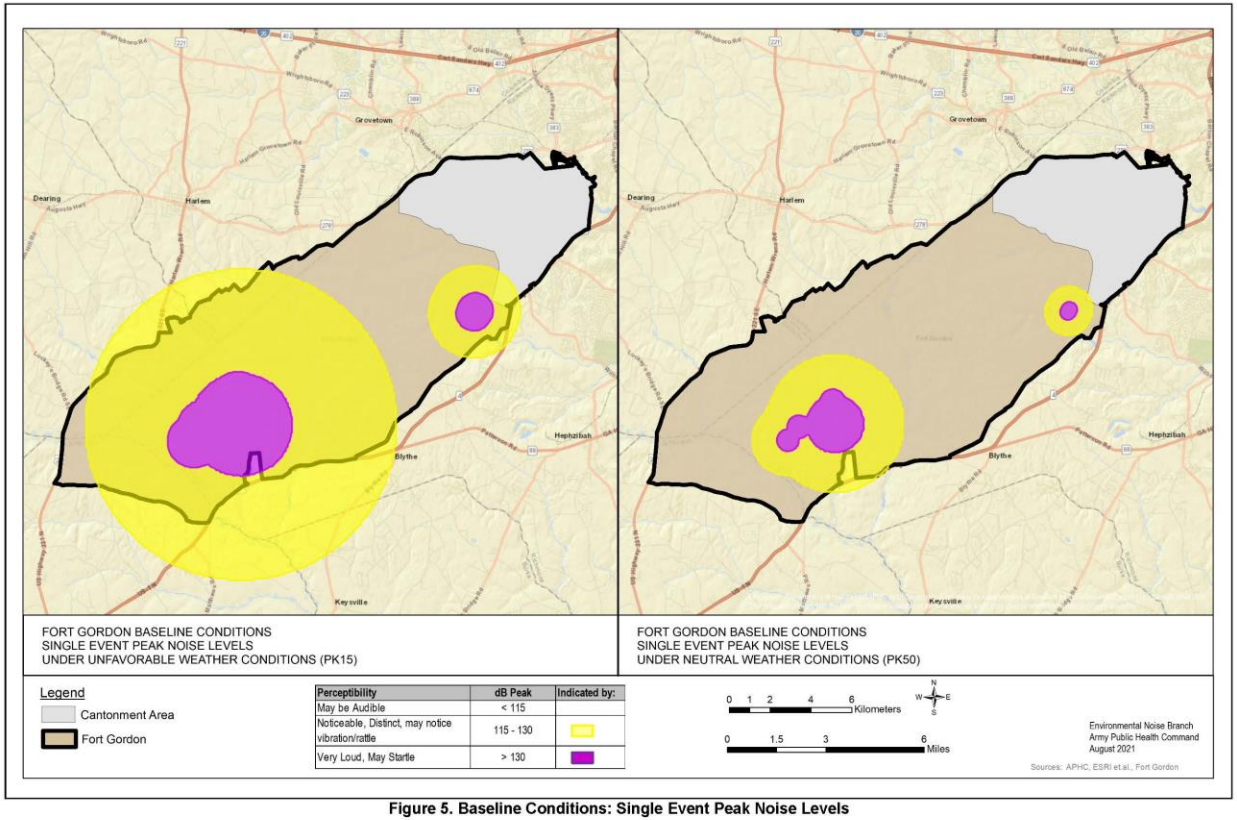


Figure 5. Baseline Conditions: Single Event Peak Noise Levels

10

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

8.2 Projected Conditions

As evidenced in Figure 6, the addition of artillery firing produces a marked increase to the overall size of the Noise Zones versus baseline conditions; however, noise exposure is limited to range and training area lands on the installation. The addition of firing boxes on the north end of the small arms impact area (Figure 7) produces only minor changes to the cumulative noise footprint. In fact, both proposed artillery-firing conditions produce similar acreage calculations (Table 4). Zone III remains contained to the installation. Zone II and the LUPZ extend beyond the southern boundary approximately 450 meters (0.3 mile) and 1.3 kilometer (0.8 mile) respectively. Land use within the Noise Zones is compatible (agricultural, open space, or wooded). The Noise Zones do not extend into the cantonment area for either proposed condition.

Table 4. Demolition and Large Caliber Noise Zones Acreage

	Baseline Conditions		Projected Conditions			
			Artillery at Existing AFP		Artillery at Existing and Proposed AFP	
Noise Zone	Total Acreage	Offpost Acreage	Total Acreage	Offpost Acreage	Total Acreage	Offpost Acreage
LUPZ (57 – 62 dB CDNL	2,382	98	8,626	143	8,943	143
Zone II (62 -70 dB CDNL)	2,091	35	5,614	45	5,618	45
Zone III (> 70 dB CDNL)	862	0	2,757	0	2,772	0

Legend:
AFP = Artillery Firing Point, dB = decibel, CDNL = C-weighted Day-Night average sound Level, LUPZ = Land Use Planning Zone

Figures 8 and 9 illustrate the single event Peak sound level contours for the proposed artillery activities. As was the case with baseline conditions, the primary driver for noise in the areas south of the installation remains demolition range activity. The contours show under unfavorable weather conditions the closest firing positions (existing AFP-G and the proposed northern firing box) to the boundary generate Peak sound levels between 115 and 130 dB that extend approximately 500 meters (0.3 mile) offpost. Currently, the majority of land in these areas is undeveloped (agricultural, open space, or wooded) with some low-density residential use. On occasion, and depending upon weather conditions residents in these areas have the potential to be subjected to moderate noise levels from singular events.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

