U.S. Army
Multi-Domain
Task Force Stationing

# PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR MULTI-DOMAIN TASK FORCE STATIONING

**PREPARED FOR**

**HEADQUARTERS DEPARTMENT OF THE ARMY**

**June 2022**

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# ES EXECUTIVE SUMMARY

## ES1.0 Introduction

This Programmatic Environmental Assessment (PEA) along with a Draft Finding of No Significant Impact (FONSI) have been developed to analyze the potential environmental consequences that could result from implementation of the Full and Base configurations of the Multi-Domain Task Force (MDTF) stationing action at 13 Army Garrisons and joint base installations. The 13 Army Garrisons and joint base installations include: Fort Bliss, Fort Bragg, Fort Campbell, Fort Carson, Fort Drum, Fort Hood, Fort Knox, Fort Riley, Fort Stewart, Joint Base Lewis-McChord, Joint Base Elmendorf-Richardson, U.S. Army Garrison (USAG) Hawai‘i, and Fort Wainwright. Due to the land restrictions at USAG Hawai‘i, this installation would only be able to accommodate the Base MDTF Configuration and therefore only the Base MDTF Configuration was considered for this installation.

The MDTF is an essential step in the realization of the Army Modernization Strategy (AMS) outline for transforming the Army into a multi-domain force by 2035, capable of meeting its "enduring responsibility as part of the Joint Force to provide for the defense of the United States, and retain its position as the globally dominant land power" (HQDA 2019). The MDTF requires installations, facilities, including airspace, communication, and cyber capabilities; Soldiers; weapons systems, and infrastructure.

This PEA has been developed by the Department of the Army (Army) to meet the requirements of the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [*USC*] Section [§] 4321 et seq.); the Council on Environmental Quality (CEQ) NEPA-implementing regulation (40 *Code of Federal Regulations* [CFR] Parts 1500-1508); and the Army's NEPA-implementing regulation (32 CFR 651, *Environmental Analysis of Army Actions*).

## ES2.0 Purpose and Need

The purpose of the Proposed Action is to station a new organization called the MDTF at Army and joint base installations. The MDTF is a new Army formation able to execute multi-domain operations, designed to deliver long-range precision joint strike as well as integrate air and missile defense, electronic warfare, space, cyber, and information operations in both competition and conflict to provide the Joint Force[1] with new capabilities to enable the defeat of adversaries' anti-access and area denial strategies (U.S. Army 2021a).

The Army needs to station the MDTF in order to have Soldiers, equipment, and weapon systems readily available to support the Army's changing strategy to deal with modern threats. The need to station the MDTF is driven by the evolution of the capabilities of near-peer adversaries of the United States. The Army requires the MDTF formations to employ effects across all five domains (land, sea, air, space, and cyberspace) to counter adversary anti-access/area denial systems such as integrated air defense networks in the U.S., Indo-Pacific area and elsewhere. The MDTF must be able to provide the theater Commander with proper capabilities while achieving superiority over adversaries' capabilities.

The Joint Force has not kept pace with the developments of adversaries and the Joint Force continues to be designed for operations in relatively uncontested environments that allow for

[1] all U.S. military services plus our allies

predictable, sequential campaigns that assume air and naval supremacy. In order to compete across multiple domains, the Joint Force needs to station multi-domain operational forces strategically where they can be rapidly deployed to any theater of operations where they may be needed. The MDTF is intended to expand the options available to civilian authorities, to include effective deterrence and competition short of armed conflict, or timely response to an attack if required.

## ES3.0 Proposed Action and Alternatives Overview

This PEA analyzes the potential impacts associated with the U.S. Army proposed MDTF stationing action at 13 Army Garrisons and joint base installations. The Army's Proposed Action is the stationing of MDTFs at existing Army and joint base installations capable of supporting operations in the Indo-Pacific area and elsewhere. During development of the MDTF concept, the Army determined that a Base MDTF Configuration and a larger Full MDTF Configuration would be required. Along with the No Action Alternative, the Full MDTF Configuration is analyzed as Alternative 1 and the Base MDTF Configuration is analyzed as Alternative 2.

Although the personnel and facility requirements for the MDTF have been developed, the MDTF weapons systems training doctrine requirements are under development and not available at this time. The Proposed Action for this PEA does not include any MDTF training activities. When the MDTF weapons systems training doctrine requirements are developed, they will be compared against installation-specific ongoing training to determine if additional environmental analysis would be required.

### ES3.1 Alternative 1. Full MDTF Configuration Alternative

Alternative 1 is implementation of the Full MDTF Configuration Alternative. The Full MDTF Configuration requires up to approximately 93 acres of compatible facility capacity or space available for new construction along with the addition of up to 3,000 Soldiers. Although training is not part of this alternative, the Full MDTF Configuration alternative would include access to training lands and airspace necessary to support live-fire and maneuver space for Soldier qualification and use of unmanned aircraft systems, and High-Mobility Artillery Rocket Systems (HIMARS), at a minimum.

### ES3.2 Alternative 2. Base MDTF Configuration Alternative

Alternative 2 is implementation of the Base MDTF Configuration. Implementation of the Base MDTF Configuration requires up to approximately 18 acres of compatible facility capacity or space available for new construction along with the addition of up to 400 Soldiers.

### ES3.3 No Action Alternative

The No Action Alternative is required by CEQ regulations and provides baseline conditions and a benchmark against which to compare environmental impacts from the Proposed Action alternatives (40 CFR § 1502.14(d)). Implementation of the No Action Alternative would mean that neither the Full nor the Base MDTF Configurations would be permanently established at any of the 13 installations evaluated for this stationing action. Although implementation of the No Action Alternative would not meet the purpose and need or the objectives of the AMS, the No Action Alternative serves as the baseline for the comparison of potential impacts to all resource areas. Under the No Action Alternative, the Army would not enhance its structural Multi-Domain Operations capabilities and would continue to face challenges competing with near-peer

adversaries in current warfare strategies. In addition, infrastructure at each of the 13 installations would remain unchanged and subject to the future potential impacts of climate change.

## ES4.0 Environmental Consequences

Evaluation of the environmental consequences resulting from the proposed MDTF Configurations at the 13 installations is the fundamental premise of NEPA. The following nine resource areas were evaluated at each of the installations in this PEA: air quality, biological resources, cultural resources, soils, land use, socioeconomics, traffic and transportation, infrastructure and utilities and water reources. The summary of comparison of environmental consequences resulting from the Base and Full MDTF Configuration stationing action is presented in Table 4-1.

### ES4.1 Full MDTF Configuration Alternative

As described in Sections 2.4.5 and 3.15.1 of the PEA, due to the land restrictions at USAG Hawai‘i, this installation would only be able to accommodate the Base MDTF Configuration. Therefore, at USAG Hawai‘i, only the Base MDTF Configuration was analyzed in this PEA. Based on the analysis contained in this PEA and pending further evaluation of installation-specific design plans, significant impacts would not result from implementation of the Full MDTF Configuration stationing alternative with the mitigations proposed at the other 12 installations evaluated in this PEA. Actions proposed to mitigate potential impacts to less than significant are described in Section 4.4.

### ES4.2 Base MDTF Configuration Alternative

Based on the analysis contained in this PEA and pending further evaluation of installation-specific design plans, significant impacts would not result from implementation of the Base MDTF Configuration stationing alternative with the mitigations proposed at any of the installations evaluated in this PEA.

### ES4.3 No Action Alternative

Implementation of the No Action Alternative would result in minimal impacts to the nine resource areas at each of the installations evaluated in this PEA. Under the No Action Alternative, the MDTF Full or Base Configurations would not be stationed. No MDTF-related construction would occur and no MDTF-related additional Soldiers or family members would work and reside on any of the installations. There would also be no changes to the force structure at any of the garrisons. Impacts to the nine resource areas evaluated for each of the 13 installations would not be significant.

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# TABLE OF CONTENTS

# LIST OF FIGURES

***Page***



# LIST OF TABLES

***Page***

# LIST OF APPENDICES

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| § | Section |
| A2/AD | anti-access and area denial |
| AAF | Army Airfield |
| ACHP | Advisory Council on Historic Preservation |
| ACP | access control point |
| ACUB | Army Compatible Use Buffer |
| ADEC | Alaska Department of Environmental Conservation |
| AMS | Army Modernization Strategy |
| AQCR | Air Quality Control Region |
| Army | Department of the Army |
| ARPA | Archaeological Resources Protection Act |
| ASA | Assistant Secretary of the Army |
| ASP | Ammunition Supply Point |
| B | beneficial |
| BCT | brigade combat team |
| BGEPA | Bald and Golden Eagle Protection Act |
| BMPs | best management practices |
| BO | Biological Opinion |
| CAA | Clean Air Act |
| CAAF | Campbell Army Airfield |
| CAB | Combat Aviation Brigade |
| CDPHE | Colorado Department of Public Health and Environment |
| CEQ | Council on Environmental Quality |
| CFH | cubic feet per hour |
| CFR | Code of Federal Regulations |
| $CH_4$ | methane |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| CPSD | Clover Park School District |
| CSU | Colorado Springs Utilities |
| CTP | Comprehensive Transportation Plan |
| CWA | Clean Water Act |
| DANC | Development Authority of the North Country |
| DoD | Department of Defense |
| DPW | Directorate of Public Works |
| E&S | Erosion and Sedimentation |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| EPEC | El Paso Electric Corporation |
| EPISD | El Paso Independent School District |
| ERF | Eagle River Flats |
| ESA | Endangered Species Act |

| | |
|---|---|
| ESIS | Energy Security Independence System |
| FAA | Federal Aviation Administration |
| FAMPO | Fayetteville Area Metropolitan Planning Organization |
| FEMA | Federal Emergency Management Agency |
| FNSB | Fairbanks North Star Borough |
| FONPA | Finding of No Practicable Alternative |
| FONSI | Finding of No Significant Impact |
| FR | Federal Register |
| FRA | Fort Richardson, Alaska |
| FRUS | Fort Riley Utility Services |
| FY | fiscal year |
| GHG | greenhouse gas |
| GPC | Georgia Power Company |
| GSF | gross square feet |
| GVEA | Golden Valley Electric Association |
| HAPs | hazardous air pollutants |
| HIMARS | High-Mobility Artillery Rocket Systems |
| HMR | Helemano Military Reservation |
| HPC | Historic Properties Component |
| HQ | Headquarters |
| HQDA | Headquarters, Department of Army |
| HVAC | heating, ventilation, and air conditioning |
| I | Interstate |
| I2CEWS | Intelligence, Information, Cyber, Electronic Warfare, and Space |
| ICEWS | Intelligence, Cyber, Electronic Warfare, and Space |
| ICRMP | Integrated Cultural Resources Management Plan |
| ID | Infantry Division |
| IDP | Installation Development Plan |
| IE&E | Installations, Energy & Environment |
| INRMP | Integrated Natural Resources Management Plan |
| ISD | Independent School District |
| JBER | Joint Base Elmendorf-Richardson |
| JBLM | Joint Base Lewis-McChord |
| JLUS | Joint Land Use Study |
| KDHE | Kansas Department of Health and the Environment |
| KSNPC | Kentucky State Nature Preserves Commission |
| KTMPO | Killeen-Temple Metropolitan Planning Organization |
| KY | Kentucky |
| LID | low impact development |
| LOS | level of service |
| M | minor |
| MBTA | Migratory Bird Treaty Act |
| MCF | million cubic feet |
| MDTF | Multi-Domain Task Force |
| mgd | million gallons per day |
| MILCON | military construction |

| | |
|---|---|
| MO | Moderate/less than significant |
| mph | miles per hour |
| MPHD | Main Post Historic District |
| MS4 | Municipal Separate Storm Sewer System |
| M-SHORAD | Maneuver - Short Range Air Defense System |
| MW | megawatt(s) |
| N | negligible/no impact |
| NAAQS | National Ambient Air Quality Standards |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NC | North Carolina |
| NEPA | National Environmental Policy Act |
| NHL | National Historic Landmark |
| NHPA | National Historic Preservation Act |
| NM | New Mexico |
| No. | Number |
| NOA | Notice of Availability |
| NOI | Notice of Intent |
| $NO_X$ | nitrogen oxides |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| $O_3$ | ozone |
| PA | Programmatic Agreement |
| PEA | Programmatic Environmental Assessment |
| PEIS | Programmatic Environmental Impact Statement |
| $PM_{10}$ | particulate matter with a diameter less than or equal to 10 microns |
| $PM_{2.5}$ | particulate matter with a diameter less than or equal to 2.5 microns |
| POC | point of contact |
| PSD | Prevention of Significant Deterioration |
| RCI | Residential Communities Initiative |
| REC | Record of Environmental Consideration |
| ROI | region of influence |
| RPMP | Real Property Management Plan |
| S | significant |
| SBMR | Schofield Barracks Military Reservation |
| SCIF | Sensitive Compartmented Information Facility |
| SH | State Highway |
| SHPO | State Historic Preservation Office |
| SIC | standard industrial classification |
| SIP | State Implementation Plan |
| SM | significant but mitigatable |
| SME | subject matter expert |
| $SO_2$ | sulfur dioxide |
| SOP | standard operating procedure |
| spp. | plural for species |

| | |
|---|---|
| SUA | Special Use Airspace |
| SWMP | Storm Water Management Plan |
| SWPPP | Storm Water Pollution Prevention Plan |
| TA | Training Area |
| TCEQ | Texas Commission on Environmental Quality |
| TEMF | Tactical Equipment Maintenance Facility |
| TN | Tennessee |
| tpy | tons per year |
| TX | Texas |
| U | Unknown |
| U.S. 31W | U.S. Route 31W |
| U.S. | United States |
| US- | U.S. Highway |
| USACE | U.S. Army Corps of Engineers |
| USAG | U.S. Army Garrison |
| USARAK | U.S. Army Alaska |
| USC | United States Code |
| USFWS | U.S. Fish and Wildlife Service |
| UXO | unexploded ordnance |
| vpd | vehicles per day |
| WAAF | Wheeler Army Airfield |
| WAPA | Western Area Power Administration |
| WOTUS | waters of the United States |
| WRIA | Water Resource Inventory Area |
| WSAF | Wheeler-Sack Army Airfield |
| WTP | water treatment plant |
| WWII | World War II |
| WWTP | wastewater treatment plant |

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# 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

## 1.1 INTRODUCTION AND REGULATORY AUTHORITY

The United States (U.S.) Department of the Army (Army) has developed this Programmatic Environmental Assessment (PEA) to analyze the environmental and socioeconomic impacts that could result from the stationing of a new organization called the Multi-Domain Task Force (MDTF). MDTF operations seek to transform the way the Army would fight against emerging threats and how it would deploy to operational theaters where competitors employ "sophisticated anti-access and area denial (A2/AD) systems, air and missile defense, cyber, electronic warfare, and counter-space capabilities" (U.S. Army 2018) as disruptors to U.S. military entry and dominance across all domains (e.g., areas of activity within environments such as the sea, air, land, space, and cyberspace).

The MDTF unit structure is built around the reorganization of a Field Artillery Brigade (formerly Fires Brigade), and it strengthens "long-range precision fires and air and missile defense capabilities" to counter evolving area denial threats (e.g., anti-ship missiles to prevent attacks by sea). It includes a combination of multiple capabilities in a single Intelligence, Information, Cyber, Electronic Warfare, and Space (I2CEWS) battalion to provide more efficient and effective execution of operations in all warfare domains (i.e., space, cyber, maritime, air, and ground) in support of the Army and Joint Forces[1]. At full strength, an MDTF would comprise around 3,000 Soldiers and require approximately 93 acres of compatible facility capacity or available space. A base configuration focused primarily on the I2CEWS battalion functions would require around 400 Soldiers and 18 acres.

During development of the MDTF concept, the Army determined that two configurations of the MDTF should be analyzed. These are the Base MDTF Configuration and the Full MDTF Configuration. The Base MDTF Configuration includes infrastructure or space for headquarters and maintenance facilities as well as requirements for an Intelligence, Cyber, Electronic Warfare, and Space (ICEWS) detachment. The Base MDTF Configuration also requires sufficient cantonment[2] support facilities for the organization. The Full MDTF Configuration is a larger organization that requires the same components as the Base MDTF Configuration but with additional units and personnel. The Full MDTF Configuration also includes additional airspace, range, and airfield requirements. These two MDTF configurations are discussed in detail in Section 2.4.

## 1.2 BACKGROUND

Over the last 25 years, U.S. adversaries have used emerging technologies (artificial intelligence, hypersonic technology, machine learning, nanotechnology, and robotics) in an attempt to counter traditional strategies and tactics of the U.S. military. These capabilities are designed to prevent access to the battlefield and limit the maneuverability and combined operations of the U.S. military. In recent years, the U.S. military has implemented changes focused on what would be required to defeat adversaries across multiple domains.

[1] all U.S. military services plus our allies

[2] Cantonment is the developed areas that include residential, administrative, commercial, and industrial uses, and open spaces.

The multi-domain operations concept describes how the Army would support the Joint Force in the rapid and continuous integration of all domains of warfare to deter and prevail as the Joint Force competes, short of armed conflict, and fights and wins if deterrence fails (Headquarters, Department of Army [HQDA] 2019). The Joint Force is still designed for operations in relatively uncontested environments. This traditional design allows for sequential campaigns based on predictable approaches that assume air and naval supremacy—extensive shaping with air and naval strikes before the final destruction of severely degraded enemy forces through joint, combined-arms operations (those involving, for instance, infantry, armor, artillery, and aviation units) (U.S. Army 2018). A multi-domain operations-capable force would allow the Army, as part of an integrated Joint Force, to expand the options available to the President and Secretary of Defense short of armed conflict, or to allow for timely response to any armed attacks against the Joint Force.

In 2019, the Army issued the Army Modernization Strategy (AMS) that describes how it will transform into a multi-domain force by 2035 (HQDA 2019). As part of the Joint Force, to defend the United States and retain its position as the globally dominant land power, the Army needs to transform from its current state into a multi-domain force that can project power across all domains of warfare (land, sea, air, space, and cyberspace) throughout the world. The primary goal of the 2019 AMS is a modernized Army capable of conducting multi-domain operations as part of an integrated Joint Force in one major action by 2028 and across multiple theaters by 2035.

The MDTF would be designed to strike critical enemy assets with multi-domain forces to support the Joint Task Force Commander's strategic objectives while protecting friendly forces and critical nodes. The MDTF integrates joint counter air, fire, cyber, space, and information operations to ensure Joint Force freedom of action. During crises, MDTFs would rapidly reposition in theatre in support of the Combatant Command or Joint Task Force flexible deterrence requirements.

Two experimental MDTF projects have been initiated at Joint Base Lewis-McChord (JBLM) and at U.S. Army Garrison (USAG) Hawai‘i. A temporary Full MDTF Configuration was established at JBLM and a temporary Base MDTF Configuration was established at USAG Hawai‘i. The stationing of personnel associated with the two experimental projects was evaluated in a Record of Environmental Consideration (REC) for each of the two garrisons.

## 1.3 PURPOSE OF THE PROPOSED ACTION

The purpose of the Proposed Action is to station a new organization called the MDTF at Army and joint base installations.

The MDTF is a new Army formation able to execute multi-domain operations, designed to deliver long-range precision joint strike as well as integrate air and missile defense, electronic warfare, space, cyber, and information operations in both competition and conflict to provide the Joint Force with new capabilities to enable the defeat of adversaries' A2/AD strategies (U.S. Army 2021a).

## 1.4 NEED FOR THE PROPOSED ACTION

The Army needs to station the MDTF in order to have Soldiers, equipment, and weapon systems readily available to support the Army's changing strategy to deal with modern threats. The need to station the MDTF is driven by the evolution of the capabilities of near-peer adversaries of the United States. The Army requires the MDTF formations to employ effects across all five domains (land, sea, air, space, and cyberspace) to counter adversary anti-access/area denial systems such as integrated air defense networks in the U.S. Indo-Pacific Command area and elsewhere. The MDTF

must be able to provide the theater Commander with proper capabilities while achieving superiority over adversaries' capabilities.

As described in Section 1.2, the Joint Force has not kept pace with the developments of adversaries and the Joint Force continues to be designed for operations in relatively uncontested environments that allow for predictable, sequential campaigns that assume air and naval supremacy. In order to compete across multiple domains, the Joint Force needs to station multi-domain operational forces strategically where they can be rapidly deployed to any theater of operations where they may be needed. The MDTF is intended to expand the options available to civilian authorities, to include effective deterrence and competition short of armed conflict, or timely response to an attack if required.

## 1.5 SCOPE OF THE ENVIRONMENTAL ANALYSIS

This PEA, along with a draft Finding of No Significant Impact ([FONSI]), has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code [USC]* Section [§] 4321 et seq.); the Council on Environmental Quality (CEQ) NEPA-implementing regulation (40 *Code of Federal Regulations* [CFR] Parts 1500-1508); and the Army's NEPA-implementing regulation (32 CFR 651, *Environmental Analysis of Army Actions*).

In July 2020, the CEQ issued a final rule to update its regulations for federal agencies to implement NEPA. This final rule comprehensively updates, modernizes, and clarifies the regulations to facilitate more efficient, effective, and timely NEPA reviews. The changes went into effect on September 14, 2020. Therefore, this analysis has been completed in accordance with the updated rule. The 2020 CEQ regulations final rule included presumptive timelines and page limits for NEPA documents. The timeline for Environmental Assessments (EAs) was set for one year with a page limit of 75 pages (not including appendices). The 2020 CEQ regulations included case-by-case exceptions to the timeline and page limit requirements. These exceptions must be approved in writing by a senior agency official of the lead agency. Because this PEA includes 13 different installations, an exception to the page limit was required. On February 28, 2022, the Acting Assistant Secretary of the Army (ASA) for Installations, Energy and Environment (IE&E) signed the page-limit exception memorandum for this PEA, allowing for up to 300 pages (Appendix A).

Additionally, this analysis has been completed in compliance with the ASA IE&E memorandum implementing the new CEQ NEPA regulation dated August 26, 2020. This memorandum states that an EA must be completed within 1 year (§1501.10(b)(1)) unless the ASA IE&E approves a longer period in writing and establishes a new time limit. One (1) year is measured from the date of circulation of an internal draft EA to the publication date of an EA, a FONSI, or a decision to pursue an Environmental Impact Statement (EIS). Army units and 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 statutes and EOs are addressed in various sections throughout this PEA when relevant to particular environmental resources and conditions.

This PEA includes a broad, programmatic analysis that examines the potential environmental and socioeconomic impacts that could result from the overall MDTF stationing action. This document has been developed to inform Army Senior Leaders at Headquarters, Department of Army (HQDA) level. The programmatic approach is designed to allow for early planning, coordination,

and flexibility throughout implementation of MDTF stationing. This PEA is designed to enable HQDA stationing decisions. For implementation at chosen installations, additional, installation-specific NEPA analysis could be required. This PEA is designed to leverage into multi-year analyses that can assist force managers in making stationing decisions. At the installation-specific garrison level, additional analysis, if determined necessary and appropriate to support HQDA decisions, would be conducted to address changes and analyze environmental effects of the implementing the MDTF stationing.

Although the Army is in the early planning stages of stationing the MDTF, 13 installations have been initially identified for preliminary consideration for the MDTF stationing action (Figure 1-1). The details of the proposed MDTF stationing action at specific installations are not fully developed; therefore, the analysis in this PEA is based on preliminary information developed from each location that focuses on impacts to various environmental resources. Broad analysis has been conducted as part of this PEA to determine the environmental and socioeconomic areas of concern, as well as general capacity and baseline conditions of the 13 installations initially identified for the MDTF stationing action. Installation-specific infrastructure development and training details have not been developed for these installations. This PEA includes a high-level analysis of the potential impacts that could result from the overall MDTF stationing action at these installations, which includes a programmatic look at impacts associated with constructing MDTF facilities and


**Figure 1-1. Installations Considered for Initial MDTF Stationing**

increasing personnel. It is this analysis of the overall stationing action along with a broad look at the possible effects on installation resources that makes this action suitable for programmatic analysis.

This PEA does not evaluate training-related impacts as the training requirements for the MDTF have not been defined and the uncertainty prevents even a general analysis of training impacts.

The MDTF organizational structure is still subject to changes in specific organization, manning, and equipment after it is permanently stationed, based on response to evolving world threats and consequent adjustments of MDTF capability requirements. Installations receiving the MDTF must identify if there are any differences between the requirements identified in this PEA versus the installation-specific plans to be developed later and whether it would be appropriate to tier from this PEA and associated FONSI with a REC or the appropriate environmental analysis.

After completion of this PEA and the Army stationing decisions, installation planners would determine how best to apply the MDTF concept analyzed in this PEA to a specific location on the installation relative to the appropriate MDTF Configuration planned for their installation. When multiple locations are available, installation planners would evaluate the locations and then select a final location. A checklist has been developed for installations to tier from this PEA and associated FONSI to determine if reliance on this PEA is appropriate or if additional NEPA analysis is needed before implementing a proposed action (Appendix B). The checklist would then be applied to that location and configuration. If the installation can respond "no" to each of the statements in the checklist, then no further NEPA analysis would be required and the action would likely qualify for an installation-specific REC, incorporating the analyses and FONSI of this PEA. If the installation checks "yes" to one or more statements in the checklist, planners at the installation can reconsider both the sites and layout of the proposed development, or implement other mitigation, to determine if the effect on the resource area(s) could be avoided and the answer changed to "no." If application of the checklist to the proposed stationing action at a installation requires a "yes" response to any checklist statement and the impact(s) cannot be reduced (e.g., by moving the proposed developments or changing the scale of development), then additional environmental analysis could be required.

## 1.6 PUBLIC INVOLVEMENT AND AGENCY AND TRIBAL COORDINATION

In accordance with 32 CFR 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.

A Notice of Availability (NOA) was published on June 22, 2022, in the *Federal Register* announcing a 30-day public comment period for this PEA and the draft FONSI. Local notices were also published in local newspapers. The Army direct mailed information on the publication of the NOA to interested organizations, agencies, Native American Tribes, and members of the public.

An electronic copy of the PEA and draft FONSI is available for download from the U.S. Army Environmental Command's website at *https://aec.army.mil/index.php?cID=352*.

Please send electronic comments by July 22, 2022, via email to usarmy.jbsa.aec.mbx@army.mil or mail written comments to:

U.S. Army Environmental Command
Attn: MDTF Public Comments

2455 Reynolds Road, Mail Stop 112
JBSA-Fort Sam Houston, TX 78234-7588

Inquiries could also be made via phone by calling the U.S. Army Environmental Command Public Affairs Office at 210-466-1590 or 210-488-6061; by emailing usarmy.jbsa.imcom-aec.mbx.public-mailbox@army.mil; or by mailing U.S. Army Environmental Command, ATTN: MDTF Public Comments, 2455 Reynolds Rd Mail Stop 112, JBSA-Fort Sam Houston, Texas 78234-7588. Comments submitted within the 30-day public comment period will be made part of the Administrative Record and will be considered before a final decision is made.

## 1.7 DECISION TO BE MADE

The Army decision-maker for this PEA is the Department of Army's Deputy Chief of Staff, G-9 and G-3/5/7. This NEPA PEA process will result in either the Army documenting in a FONSI, a determination that its stationing decision would not result in actions with significant environmental impacts, or in the publication of a Notice of Intent to prepare an EIS for MDTF stationing due to potential for significant environmental impacts.

Prior to making a final decision, the decision-maker will consider environmental and socioeconomic impacts, along with all other relevant information, such as public issues of concern identified during the public comment period. If the decision-maker determines there are no significant environmental impacts, the decision will be documented in the final FONSI, which would be signed no earlier than 30 days from the publication of the NOA for this PEA and the draft FONSI. If the Army otherwise identifies that significant environmental impacts could result from the stationing action, it would initiate a Notice of Intent to prepare an EIS to conduct additional analysis of potentially significant environmental impacts.

As described in Section 1.2, JBLM and USAG Hawai‘i, are hosting temporary MDTF pilot projects. These locations are subject to full analysis in this PEA because the Army will need to understand the impacts involved if it decides to make the temporary stationing actions permanent. In the event that significant impacts are identified at one or more installations under consideration, and these impacts cannot be mitigated to less than significant, that stationing selection would not be covered by the FONSI associated with this PEA. The FONSI would still be published as it applies to the remaining installations and MDTF configurations. Stationing at installations for which significant impacts are identified would require additional NEPA analysis.

The decision on where to station and in what sequence to station the MDTF units would be made at HQDA. This decision will be informed by the analysis in the PEA, public comments, and other non-environmental factors (to include strategic factors and military value analysis of the installations).

# 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

## 2.1 INTRODUCTION

This section provides a detailed description of the Proposed Action. The Proposed Action is to station the MDTF at Army and joint base installations and enable Combatant Commanders to synchronize precision effects and precision fires in all domains against adversary A2/AD networks, enabling joint forces to execute their roles and allow Joint freedom of action.

## 2.2 PROPOSED ACTION

The Army's Proposed Action is the stationing of MDTFs at existing Army and joint installations capable of supporting operations in any theater of operations where they may be needed. The MDTF is an essential step in the realization of the AMS outline for transforming the Army into a multi-domain force by 2035, capable of meeting its "enduring responsibility as part of the Joint Force to provide for the defense of the United States, and retain its position as the globally dominant land power" (HQDA 2019). The MDTF is built around a Field Artillery Brigade structure and consists of long-range, land-based missile and rocketry forces integrated with cyber and electronic warfare capabilities. The MDTF requires installations, facilities, including airspace communication, and cyber capabilities; Soldiers; weapons systems; and infrastructure. The MDTF facility requirements include brigade, battalion, and company headquarters facilities, tactical equipment maintenance facilities and vehicle maintenance shops. In addition, to accommodate the cyber and electronic warfare capabilities, the MDTF requires a Sensitive Compartmented Information Facility (SCIF) and an ICEWS Facility.

Although the personnel and facility requirements for the MDTF have been developed, the MDTF weapons systems training doctrine requirements are under development and not available at this time. The Proposed Action for this PEA does not include any MDTF training activities. When the MDTF weapons systems training doctrine requirements are developed, they will be compared against installation-specific ongoing training to determine if additional environmental analysis could be required.

## 2.3 SCREENING PROCESS

Once the MDTF requirements and components were defined, the Army used a screening process to develop alternatives to the Proposed Action. Initiation of the screening process started with the identification of various screening criteria that could be applied to active-duty Army and joint installations throughout the United States where troops could rapidly deploy to theaters in the Indo-Pacific area and elsewhere. Once the screening criteria were created, they were applied to active Army and joint installations, resulting in the identification of the MDTF alternatives described in Section 2.4.

### *2.3.1 Screening Criteria*

The screening criteria, as developed from the purpose and need and the MDTF requirements, are listed below.

1. **Installation Capacity.** The installation must have a minimum of approximately 18 acres, up to approximately 93 acres, of compatible facility capacity or space available for new construction.
2. **Airspace.** The installation must have access to adequate protected airspace, including airspace for the operation of unmanned aircraft systems.
3. **Ranges.** This criterion includes possessing or having access to sufficient land for training and maneuver areas, and sufficient live-fire ranges to support unit live-fire training and Soldier qualification (including High-Mobility Artillery Rocket Systems [HIMARS]).
4. **Garrison Support Facilities Availability.** Installations must either (1) have available cantonment area facilities for administrative, maintenance, motor pool, housing, and personnel support, or (2) have the space and ability to provide adequate cantonment area facilities. This could include the relocation of other units to accommodate the MDTF.
5. **Airfield Capacity.** The installation must have access to an airfield facility that is large enough to land and operate the rotary and fixed-wing aircraft necessary to deploy the assets required to support the MDTF.
6. **Emerging Principles.** The emerging principles for MDTF indicate the need for close, habitual command relationships with a higher headquarters at the tactical/operational level. In other words, the Army requires that the installation must have an existing division or corps headquarters to set priorities and tasks for the MDTFs.

## 2.4 ALTERNATIVES

Once the screening criteria were identified, the Army applied them to active Army and joint installations to develop the MDTF alternatives. Using the above criteria from Section 2.3, the Army determined that not all installations would be capable of meeting all six screening criteria. Application of the screening criteria resulted in the identification of two different MDTF alternatives. Installations capable of meeting all six of the screening criteria, including having approximately 93 acres of compatible facility capacity or space available for new construction, would be identified as the Full MDTF Configuration alternative. Installations that could only meet the minimum facilities and command organization screening criteria would be identified as the Base MDTF Configuration alternative. Although the Base MDTF Configuration alternative does not meet Screening Criteria 2, 3, or 5, the Base MDTF Configuration alternative does meet the purpose and need of the Proposed Action. The Base MDTF Configuration alternative has a smaller footprint than the Full MDTF Configuration alternative in terms of personnel, facilities, weapons systems, airspace, land, and range requirements. The Army could choose to station the Full MDTF Configuration at some installations and station the Base MDTF Configuration at other installations, but no single installation would receive both a Base and a Full MDTF Configuration. The largest configuration in terms of facility footprint would be the Full MDTF Configuration.

Two action alternatives (referred to as the Proposed Action) and the No Action Alternative are carried forward in this PEA. The alternatives are described below.

### *2.4.1 Alternative 1 – Full MDTF Configuration*

Alternative 1 is implementation of the Full MDTF Configuration. Alternative 1 meets all six of the screening criteria described in Section 2.3. The personnel, infrastructure, and airfield/airspace

and range requirements for the Full MDTF Configuration are identified in Table 2-1. The airfield/airspace and range requirements for MDTF training are identified in a general manner.

**Table 2-1. Full MDTF Configuration Requirements**

| Type | Number |
|---|---|
| ***Assigned Personnel*** | |
| Soldiers and Support Staff | Up to 3,000 [1] |
| ***Infrastructure*** | |
| Brigade Support Battalion HQ Facility (20,400 GSF) | 1 |
| Brigade Support Battalion Company Operations Facility (16,100 GSF) | 1 |
| Brigade Support Battalion TEMF (58,200 GSF) | 1 |
| MDTF Small Army Standard HQ (16,100 GSF) | 3 |
| Strategic Fires Battalion HQ Facility (20,400 GSF) | 1 |
| Strategic Fires Battalion Company Operations Facility (16,100 GSF) | 14 |
| Strategic Fires Battalion TEMF (58,200 GSF) | 1 |
| Indirect Fire Protection Capability HQ Facility (18,600 GSF) | 1 |
| Indirect Fire Protection Capability Company Operations Facility (16,100 GSF) | 1 |
| Indirect Fire Protection Capability TEMF (36,000 GSF) | 1 |
| I2CEWS HQ Facility (18,600 GSF) | 1 |
| I2CEWS Company Operations Facility (16,100 GSF) | 1 |
| All-Domain Operations Center, includes a SCIF (39,858 GSF) | 1 |
| Tactical Secure Vehicle Area (27,500 GSF) | 2 |
| Organizational Vehicle Parking (139,554 GSF) | 1 |
| Non-Organizational Vehicle Parking (396,900 GSF) | 1 |
| Organizational Storage (14,994 GSF) | 3 |
| Standard Army Supply and Storage Area (20,480 GSF) | 1 |
| ICEWS Administration Facility | 1 |
| ***Airfield/Airspace/Range Requirements*** | |
| Airfield | Location with sufficiently large airfield to land the aircraft necessary to support deployment of the Full MDTF Configuration. |
| Air Defense Range | Access to Air Defense Range. |
| Training Requirements HIMARS | Access to ranges capable of training with HIMARS. |

Key: GSF = gross square feet; HIMARS = High-Mobility Artillery Rocket Systems; HQ = Headquarters; I2CEWS Intelligence, Information, Cyber, Electronic Warfare, and Space; ICEWS = Intelligence, Cyber, Electronic Warfare, and Space; MDTF = Multi-Domain Task Force; SCIF = Sensitive Compartmented Information Facility; TEMF = Tactical Equipment Maintenance Facility

Note:

1. Using a dependent per Soldier factor of 1.38 (DoD 2018) for the Regular Army, the MDTF Full Configuration would result in up to 4,100 dependents and the MDTF Base Configuration could result in up to 550 dependents.