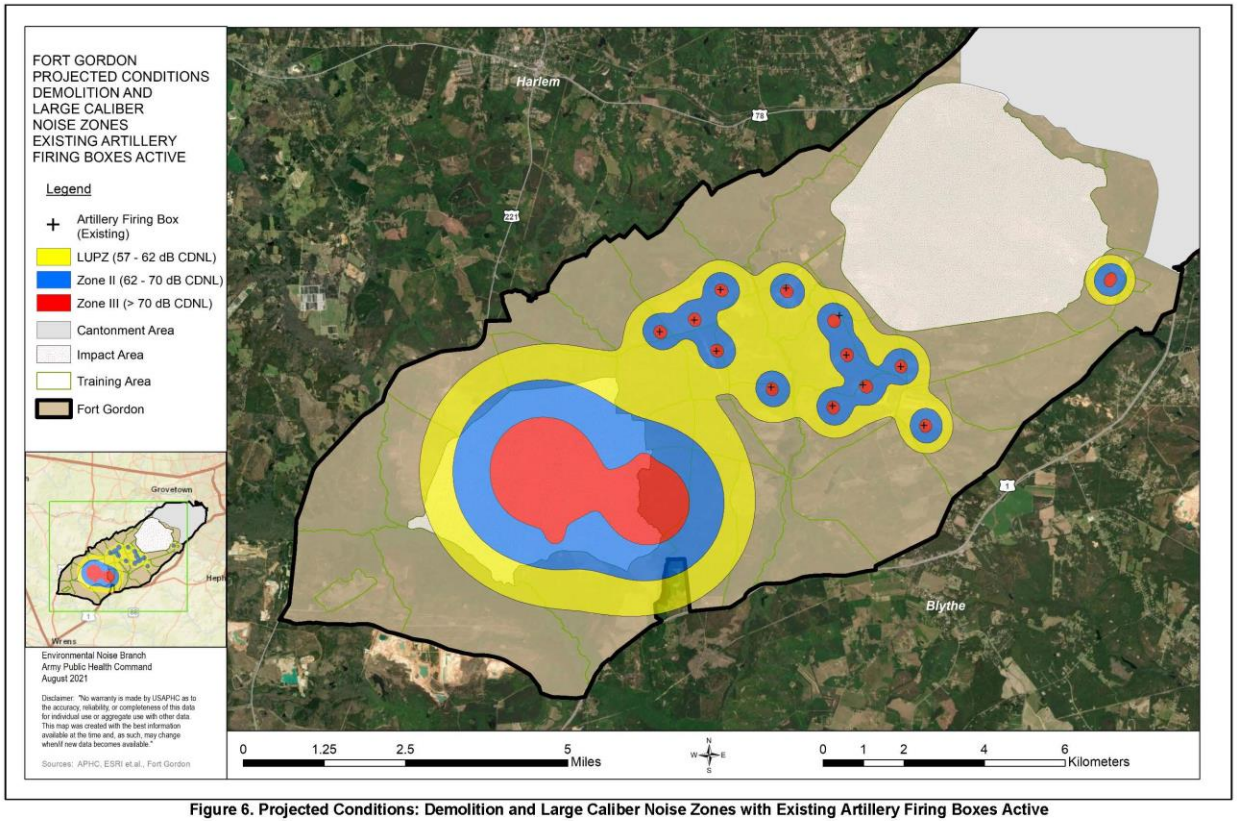


Figure 6. Projected Conditions: Demolition and Large Caliber Noise Zones with Existing Artillery Firing Boxes Active

12

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

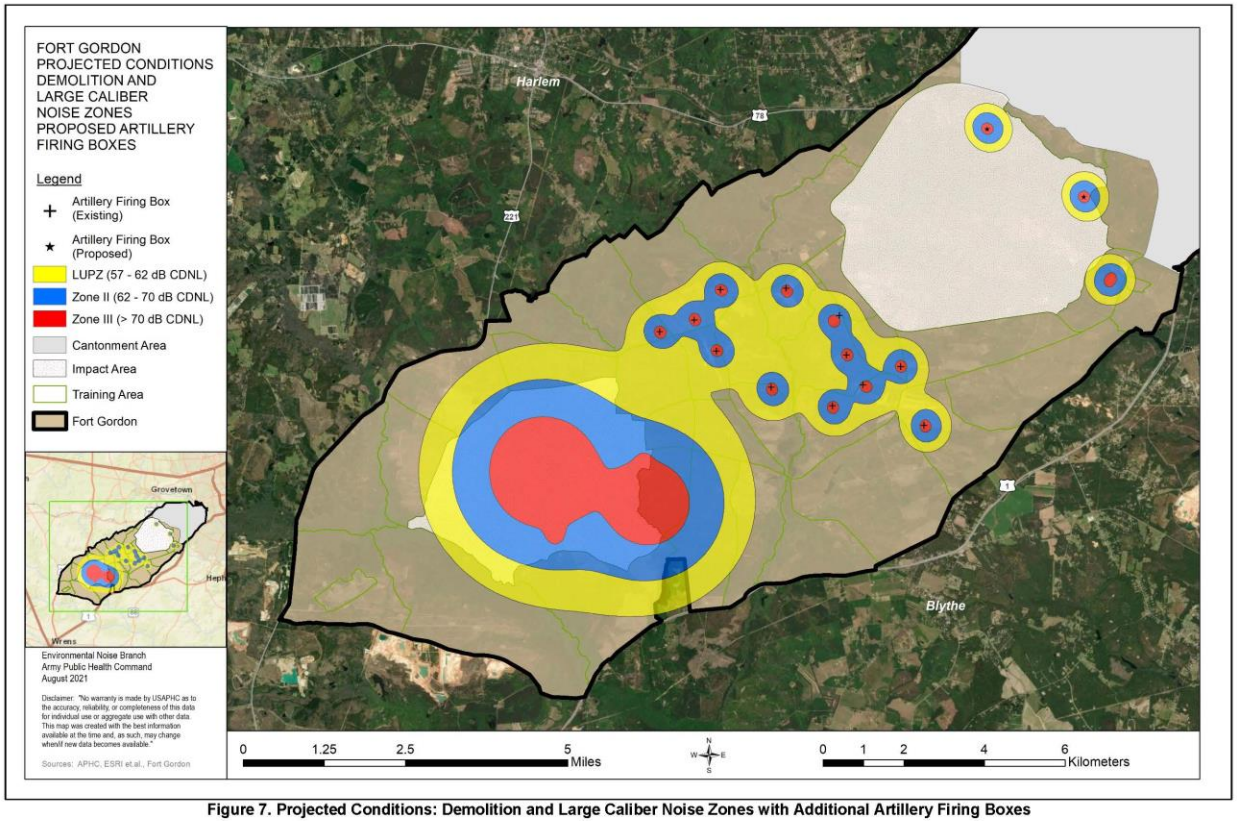


Figure 7. Projected Conditions: Demolition and Large Caliber Noise Zones with Additional Artillery Firing Boxes