Figure 2-1 illustrates a conceptual plan for the Full MDTF Configuration that could be applied to any installation. The Full MDTF Configuration alternative would expand capabilities by including long-range fires, air defense, and access to an airfield large enough to land and operate the rotary and fixed-wing aircraft necessary to deploy all assets of a Full MDTF Configuration. The Full MDTF Configuration alternative must also include all of the installation support (cantonment area support facilities, barracks, housing, and adequate space for storage and parking) infrastructure described under Screening Criterion 4.

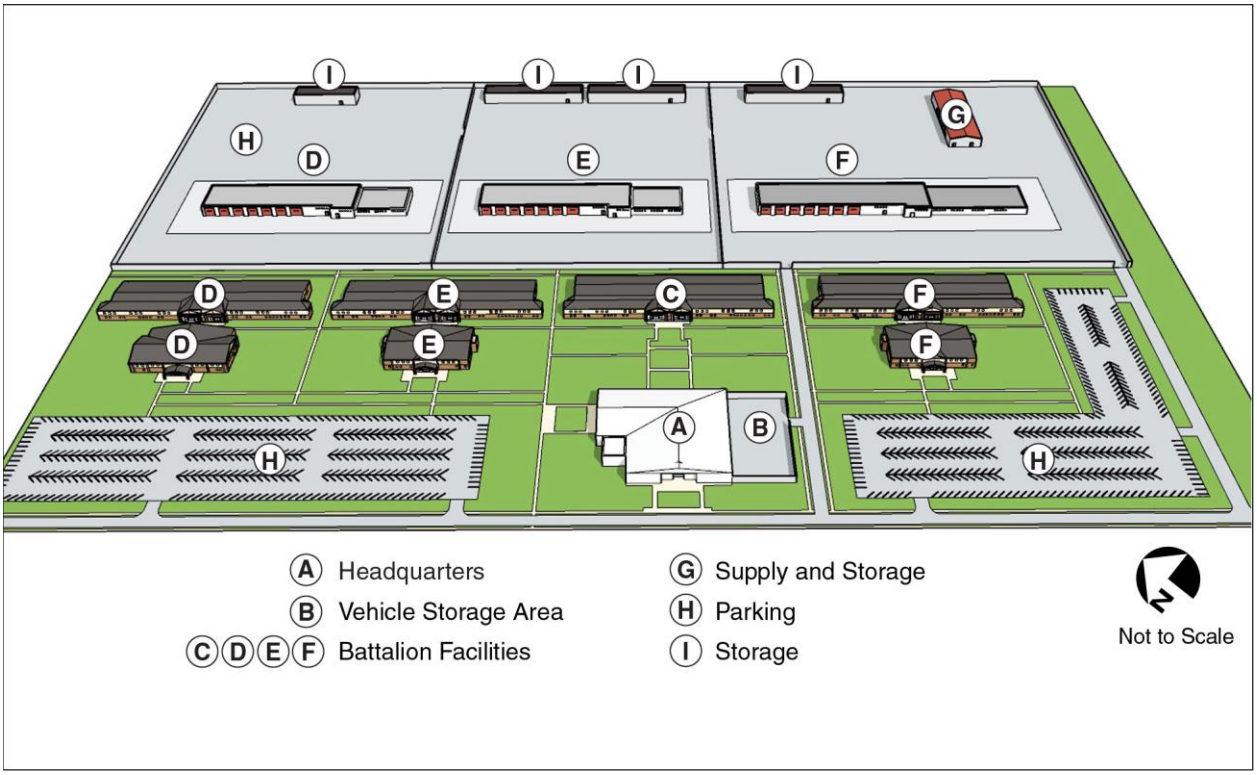


**Figure 2-1. MDTF Conceptual Site Plan – Full Configuration**

The Full MDTF Configuration alternative must also include access to training lands and airspace necessary to support live-fire and maneuver space for Soldier qualification and use of unmanned aircraft systems and HIMARS described under Screening Criteria 2, 3, and 5. The MDTF weapons systems training doctrine requirements are still under development and are not available at this time. Once the MDTF weapon systems training doctrine requirements have been developed, they will be compared against installation-specific ongoing training to determine if additional environmental analysis could be required.

### *2.4.2 Alternative 2 – Base MDTF Configuration*

Alternative 2 is implementation of the Base MDTF Configuration. The Base MDTF Configuration alternative does not meet Screening Criteria 2, 3, or 5 but, it does meet the purpose and need of the Proposed Action. The Base MDTF Configuration alternative has a smaller footprint than the Full MDTF Configuration in terms of personnel, facilities, weapons systems, airspace, land, and range requirements. The personnel and infrastructure requirements for the Base MDTF Configuration are identified in Table 2-2.

**Table 2-2. Base MDTF Configuration Requirements**

| Type | MDTF Base Configuration |
|---|---|
| ***Assigned Personnel*** | |
| Soldiers and Support Staff | Up to 400[1] |
| ***Infrastructure*** | |
| Brigade Support Battalion HQ Facility (20,400 GSF) | 1 |
| Army Standard Company Operations Facility (16,100 GSF) | 1 |
| All-Domain Operations Center, includes the 200-person SCIF (39,858 GSF) | 1 |
| Tactical Secure Vehicle Area (27,500 GSF) | 1 |
| Medium Army Standard TEMF (36,000 GSF) | 1 |
| Organizational Vehicle Parking (139,500 GSF) | 1 |
| Non-Organizational Vehicle Parking (70,686 GSF) | 3 |
| ICEWS Administration Facility | 1 |
| ***Airfield/Airspace/Range Requirements*** | |
| Airfield | Not required |
| Air Defense Range | Not required |
| Training Requirements HIMARS | Not required |

Key: GSF = gross square feet; HIMARS = High-Mobility Artillery Rocket Systems; HQ = Headquarters; ICEWS = Intelligence, Cyber, Electronic Warfare, and Space; MDTF = Multi-Domain Task Force; SCIF = Sensitive Compartmented Information Facility; TEMF = Tactical Equipment Maintenance Facility

Note:

1. Using a dependent per Soldier factor of 1.38 (DoD 2018) for the Regular Army, the MDTF Full Configuration would result in up to 4,100 dependents and the MDTF Base Configuration could result in up to 550 dependents.

The Base MDTF Configuration alternative must also include all of the installation support (cantonment area support facilities, barracks, housing, and adequate space for storage and parking) infrastructure described under Screening Criterion 4. The Base MDTF Configuration alternative does not require airspace, range, or airfield capacity as described under Screening Criteria 2, 3, and 5. Live-fire training requirements for units could be conducted at different locations; this does not mean that an otherwise eligible installation would be eliminated from consideration.

Figure 2-2 illustrates a conceptual plan for the Base MDTF Configuration that could be applied to any installation and then refined as needed by installation planners.

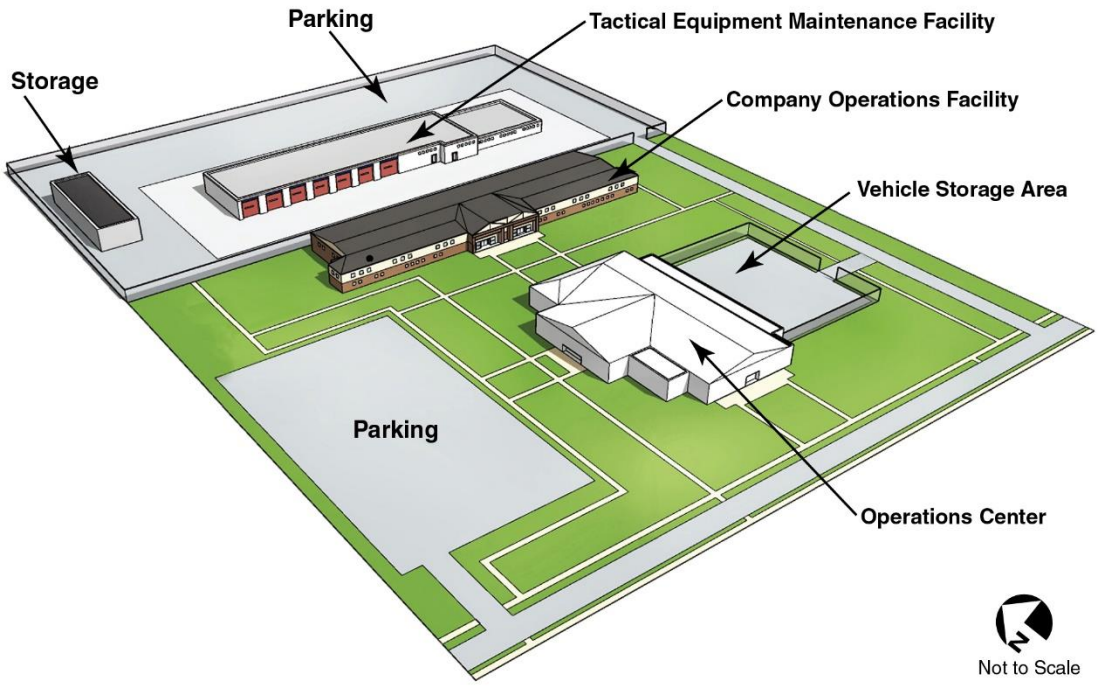


**Figure 2-2. MDTF Conceptual Site Plan – Base Configuration**

### *2.4.3 No Action Alternative*

Implementation of the No Action Alternative would mean that neither the Full nor the Base MDTF Configurations would be permanently established at any Army or joint installation. Although implementation of the No Action Alternative would not meet the purpose and need or the objectives of the AMS, the No Action Alternative serves as the baseline for the comparison of potential impacts to all resource areas. Under the No Action Alternative, the Army would not enhance its structural Multi-Domain Operations capabilities. For purposes of the installation analyses in this document, no action means that neither MDTF configuration would be placed at any installation. In addition, infrastructure at each of the 13 installations would remain unchanged and subject to the future potential impacts of climate change.

### *2.4.4 Alternatives Not Carried Forward for Evaluation*

During the development of alternatives, the Army determined that the following alternatives did not meet the purpose and need of the Proposed Action and the alternatives were not carried forward for further evaluation.

1. **Station all MDTFs overseas, not in a U.S. state, territory, or district.** This alternative would not meet the purpose and need of the Proposed Action because in many situations it would not locate the MDTFs with division or corps headquarters. It would also mean that the many brigade combat teams (BCTs) stationed in the U.S. would not be able to train with MDTFs at their home duty stations. This alternative would not meet the purpose and need for the Proposed Action and is not carried forward for analysis.
2. **Station MDTFs at installations without division or corps headquarters.** The Army requires a division or corps headquarters to set priorities and tasks for the MDTFs. The preferred approach is to have the headquarters in question be co-located with the MDTF.

### *2.4.5 Installation Configurations Not Carried Forward for Evaluation*

Based on the preliminary analysis, with the exception of USAG Hawai‘i, all of the installations analyzed in this PEA could accommodate either the Full or Base MDTF Configuration. Due to the land restrictions at USAG Hawai‘i, this installation would only be able to accommodate the Base MDTF Configuration and therefore only the Base MDTF Configuration was analyzed in Section 3.15.

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# 3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

## 3.1 INTRODUCTION

This chapter begins with an introduction to the general definition of each resource area followed by an explanation of the methodology used to complete the impact analyses. Section 3.2 includes a listing of the resource areas and Section 3.3 includes a list of the resource areas dismissed from further analysis, including the rationale. The remainder of this chapter (Sections 3.4 through 3.16) is organized by installation, including information specific to the affected environment of each of the resource areas at each installation followed by the analysis of effects or environmental consequences that could result from implementation of the MDTF stationing action.

## 3.2 DEFINITION OF RESOURCES AND METHODOLOGY

### *3.2.1 Description of Resource Elements*

In order to comply with current NEPA regulations to facilitate more efficient, effective, and timely NEPA reviews, this document includes references to other publicly available information, when possible, to avoid duplication of information that is available elsewhere. As such, the description of resource areas can be found by referencing the PEA for the Fielding of the Maneuver - Short Range Air Defense Capability (U.S. Army 2021b) available online at https://aec.army.mil/index.php?cID=352. Table 3-1 contains the corresponding section of the PEA for the Fielding of the Maneuver - Short Range Air Defense Capability. This PEA includes definitions of resources as it relates to the construction of facilities and implementation of training. Because the MDTF weapons systems training doctrine requirements are under development and not available at this time, the Proposed Action for this PEA does not include any MDTF training activities. Therefore, the definition of resources from the M-SHORAD Capability PEA only applies to facility construction in this PEA.

### *3.2.2 Methodology*

As defined in 40 CFR 1501.3, the affected environment and the degree of effects of implementing an action are considered when determining the significance of potential effects to resources. In considering whether the effects of the Proposed Action are significant, the potentially affected environment and the degree of the effects of implementing the action are considered. The degree of effects considers short- and long-term effects and beneficial and adverse effects. Effects on public health and safety, and violation of federal, state, tribal, or local laws are also considered. Effects/impacts that potentially result from the implementation of actions can be both beneficial and adverse as defined below:

- **Beneficial** – The impact of implementing the action would benefit the resource/issue.
- **Adverse** – The impact of implementing the action would not benefit the resource/issue.

The degree of environmental beneficial and adverse impacts is characterized as: none, negligible, minor, moderate, significant, and significant but mitigatable, as defined below:

- **None**: There is no impact to the resource due to either the resource or the impact not being present or through full avoidance.
- **Negligible**: No measurable impacts are expected to occur. A negligible impact could locally alter the resource, but would not measurably change its function or character.
- **Minor**: Primarily short-term but measurable impacts are expected. Impacts on the resource could be slight.
- **Moderate/less than significant**: Noticeable impacts that would have a measurable effect on a wide scale (e.g., outside the footprint of disturbance or on a landscape level). If implementation of the action were to result in moderate adverse impacts, those impacts would not exceed the limits of applicable local, state, or federal regulations.
- **Significant but Mitigatable:** Impacts resulting from implementation of the action would be significant but measures are proposed to be implemented that would reduce the degree of impacts such that impacts are less than significant.
- **Significant**: A significant impact could exceed limits of applicable local, state, or federal regulations or would untenably alter the function or character of the resource. These impacts would be considered significant unless managed by mitigation efforts to a less than significant level.

**Table 3-1. Definition of Resources Cross Reference for the Fielding of the Maneuver - Short Range Air Defense Capability PEA**

| Resource Area | M-SHORAD Resource Area | M-SHORAD Section |
|---|---|---|
| Air Quality | Air Quality | 3.1.1.1 |
| Airspace | Airspace | 3.1.2.1 |
| Biological Resources | Biological Resources | 3.1.3.1 |
| Cultural Resources | Cultural Resources | 3.1.4.2 |
| Soils | Soils | 3.1.5.1 |
| Hazardous Materials and Solid Waste | Hazardous Materials and Solid Waste | Not applicable |
| Land Use | Land Use and Compatibility | 3.1.6.1 |
| Socioeconomics and Environmental Justice | Socioeconomics | 3.1.7.1 |
| Noise | Noise | Not applicable |
| Traffic and Transportation | Traffic and Transportation | 3.1.8.1 |
| Infrastructure and Utilities | Utilities, Facilities, and Energy Systems | 3.1.9.1 |
| Water Resources | Water Resources | 3.1.10.1 |

Key: M-SHORAD = Maneuver - Short Range Air Defense System; PEA = Programmatic Environmental Assessment

The resources analyzed in this PEA have been categorized into nine resource areas, as identified in Table 3-2, to enable a managed and systematic analysis. To maintain consistent evaluation of impacts in this PEA, the Army established thresholds of significance for each resource area. These thresholds are identified in Table 3-2. For some resource areas, the Army developed thresholds based on substantive environmental regulations to ensure an objective analysis of potential impacts.

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Air Quality | Air Quality Control Region(s) where the installation is located. | An impact on air quality would be considered significant if the Proposed Action were to generate emissions which:<br>• Did not meet CAA conformity determination requirements to conform with the State Implementation Plan/Tribal Implementation Plan, or<br>• Contribute to a violation of any federal, state, or local air regulation. | Air Quality Analyzed<br><br>GHG Dismissed | The addition of an MDTF would result in increased stationary source and vehicle emissions and potentially an increase in fugitive dust emissions. This resource area is further discussed in each installation section.<br>GHG are dismissed from further analysis because the construction actions analyzed in this document would have minimal effects on GHG and training is not being evaluated. In addition, the Army does not know the number and types of vehicles that would accompany the MDTF nor does the Army know how many vehicle miles would be used to estimate GHG emissions. Changes in the amount of ongoing GHG emissions from base and training operations would be evaluated in site-specific tiered or follow-on NEPA documentation prepared as appropriate. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Airspace | Restricted Area SUA above and nearby the installation and under the installations' control. | An impact to airspace would be considered significant if the Proposed Action violates FAA safety regulations or causes a substantial infringement of general aviation or commercial flight. | Dismissed | Although the personnel and facility requirements for the MDTF have been developed, the MDTF weapons systems training doctrine requirements are under development and not available at this time. The Proposed Action for this PEA does not include any MDTF training activities. When the MDTF weapons systems training doctrine requirements are developed, they will be compared against installation-specific ongoing training to determine if additional environmental analysis could be required. Should training requirements include airspace use, additional NEPA analysis would be required. |
| Biological Resources | Biological Resources of the installation. | Impacts to biological resources would be considered significant if Army actions were to result in:<br>• Substantial permanent conversion or the net loss of habitat,<br>• Long-term loss or impairment of a substantial portion of local habitat (species-dependent),<br>• Loss of populations of species, or<br>• Unpermitted or unlawful "take" of ESA protected threatened or endangered species or species protected under the BGEPA or MBTA. | Analyzed | The Proposed Action and related construction activities could adversely impact natural resources at the installation from increased ground disturbance and the potential for related vegetation loss and habitat degradation. As a result, this resource area is further discussed in each installation section. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Cultural Resources | Cultural Resources on the installation. | Impacts to cultural resources would be considered significant if they cause alteration of the characteristics that qualify a property for inclusion on the NRHP (could include physical destruction, damage, alteration, removal, change in use or character within the setting, and negligence causing deterioration, transfer, lease, or sale). Alteration of properties, or access to properties, of religious or cultural significance to Native American Tribes would also be significant. | Analyzed | Construction and renovations associated with the Proposed Action could adversely impact cultural resources. As a result, this resource area is further discussed in each installation section. |
| Soils | Soils on the installation. | Impacts on soils would be considered significant if:<br>• Impacts would occur to unique soil features<br>• Substantial soil losses were to impair plant growth or result in detrimental increases in stream sedimentation. | Analyzed | The majority of construction and land-disturbance activities would occur in previously disturbed areas adjacent to existing development with some development occurring in relatively undisturbed soils. Implementation of the Proposed Action would result in land disturbance of up to 93 acres. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Suitable erosion control plans or Stormwater Pollution Prevention Plans would be prepared in accordance with local, State, and Federal requirements. Standard BMPs would be implemented to minimize soil erosion. As a result, this resource area is further discussed in each installation section. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Hazardous Materials and Solid Waste | All areas on the installation. | Impacts to hazardous materials and hazardous waste would be considered significant if a substantial additional risk to human health or safety would be attributable to Army actions, including direct human exposure or a substantial increase in environmental contamination. | Dismissed | The increase in hazardous materials and hazardous and solid waste resulting from stationing the MDTF at the analyzed installations would be negligible. All of these materials are managed under strict requirements of federal, state, Army, and installation regulations. Proper transport, storage, use, and disposal are mandated relative to the regulations.<br>Although soil and groundwater contamination could be encountered during construction activities, site-specific construction site safety and health plans would identify the necessary protective measures for protection of human health and the environment. Construction-related debris associated with facility construction or improvements would be non-substantial and re-used or recycled per applicable BMPs or disposed of per applicable regulations in approved landfills. No significant impacts relating to hazardous materials and solid waste are anticipated. Therefore, no further analysis of hazardous materials and hazardous and solid waste is required. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Land Use | Land use on the installation and on adjacent properties. | Impacts to land use would be considered significant if the land use were incompatible with existing military land uses and designations (including recreation) and or sufficient land is not available. These impacts could conflict with Army land-use plans, policies or regulations, or conflict with land use off post. | Analyzed | The Proposed Action would not pose conflicts with off-post land uses. Required installation construction to support the MDTF would generally occur within existing cantonment areas or other suitable locations. Not all proposed locations have been fully considered within the existing land use planning for each installation. As a result, this resource area is further discussed in each installation section. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Socioeconomics and Environmental Justice | Socioeconomic and Environmental Justice factors within the installation and immediate surrounding communities and counties. | Impacts to socioeconomics would be considered significant if they were to cause substantial changes to sales volume, income, employment, or population (including housing and schools).<br>Impacts to environmental justice would be considered significant if any significant adverse impacts from other resource areas disproportionately impacted minority or low-income populations. | Socioeconomics – Analyzed<br>Environmental Justice - Dismissed | Increases in construction spending to support population gains would have similar beneficial economic impacts as population gains; however, impacts would generally be short-term and temporary. Increased construction could result in temporary increases in jobs, income, and sales due to increased spending in a given region. Increased populations could produce increased demand for housing or shortages in housing availability as well as place additional demand in schools that are close to capacity. These potential impacts would vary depending on the local affected environment. As a result, this resource area is further discussed in each installation section.<br>Since no adverse impacts in areas that would impact environmental health or subsistence for human beings are anticipated to result from the Proposed Action, there is no potential for disproportionate adverse impacts to minority or low-income populations. Therefore, no further analysis of impacts relating to environmental justice is required. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Noise | Areas adjacent to and on the installation. | Impacts would be considered significant if noise from Army actions were to cause harm or injury to on- or off-post communities or exceed applicable environmental noise limit guidelines. | Dismissed | The only potential noise impacts related to implementation of the Proposed Action would be impacts associated with construction noise. These impacts would be short-term and would only impact installation personnel in the immediate vicinity of construction projects. Impacts would not be significant. Therefore, no further analysis of impacts relating to noise is required. |
| Traffic and Transportation | Public roadways and key access points within and near the installation; roadways within installation boundaries. | Impacts to traffic and transportation would be considered significant if Army actions:<br>• Cause a reduction by more than two LOSs at roads and intersections within the ROI;<br>• Substantially degrades traffic flow during peak hours, or;<br>• Substantially exceed road capacity and design. | Analyzed | The addition of an MDTF and associated Soldiers and families could adversely affect traffic conditions and the integrity of local roadways. As a result, this resource area is further discussed in each installation section. |
| Infrastructure and Utilities | Infrastructure and utilities on the installation and immediate surrounding communities. | Impacts to infrastructure and utilities would be considered significant if the Proposed Action were to cause an impairment of service to the installation and local communities, homes, or businesses. | Analyzed | The Proposed Action could require the construction of new facilities in the cantonment area and are further discussed in each installation section. Utilities could only require upgrades or extension to connect the new facilities to the existing network and are further discussed in each installation section. |

**Table 3-2. Resource Areas and Their Respective ROIs with Thresholds for Significance and Rationale for Analyzing or Dismissing (continued)**

| Resource Area | ROI | Threshold of Significance | Analyzed or Dismissed from further analysis | Rationale for Analyzing or Dismissing |
|---|---|---|---|---|
| Water Resources | Watersheds, state-designated stream segments, and groundwater aquifers associated with the installation; USACE jurisdictional WOTUS and wetland resources within the installation FEMA- designated floodplains | Impacts to water resources would be considered significant if Army actions:<br>• Result in an excess sediment load in installation waters, affecting impaired resources,<br>• Substantially affect surface water drainage or stormwater runoff, including floodwater flows,<br>• Substantially affect groundwater quantity or quality. | Surface water, water quality, wetlands, and floodplains analyzed<br><br>Groundwater dismissed | Construction activities associated with the Proposed Action could adversely impact surface water, wetlands, and floodplain resources on the installation. Surface water quality could be directly impacted by the Proposed Action and indirectly by sedimentation/erosion. As a result, these resource areas are further discussed in each installation section.<br>Incidental spills from any equipment would be managed through the installation's Spill Prevention Control and Countermeasures Plan. Therefore, no further analysis of impacts relating to groundwater is required. Potential climate change impacts to water resources include rising temperatures, changes in precipitation patters and increases in storm frequency and intensity potentially resulting in increased flooding. |

Key: BGEPA = Bald and Golden Eagle Protection Act; BMP = best management practice; CAA = Clean Air Act; $CH_4$ = methane; $CO_2$ = carbon dioxide; ESA = Endangered Species Act; FAA = Federal Aviation Administration; FEMA = Federal Emergency Management Agency; FR = Federal Register; GHG = greenhouse gas; LOS = level of service; MBTA = Migratory Bird Treaty Act; MDTF = Multi-Domain Task Force; NEPA = National Environmental Protection Agency; NRHP = National Register of Historic Places; PEA = Programmatic Environmental Assessment; ROI = region of influence; SUA = Special Use Airspace; U.S. = United States; USACE = U.S. Army Corps of Engineers; WOTUS = waters of the United States

Although some thresholds have been designated based on legal or regulatory limits or requirements, others reflect discretionary judgment using the potentially affected environment and the degree of the effects of the actions. Quantitative and qualitative analyses have been used, as appropriate, to determine if a threshold has been exceeded and the degree to which it has been exceeded. Although each of the 13 installations conducted a preliminary analysis of resource area impacts based on the most likely site for MDTF facilities, a full detailed analysis of impacts was not possible since detailed installation-specific design plans have not yet been developed. Therefore, environmental consequences that are dependent on final installation-specific designs are only mentioned in general terms. For installations that have resource areas such as wetlands, cultural resources, or contaminated sites that could be impacted depending on project specifics, detailed installation-specific analyses would occur in tiered NEPA documents once facility design plans are developed for the installation. As described in Section 1.5, a checklist would be applied to the locations and MDTF configurations. Based on the alternative selected, additional installation-specific analyses at each installation will be conducted, if required, to address actions described in Chapter 3 necessary for the installation to support MDTF stationing (e.g., military construction [MILCON]).

Table 3-2 presents each resource area and the corresponding region of influence (ROI) and significance thresholds. This table also identifies which resource areas are analyzed in this PEA, which resource areas are dismissed from further analysis, and which resource areas have potential impacts that would be considered common to all installations. To inform the scope of this PEA and identify the resources analyzed, qualified subject matter experts from each considered installation provided the potential direct and indirect effects of the No Action Alternative and the Full and Base MDTF Configurations, referred to as the Proposed Action Alternatives, relative to each resource area from their respective installations. Each installation subject matter expert evaluated and considered the existing conditions of resource areas within the most likely sites for the MDTF facilities or the Proposed Action's ROI. For the purposes of the PEA, analysis of effects is discussed in general terms for each resource area where the impacts from implementing the Proposed Action would be the same for all installations in Table 3-2. Impacts unique to a particular installation are discussed in Sections 3.4 through 3.16.

There are two impact sources from implementing the Proposed Action. These include construction of new facilities and the increase of new Soldiers and spouses and children at an installation. As shown in Tables 2-1 and 2-2, depending on the MDTF configuration (Full or Base) at a particular installation, the increase in Soldiers could range between approximately 400 up to 3,000. Data from the Department of Defense (DoD) Selected Military Compensation Tables of January 1, 2019, show 33% of all military personnel live on base and receive quarters in kind, i.e., they are living in a barracks-type facility. The remaining military personnel receive a cash allowance for housing and live off post or in privatized housing on post. This PEA assumes one-third of the Soldiers would live in barracks, and the remaining two-thirds of Soldiers (and their families) would live in privatized housing on post or off post in the local area.

The programmatic approach for analyzing impacts used for this PEA consists of a description of the components of each alternative; identification of each resource area; development of methods used to analyze impacts and development of mitigation measures (if applicable) that could be applied to reduce or eliminate impacts.

Regarding the types of impacts evaluated, there could be both adverse and beneficial impacts within a single resource area; for instance, a project could place additional demands on an already tight housing market (an adverse impact) while increasing spending in the local economy due to

an influx of personnel and their associated dependents (a beneficial impact). Where there are both adverse and beneficial impacts, both are described in the text.

The programmatic approach for analyzing cumulative effects was generally based on the approach to cumulative effects analysis completed for the M-SHORAD Capability PEA as referenced in Section 3.2.1 of this PEA. As described in the M-SHORAD Capability PEA, the Army has a number of different modernization projects planned through 2026, including fielding the M-SHORAD system at various installations. Although implementation of some of these modernization projects combined with the MDTF stationing action could result in minor adverse cumulative effects to air quality, biological resources, soils, socioeconomics, traffic and transportation, facilities and water resources, none are anticipated to be significant. The effects of the additional actions, when combined with those of the MDTF stationing action, are expected to result in less than significant cumulative impacts to all of the nine resource areas at each of the 13 installations evaluated in this PEA.

## 3.3 RESOURCE AREAS DISMISSED FROM FURTHER ANALYSIS

Table 3-3 includes a summary list of resource areas and, in some cases, subcategories of those resource areas not analyzed further along with the rationale of why they are dismissed. The initial analysis for these resource areas is included in Table 3-2.

**Table 3-3. Resource Areas Dismissed from Further Analysis**

| Resource Area/Subcategory | Rationale |
|---|---|
| Greenhouse Gases | Minor, temporary impacts from construction. See Table 3.1 for additional information. |
| Airspace | No impacts as airspace use is not included in the Proposed Action. See Table 3.1 for additional information. |
| Hazardous Materials and Solid Waste | Sources of hazardous materials or solid waste would be negligible. See Table 3.1 for additional information. |
| Environmental Justice | No significant impacts that could potentially impact minority or low-income populations. See Table 3.1 for additional information. |
| Noise | Only short-term minor impacts related to construction would occur. See Table 3.1 for additional information. |
| Groundwater | No potential for groundwater impacts. See Table 3.1 for additional information. |

## 3.4 FORT BLISS

### *3.4.1 Background*

Fort Bliss is a multi-mission Army installation located in west Texas and southern New Mexico with its headquarters located in El Paso, Texas (Figure 1-1). Originally established in 1849, Fort Bliss is home to the 1st Armored Division. Fort Bliss consists of a cantonment area, William Beaumont Army Medical Center and Logan Heights, Biggs Army Airfield (AAF), and the Fort Bliss Training Complex. Fort Bliss has approximately 1.1 million acres located in Texas and New Mexico that is used for training and maneuvers by the Army and others.

The 1st Armored Division consists of four heavy BCTs, a Combat Aviation Brigade (CAB), and a fires brigade. Fort Bliss is used as a training area by all branches of the military. Fort Bliss provides the largest contiguous tract (1,500 square miles) of restricted airspace in the continental U.S., used for missile and artillery training and testing, and at 992,000 acres has one of the largest maneuver areas of all installations.

## *3.4.2 Air Quality*

### 3.4.2.1 Affected Environment

Under the Clean Air Act (CAA) (42 USC 7401–7671q), as amended, the U.S. Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) (40 25 CFR Part 50) that specify acceptable concentration levels of six criteria pollutants: particulate matter (PM) (measured as both particulate matter with a diameter less than or equal to 10 microns [$PM_{10}$] and particulate matter with a diameter less than or equal to 2.5 microns [$PM_{2.5}$]), sulfur dioxide ($SO_2$), carbon monoxide (CO), nitrogen dioxide, ozone ($O_3$), and lead. A Net Change Emissions Assessment is required to quantify the emissions of these criteria pollutants and to evaluate whether a proposed action poses a significant impact to air quality.

Fort Bliss is located in the El Paso-Las Cruces-Alamogordo Interstate Air Quality Control Region (AQCR). The cantonment area on Fort Bliss is located in El Paso County, Texas, within the city limits of El Paso. With the exception of the City of El Paso, El Paso County is in attainment for all criteria pollutants (Texas Commission on Environmental Quality [TCEQ] 2021). The TCEQ has classified the City of El Paso as nonattainment for $PM_{10}$ and the downtown area as Maintenance for CO. Other parts of Fort Bliss extend into Doña Ana and Otera Counties in New Mexico. The New Mexico Environmental Department has classified Doña Ana as nonattainment for $PM_{10}$ near the City of Anthony, New Mexico, and Otero County as attainment for all criteria pollutants.

Fort Bliss holds a Title V Federal Operating Permit that covers emissions of both criteria pollutants (including nitrogen dioxide) and hazardous air pollutants (HAPs) installation wide. The air quality permit for Fort Bliss covers sources located in Texas only and is currently undergoing renewal.

### 3.4.2.2 Environmental Consequences

#### *3.4.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. Construction, operation, and utilization of the new facilities would not result in the installation violating its existing Title V Permit as long as new emission sources are incorporated into the permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization and construction, and would result in the discharge of airborne particulates/fugitive dust. Implementation of standard air quality best management practices (BMPs) could be implemented to minimize these emissions, such as watering of exposed surfaces and covering of areas with exposed soils.

#### *3.4.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and less impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Bliss would be negligible.

## *3.4.3 Biological Resources*

### 3.4.3.1 Affected Environment

Fort Bliss is dominated by desert basin and mountains with small areas of the mountains occupied by coniferous forests. Important habitats in this region include grasslands and woodlands that cross ecoregions or watershed boundaries, such as the Chihuahuan Desert, Arizona-New Mexico Mountains, and Southern Shortgrass Prairie Ecoregions. Most of Fort Bliss lies within the Chihuahuan Desert ecoregion, except for the north end that lies within the Arizona-New Mexico Mountains ecoregion. The Chihuahuan Desert Ecoregion covers approximately 174 million acres from Mexico to southwestern Texas and southern New Mexico. It is one of the most biologically diverse desert ecoregions of the world with a high degree of endemism (i.e., a substantial number of species are unique to the region) (Fort Bliss 2016). As documented in the Fort Bliss Integrated Natural Resources Management Plan (INRMP), climate change has the potential to affect natural resources through rising temperatures and the potential for increased wildfires. In addition, noxious and non-native species could spread due to climate change forcing out native species (Fort Bliss 2016).

#### *3.4.3.1.1 Flora*

The locally important natural resources are the grasslands (more specifically mesa grasslands), shinnery oak islands, sand sagebrush communities, and arroyo-riparian drainage areas (inclusive of playas). Other resources, such as water or soil, are described in more detail in other sections of this document.

Plant communities on the installation range from the Chihuahuan Desert in the Tularosa Basin to Rocky Mountain conifer forests in the Organ Mountains (Fort Bliss 2016). Fort Bliss' large size and varied topography (which spans from desert basins to montane peaks) allow for a high degree of biodiversity. There are estimated to be 300 nonvascular and 1,200 vascular plant species that occur on Fort Bliss, with more than 800 species in the Organ Mountains alone. Additional forest and woodland communities of ponderosa pine (*Pinus ponderosa*) and piñon-juniper (*Pinus* and *Juniperus* species) are found in the Sacramento Mountains (Fort Bliss 2016).

Approximately 69% of the land cover is shrubland habitat, 27% is grassland, 8.5% is desert scrub, and 1% is montane woodland and riparian. Approximately 1.4% of Fort Bliss consists of military facilities (Fort Bliss 2016). Each general vegetation category is composed of a diverse list of plant species. Generally, alluvial fan, piedmont, desert shrub, and grassland plant communities dominate the Tularosa Basin. In the Organ and Sacramento Mountains, forest and woodland communities of ponderosa pine, mixed conifer, and piñon-juniper are the predominant vegetative categories. Grassland communities dominate the Otero Mesa.

A complete list of the plants making up the vegetative categories found on Fort Bliss can be found in the Fort Bliss INRMP (Fort Bliss 2016).

#### *3.4.3.1.2 Fauna*

Fort Bliss supports a diversity of bird, mammal, reptile, and amphibian species. Due to the large expanses of undeveloped land, the range and training areas on Fort Bliss contain the highest diversity of species. The cantonment area includes the heaviest concentration of facilities, mission-support activities, and housing, and contains little habitat for faunal species.

#### *3.4.3.1.3 Protected Species*

The Fort Bliss INRMP identifies 53 protected plant and animal species that have the potential or are known to occur on Fort Bliss (Fort Bliss 2016). Because of the diversity of habitats on Fort Bliss, there is the potential for protected species to occur on Fort Bliss that might not yet have been identified or confirmed on the installation. Continued monitoring and improved documentation of Fort Bliss' natural environment ensures that sensitive species receive adequate protection if a new population is discovered. Protected species on Fort Bliss are managed in accordance with the *Endangered Species Management Plan*, which is a component of the INRMP.