13

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

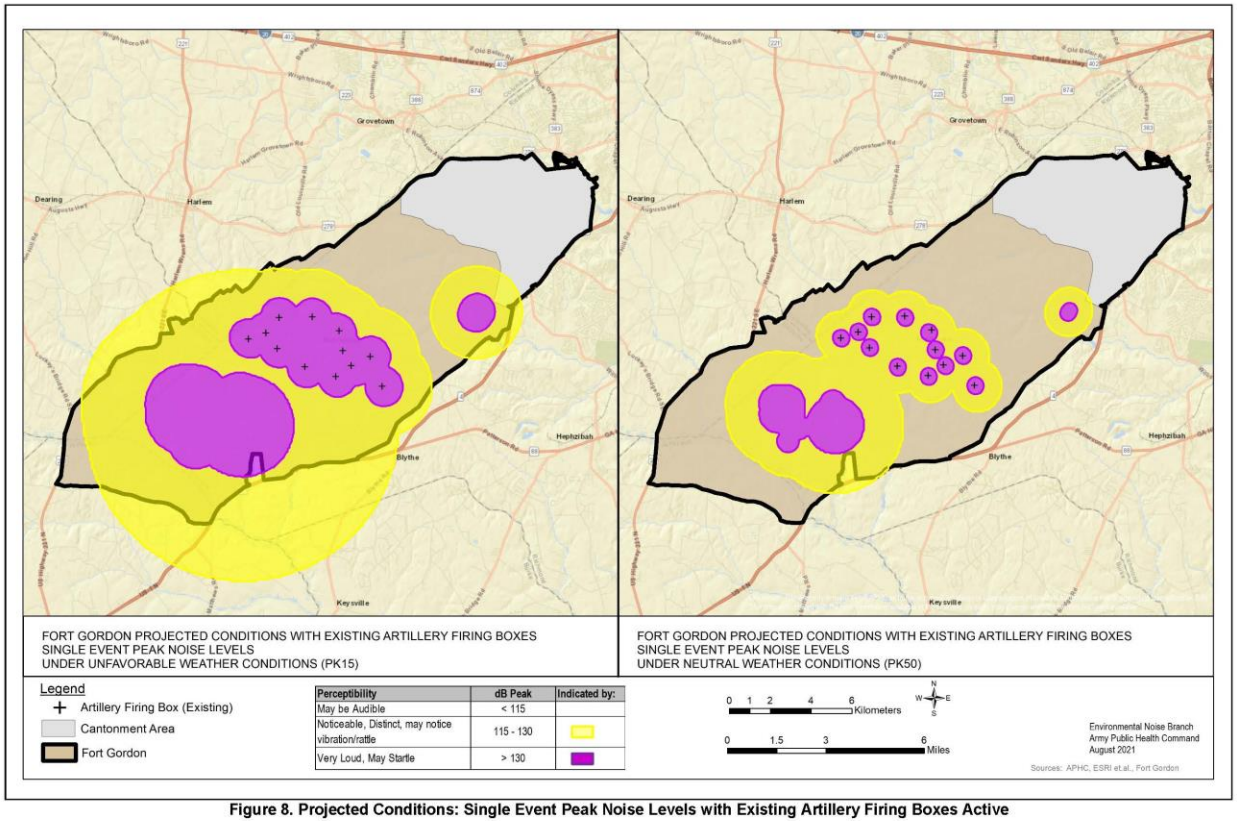


Figure 8. Projected Conditions: Single Event Peak Noise Levels with Existing Artillery Firing Boxes Active

14

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

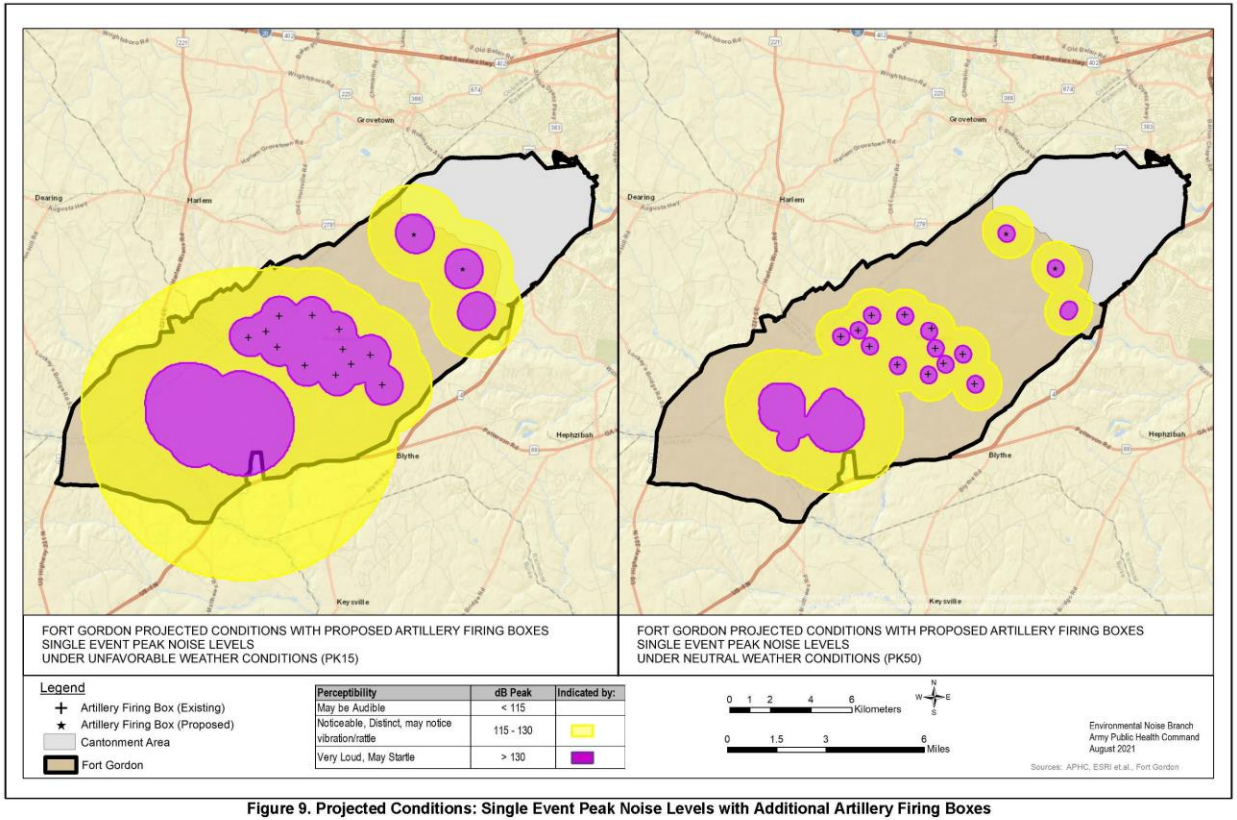


Figure 9. Projected Conditions: Single Event Peak Noise Levels with Additional Artillery Firing Boxes

15

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

9. 40MM GRENADE LAUNCHER ACTIVITY

The 40 mm Grenade family contains both high-velocity grenades fired from MK19 grenade machine guns and low-velocity grenades fired from handheld weapons (M203 and M320). Both grenade launchers have the ability to fire High Explosive rounds and TP rounds. However, only the 40mm TP round is fired at Fort Gordon. The 40mm TP round simulates the firing and distance capabilities of a High Explosive round without the impact noise and safety concerns.

Noise levels associated with a moderate complaint risk extend 300 meters from a 40mm TP firing location. Beyond 300 meters, the risk of complaints is low (see Appendix C). The closest firing point for baseline activity is 1 km from the boundary; thus, the risk of complaints is low. The proposed SCOUT/RECCE facility is over 4.5 km from the boundary. At this distance, any noise produced at the range would be negligible to the surrounding community.

10. CONCLUSIONS

10.1 Small Arms Activity

For small arms baseline activity, Noise Zone III (incompatible with noise-sensitive land use) remains within the Fort Gordon boundary. Zone II (normally incompatible) extends beyond the northern boundary up to 1 km (0.6 mile), encompassing primarily agricultural land, with some scattered residences.

The addition of the SCOUT/RECCE Complex to baseline activity produces only isolated changes to the immediate range area. There are no measureable changes to the Noise Zones extending offpost.

10.2 Demolition and Large Caliber Activity

Cumulative (annual average) Noise Zones show that baseline activities are compatible with the surrounding land use. Zone III remains within the installation boundary. Zone II and the LUPZ extend beyond the southern boundary approximately 350 meters (0.2 mile) and 1 km (0.6 mile) respectively. However, land use within these Noise Zones is considered compatible.

Although the Noise Zones are compatible with the surrounding area, there is potential for individual events to generate noise complaints, in particular from demolition activity. Peak sound level modeling shows that under unfavorable weather, citizens within approximately 4.6 km (2.9 miles) of the southern boundary, and within 2 km (1.25 mile) of the northern boundary, may find the noise from single events noticeable and distinct. Additionally, citizens adjacent to George Claussen Pond may find, on occasion, the demolition activity loud and startling. Under neutral weather conditions, Peak metric contours contract considerably. The activity may be noticeable to those residents adjacent to Route 1 in the vicinity of the demolition range.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Under both projected artillery-firing conditions, changes to the Noise Zones from additional operations primarily occurs onpost within range/training lands. Zone III remains within the Fort boundary. Beyond the boundary, there are minor increases to the Noise Zones, specifically; Zone II increases to 450 meters (0.3 mile) from 350 meters (0.2 mile), and the LUPZ increases to 1.3 km (0.8 mile) from 1 km (0.6 mile). As was the case with baseline conditions, the land use within the Noise Zones is considered compatible.