Of the 53 protected plant and animal species, eight have federal protection status. Four of these eight species are federally listed as endangered, and four species are federally listed as threatened. Only the federally endangered Sneed's pincushion cactus (*Escobaria sneedii*), yellow-billed cuckoo (*Coccyzus americanus*), and the least tern (*Sterna antillarum*) have been documented to occur on Fort Bliss. The other five federally protected species could occur on Fort Bliss; however, they have not been identified or confirmed on post. The survey and monitoring of existing populations of Sneed's pincushion cactus have occurred continuously since 1980—on South Hill, North Hill, and Webb Gap on Fort Bliss (Fort Bliss 2016).

### 3.4.3.2 Environmental Consequences

#### *3.4.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened and endangered species. Locations available for development include coppice dunes and mesquite shrub land. These locations do not provide habitat for any threatened or endangered species. In addition, there are no critical habitats near these locations.

The burrowing owl (protected species under the Migratory Bird Treaty Act [MBTA]) could reside in the area between March 1 and October 30; however, it is unlikely that this stationing action would adversely affect the overall population given the immense size of identical terrain in the region. Burrowing owl surveys would be conducted prior to disturbance to confirm the absence of the species or determine appropriate mitigation activities should the species be located in an area designated for construction. In addition, construction activities with potential to remove vegetation during the migratory bird nesting season (February 15 through September 15) would initiate an avian nest search completed by a qualified biologist to prevent the "take" of a protected species.

In addition, the electric company is required to ensure that all aboveground transmission poles and lines (temporary and permanent) are compliant with Edison Electric Institute and Aviation Power Line Interaction Committee (Aviation Power Line Interaction Committee 2006) *Suggested Practices for Raptor Protection on Power Lines*, specifically for golden eagles (*Aquila chrysaetos*) since they utilize power poles on post and have the greatest wingspan. All equipment must be properly insulated and grounded, and adequately spaced to avoid raptor electrocutions. Bird deterrents or alternative perches would be installed on poles and cross arms when line configurations do not allow for adequate wire separation to avoid avian electrocutions. The responsible electric company is required to contact the Environmental Division prior to removal of any bird nest of a raptor, crow (*Corvus* spp.), or other protected bird species during the removal and replacement of utility poles. If encountered, personnel associated with the Proposed Action would not interfere with nesting birds or disturb nests until a qualified wildlife biologist has determined that all young have fledged and left the nest.

Finally, the invasive African rue plant species occurs on Fort Bliss. All earth moving equipment must be thoroughly washed before starting on-site work and prior to leaving the site to prevent both the introduction and spread of this invasive plant species.

Impacts to other migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased. Impacts to vegetation are anticipated to be temporary, minor, and adverse. Overall impacts to biological resources would be negligible.

#### *3.4.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint and less impacts to biological resources than those described under the Full MDTF Configuration alternative. Significant impacts to biological resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss. Impacts to biological resources would be negligible.

### *3.4.4 Cultural Resources*

#### 3.4.4.1 Affected Environment

Cultural resources on Fort Bliss are managed and protected through historic preservation laws, regulations, and other provisions including, but not limited to, National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Archaeological Resources Protection Act (ARPA), Native American Graves Protection and Repatriation Act (NAGPRA), EO 11593 *Protection of the Cultural Environment* (1971), EO 13007 *Indian Sacred Sites* (1996). Fort Bliss maintains an Integrated Cultural Resources Management Plan (ICRMP) (Fort Bliss 2017) to protect and manage the cultural resources in compliance with various federal laws and regulations. It integrates those management responsibilities with the installation's military training, construction, maintenance, and other mission-related activities.

Fort Bliss coordinates the management of cultural resources in consultation with the New Mexico and Texas State Historic Preservation Offices (SHPOs) and the Advisory Council on Historic Preservation (ACHP) under a Programmatic Agreement (PA) (2015 to 2025). The PA streamlines Section 106 compliance, outlining undertakings that do not require project-by-project SHPO review; however, 36 CFR 800 is followed when addressing Section 106 with Federally Recognized Tribes. The PA includes standard operating procedures (SOPs) that provide for consistent, day-to-day management of mission undertakings carried out on the installation that could affect historic properties (Fort Bliss 2017).

Fort Bliss contains over 20,600 identified archaeological sites and approximately 4,340 structures. Of those, 3,567 archaeological sites and 507 buildings and structures are listed or are eligible for listing in the National Register of Historic Places (NRHP) (Fort Bliss 2017). Fort Bliss has three archaeological sites that are listed in the NRHP: Hot Well Pueblo, the Sgt. Doyle Site (pueblo), and Fusselman Canyon (rock art). The installation also contains one historic district, the Fort Bliss Main Post Historic District (MPHD), listed in the NRHP. Five additional historic districts separate and distinct from the Main Post are also eligible for listing; Army Field Forces Board Number (No.) 4 Historic District, 1st Guided Missile Group Training Facilities Historic District, Early Cold War Guided Missile Instruction Historic District (Areas A-F), 7000 Area Residential Community Historic District, and the Firebee/Towbee Drone Launch Complex Historic District.

#### 3.4.4.2 Environmental Consequences

##### *3.4.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Bliss has determined that implementation of the Proposed Action would result in no impacts to cultural resources. Cultural resource surveys of potential project sites are complete and there are no protected sites and no structures/buildings/sites eligible for the NRHP. Archaeological sites are present within the potential project sites. These archaeological sites have been determined not eligible for NRHP listing or have been mitigated in accordance with the NHPA (Fort Bliss 2010; USACE 2007). Fort Bliss is continuing to consult with the SHPO on some of these archaeological sites and would initiate and complete Section 106 consultation once design plans were available and prior to any construction associated with the Proposed Action.

The closest eligible property is FB7580/41E91753 located more than 2,400 feet away from potential project locations. Review by Fort Bliss cultural resource personnel has determined there is no potential to impact this property.

##### *3.4.4.2.2 Base MDTF Configuration*

The Base MDTF Configuration would consist of a smaller facility project footprint than the Full MDTF Configuration alternative. Therefore, no impacts to cultural resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss. No impacts to cultural resources are anticipated.

### *3.4.5 Soils*

#### 3.4.5.1 Affected Environment

Soils on Fort Bliss are well to excessively drained with depth to bedrock ranging from shallow to very deep. The Fort Bliss Soil Survey (USDA 2004) provides general descriptions of soil map units grouped by landscape position that are suitable for characterizing soils over a large area. There are no prime farmland soils on Fort Bliss (USDA 2004).

Fort Bliss is dominated by highly erodible soils that are subject to wind erosion hazards. The soil surface is dry, sandy, and sparsely vegetated, particularly in areas that have been denuded by military vehicle traffic. Soil types on Fort Bliss are susceptible to dust generation and dune formation. Soils unprotected by vegetation are susceptible to erosion from wind and water runoff. Gullying is the most visible form of erosion, but sheet and rill erosion from water and wind erosion are the processes that most significantly affect soil movement.

#### 3.4.5.2 Environmental Consequences

##### *3.4.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously undisturbed areas adjacent to existing development. Implementation of the Proposed Action would result in land disturbance of up to 93 acres. As described in Section 3.4.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. An Erosion and Sedimentation (E&S) Pollution Control Plan will be coordinated

through the Fort Bliss Directorate of Public Works (DPW) Environmental Division stormwater/erosion and sedimentation point of contact (POC). Limited Use Areas are currently in place, protecting areas of high erosion potential. Appropriate National Pollutant Discharge Elimination System (NPDES) permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.4.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint (18 acres) with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Minor impacts to soil resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss.

### *3.4.6 Land Use*

#### 3.4.6.1 Affected Environment

Fort Bliss contains two major land use settings: the developed cantonment areas adjacent to the urban and suburban areas of the city and county of El Paso, Texas, and the Fort Bliss Training Center. The Fort Bliss Training Center contains extensive open training areas, primarily surrounded by undeveloped, publicly owned lands.

The cantonment area encompasses approximately 1% of the total Fort Bliss acreage and contains the heaviest concentration of mission-support activities and facilities on Fort Bliss. The cantonment area includes all of the installation south and west of Loop 375, and a portion east of Loop 375. Support services in the cantonment include administration, maintenance, service, storage and supply buildings, housing, medical and community facilities and Biggs AAF.

The cantonment area is designated as a single mixed-use land-use designation, as opposed to having specific areas designated for individual land-use categories. Single-use "tactical campuses" accommodate the BCT areas on Fort Bliss. As presented in the 2007 Supplemental Programmatic EIS (PEIS) (USACE 2007), a single mixed-use land designation supports the Army's transformation to a modular force by enabling BCT facilities to be planned as integrated enclaves, and provides greater flexibility in responding to the evolving mission and facility requirements.

#### 3.4.6.2 Environmental Consequences

#### *3.4.6.2.1 Full MDTF Configuration*

The proposed construction would occur entirely in an area identified in the Fort Bliss Master Plan as land available for future mission expansions. Final approval by the Fort Bliss Real Property Planning Board, Master Planning, and the Garrison and Senior Commanders is required before proceeding. None of the physical development associated with implementation of the Proposed Action would impact land use because the proposed construction and renovation would occur in land uses designated for the proposed use. No significant impacts to land use would occur.

#### *3.4.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential impacts to land use than those described under the Full MDTF

Configuration alternative. No impacts to land use are anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss.

## *3.4.7 Socioeconomics*

### 3.4.7.1 Affected Environment

#### *3.4.7.1.1 Population and Demographics*

The ROI for Fort Bliss includes three counties adjacent to Fort Bliss, consisting of El Paso County in Texas, and Doña Ana and Otero Counties in New Mexico. In 2020, the estimated employed population at Fort Bliss was 46,317. This included 34,714 military and 11,603 total civilians (U.S. Army 2020 cited in U.S. Army 2021). As of July 2019, the estimated population of El Paso County, Texas, was approximately 839,239. Estimated populations in Doña Ana and Otero Counties in New Mexico were 218,195 and 67,490, respectively, as of July 2019. Thus, the total population estimated for the ROI in 2019 was 1,124,924. As shown in Table 3-4, the population growth rates in El Paso, Doña Ana, and Otero Counties from 2010 are 4.8%, 4.3%, and 5.7%, respectively (U.S. Census Bureau [USCB] 2021).

**Table 3-4. Fort Bliss Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| El Paso County, TX | 839,238 | 4.8 |
| Doña Ana County, NM | 218,195 | 4.3 |
| Otero County, NM | 67,490 | 5.7 |

Key: NM = New Mexico; TX = Texas

In 2019, 88.4% of the population in El Paso County, 73.3% in Doña Ana County, and 51.7% of the estimated populations in Otero County were categorized as minority (see Table 3-5). In comparison, the estimated non-White populations in Texas and New Mexico were approximately 58.8 and 63.2%, respectively, over the same period.

**Table 3-5. Fort Bliss Area Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Texas | 41.2 | 12.9 | 1.0 | 39.7 | 5.2 | 2.1 | 0.1 |
| New Mexico | 36.8 | 2.6 | 11.0 | 49.3 | 1.8 | 2.6 | 0.2 |
| El Paso County, TX | 11.6 | 4.0 | 1.1 | 82.9 | 1.4 | 1.5 | 0.2 |
| Doña Ana County, NM | 26.7 | 2.4 | 2.3 | 68.8 | 1.3 | 1.9 | 0.2 |
| Otero County, NM | 48.3 | 4.2 | 8.3 | 38.6 | 1.6 | 3.1 | 0.3 |

Source: USCB 2021
Key: NM = New Mexico; TX = Texas; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.4.7.1.2 Employment and Income*

The estimated per capita income in 2019 for Doña Ana County was $22,154, for Otero County in New Mexico was $23,170, and for El Paso County in Texas was $21,683 (USCB 2021). September 2021 unemployment rates for the three counties are very similar, with Otero County at 5.4%, Doña Ana County at 5.7%, and El Paso at 5.4% (U.S. Bureau of Labor Statistics 2021).

#### *3.4.7.1.3 Housing*

There are currently 4,228 military family housing units on Fort Bliss, which are managed by the Residential Communities Initiative (RCI) partner, Balfour Beatty Communities. These are all located in the cantonment area among several neighborhoods. Balfour Beatty Communities manages 17 distinct neighborhoods and serves the on-base housing community of Army families assigned to Fort Bliss and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 95% of the available units in family housing on Fort Bliss are occupied.

Unaccompanied personnel housing on Fort Bliss has space for approximately 10,280 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 67%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in El Paso County, Texas, was 21,494 and the estimated number of vacant units in Doña Ana and Otero Counties in New Mexico was 7,438 and 6,278, respectively (USCB 2019).

#### *3.4.7.1.4 Schools*

Geographically, Fort Bliss is within the El Paso Independent School District (EPISD) boundaries with one high school and four elementary schools located on federal property. Nine public school districts in the El Paso area and one in Gadsden, New Mexico, address the educational needs of military families at Fort Bliss, including El Paso, Socorro, Gadsden, Ysleta, Canutillo, San Elizario, Clint, Anthony, Fabens, and Tornillo. The EPISD is the largest district and the one with the most military students in attendance.[4] For the 2021-2022 school year the EPISD had 93 public school serving 58,326 students (Public School Review 2021). Open enrollment allows Fort Bliss families to choose among the various schools in the EPISD.

### 3.4.7.2 Environmental Consequences

#### *3.4.7.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in negligible to minor beneficial impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the immediate ROI for this resource. An analysis of an increase in the Fort Bliss population by 3,000 Soldiers as part of the Programmatic EA for the Army 2020 Force Structure Realignment supports a finding of beneficial impacts to socioeconomics (U.S. Army 2012). This PEA determined that the EPISD had sufficient capacity to absorb the anticipated dependents associated with 3,000 Soldiers and that no additional emergency services would be required. Housing pressure was anticipated to increase as a result of the influx, but instead of

[4] https://installations.militaryonesource.mil/military-installation/fort-bliss/education/education

increasing the Fort Bliss population by 3,000 Soldiers, the Army chose to implement a drawdown of approximately 8,000 Soldiers as part of the Force Structure Realignment. Therefore, implementation of the Full MDTF Configuration with an additional 3,000 personnel is not anticipated to have any significant adverse impacts to socioeconomics in the region.

#### *3.4.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Significant impacts to socioeconomics are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss. Impacts to socioeconomics would be beneficial.

### *3.4.8 Traffic and Transportation*

#### 3.4.8.1 Affected Environment

Several highways provide regional access to El Paso and Fort Bliss. The major east-west access is provided by Interstate (I)-10, which runs through downtown El Paso and passes just south of the cantonment area. I-10 is the most heavily traveled roadway in El Paso and connects the region to western and central Texas to the east, and southern New Mexico and Arizona to the west. I-25 is the major northern access route to the El Paso region and is available by following I-10 approximately 44 miles northwest to Las Cruces, New Mexico. U.S. Highway (US-)54 (locally referred to as the Patriot Freeway), a major non-interstate freeway, also provides northern access to Alamogordo, New Mexico. Another key interregional roadway is Montana Avenue (US-62/180), which is located immediately south of Fort Bliss and provides access to locations east of El Paso.

Loop 375, also an important regional traffic corridor, connects the northeast and eastern portions of the city and helps to reduce traffic congestion along US-54. Loop 375 crosses the Fort Bliss installation between Montana Avenue and US-54. Overpasses have been constructed to allow military vehicles and equipment to pass under the roadway, preventing through-traffic interference with military operations. West of US-54, Loop 375 becomes Woodrow Bean Trans Mountain Drive, which connects to I-10 northwest of El Paso and has the advantage of few cross streets allowing traffic to be carried at high speeds. To meet the corresponding demand of significant projected background traffic growth throughout El Paso, Spur 601 provides a 7.4-mile mobility connection between US-54 on the west and Loop 375 on the east. The alignment follows the existing Fred Wilson Avenue from US-54 to the Airport Road/Sergeant Major Boulevard intersection, progresses eastward through an undeveloped area north of and along Founders/Walter Jones Boulevards, traverses the property lines between El Paso International Airport, Biggs AAF, and Fort Bliss and terminates at Loop 375.

The Fort Bliss cantonment area is surrounded by major arterial city streets. The north boundary is Fred Wilson Avenue, and the east boundary is Airport Road. Patriot Freeway. Patriot Freeway, the local moniker for US-54, forms the west boundary and Montana Avenue serves as the south boundary. Other major roadways in the area of the installation are Railroad Drive and Dyer Street. Traffic conditions and roadway capacities are further discussed in the 2007 Mission and Master Plan Supplemental PEIS (USACE 2007).

Twelve access control points (ACPs) provide access to the installation. Eight of the gates provide access to the cantonment area: Cassidy Gate, Chaffee Gate, Bradley Gate, Marshall Gate, Pershing Gate, Remagen Gate, Buffalo Soldier Gate, and Sheridan Gate. There are two gates on Biggs AAF—Biggs Gate and Global Reach Gate. Access to the Old William Beaumont Army Medical Center is at Spur 604 and Loop 375. Depending on the post's construction activities or operational needs, some of these gates are closed from time to time.

#### 3.4.8.2 Environmental Consequences

##### *3.4.8.2.1 Full MDTF Configuration*

This resource was analyzed in the *PEA for Army 2020 Force Structure Realignment* (U.S. Army 2012) and it is anticipated that implementing the Full MDTF Configuration would have similar impacts as those described in that PEA. Those impacts would include a moderate adverse impact on traffic in the community overall and could contribute to a decrease in the level of service (LOS) of the road networks and major routes leading to the installation, particularly during peak morning and afternoon travel periods. The increase in population would also have a moderate adverse impact on the traffic volume on the installation and could cause a minor decrease in LOS on some of the installation's arterial routes. The increased traffic volume in both the neighboring community and on the installation could pose an increased level of risk to the safety of pedestrians and bicyclists (U.S. Army 2012).

##### *3.4.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. Impacts would be moderate and adverse. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss.

### *3.4.9 Infrastructure and Utilities*

#### 3.4.9.1 Affected Environment

##### *3.4.9.1.1 Energy*

El Paso Electric Corporation (EPEC) provides electrical power to Fort Bliss. In 2020, EPEC had a total generating capacity of 2,567 megawatts (MW) of power and the current peak electricity usage within the EPEC service area was estimated to be approximately 85% of available power. In 2020, it was estimated that Fort Bliss consumes approximately 1.5% of EPEC's energy production.