Peak sound level contours for projected activity show the primary driver of high single event noise levels remains demolition activity. Proposed artillery activity produces only minor changes to the baseline contours, the majority of which occurs inside range and/or training lands. Nevertheless, under unfavorable weather conditions the closest firing positions (existing AFP-G and the proposed northern firing box) to the boundary generate Peak sound levels between 115 and 130 dB that extend approximately 500 meters (0.3 mile) offpost. The majority of land in these areas is undeveloped (agricultural, open space, or wooded) with some scattered residential use.

11. RECOMMENDATIONS

Include the information from this consultation in the environmental analysis documentation for the proposed action(s).

Provide prior public notice of artillery training events, including date(s) and approximate start and stop times. It is worth noting that although longtime residents may have been previously accustomed to artillery training, the return of these operations, after such a long period of inactivity may be disruptive. This is particularly true for nighttime training activities.

BROSKA.KRISTY.ANNETTE.1231370168 Digitally signed by BROSKA.KRISTY.ANNETTE.1231370168 Date: 2021.09.08 13:37:57 -04'00'

KRISTY BROSKA
Environmental Protection Specialist

APPROVED:

REICHARD.DANIEL.K.1256021737 Digitally signed by REICHARD.DANIEL.K.1256021737 Date: 2021.09.08 13:51:10 -04'00'

DAN REICHARD
Branch Chief
Environmental Noise

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

APPENDIX A

REFERENCES

Department of the Army. 2007. Army Regulation 200-1, *Environmental Protection and Enhancement*

U.S. Army Center for Health Promotion and Preventive Medicine. 1999. Health Hazard Assessment Report on the 40mm XM1001 Canister Cartridge for the MK-19 Mod 3 Grenade Machine Gun, No. 69-37-2735-00, November 1999

U.S. Army Construction Engineering Research Laboratories. 2003. SARNAM Computer Model, Version 2.6.2003-06-06

U.S. Army Engineer Research and Development Center. 2009. BNOISE2 Computer Model, Version 1.3 2009-11.30

U.S. Army Environmental Hygiene Agency. 1984. Environmental Noise Assessment No. 52-34-0442-84, Noise Measurement Study, Camp Bullis, Texas, 27 February – 2 March 1984

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

APPENDIX B

NOISE MODEL INPUTS

B.1 GENERAL

Baseline model inputs are extracted from the Range Facility Management Support System (Fiscal Years 2018 through 2020). The Fort Gordon Operations and Plans Brach provided these range records.

B.2 SMALL CALIBER ACTIVITY

The activities listed in Table B-1 were used to develop the baseline Noise Zones. The projected SCOUT/RECCE Noise Zones are developed with the activities in Table B-1 and the data listed in Table B-2.

B.3 DEMOLITION AND LARGE CALIBER ACTIVITY

The activities listed in Table B-3 were used to develop the baseline CDNL Noise Zones. The projected conditions with return of artillery activity to the existing firing points/boxes are developed with the activities in Table B-3 and the data listed in Table B-4. The cumulative (existing AFP and proposed AFP) Noise Zones are developed with the activities in Table B-3 and the data listed in Table B-5. Ammunition that produces minimal to no noise during firing and/or impact is not included in the Noise Zone analysis (i.e., blasting caps, detonation cord, fuses, 40mm target practice).

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Table B-1. Baseline Small Arms Utilization

Facility	9mm Live	.38 caliber Live	.45 caliber Live	.22 caliber Live	.30 caliber Live	5.56mm Live	5.56mm Blank	.300 Winchester Magnum Live	7.62mm Live	7.62mm Blank	.50 Caliber Live	.50 Caliber Blank	12 Gauge Live	410 Gauge Live	20/28 Gauge Live
Range 2	X														
Range 3						X									
Range 4	X		X		X	X			X						
Range 6						X			X						
Range 7						X									
Range 7A									X						
Range 8	X					X	X						X	X	
Range 9						X			X			X			
Range 9A						X									
Range 10	X					X			X				X		
Range 10A						X									
Range 11	X					X			X						
Range 14	X	X	X	X	X	X		X	X	X			X		X
Range 16						X			X		X				
Range 17						X	X		X	X	X				
Convoy Live Fire							X								
Aerial Gunnery									X						

Legend:
mm = millimeter

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Table B-2. Projected SCOUT/RECCE Complex Small Arms Utilization

Facility	5.56mm Live	5.56mm Blank	.7.62mm Live	7.62mm Blank	.50 Caliber Live
SCOUT/RECCE	X	X	X	X	X

Legend:
mm = millimeter, SCOUT/RECCE = Scout/ Reconnaissance

Table B-3. Baseline Demolition and Large Caliber Expenditure

Facility	Nomenclature[b]	Annual Average Ammunition Expenditure[a]	
		0700–2200[c]	2200–0700[c]
Aerial Gunnery	2.75" Rocket, Inert	1	0
Demo Pit	Demolition, C-4 1.25 lb	67	0
MFP-B (TA-39)	Demolition, C-4 1.25 lb	102	0
	Demolition, Crater Charge 40 lb	86	0
	Demolition, Shape Charge 15 lb	86	0
	Demolition, Sheet Roll M186, 50 ft at 0.5 lb p/ft	2	0
	Bangalore, M1A2	98	0
Range 13	Hand Grenade, M67	262	0
Range 16	Demolition, C-4 1.25 lb	33	0
	Demolition, PETN 2 lb	2	0

Legend:
ft = feet, lb = pound(s), MFP = Mortar Firing Point, p/ft = per foot, PETN = Pentaerythritol tetranitrate, TA = Training Area
Notes:
[a] Baseline conditions reflect the average of the ammunition supply point issues from Fiscal Years 2018 through 2020. Values may be rounded to prevent fractional expenditure.
[b] Inert is defined as any round that does not explode upon impact (i.e., target practice tracer, illumination, smoke, etc.)
[c] For the purpose of noise modeling, the hours between 0700–2200 are defined as "daytime" and between 2200–0700 hours as "nighttime.

B-3

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Table B-4. Projected Artillery Expenditure within Existing Artillery Firing Boxes

Artillery Firing Box	Nomenclature[a]	Projected Annual Ammunition Expenditure	
		0700–2200[b]	2200–0700[b]
A	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
B	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
C	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
D	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
E	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
F	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
G	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
H	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
I	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
J	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
K	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	8	0
L	155mm Howitzer, High Explosive	200	0
	155mm Howitzer, Inert	12	0
Total	**155mm Howitzer, High Explosive**	**2,400**	**0**
	155mm Howitzer, Inert	**100**	**0**

Legend:
mm = millimeter
Notes:
[a] Inert is defined as any round that does not explode upon impact (i.e., target practice tracer, illumination, smoke, etc.).
[b] For the purpose of noise modeling, the hours between 0700–2200 are defined as "daytime" and between 2200–0700 hours as "nighttime.

B-4

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Table B-5. Projected Artillery Expenditure with Proposed Artillery Firing Boxes

Artillery Firing Box	Nomenclature[a]	Projected Annual Ammunition Expenditure	
		0700–2200[b]	2200–0700[b]
A	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
B	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
C	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
D	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
E	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
F	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
G	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
H	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	4	0
I	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
J	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
K	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
L	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
Proposed SAIA North	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
Proposed SAIA South	155mm Howitzer, High Explosive	175	0
	155mm Howitzer, Inert	3	0
Total	**155mm Howitzer, High Explosive**	**2,450**	**0**
	155mm Howitzer, Inert	**50**	**0**

Legend:
mm = millimeter, SAIA = Small Arms Impact Area
Notes:
[a] Inert is defined as any round that does not explode upon impact (i.e., target practice tracer, illumination, smoke, etc.)
[b] For the purpose of noise modeling, the hours between 0700–2200 are defined as "daytime" and between 2200–0700 hours as "nighttime.