In 2010, Fort Bliss obtained approximately 46% of energy from natural gas and propane. Texas Gas Service supplies natural gas to Fort Bliss. Texas Gas Service, owned by ONE Gas is the third-largest natural gas producer in the state of Texas and provides natural gas to approximately 13% of the state's population.

##### *3.4.9.1.2 Potable Water*

Potable water is supplied to Fort Bliss by a series of 38 wells. The total water supply available to Fort Bliss is 20 million gallons per day (mgd) consisting of approximately 15.8 mgd from on-post

sources and 4.24 mgd from the City of El Paso. The total average daily water demand for Fort Bliss in 2015 was projected to be 5.15 mgd (Fort Bliss 2012). The water supply is more than adequate to accommodate current and future demands.

#### *3.4.9.1.3 Wastewater*

Fort Bliss discharges most of its wastewater to the El Paso Water Utility Haskell wastewater treatment plant. Water from this plant is then treated and discharged to either the Rio Grande River or to the American Canal, where it is used for agricultural purposes. In 2011, Fort Bliss sent approximately 1.37 billion gallons of wastewater to the Haskell plant representing approximately 55% of the total water usage (Fort Bliss 2013).

### 3.4.9.2 Environmental Consequences

#### *3.4.9.2.1 Full MDTF Configuration*

Preliminary analysis based on information from the similar *PEA for Army 2020 Force Structure Realignment* (U.S. Army 2012) determined that implementation of the Proposed Action would result in negligible to minor adverse impacts to facilities. The impacts of the Proposed Action on utilities, energy, and communications are primarily related to projected increases in population on and off post. These were analyzed by estimating per unit consumption on generation rates using the most recently available data, and then estimating how total consumption or generation rates would change with the changed population. The increased consumption and generation were then compared with the ability of existing infrastructure to handle those changes (U.S. Army 2012). Possible MILCON construction would be required to meet all MDTF infrastructure and utility requirements.

Depending on final designs and locations, possible facility construction could include installation of new wastewater collection systems, new wastewater pump stations and importing fill dirt from off-post locations.

#### *3.4.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to infrastructure and utilities than those described under the Full MDTF Configuration. Impacts to infrastructure and utilities resulting from implementation of the Base MDTF Configuration would be negligible to minor and adverse.

## *3.4.10 Water Resources*

### 3.4.10.1 Affected Environment

#### *3.4.10.1.1 Surface Water*

Surface waters on Fort Bliss are rare and mostly ephemeral. There are a few perennial springs located in the Organ Mountains. The only other semipermanent surface water near Fort Bliss is the Rio Grande River, which is west and south of Fort Bliss. Surface water flows in the Rio Grande River vary greatly due to the upstream control of river water for irrigation and farming purposes. Training lands on Fort Bliss drain into closed basin systems (Fort Bliss 2016). Precipitation events in the surrounding mountains can lead to runoff water that collects in these basins. The result is trapped surface water in small, shallow lakes called playas.

#### *3.4.10.1.2 Wetlands*

A wetland delineation completed in 2010 evaluated 218 potential wetland areas on Fort Bliss (Gulf South Research Corporation 2010 cited in Fort Bliss 2016). This study determined that none of the 218 areas met the jurisdictional criteria to be classified as a jurisdictional wetland as defined by the U.S. Army Corps of Engineers (USACE). The 2010 study did identify approximately 8.3 acres of isolated, non-jurisdictional wetlands and approximately 6.7 acres of Palustrine Emergent Wetlands (Gulf South Research Corporation 2010 cited in Fort Bliss 2016). The only known waters of the United States (WOTUS) on Fort Bliss are on the west side of the Organ Mountains (part of the Rio Grande drainage), and some arroyos on McGregor Range that originate in New Mexico and extend into Texas draining into the Rio Grande River. There are no wetlands in the cantonment area (Taylor, 2022).

#### *3.4.10.1.3 Floodplains*

The majority of floodplains on Fort Bliss are located in the training areas (TAs). Approximately 310 acres of floodplain are located in the southwest corner of the cantonment area (U.S. Army 2021). The overall management policy for floodplains on Fort Bliss consists of no disturbance in floodplain areas (Fort Bliss 2016).

### 3.4.10.2 Environmental Consequences

#### *3.4.10.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in minor adverse impacts to water resources. The Proposed Action would require land-disturbing activities for approximately 93 acres within areas adjacent to the cantonment area. These activities would require a Notice of Intent (NOI) and NPDES permitting. A Stormwater Pollution Prevention Plan (SWPPP) would be completed as part of any construction activities. Fort Bliss has designated Limited Use Areas to protect surface waters. No such areas are present within areas potentially impacted by the Proposed Action. No surface waters, wetlands, or floodplains would be impacted as a result of the Proposed Action.

#### *3.4.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to water resources than those described under the Full MDTF Configuration but still has the potential for minor adverse impacts. Land-disturbing activities for up to 18 acres would occur and NOI and NPDES permitting would still apply. Significant impacts to water resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bliss.

## 3.5 FORT BRAGG

### *3.5.1 Background*

Fort Bragg, located in south-central North Carolina (Figure 1-1), encompasses approximately 163,000 acres, of which 146,000 are dedicated to training lands (Benchmark Planning et al. 2018). Fort Bragg consists of cantonment area, greenbelt areas, and range and training lands. Fort Bragg is the host installation for the U.S. Army's Forces Command and Army Reserve Command headquarters elements, as well as the Army's only airborne corps headquarters, the XVIII Airborne

Corps, and the Army's largest support command, the 1st Sustainment Command (Theater). Other command-level headquarters at Fort Bragg include the U.S. Army Special Operation, U.S. Joint Special Operations, U.S. Army Special Forces, and U.S. Army Civil Affairs and Psychological Operations commands. Fort Bragg is the largest U.S. military installation in terms of population with approximately 53,700 troops and 14,000 civilians who work on post. The post supports a population of roughly 260,000, including military families, contractors, retirees, and others (Benchmark Planning et al. 2018).

## *3.5.2 Air Quality*

### 3.5.2.1 Affected Environment

All areas of North Carolina are designated as meeting the NAAQS. Thus, there are no nonattainment areas in the state of North Carolina.

Fort Bragg is designated as a major source of air pollutants. The major source designation requires Fort Bragg to maintain a Title V Operating Permit. Sources of air pollutants at Fort Bragg include heating plants, incinerators, surface coating equipment and painting operations, engine testing operations, fuel evaporation sources, and land vehicle and aircraft exhaust. Stationary emissions sources are regulated by the facility's Title V Air Quality Operating Permit (#04379T35). In addition to permitted emissions sources, air quality impacts in the form of dust are generated by vehicular movement, helicopter rotor wash, weapons firing, and ordnance impacts on the unpaved areas of the installation. Controlled burns associated with forest management and endangered species programs also generate smoke, which contributes to the generation of PM.

### 3.5.2.2 Environmental Consequences

#### *3.5.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The installation is in an attainment area and construction, operation, and utilization of the new facilities would not result in the installation violating its existing Title V Permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization and construction and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions.

#### *3.5.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Bragg would be negligible.

## *3.5.3 Biological Resources*

### 3.5.3.1 Affected Environment

Fort Bragg supports a diversity of biological resources. Its diversity of habitats provides the necessary resources for a variety of fish, wildlife, and plant species. Wildlife species, both common

and protected, are important for present and future military missions at the installation. As documented in the INRMP, climate change has the potential to increase annual temperatures, stress water supplies and increase average sea levels. Protection of forests and wetlands are efforts to mitigate potential climate change impacts (Fort Bragg 2021).

#### *3.5.3.1.1 Flora*

A regional inventory of flora on Fort Bragg and Camp Mackall[5] compiled data from previous reports and current findings from 1965 through 2003. The inventory documented 1,207 species and infraspecific taxa (subspecies, races, and varieties) representing 143 families and 490 genera (Fort Bragg 2021).

The Longleaf Pine-Wiregrass is the dominant ecosystem for this region. High community diversity is attributed to long gradients of soil moisture and nutrients. Additionally, Fort Bragg is located on top of an important watershed divide, which has captured species from the coastal plain and piedmont alike.

#### *3.5.3.1.2 Fauna*

Various biological inventories indicate there are 195 birds, 27 mammals, 48 reptiles, 37 amphibians, and 49 fish species on Fort Bragg. More than 100 additional vertebrate species are suspected to live on or migrate through the installation. Since the military mission, military readiness training, and natural resource management actions affect fish and wildlife habitat, activities and programs have been designed and integrated to create and enhance habitat consistent with the installation's military mission (Fort Bragg 2021).

#### *3.5.3.1.3 Protected Species*

Fort Bragg hosts three federally listed endangered plant species and two federally listed endangered animal species. The red-cockaded woodpecker (*Dryobates borealis*) and the Saint Francis' satyr butterfly (*Neonympha mitchellii franscisi*) are the only two federally listed endangered animal species known to occur on Fort Bragg.

Threatened and endangered species are managed in accordance with the installation's INRMP and Endangered Species Management Plan, Biological Opinion(s) (BO(s)) issued by the U.S. Fish and Wildlife Service (USFWS), and any conservation measures identified in Endangered Species Act (ESA) Section 7 consultation documents. Forested and undeveloped areas in the cantonment area could provide habitat for protected plant and animal species.

### 3.5.3.2 Environmental Consequences

#### *3.5.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action could result in adverse impacts to threatened and endangered species. The potential locations for the proposed MDTF facilities are in areas that contain potential habitat for rare plant species. In addition, some of the potential locations could impact special emphasis areas and potential foraging partition areas for the federally endangered red-cockaded woodpecker. Formal consultation would be required with the USFWS. Full assessment of impacts would require final installation-specific design plans to assess the full scale

[5] Camp Mackall is a training facility located approximately 55 miles west of Fort Bragg.

of impacts. Pending finalization of the design plans, impacts would be considered significant but mitigatable. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased.

Adverse impacts to flora and fauna would occur if rare plant or red-cockaded woodpecker habitats are impacted. Installation-specific designs and additional site evaluations of facility layouts relative to potential rare plant habitat would be required to fully assess impacts to these resources. Rare plant surveys would be required once installation-specific design plans are available. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Disturbed areas would be stabilized and revegetated with grass at the conclusion of each construction project.

#### *3.5.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint and fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Although floodplain and wetland permitting could be required, these impacts are considered unlikely as there are suitable areas of sufficient acreage located on Fort Bragg to accommodate construction of the Base MDTF Configuration facilities without impacts to biological resources. Moderate, adverse impacts to biological resources would be anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg.

### *3.5.4 Cultural Resources*

#### 3.5.4.1 Affected Environment

Fort Bragg manages its cultural resources through the Cultural Resources Management Program in accordance with the installation's ICRMP (U.S. Army 2007).

Fort Bragg currently manages 352 historic buildings, structures, and landscapes that are listed or considered eligible for listing in the NRHP. These resources are included in two NRHP-eligible districts (the Old Post Historic District and the John F. Kennedy Special Warfare Center and School Historic District), and 18 individual buildings or structures designated as NRHP-eligible. Three properties are NRHP-listed: Long Street Presbyterian Church; Pope Air Force Base Historic District; and Hangars 4 and 5 on Pope Field. In addition, Fort Bragg has identified and manages 27 historic cemeteries.

More than 6,000 archaeological resources have been identified on Fort Bragg and Camp Mackall. These sites represent more than 10,000 years of American Indian land use in this area. Of these sites, only 128 are considered eligible for listing on the NRHP.

Approximately 530 historic sites represent post-contact periods of American Indian, European-American, and African American land use during the 18th to 20th centuries. Such sites include farmsteads, churches, schools, rural industrial complexes (saw, grist and lumber mills, blacksmiths, tar kilns, distilleries), and battlefield sites of the Civil and Revolutionary war periods.

#### 3.5.4.2 Environmental Consequences

##### *3.5.4.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action could result in moderate impacts to cultural resources. Cultural resource surveys of potential project sites are complete and there are no protected sites and no structures/buildings/sites eligible for listing in the NRHP directly in potential project locations. Potential locations include World War II (WWII) Temporary Barracks and Capehart-Wherry Housing. Both of these resources are included in existing programmatic documents and impacts to these facilities would not result in adverse impacts to cultural resources as long as the conditions of the programmatic documents are met. Potential project locations are located within the Old Post Historic District Viewshed. Future development would require analysis of visual impacts to the viewshed once design plans are available and a determination of effect could be made.

##### *3.5.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to historical resources than those described under the Full MDTF Configuration alternative. Project locations are available for the Base MDTF Configuration that would not be within the Old Post Historic District Viewshed. No impacts to cultural resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg.

### *3.5.5 Soils*

#### 3.5.5.1 Affected Environment

Fort Bragg is located in the Sandhills physiographic province. Coastal Plain soils are dominated by the Gilead-Blaney-Lakeland soil mapping unit. The surface of Fort Bragg is predominantly mantled by sandy soils composed of loose to silty and clayey sands in some subsoils. Most of these soils are well-drained, or even excessively well-drained. Poorly drained soils are primarily limited to floodplains and some high organic terrace deposits (U.S. Army 2012).

Each soil type at the installation has particular engineering limitations. These soil types and their limitations are described in the U.S. Geological Survey soil surveys for the region. Since most soils in the region are sandy, they also easily erode; therefore, soil conservation is important in any area with insufficient ground cover. A combination of vegetative and drainage system maintenance is necessary to prevent or remedy erosion (U.S. Army 2012).

#### 3.5.5.2 Environmental Consequences

##### *3.5.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.5.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. An E&S Pollution Control Plan will be coordinated through the Fort Bragg DPW Environmental Division Stormwater/E&S POC, who will conduct all coordination with the State of North Carolina Natural Resources Conservation Service (NRCS) Office.

Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.5.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint (18 acres) with less potential disturbance to soil resources than those described under the Full MDTF Configuration alternative. Minor impacts to soil resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg.

### *3.5.6 Land Use*

#### 3.5.6.1 Affected Environment

Fort Bragg covers a land area that stretches approximately 27 miles from east to west and 16 miles from north to south at its most extreme points. Generally, the installation is divided into three broad categories of land use: cantonment area, green belt, and range and training areas. Fort Bragg's cantonment area is the urbanized portion of the installation, which has been developed into a wide variety of land uses that constitute the elements necessary for a complete community. The cantonment area contains the heaviest concentration of facilities and mission-support activities on Fort Bragg. Support services in the cantonment include administration, maintenance, service, storage and supply buildings, housing, and medical and community facilities.

In 2012, it was identified that the cantonment area is severely constrained and fully developed. At that time, Fort Bragg was currently at a deficit of approximately 1.5 million square feet in company operations facilities and approximately 1 million square feet in vehicle maintenance shop facilities (U.S. Army 2012).

#### 3.5.6.2 Environmental Consequences

#### *3.5.6.2.1 Full MDTF Configuration*

Proposed construction would occur entirely within developed portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones. None of the physical development associated with implementation of the Proposed Action would impact land use because the proposed construction and renovation would occur in land use areas designated for the proposed use. No changes to land use would result from implementation of the Proposed Action and no impacts to land use would occur.

#### *3.5.6.2.2 Base MDTF*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint when compared to the Full MDTF Configuration alternative. No changes to land use would result from implementation of the Base MDTF Configuration and no impacts to land use would occur.

## *3.5.7 Socioeconomics*

### 3.5.7.1 Affected Environment

#### *3.5.7.1.1 Population and Demographics*

Fort Bragg is the largest U.S. military installation in terms of population with approximately 53,700 troops and 14,000 civilians who work on post. The population that lives on Fort Bragg consists of 20,924 Soldiers and an estimated 23,723 dependents, for a total on-post resident population of 44,297 (U.S. Army 2012). The portion of the ROI population related to Fort Bragg is 80,769 and consists of Soldiers, civilian employees, and their dependents living off post.

The estimated ROI county populations total 627,599. Compared to 2010, the ROI's 2019 population increased in Cumberland, Hoke, Harnett, and Moore Counties (Table 3-6) (USCB 2021).

**Table 3-6. Fort Bragg Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Cumberland | 335,509 | + 5.0 |
| Hoke | 55,234 | + 17.8 |
| Harnett | 135,976 | + 18.6 |
| Moore | 100,880 | + 14.3 |

The demographic composition of the ROI is presented in Table 3-7. In 2019, it was estimated that 57.6% of the population in Cumberland County, 61.3% in Hoke County, 39.3% in Harnett County, and 23.0% in Moore County were categorized as minority (Table 3-7). In comparison, the non-White population in North Carolina was estimated at approximately 37.4% over the same period.

**Table 3-7. Fort Bragg ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino (Percent)[2] | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| North Carolina | 62.6 | 22.2 | 1.6 | 9.8 | 3.2 | 2.3 | 0.1 |
| Cumberland | 42.4 | 39.1 | 1.9 | 12.1 | 2.7 | 4.8 | 0.4 |
| Hoke | 38.7 | 35.5 | 9.1 | 13.9 | 1.5 | 4.5 | 0.4 |
| Harnett | 60.7 | 21.9 | 1.7 | 13.4 | 1.3 | 3.5 | 0.2 |
| Moore | 77.0 | 12.0 | 1.0 | 7.1 | 1.6 | 2.1 | 0.2 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.5.7.1.2 Employment and Income*

The estimated per capita income in 2019 for Cumberland County was $24,936, for Harnett County was $23,767, for Hoke County was $20,991, and for Moore County was $34,606 (USCB 2021).

Compared to 2020, the October employment (private nonfarm) increased in all four counties and overall in the state of North Carolina. The unemployment rates decreased in all four counties (Cumberland -5.6%; Harnett -4.1%; Hoke -5.0%; and Moore -3.4%) and overall in the state of North Carolina (-3.6%) (NCDC 2021).

#### *3.5.7.1.3 Housing*

There are currently 6,104 military family housing units on Fort Bragg, which are managed by the RCI partner, Corvias Property Management. These are all located in the cantonment area among several neighborhoods. Fort Bragg Family Homes comprises nine distinct neighborhoods and serves the on-post housing community of families of active-duty Soldiers assigned to Fort Bragg and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 94 to 95% of the available units in family housing on Fort Bragg are occupied.

Unaccompanied personnel housing on Fort Bragg has space for approximately 15,364 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 87%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Cumberland, Hoke, Harnett, and Moore Counties, North Carolina was 13,197; 1,493; 4,793 and 6,356 respectively (USCB 2019).