B-5

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

APPENDIX C

GRENADE LAUNCHER NOISE

C-1 REFERENCES

U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM). 1999. Technical Report No. 69-37-2735-00, *Health Hazard Assessment Report on the 40mm XM1001 Canister Cartridge for the MK-19 Mod 3 Grenade Machine Gun.*

U.S. Army Environmental Hygiene Agency (USAEHA). 1984. Environmental Noise Assessment No. 52-34-0442-84, *Noise Measurement Study, Camp Bullis, Texas, 27 February – 2 March 1984.*

C-2 NOISE ASSESSMENT

A 40mm target practice round generates sound during launch but does not generate noise upon impact. Since the launch noise is not in the BNOISE2 database, the only means to assess noise impacts is to use peak data levels from monitoring studies and correlate the activity levels with complaint risk.

Tables C-1 and C-2 list calculated distances for firing 40mm TP rounds, which correlate to Peak decibel levels in the Army's Complaint Risk Guidelines criteria. The distances and levels listed represent a conservative approach and were calculated based upon the hearing conservation criteria (USACHPPM, 1999) and known measurement (USAEHA, 1984). As evidenced in the Tables, in most cases, once the receiver is beyond 300 meters from the side or 110 meters to the rear of the firing point, noise impacts are minimal.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Table C-1. Complaint Risk to the Side of the 40mm Grenade Launcher, Target Practice Round

Risk of Complaints	Distance from Grenade Launcher (meters)	Noise Level dB Peak
Low	> 300[a]	< 115
Moderate	65 – 300[a]	115 – 130
High	< 65[a]	>130
Risk of hearing damage for unprotected ears	< 19[b]	>140

Legend:
dB = decibel
Notes:
[a] Calculated value.
[b] Known value, hearing conservation criteria.

Table C-2. Complaint Risk to the Rear of the 40mm Grenade Launcher, Target Practice Round

Risk of Complaints	Distance from Grenade Launcher (meters)	Noise Level dB Peak
Low	> 110[a]	< 115
Moderate	25 – 110[a]	115 – 130
High	< 25[a]	>130
Risk of hearing damage for unprotected ears	< 7[b]	>140

Legend:
dB = decibel
Notes:
[a] Calculated value.
[b] Known value, hearing conservation criteria.

C-2

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

GLOSSARY

Acronyms/Abbreviations

AFP
Artillery Firing Point(s)

AR
Army Regulation

BNOISE2
Blast Noise Version 2

CDNL
C-weighted Day-Night average sound Level

dB
decibels

ft
feet

km
kilometer

lb
pound(s)

LUPZ
Land Use Planning Zone

MFP
Mortar Firing Point(s)

mm
millimeter

PETN
Pentaerythritol tetranitrate

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

PK15(met)
Peak 15 Metric

PK50(met)
Peak 50 Metric
p/ft
per foot

SAIA
Small Arms Impact Area

SARNAM
Small Arms Range Noise Assessment Model

SCOUT/RECCE
Scout/Reconnaissance

TA
Training Area

TP
Target Practice

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Terms

Average Sound Level
The mean-squared sound exposure level of all events occurring in a stated time interval, plus 10 times the common logarithm of the quotient formed by the number of events in the time interval, divided by the duration of the time interval in seconds.

C-Weighted Sound Level
A sound level weighting technique that is used to normalize the low, impulsive sounds to the range of human hearing. It is used when measuring low frequency sound such as those from large arms, demolitions, and sonic booms.

Day-Night Average Sound Level (DNL)
The 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

Decibels (dB)
A logarithmic sound pressure unit of measure.

Land Use Planning Zone (LUPZ)
DNL noise contours represent an annual average that separates the Noise Zone II from the Noise Zone I (57 – 62 dB for demolition and large caliber weapons).

Noise
Any sound without value.

Noise Zone III
The area around a noise source in which the CDNL is greater than 70 dB for demolition and large caliber weapons and greater than 104 dB Peak for small caliber weapons.

Noise Zone II
The area around a noise source in which the CDNL is 62 – 70 dB for demolition and caliber weapons and 87 – 104 dB Peak for small caliber weapons.

Noise Zone I
Includes all areas around a noise source in which the CDNL is less than 62 dB for demolition and large small caliber weapons and less than 87 dB Peak for small caliber weapons. This area is usually suited for all types of land use activities.

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859c-21, 23 July 2021

Peak
Peak is a single-event sound level metric without weighting and is the highest instantaneous level of an event.

Peak 15 Metric (PK15(met))
Peak sound level, without frequency weighting and accounting for the statistical variation cause by weather, expected to be exceeded by 15% of all events that might occur. This metric cannot be measured on a sound level meter as it is a statistical probability generated by computer modeling. A PK15(met) level of greater than 130 dB has a high risk of complaints, 115-130 dB has a moderate risk of complaints, and below 115 dB has a low risk of complaints.

Peak 50 Metric (PK50(met))
Similar to the PK15(met) except that it represents the peak noise level that is exceeded 50% of the time. This metric also accounts for weather but assumes conditions that are not favorable for noise propagation. This metric cannot be measured on a sound level meter, as it is a statistical probability generated by computer modeling.

Appendix F

Airspace Changes Flight Operations Noise Assessment

THIS PAGE INTENTIONALLY LEFT BLANK

DEPARTMENT OF THE ARMY
US ARMY PUBLIC HEALTH CENTER
BUILDING 5158
8252 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MARYLAND 21010-5403

MCHB-PH-WMG (500A) 18 August 2021

MEMORANDUM FOR Directorate of Public Works, Environmental Division, (IMGO-PWE/Ms. Renee Lewis), 515 15th St, Fort Gordon, GA 30905-5209

SUBJECT: Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, Noise Assessment for Proposed Amendment to Restricted Areas 3004-A/B/C, Fort Gordon, Georgia, 21 July 2021

1. Subject document is enclosed.

2. The U.S. Army Public Health Center (APHC) strives to provide high quality products and services in a timely manner. We would appreciate a few moments of your time to tell us how we did. Please visit the following link: https://usaphcapps.amedd.army.mil/Survey/se.ashx?s=25113745052C38DC. To help ensure we evaluate the proper project:

a. For Question 1 "Directorate/Division" please indicate:

(1) Directorate: Environmental Health Sciences and Engineering

(2) Division: Environmental Health Sciences

b. For Question 2 "Type of product or service received," please indicate: Technical or Surveillance Report.

3. Our points of contact for this consultation are Ms. Kristy Broska, Environmental Protection Specialist, or Mr. Dan Reichard, Branch Chief, Environmental Noise, APHC, commercial 410-436-1029 or DSN 584-1029, or email: kristy.a.broska.civ@mail.mil or daniel.k.reichard.civ@mail.mil.