#### *3.5.7.1.4 Schools*

There are nine schools located on Fort Bragg (seven elementary schools and two middle schools) with a 2020–2021 school year enrollment of 3,379 students which is down from 4,212 students in the 2018–2019 school year (Guevarra 2022). Students in grades 9 through 12, whose parents reside at Fort Bragg, are assigned to attend E.E. Smith High School in the Cumberland County School District.[6] Students whose parents live in the Linden Oaks Housing Area attend Overhills High School in Harnett County School District. The total 2020–2021 school year enrollment for all schools in the Cumberland County School District was 47,234 students which is down from 49,503 students in the 2018–2019 school year. According to information from the Cumberland County School District, the enrollment numbers for the 2020–2021 school year were affected by the COVID-19 Pandemic (Whitley 2022). The total 2020–2021 school enrollment for all schools in the Harnett County School District was 19,299 students which is down from 20,097 students enrolled during the 2018–2019 school year.[7]

### 3.5.7.2 Environmental Consequences

#### *3.5.7.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Full MDTF Configuration would result in minor impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area as the area has adequate capacity for housing for incoming personnel. With regard to schools, as described in Section 3.5.7.1.4, enrollment numbers for the 2020–2021 school year are lower when compared to the enrollment numbers for the 2018–2019 school year indicating that the influx of school-aged children would

[6] https://installations.militaryonesource.mil/military-installation/fort-bragg/education/education
[7] https://www.dpi.nc.gov/districts-schools/district-operations/financial-and-business-services/demographics-and-finances/student-accounting-data#average-daily-membership-and-membership-last-day-by-lea-adm--mld

not result in a significant impact to schools on and near Fort Bragg. Impacts to socioeconomics would be beneficial.

#### *3.5.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have negligible impacts to socioeconomics. Significant impacts to socioeconomics are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg. Impacts to socioeconomics would be beneficial.

### *3.5.8 Traffic and Transportation*

#### 3.5.8.1 Affected Environment

Fort Bragg is accessible through the I-95, I-295, and US-North Carolina (NC) highway system. I-95 is located about 12 miles east of the post and is accessible through local arterial roads. The North Carolina Department of Transportation is currently working on a 39-mile outer loop system that will provide unprecedented interstate connectivity for the region and provide direct connects from Fort Bragg to I-95.[8]

The main roads that provide access to Fort Bragg are the All American Freeway, NC87 (Bragg Boulevard), and NC87-210 (Murchison Road). All American Freeway is a four-lane divided roadway that is the main access connector into Fort Bragg. Visitors accessing post via the All American Freeway can use this gate for entry. Visitors entering post via Bragg Boulevard can use gates at Knox and Randolph Streets. The Fort Bragg road system that connects to the North Carolina Department of Transportation roads is experiencing capacity issues.

There are 14 ACPs or gates that control entry into Fort Bragg. The gates are located throughout the perimeter of the cantonment area. At each manned gate, security guards check vehicles before allowing access into the installation. Initially all these gates were manned full time. Budget limitations have forced the base to limit operation and close some of these ACPs. Troop decreases would relieve the problem of daily access to the base for the troops and civilian employees.

There are two distinct areas at Fort Bragg where parking availability presents different conditions. Although the Post Exchange and commissary locations have adequate parking capacity, the Womack Army Medical Center, Historic District, Soldier Support Center, and most training centers have inadequate parking capacity. The base has reviewed various parking options such as satellite parking, shuttle system, and parking decks. These plans would eventually be incorporated into the off-post regional transportation network for optimum efficiency (U.S. Army 2012).

#### 3.5.8.2 Environmental Consequences

#### *3.5.8.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in large increases in traffic volumes at potential project locations after completion of the project. Some road upgrades could be required. Outside of the installation, Fort Bragg proactively works with the Fayetteville Area Metropolitan Planning Organization (FAMPO) to plan out the future needs for traffic impacts to the areas surrounding Fort Bragg. In 2020, FAMPO initiated a Comprehensive Transportation Plan (CTP)

[8] https://www.ncdot.gov/projects/fayetteville-outer-loop/Pages/default.aspx

for Cumberland County, North Carolina.[9] This plan identifies transportation deficiencies and provides recommendations to be implemented in a 25-30-year timeframe. This plan was completed in October 2021 and provided a number of different transportation improvement recommendations for areas surrounding Fort Bragg (Cumberland County and FAMPO CTP 2021). Impacts would be minor to moderate for traffic flows and increased congestion. Short-term minor impacts would result during periods of construction.

#### *3.5.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. Impacts would be negligible. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg.

### *3.5.9 Infrastructure and Utilities*

#### 3.5.9.1 Affected Environment

#### *3.5.9.1.1 Energy*

Duke Energy provides electrical power to Fort Bragg. In 2021, Duke Energy had a total generating capacity of 2,048 MW of power and the current peak electricity usage within the Fort Bragg service area was estimated to be 6% of available power. In 2021, it was estimated that Fort Bragg consumes approximately 6% of Duke Energy's total energy production.

In 2021, Fort Bragg obtained approximately 39% of energy from natural gas and propane. Piedmont Natural Gas Company supplies natural gas to Fort Bragg at an estimated total capacity of 400 million cubic feet per hour (CFH). In 2020, Fort Bragg used approximately 325 million CFH on the coldest days, which equates to approximately 81% of total capacity.

#### *3.5.9.1.2 Potable Water*

American States Utility Service Water Services Company currently owns and operates the community-based Public Water Systems within Fort Bragg. Fort Bragg receives all of its potable water supply from Fayetteville Public Works Commission. The Fayetteville Public Works Commission can supply up to 16 mgd to Fort Bragg, far exceeding the current peak demand of 4 mgd. The overall condition of the potable water facilities and infrastructure system is rated as good and adequate to accommodate current and future demands.

#### *3.5.9.1.3 Wastewater*

Sanitary wastewater at Fort Bragg is treated at a wastewater treatment plant (WWTP) owned, operated, and maintained by Harnett County. The current daily load ranges from approximately 3 to 5 mgd with a rated capacity to effectively treat 10 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as good and adequate to accommodate current and future demands.

[9] https://connect.ncdot.gov/projects/planning/Pages/CTP-Details.aspx?study_id=Cumberland%20County%20and%20FAMPO%20CTP

#### 3.5.9.2 Environmental Consequences

##### *3.5.9.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Bragg has determined that implementation of the Proposed Action would result in no impacts to infrastructure and utilities. Potential locations for the Proposed Action either have existing connections to utilities or these connections could be created as part of the action. The addition of 3,000 personnel would not affect utility capacities.

##### *3.5.9.2.2 Base MDTF Configuration*

Implementation of The Base MDTF Configuration would consist of a smaller construction footprint and fewer requirements for infrastructure and utility improvements than that described under the Full MDTF Configuration. Therefore, there would be no impacts to infrastructure and utilities from implementation of the Base MDTF Configuration at Fort Bragg.

### *3.5.10 Water Resources*

#### 3.5.10.1 Affected Environment

##### *3.5.10.1.1 Surface Water*

Fort Bragg is situated in the Cape Fear and Lumber River Basin watersheds. Management priorities focus on protecting and improving the water quality in existing surface waters that include, but are not limited to, streams, wetlands, lakes, and impoundments. Both basins support municipal drinking water supplies for the surrounding communities both upstream and downstream of Fort Bragg. Water resources on Fort Bragg include 33 stream systems, 14 managed lakes, and 267 (as of 2017) beaver impoundments. These resources provide recreational opportunities, drinking water, and wildlife habitat (Fort Bragg 2021).

##### *3.5.10.1.2 Wetlands*

Fort Bragg contains approximately 10,900 acres of potential wetlands (Fort Bragg 2021). Palustrine wetlands have unique and important biological functions. They provide critical habitat for many wildlife species, absorb and abate floodwaters, improve water quality by removing pollutants, represent important wildlife travel corridors, enhance aesthetics, and provide recreational, scientific, and educational values. Wetlands are important in several natural processes, including groundwater discharge and recharge, flood flow attenuation, sediment stabilization, nutrient removal or transformation, stormwater abatement, and as fish and wildlife habitat.

##### *3.5.10.1.3 Floodplains*

Floodplains on Fort Bragg primarily occur along the Lower Little River and other major streams such as Drowning Creek. The main cantonment area on Fort Bragg contains three delineated floodplain areas. The most prominent of these is along the Little River, which is located along the north end of the main cantonment area and Pope AAF. Smaller floodplains occur along Big Branch/Beaver Creek, which cross the southern installation boundary near the All American Freeway and along Cross Creek to the south. Delineated floodplains do not affect large portions of the cantonment area and do not constrain development (Fort Bragg 2021).

### 3.5.10.2 Environmental Consequences

#### *3.5.10.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Bragg determined that implementation of the MDTF Full Configuration would result in minor adverse impacts to water resources. Implementation of the MDTF Full Configuration would require land-disturbing activities for approximately 93 acres in the cantonment area requiring an NOI and NPDES permitting. A SWPPP would be completed as part of any construction activities. The Full MDTF Configuration could impact surface waters, wetlands, and floodplains which could require a Finding of No Practicable Alternative (FONPA) be prepared. The extent of impacts to these resources is unknown at this time. Installation-specific designs and additional site evaluations of facility layouts relative to surface waters, wetlands, and floodplains would be required to fully assess impacts to wetlands and floodplains. There is insufficient detail to determine if Section 404 permitting would be required for the construction of MDTF facilities. Once installation-specific designs are completed, the Fort Bragg DPW would work with the design team to avoid and minimize potential impacts to wetlands and floodplains to the maximum extent possible. If wetland impacts are determined to be unavoidable, depending on the extent of impacts, a nationwide or individual permit would be required.

#### *3.5.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in minor adverse impacts to water resources. The Base MDTF Configuration would have a smaller construction footprint and less disturbance to water resources than those described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and NOI and NPDES permitting would apply. Potential locations with surface waters could be avoided under this alternative and significant impacts to water resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Bragg.

## 3.6 FORT CAMPBELL

### *3.6.1 Background*

Fort Campbell supports the third largest military population in the Army and the seventh largest in the DoD (Figure 1-1). The Fort Campbell Garrison serves as the host command for all units in Fort Campbell as part of the Installation Management Command's Readiness Directorate. Fort Campbell is home to the Screaming Eagles of the 101st Airborne Division (Air Assault). In addition, Fort Campbell hosts the 160th Special Operations Aviation Regiment, 5th Special Forces Group, 52nd Explosive Ordnance Disposal Group, the Sabalauski Air Assault School, and numerous other support team elements.

Fort Campbell's primary mission is to advance combat readiness of the 101st Airborne Division and non-divisional units posted at the installation through training, mobilization, and deployment. Deployable military resources include combat-equipped Soldiers, tactical vehicles, weapons and ammunition, and logistical equipment to sustain thousands of Soldiers in a tactical environment for an extended period of time.

To fulfill its mission to advance combat readiness, Fort Campbell maintains 48 live-fire ranges, 3 high-impact areas, 51 training areas, 5 drop zones, 93 artillery firing points, 51 maneuver areas, a special operations training center, and two airfields. Campbell Army Airfield (CAAF) is the

Army's largest airfield, covering 2,500 acres and once served as a secondary landing site for the National Aeronautics and Space Administration and the space shuttle (U.S. Army 2020).

Fort Campbell is a 106,700-acre military installation located between Hopkinsville, Kentucky, and Clarksville, Tennessee, and straddles the Tennessee/Kentucky state line. The cantonment area occupies approximately 14,000 acres traversing in a north-south direction along the eastern part of the installation. The cantonment area encompasses 40% of its landmass in Christian County, Kentucky, and the remaining 60% in Montgomery County, Tennessee.

## *3.6.2 Air Quality*

### 3.6.2.1 Affected Environment

Within Kentucky, the Kentucky Department for Environmental Protection Division of Air Quality administers the CAA on behalf of the EPA. The portion of Fort Campbell in Kentucky is located within the Paducah-Cairo Interstate AQCR (EPA 2019, cited in U.S. Army 2020). Within Tennessee, the Department of Environment and Conservation, Division of Air Pollution administers the CAA. The portion of Fort Campbell in Tennessee is located within the Middle Tennessee Intrastate AQCR (EPA 2019 cited in U.S. Army 2020).

Air pollutant emissions are generated at Fort Campbell mainly through combustion of fossil fuels (heating plants and emergency generators). Lesser contributions are made from six permitted paint spray booths, woodworking shops, welding, transfer vapor emission, storage tanks, road dust emissions, road paving, stationary internal combustion engines, degreasing, pesticide/herbicide applications, wildfires and prescribed burning, and dust from training activities and firing ranges. All nonexempt stationary emission sources within the installation are regulated under an air quality permit program administered by both Kentucky and Tennessee environmental agencies. Emission rates for lesser contributing sources are well below major source trigger thresholds. Should these sources exceed major source thresholds, Fort Campbell would be required to modify its two Title V permits.

Fort Campbell is located in an attainment area for all NAAQS. As long as the counties where Fort Campbell is located remain in attainment, the General Conformity Rule is not applicable to projects proposed for the cantonment area.

### 3.6.2.2 Environmental Consequences

#### *3.6.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The installation is in an attainment area and construction, operation and utilization of the new facilities would not result in the installation violating its existing Title V Permit. Site development and operational use (emergency generators) could require updates to Fort Campbell's state Title V Permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization and construction, and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions.

#### *3.6.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Campbell would be negligible.

### *3.6.3 Biological Resources*

#### 3.6.3.1 Affected Environment

##### *3.6.3.1.1 Flora*

Approximately 14% of Fort Campbell is considered developed while approximately 86% of the garrison remains undeveloped and reserved for military training. Hardwood forests, pine plantations, and grasslands are the dominant plant communities on Fort Campbell. Other areas on Fort Campbell consist of agricultural lands and jurisdictional wetlands (Fort Campbell 2020). The cantonment area consists of urban vegetative communities. Mowed grass areas and planted trees and shrubs are common throughout the cantonment area. The north and south portions of the cantonment area consist of woodlots that support common tree species such as hickory (*Carya* species [spp.]), oak (*Quercus* spp.), beech (*Fagus* spp.), yellow poplar (*Liriodendron tulipifera*), maple (*Acer* spp.), elm (*Ulmus* spp.), and pine (*Pinus* spp.) plantations.

Native grasslands on Fort Campbell are an important habitat type for a variety of different wildlife species. Fort Campbell has one of the largest remaining native grasslands east of the Mississippi River (U.S. Army 2020). Native grasslands are recognized as one of the most imperiled ecosystems in North America and provide vital habitat for one of the nation's most threatened group of wildlife, grassland birds. Since 1938, about 70% or 48,000 acres of Fort Campbell's grassland has reverted to forest; approximately 13,000 acres were planted to pine and 35,000 acres were reverted to forest through natural plant succession (U.S. Army 2020). Grassland areas continue to decrease as a result of gradual encroachment by trees and shrubs. Small pockets of grasslands and barrens are located throughout the cantonment area.

Along with forested areas and grasslands, wetlands are also important vegetated habitat types found throughout Fort Campbell. Wetlands on Fort Campbell include lakes, rivers, streams, swamps, marshes, or similar areas that develop between water and dry land areas. Wetland areas are an important natural resource that improve water quality, reduce flood and storm damage, provide wildlife habitat, support hunting and fishing activities, and provide educational and aesthetic opportunities.

Potential climate change impacts to Fort Campbell include rising temperatures, changes in precipitation patterns, increases in storm frequency and intensity, increased frequency and severity of wildfires, and soil loss due to drought conditions (Fort Campbell 2020).

##### *3.6.3.1.2 Fauna*

The mixture of natural habitat types on Fort Campbell supports a diverse group of game and non-game wildlife and fish. At least 40 species of mammals, 60 species of fish, 240 species of birds, 51 species of reptiles and amphibians and numerous species of invertebrates have been documented on Fort Campbell (U.S. Army 2020). Most wildlife and fish species on the installation

are locally common and are not protected under federal or state laws, except those state laws governing wildlife collection and hunting. The exceptions are migratory birds and species that are federally listed as threatened or endangered.

#### *3.6.3.1.3 Protected Species*

Fort Campbell supports a wide variety of protected plant and animal species based on field biological surveys and reported historical sightings of endangered, threatened, rare, and special concern species of plants and animals. Although Fort Campbell does not currently contain any federally designated threatened or endangered critical habitat, three federally threatened and endangered species have been documented on Fort Campbell (Fort Campbell 2020). These are the federally endangered gray bat (*Myotis grisescens*) and Indiana bat (*Myotis sodalis*), and federally threatened northern long-eared bat (*Myotis septentrionalis*). Although no bat caves (hibernacula) are known to occur on Fort Campbell, these species use trees and forested stream corridors for foraging and roosting. Wildlife habitat in the improved area of the cantonment area is limited due to the fragmentation caused by roads, utility corridors, existing facilities, and impervious surfaces.

### 3.6.3.2 Environmental Consequences

#### *3.6.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened/endangered species provided construction activities are limited to the timeframe from November 16 to March 14. Forested areas within Fort Campbell are managed for the protection of endangered bat species and tree removal is prohibited from March 15 to November 15. Should construction and tree removal be unavoidable during those periods then bat surveys and additional Section 7 consultation would be required.

Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased.

Impacts to vegetation are anticipated to be temporary, minor, and adverse. Tree removal would require coordination with Fort Campbell Forestry for the removal of marketable timber. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. No significant impacts to vegetation are anticipated. Overall impacts to biological resources would be minor.

#### *3.6.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint and fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.6.4 Cultural Resources*

### 3.6.4.1 Affected Environment

A detailed description of cultural resources at Fort Campbell is provided in the ICRMP (Fort Campbell 2019a) and is incorporated into this PEA by reference. The ICRMP is Fort Campbell's primary guidance document for the management of cultural resources on the Fort Campbell

Military Reservation, Kentucky and Tennessee. This ICRMP articulates how all applicable legislation, DoD regulations, legal requirements, and existing PAs are implemented. Fort Campbell has two PAs in place with the Kentucky and Tennessee SHPOs. The PA applicable to only the Clarksville Base Historic District was signed in coordination with the Tennessee SHPO. The PA applicable to the operations, maintenance and development activities at Fort Campbell was signed in coordination with both SHPOs. The ICRMP also addresses how Fort Campbell staff coordinates with external regulatory bodies and other stakeholders. Finally, this ICRMP was prepared to address Department of the Army and DoD requirements for an ICRMP and to provide Fort Campbell command and staff with a tool for managing a range of cultural resources across the installation.