FOR THE DIRECTOR:

SMITH.ALICK.E.1030355985 Digitally signed by SMITH.ALICK.E.1030355985 Date: 2021.09.07 09:38:00 -04'00'

Encl

ALICK E. SMITH
COL, MS
Director, Environmental Health Sciences and Engineering

U.S. ARMY PUBLIC HEALTH CENTER
8252 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, July 2021
Environmental Health Sciences and Engineering

Noise Assessment for Proposed Amendment to Restricted Areas 3004-A/B/C, Fort Gordon, Georgia, 21 July 2021

Prepared by Ms. Kristy Broska, Environmental Protection Specialist

EXECUTIVE SUMMARY
ENVIRONMENTAL HEALTH SCIENCES
ENVIRONMENTAL NOISE CONSULTATION
NO. S.0054859b-21
NOISE ASSESSMENT FOR PROPOSED AMENDMENT TO
RESTRICTED AREAS 3004-A/B/C
FORT GORDON, GEORGIA
21 JULY 2021

1. PURPOSE

The U.S. Army Public Health Center completed this consultation to provide an operational noise assessment for the proposed amendments to Restricted Areas (R) 3004-A/B/C.

2. CONCLUSIONS

The proposed action consists of modifying the existing vertical limits of R-3004B and R-3004C, as well as modifying the lateral limits of R-3004A, R-3004B, and R-3004C. The lateral expansion would extend R-3004 further north-northeast; however, the airspace would remain contained within the Fort Gordon installation boundary. In addition to the proposed lateral and vertical limit modifications, the proposed action would remove the flight restriction on weekends.

Neither the existing nor the amended restricted airspace generates an A-weighted Day-Night average sound Level above 39 decibels. The amended R-3004 airspace activity occurs above military training/range land, thus, there are no noise-sensitive land uses within.

3. RECOMMENDATION

Include the information from this consultation in the environmental analysis documentation for the proposed action.

Although the surrounding community may be accustomed to occasional weekday flights arriving and departing the Fort Gordon airspace, the lifting of weekend flight restrictions would expand aircraft operations in the general vicinity. It is recommended that public notification, to include date(s) and approximate start and stop times, be provided prior to weekend activities for community awareness.

ES-1

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21,
21 July 2021

TABLE OF CONTENTS

ENVIRONMENTAL HEALTH SCIENCES
ENVIRONMENTAL NOISE CONSULTATION
NO. S.0054859b-21
NOISE ASSESSMENT FOR PROPOSED AMENDMENT TO
RESTRICTED AREAS 3004-A/B/C
FORT GORDON, GEORGIA
21 JULY 2021

1. PURPOSE

The U.S. Army Public Health Center completed this consultation to provide an operational noise assessment for the proposed amendments to Restricted Areas (R) 3004-A/B/C.

2. REFERENCES AND TERMS

The following references were used in this consultation:

- Federal Aviation Administration. 2015. Order 1050.1F, Policies and Procedures for Considering Environmental Impacts.
- U.S. Air Force. 2019, NoiseMap 7.366. Wright-Patterson Air Force Base, OH.

The glossary provides definitions for acronyms, abbreviations, and terms.

3. NOISE ASSESSMENT GUIDELINES AND PROCEDURES

Per Federal Aviation Administration Order 1050.1F, the metric used to address Special Use Airspace (SUA) noise is the yearly A-weighted Day-Night average sound Level (ADNL), with a requirement to plot levels exceeding 65 decibel (dB) (Federal Aviation Administration, 2015). In addition, the number of residences and/or other noise-sensitive land uses exposed to noise levels at or above 45 dB ADNL must be determined.

The noise simulation program used to assess SUA noise is MRNMAP, which is included in the NoiseMap suite of noise models (U.S. Air Force, 2019). The program requires operations data concerning type of aircraft, altitude, time in airspace, and number of sorties. The data inputs used to generate the noise contours are detailed in Appendix A.

4. CURRENT ACTIVITY DESCRIPTION

Existing flight activities in R-3004 are comprised of fixed-wing (C-130, C-17, P-8) and rotary-wing (MH/UH-60, MH-47, V-22, CH-53, AH-1) aircraft. In fiscal year 2020, there were 286 flights in R-3004. The majority of flights were from rotary wing aircraft (58%).

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

5. PROPOSED ACTIVITY DESCRIPTION

The proposed action consists of modifying the existing vertical limits of R-3004B and R-3004C (Table 1), as well as modifying the lateral limits of R-3004A, R-3004B, and R-3004C. Although the lateral expansion extends further north-northeast, encompassing the majority of Fort Gordon the airspace is contained to the installation boundary (Figure 1). Appendix B contains the boundary reference points of the existing and amended airspace.

In addition to the proposed lateral and vertical limit modification, the proposed action would remove the flight restriction on weekends. The flight restrictions on national holidays and the Masters Golf Tournament would remain in place. With the lifting of weekend flight restrictions and the proposed lateral expansion of R-3004, which increases the available airspace from 41 to 64 square miles, the number of sorties is projected to increase by 30% for rotary wing aircraft and 5% for fixed wing aircraft, for an annual total of 343 flights.

Table 1. Projected Vertical Limit Amendment

Restricted Area	Designated Altitudes (feet, MSL)	
	Existing	Proposed
R-3004A	SFC to but not including 3,500	No change
R-3004B	3,500 to but not including 7,000	3,500 to but not including 10,000
R-3004C	7,000 to 16,000	10,000 to 16,000

Legend: MSL = Mean Sea Level, R = Restricted Area, SFC = Surface

6. NOISE ASSESSMENT

Neither the existing or amended restricted airspace activity generates an ADNL above ambient background levels (Table 2). As the predicted ADNL level is below 45 dB, no map figures were produced for this assessment.

Table 2. Noise Assessment Results

SUA SCENARIO	DESCRIPTION	HIGHEST PREDICTED ADNL
R-3004 A/B/C (current)	Activity occurring within the current restricted airspace definition (R-3004A: SFC up to 3,500 feet MSL; R-3004B: 3,500 up to 7,000 feet MSL; R-3004C: 7,000 up to 16,000 feet MSL)	36
R-3004 A/B/C (amended)	Activity occurring within the amended lateral limits and vertical limits of the proposed restricted airspace definition (R-3004A: SFC up to 3,500 feet MSL; R-3004B: 3,500 up to 10,000 feet MSL; R-3004C: 10,000 up to 16,000 feet MSL)	39

Legend: MSL = Mean Sea Level, R = Restricted Area, SFC = Surface, SUA = Special Use Airspace

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

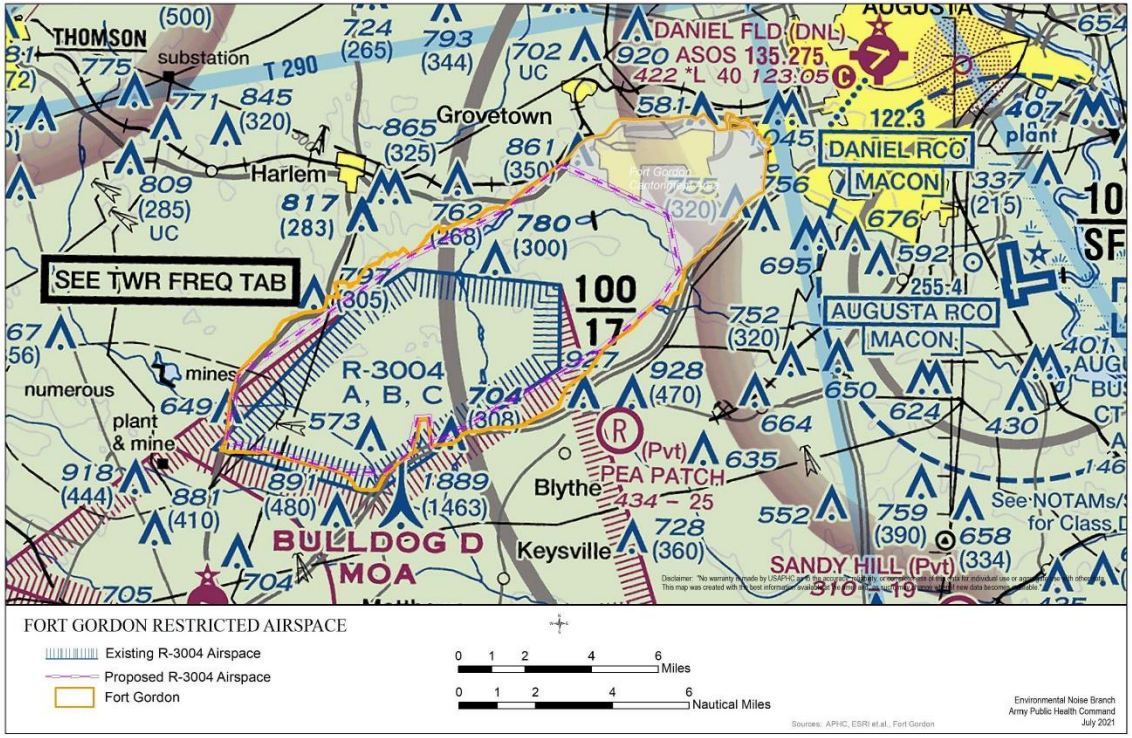


Figure 1. SUA Boundaries

3

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21,
21 July 2021

7. CONCLUSIONS

Neither the existing nor the amended restricted airspace generates an ADNL above 39 dB. The low noise levels are due to limited activity and the relative size of the airspace. In both the current and projected operations scenarios, sorties average less than one per day. The airspace is currently 41 square miles, and will increase to 64 square miles under the proposed lateral expansion of R-3004. Additionally, there are no noise-sensitive land uses with the SUA, as the amended restricted airspace activity only occurs above military training and/or range land.

8. RECOMMENDATIONS

Include the information from this consultation in the environmental analysis documentation for the proposed action.

Although the surrounding community may be accustomed to occasional weekday flights arriving and departing the Fort Gordon airspace, the lifting of weekend flight restrictions would expand aircraft operations in the general vicinity. It is recommended that public notification, to include date(s) and approximate start and stop times, be provided prior to weekend activities for community awareness.

BROSKA.KRISTY.ANNETTE.1231370168 Digitally signed by BROSKA.KRISTY.ANNETTE.1231370168 Date: 2021.08.25 12:32:41 -04'00'

KRISTY BROSKA
Environmental Protection Specialist

APPROVED:

REICHARD.DANIEL.K.1256021737 Digitally signed by REICHARD.DANIEL.K.1256021737 Date: 2021.08.25 12:37:04 -04'00'

DAN REICHARD
Branch Chief
Environmental Noise

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

APPENDIX A

SPECIAL USE AIRSPACE MRNMAP INPUTS

A-1

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

Table A. Noise Model Inputs

Aircraft	Time in Airspace per Sortie (Minutes)	Current R-3004 A/B/C	Existing Activity Yearly Sorties		Amended R-3004 A/B/C	Projected Activity Yearly Sorties[a]	
		Altitude Range (feet, MSL)	Daytime (0700-2200)	Nighttime (2200-0700)	Altitude Range (feet, MSL)	Daytime (0700-2200)	Nighttime (2200-0700)
AH-1	30	SFC-3,499	10	1	SFC-3,499	13	1
	30	3,500-6,999	10	1	3,500-9,999	13	1
MH-47	20	SFC-3,499	20	2	SFC-3,499	26	3
CH-53	15	SFC-3,499	20	2	SFC-3,499	26	3
	15	3,500-6,999	20	2	3,500-9,999	26	3
MV-22	15	SFC-3,499	10	1	SFC-3,499	13	1
	15	3,500-6,999	10	1	3,500-9,999	13	1
UH-60	15	SFC-3,499	10	1	SFC-3,499	13	1
MH-60	20	SFC-3,499	20	2	SFC-3,499	26	3
	20	3,500-6,999	20	2	3,500-9,999	26	3
C-17	10	SFC-3,499	20	2	SFC-3,499	21	2
	10	3,500-6,999	20	2	3,500-9,999	21	2
C-130	10	SFC-3,499	20	2	SFC-3,499	21	2
	10	3,500-6,999	20	2	3,500-9,999	21	2
P-8	60	SFC-3,499	10	1	SFC-3,499	11	1
	60	3,500-6,999	10	1	3,500-9,999	11	1
	60	7,000-15,999	10	1	10,000-15,999	11	1
Total Operations			260	26		312	31

Legend:
MSL = Mean Sea Level, SFC = Surface
Note:
[a] Numbers maybe rounded to prevent fractional flights.

A-2

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

APPENDIX B

RESTRICTED AIRSPACE BOUNDARIES

B-1 GENERAL

Figures B-1 and B-2 depict the existing and amended restricted airspace along with their associated boundary reference points.

B-2 CURRENT LEGAL DESCRIPTIONS - REGULATORY SPECIAL USE AIRSPACE

R-3004A/B/C Fort Gordon, GA
Boundaries:
Beginning
at lat. 33°21'54"N, long. 82°12''14"W; to lat. 33°19'44"N, long. 82°12'14"W;
to lat. 33°16'21"N, long. 82°17'59"W; to lat. 33°17'30"N, long. 82°22'59"W;
to lat. 33°21'16"N, long. 82°18'46"W; to lat. 33°22'16"N, long. 82°16'59"W;
to the point of beginning.

B-3 AMENDED (PROPOSED) LEGAL DESCRIPTIONS - REGULATORY SPECIAL USE AIRSPACE

R-3004A/B/C Fort Gordon, GA [AMENDED]
Boundaries:
Beginning
at lat. 33°25'02.98"N, long. 82°12'14.57"W; to lat. 33°23'47.56"N, long. 82°08'55.96"W;
to lat. 33°22'19.70"N, long. 82°08'33.29"W; to lat. 33°21'33.12"N, long. 82°09'09.76"W;
to lat. 33°20'15.29"N, long. 82°10'56.70"W; to lat. 33°17'40.77"N, long. 82°16'11.25"W;
to lat. 33°18'23.14"N; long. 82°16'17.11"W; to lat. 33°18'22.16"N, long. 82°16'39.13"W;
to lat. 33°17'29.05"N, long. 82°16'52.18"W; to lat. 33°16'57.37"N, long. 82°17'38.63"W;
to lat. 33°16'56.28"N, long. 82°18'49.90"W; to lat. 33°17'26.78"N, long. 82°21'18.83"W;
to lat. 33°17'41.45"N, long. 82°22'35.18"W; to lat. 33°19'25.80"N, long. 82°22'15.38"W;
to lat. 33°22'36.95"N, long. 82°16'57.57"W; to lat. 33°23'49.85"N, long. 82°14'03.10"W;
to the point of beginning.

B-1

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

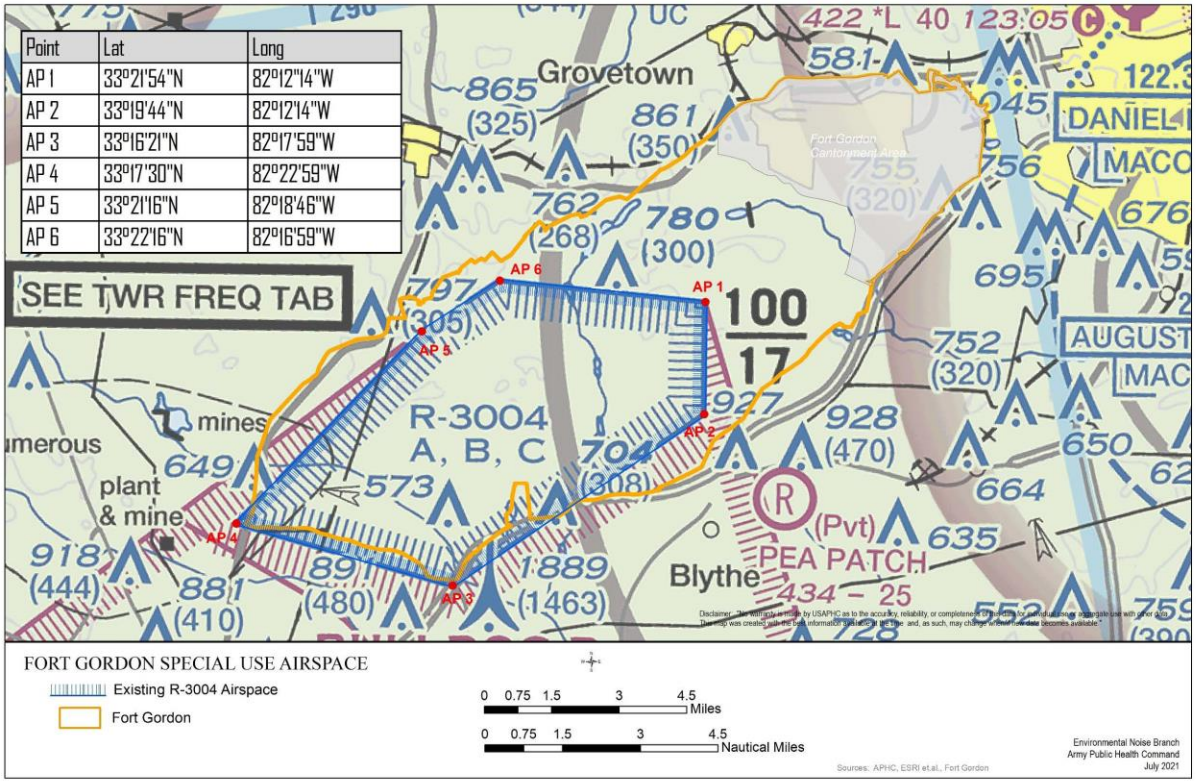


Figure B-1. Existing Restricted Area

B-2

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

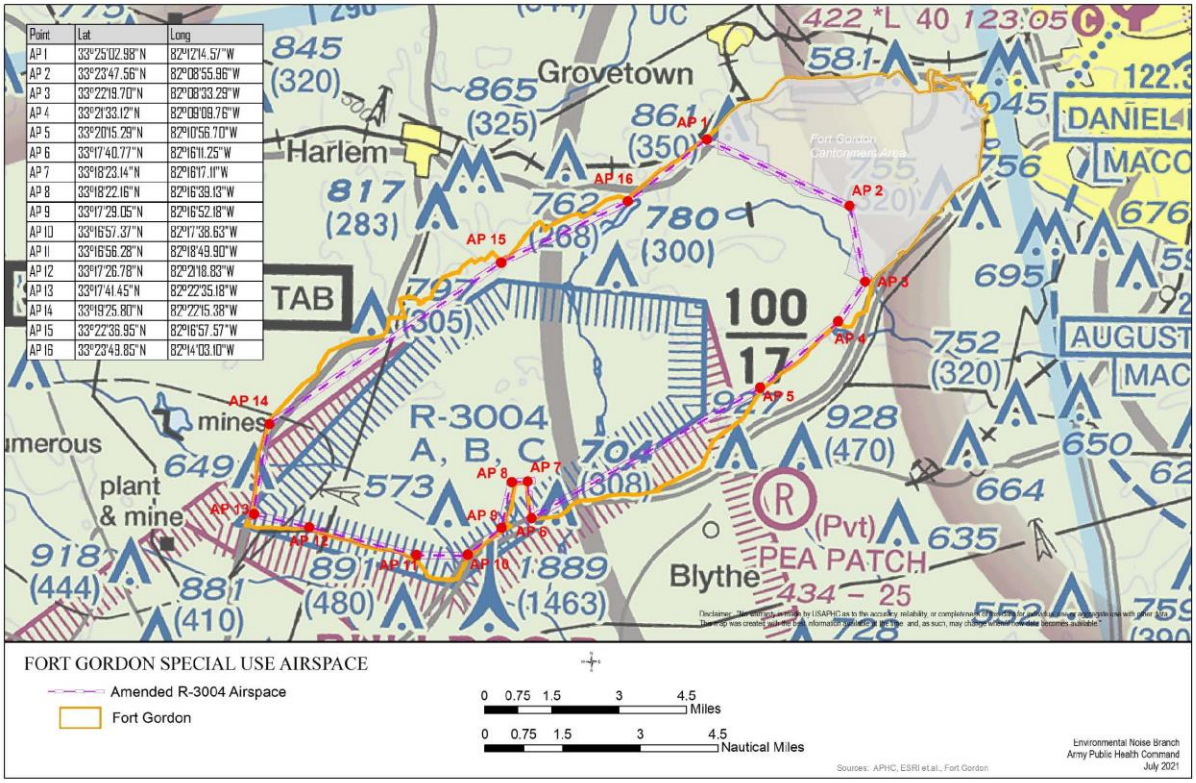


Figure B-2. Amended Restricted Area

B-3

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

GLOSSARY

Acronyms/Abbreviations

ADNL
A-weighted Day-Night average sound Level

dB
decibels

dBA
decibels A-weighted

MSL
Mean Sea Level

R
Restricted Area

SFC
Surface

SUA
Special Use Airspace

Environmental Health Sciences, Environmental Noise Consultation No. S.0054859b-21, 21 July 2021

Terms

Above Ground Level (AGL)
The literal height of the aircraft with respect to the underlying ground surface.

A-weighted Day-Night Average Sound Level (ADNL)
The 24-hour average A-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

A-Weighted Sound Level
The ear does not respond equally to sounds of all frequencies, but is less efficient at low and high frequencies than it is at medium or speech range frequencies. The A-scale weighting discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The A-scale sound level measures approximately the relative "noisiness" or "annoyance" of many common sounds.

Average Sound Level
The mean-squared sound exposure level of all events occurring in a stated time interval, plus 10 times the common logarithm of the quotient formed by the number of events in the time interval, divided by the duration of the time interval in seconds.

Day-Night Average Sound Level (DNL)
The 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

Decibels (dB)
A logarithmic sound pressure unit of measure.

Mean Sea Level (MSL)
The average height of the surface of the sea for all stages of tide; used as a reference for elevations, and differentiated from AGL.

Noise
Any sound without value.

Restricted Area (R)
Airspace identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. Activities within these areas must be confined because of their nature or limitations imposed upon aircraft operations that are not a part of those activities or both. Restricted areas denote the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles.

THIS PAGE INTENTIONALLY LEFT BLANK