A total of 1,670 archaeological sites have been identified within the installation's boundaries. To date, 751 of these sites have formal determinations of eligibility with concurrence from appropriate SHPOs. Of this total, 33 sites have been determined eligible for the NRHP (Fort Campbell 2019a). As a requirement of the PA, sites lacking formal eligibility determinations require Section 106 Consultations with appropriate SHPOs prior to the initiation of proposed undertakings.

The PA regarding the operation, maintenance, and development of Fort Campbell (2019b) broadly covers undertakings across the installation. The PA outlines the stipulations for satisfying the Army's Section 106 responsibilities for all individual undertakings of the program.

### 3.6.4.2 Environmental Consequences

#### *3.6.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Campbell has determined that implementation of the Proposed Action could result in moderate to significant but mitigatable adverse impacts to cultural resources.

Cultural resource surveys have been conducted throughout Fort Campbell, but comprehensive archaeological surveys have not been conducted for all potential project sites and these surveys would be required at potential project locations before a determination of effect under the Section 106 requirements could be made. Potential project locations also have the potential to impact known cultural resources and design plans would be required to make a Section 106 determination. Should follow-up studies determine that NRHP-eligible resources are located in the proposed project locations, and it is determined that these resources would be adversely impacted by the final design of the proposed facilities, then appropriate mitigation would be completed.

#### *3.6.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with slightly less potential disturbance to cultural resources than those described under the Full MDTF Configuration alternative. Archaeological surveys would be required and implementation of the Base MDTF Configuration has the potential to impact the Clarksville Base Historic District, which is potentially eligible for listing under the NHPA. Fort Campbell has a PA with the Tennessee SHPO regarding development, construction, and operations within the historic district. This agreement requires coordination once the detailed design plans are available and a determination of effect could be made for the District. Impacts to cultural resources resulting from implementation of the Base MDTF Configuration could be moderate to significant but mitigatable.

## *3.6.5 Soils*

### 3.6.5.1 Affected Environment

There are 23 soil mapping units that occur on Fort Campbell. Dickson silt loam is the most common soil on base and occurs on 29,228 acres. This soil is found throughout the upland training areas located in the middle and southern portions of the installation. The second most common soil occurring on post is Hammack (Bewleyville) silt loam. This soil is typical of the slopes found in the eastern and western portions of the base and covers 14,105 acres. The bottomland areas of the installation consist mainly of Sengtown gravelly silt loam. This soil is found exclusively around streams throughout the base and covers 10,391 acres. These three soil types cover 52% of the total acreage of Fort Campbell; all highly erodible. This is an area of concern due to the amount of training area that is covered by Dickson silt loam (Fort Campbell 2020).

Soils in the cantonment area are generally classified as Udarents-1 Urban Land, which are common in urbanized areas and are generally covered by commercial, industrial, or high-density residential development. The highly disturbed nature of these soils, typically caused by cutting, filling, or other anthropologic activities, has resulted in a blending of several soil types and characteristics (U.S. Army 2020).

More than half of the soil types on Fort Campbell have moderate to severe erosion potential. Vegetation removal causes most of the problems associated with soil erosion on Fort Campbell (Fort Campbell 2020). The potential for erosion varies with topographic conditions and includes both disturbed urban land complex soils and natural loams. Bare soil leads to erosion, creation of gullies and rills, and increased sediment load in streams. Erosion can render land unsuitable for training and impassable by vehicles. Sediment in streams can affect water flow and the survival of aquatic organisms.

### 3.6.5.2 Environmental Consequences

#### *3.6.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.6.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. An E&S Pollution Control Plan will be coordinated through the Fort Campbell DPW Environmental Division Stormwater/E&S POC. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.6.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than those described under the Full MDTF Configuration alternative. Impacts would be considered minor. Significant impacts to soil resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Campbell.

## *3.6.6 Land Use*

### 3.6.6.1 Affected Environment

Land uses in the cantonment area at Fort Campbell have been developed over the years into a wide variety of uses that are necessary for a complete urban-style community. As a result of previous Base Realignment and Closure transformation actions, a combination of redevelopment, development, and expansion has occurred in the various districts of the cantonment area. The cantonment area encompasses approximately 14,000 acres along the eastern portion of the installation. Land uses in the cantonment area are classified as, residential, commercial, industrial, institutional, open space, vacant/agricultural, and airport.

Numerous indoor and outdoor recreation opportunities are available across the installation. These include a golf course, campgrounds, a bowling center, swimming pools, and gymnasiums. Hunting and fishing opportunities are also common activities on post.

To support the mission of Fort Campbell, land use compatibility assures proposed development would not interfere with future missions. Development planning considers impacts of future facilities on training and deployment areas inside the cantonment area. Fort Campbell's *Real Property Vision Plan* identified five distinct planning goals that would guide future plan development. Objectives were established for each goal, which are used to develop metrics against which future projects can be evaluated (Fort Campbell 2012, cited in U.S. Army 2020). Additionally, land use surrounding Fort Campbell is compatible with the installation's operations.

### 3.6.6.2 Environmental Consequences

#### *3.6.6.2.1 Full MDTF Configuration*

Proposed construction would occur within semi-developed or undeveloped portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones. Implementation of the Proposed Action could potentially require the conversion of existing forested (undeveloped lands) or agricultural lease (semi-developed lands) into developed land. None of the physical development associated with implementation of the Proposed Action would impact land use, because the proposed construction and renovation would occur in land uses designated for the proposed use. No significant changes to land use would result from implementation of the Proposed Action and impacts would be considered minor and adverse.

#### *3.6.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration has the potential for minor adverse impacts to land use. Implementation of this alternative could potentially require the conversion of existing undeveloped or agricultural leases into developed land. Significant impacts to land use are not anticipated to result from implementation of the Base MDTF Configuration at Fort Campbell.

## *3.6.7 Socioeconomics*

### 3.6.7.1 Affected Environment

#### *3.6.7.1.1 Population and Demographics*

The ROI for Fort Campbell includes four counties adjacent to Fort Campbell, consisting of Montgomery and Stewart Counties in Tennessee and Christian and Trigg Counties in Kentucky. In 2020, the estimated employed population at Fort Campbell was 262,912. This included 27,100 military and 235,812 total civilians.[10]

As of October 2019, the estimated populations of Montgomery and Stewart Counties in Tennessee were approximately 208,993 and 13,715, respectively (USCB 2021). Estimated populations in Christian and Trigg Counties in Kentucky were 70,461 and 14,651, respectively, as of July 2019 (USCB 2021). Thus, the total population estimated for the ROI in 2019 was 307,820. As shown in Table 3-8, the population growth rates in Montgomery, Stewart, Christian, and Trigg Counties from 2010 are +21.3%, +3.0%, -4.7%, and +2.3%, respectively.

**Table 3-8. Fort Campbell Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Christian, KY | 70,461 | - 4.7 |
| Montgomery, TN | 208,993 | + 21.3 |
| Stewart, TN | 13,715 | + 3.0 |
| Trigg, KY | 14,651 | + 2.3 |

Key: KY = Kentucky; TN = Tennessee

In 2019, it was estimated that 37.7% of the population in Montgomery County, 8.8% in Stewart County, 34.8% in Christian County, and 12.1% in Trigg County were categorized as minority (see Table 3-9). In comparison, the non-White populations in Kentucky and Tennessee were estimated to be approximately 15.9 and 26.5%, respectively, over the same period.

#### *3.6.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $26,923 for Montgomery County, Tennessee; $24,113 for Stewart County, Tennessee; $23,021 for Christian County, Kentucky; and $28,264 for Trigg County, Kentucky (USCB 2021). September 2021 unemployment rates for the four counties are similar, with Montgomery County at 3.6%; Stewart County at 3.8%; Christian County at 4.5%; and Trigg County at 3.9% (U.S. Bureau of Labor Statistics 2021).

[10] https://installations.militaryonesource.mil/in-depth-overview/fort-campbell

**Table 3-9. Fort Campbell ROI Demographic Composition [1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic [2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Kentucky | 84.1 | 8.5 | 0.3 | 3.9 | 1.6 | 2.0 | 0.1 |
| Tennessee | 73.5 | 17.1 | 0.5 | 5.7 | 2.0 | 2.0 | 0.1 |
| Christian, KY | 65.2 | 22.1 | 0.7 | 8.1 | 1.5 | 3.6 | 0.3 |
| Montgomery, TN | 62.3 | 21.3 | 0.7 | 10.2 | 2.3 | 4.8 | 0.4 |
| Stewart, TN | 91.2 | 1.9 | 0.8 | 3.5 | 1.0 | 2.0 | 0.1 |
| Trigg, KY | 87.9 | 6.9 | 0.4 | 2.4 | 0.3 | 2.4 | 0.1 |

Source: USCB 2021
Key: KY = Kentucky; ROI = region of influence; TN = Tennessee; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.6.7.1.3 Housing*

There are currently 4,457 military family housing units on Fort Campbell, which are managed by the RCI partner, Fort Campbell Family Homes. These are all located in the cantonment area among several neighborhoods. Fort Campbell Family Homes comprises 21 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Campbell and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 94% of the available units in family housing on Fort Campbell are occupied.

Unaccompanied personnel housing on Fort Campbell has space for approximately 10,000 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 85%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Montgomery and Stewart Counties in Tennessee was 5,873 and 1,199, respectively, and the estimated number of vacant units in Christian County and Trigg Counties in Kentucky was 2,771 and 1,758, respectively (USCB 2019).

#### *3.6.7.1.4 Schools*

Children of military personnel attend either the Fort Campbell School System (4 elementary schools, 1 middle school, and 1 high school) or school systems within ROI communities. The ROI includes six public school districts, the largest of which is Clarksville-Montgomery County School System with an enrollment of almost 38,000 students (CMCSS 2021). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

### 3.6.7.2 Environmental Consequences

#### *3.6.7.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the immediate ROI for this

resource. On-post housing at Fort Campbell, however, is essentially at capacity and the off-post housing market is tight with few vacancies in housing due to industrial development and housing demand in the greater Nashville area. Competition for housing is an ongoing issue for junior enlisted Soldiers. An influx of personnel would have a minor to moderate adverse impact to the existing housing situation.

School infrastructure at Fort Campbell is in flux as the DoD Education Activity has been downsizing school infrastructure on post. Plans for additional capacity are being developed but the exact size and nature of this capacity is unknown. Current capacity in child development centers on post is also limited. An influx of additional dependents could have a minor to moderate adverse impact on school capacities.

There would be a minor loss of income associated with the loss of agricultural leases in potential locations available for the Proposed Action. Overall minor to moderate adverse impacts would be anticipated from implementation of the Proposed Action at Fort Campbell.

#### *3.6.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and with fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Loss of income from impacts to agricultural leases would be minor. Impacts to socioeconomics resulting from implementation of the Base MDTF Configuration would be minor.

### *3.6.8 Traffic and Transportation*

#### 3.6.8.1 Affected Environment

There are three major transportation systems at Fort Campbell: road, air, and rail. Fort Campbell spans four counties, Trigg County, Christian County, Stewart County, and Montgomery County. The city center and the downtown area of Clarksville are approximately 12 miles from the installation. I-24 is just north of the post and traverses the region in a northwest-southeast direction. US-41A is a four-lane highway that parallels I-24 in a northwest-southeast direction and is adjacent to the eastern boundary of the installation. Fort Campbell's Main Gate (Gate 4) is accessible from US-41A. US-79 runs east and west along the southern border of the installation. State Highway (SH) 120 borders the western edge. Within the installation, numerous paved roads support the transportation system within the cantonment area. The rear area is accessed by a system of rural roads and firebreaks.

Fort Campbell has both fixed- and rotary-wing airfield facilities. The CAAF is capable of handling all U.S. Air Force airlift assets. Golden Eagle, a forward landing strip, is also capable of handling all types of aircraft. Rotary-wing aircraft use the CAAF, Destiny Heliport, Sabre AAF, and numerous landing zones located throughout the training areas. These facilities allow Fort Campbell to meet operational deployments and mobilization in minimal time. Remote landing strips for rotary-wing aircraft are scattered throughout the eastern portion of the installation.

Fort Campbell has a rail spur and railhead connecting at Hopkinsville, Kentucky, and the CSX Transportation rail system.

#### 3.6.8.2 Environmental Consequences

##### *3.6.8.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in large increases in traffic volumes at potential project locations after completion of the project. Some road upgrades could be required including a potential installation ACP. Impacts would be minor to moderate for traffic flows and increased congestion. Short-term minor impacts would result during periods of construction.

##### *3.6.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Campbell. Impacts to traffic and transportation would be minor.

### *3.6.9 Infrastructure and Utilities*

#### 3.6.9.1 Affected Environment

##### *3.6.9.1.1 Energy*

Tennessee Valley Authority provides electrical power to Fort Campbell. In 2021, Tennessee Valley Authority had a total generating capacity of 34,000 MW of power and the current peak electricity usage within the Fort Campbell service area was estimated to be two tenths of one percent of available power. In 2021, it was estimated that Fort Campbell consumes approximately 277,256 MW hours, or 0.02% of Tennessee Valley Authority's total energy production.

Clarksville Gas and Water supplies natural gas to Fort Campbell. In 2021, Fort Campbell obtained approximately 50% of energy from natural gas and propane. Clarksville Gas and Water provided an estimated total capacity of 15,256 million cubic feet (MCF)/day to Fort Campbell. In 2021, Fort Campbell used approximately 8,491 MCF/day on the coldest days, which equates to approximately 17% of total capacity.

##### *3.6.9.1.2 Potable Water*

Over 99.9% of potable water is supplied to Fort Campbell from Boiling Springs and treated under a Utilities Privatization Contract with Jacobs. Boiling Springs can supply up to 6.2 mgd to Fort Campbell, far exceeding the current peak demand of 4.3 mgd. The overall condition of the potable water facilities and infrastructure system has a Facility Class rating of F3/Q3[11] due to facility shortfalls in quantity and quality and attributed to multiple system deficiencies.

##### *3.6.9.1.3 Wastewater*

Sanitary wastewater at Fort Campbell is treated at a WWTP(s) owned, operated, and maintained by Jacobs. The current daily load ranges from approximately 2 to 4 mgd with a rated capacity to

[11] A Q3-rated facility is one where the condition fails to meet the minimum level of Army standards for at least one major rated component. The cost to improve is no more than 40 percent of the replacement value. F3-rated facilities have significant deficiencies that impair the capability to support some of the tenant organizations' required missions. Some essential/critical functional elements may be missing.

effectively treat 6 mgd. The overall condition of the wastewater facilities and infrastructure system has a Facility Class rating of F3/Q3 due to facility shortfalls in quantity and quality and attributed to multiple system deficiencies.

#### 3.6.9.2 Environmental Consequences

##### *3.6.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in negligible to minor adverse impacts to infrastructure and utilities. Potential locations for the Proposed Action would require new connections as part of the action. Depending on final designs and locations, possible facility construction could include electrical power, communication, sanitary sewers with potential lift stations, drinking water, and storm sewer/stormwater management. Connections could range in length from approximately 475 feet to 3,500 feet. Low impact development (LID) would be required to manage the increased runoff.

##### *3.6.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Connection lengths could range from approximately 230 to 2,700 feet. LID would be required to manage the increased runoff. Significant impacts to facilities are not anticipated to result from implementation of the Base MDTF Configuration at Fort Campbell. Impacts to infrastructure and utilities would be negligible to minor.

### *3.6.10 Water Resources*

#### 3.6.10.1 Affected Environment

##### *3.6.10.1.1 Surface Water*

Surface water systems of Fort Campbell consist of 453 stream miles and four small manmade lakes at scattered locations. Major streams are perennial with substrates ranging from unconsolidated sediments to cobble (Fort Campbell 2020). The installation is divided into three watersheds: Little West Fork Creek, Saline Creek, and Casey Creek. All watersheds drain to the Cumberland River/Lake Barkley, either to the south, west, and northwest, located approximately 8 miles south of the installation and flows into the Ohio River.

The Little West Fork Creek subwatershed covers approximately 9 square miles of training area and built-up area (including portions of the Clarksville Base, the cantonment area, and the golf course) about 50% of which currently is forested. The Little West Fork Creek subwatershed on Fort Campbell contains approximately 6 miles of perennial and 2 miles of intermittent streams. Little West Fork Creek has a mean annual discharge of about 24,235 mgd (Fort Campbell 2020).

There is a strong connection between surface waters and groundwater on Fort Campbell. Because of the karst terrain, streams can exhibit losing characteristics (flow lost to groundwater) and gaining reaches (groundwater discharge increases stream flow). Where caves are present and connected to a stream by karst, surface streams can disappear underground. Subsequently, these streams can, and often do, reappear in another location as a spring. Disappearing streams are more likely to occur during drought conditions in late summer and early fall when the water table drops (Fort Campbell 2020).

Surface water quality is moderately impacted by installation activities. The amount of sedimentation in streams resulting from erosion ranges from moderate to severe, as determined by the loss of rocky substrates in streams through burial by sediments. Sedimentation is the most serious water quality threat at Fort Campbell. Steps being implemented to minimize water quality degradation include cessation of grading bare soil firebreaks twice yearly, allowing development of vegetative cover to hold the soil, and aggressive enforcement of erosion control requirements on construction projects in the cantonment area. Sedimentation has been affecting biotic communities and compromising the aquatic systems at Fort Campbell (Fort Campbell 2020).

The Fort Campbell Stormwater Management Plan (SWMP) and the Comprehensive SWPPP Summary Documents provide descriptions of storm drainage areas and associated outfalls, potential stormwater pollution sources, and material management approaches to reduce potential stormwater contamination. The SWMP covers all areas and non-industrial activities within the limits of Fort Campbell. Stormwater protection for industrial activities is covered in the Kentucky and Tennessee Comprehensive SWPPP Summary Documents, supported by site-specific industrial activity SWPPPs.

The SWMP addresses the specific stormwater management requirements of Fort Campbell's municipal NPDES General Permit, while the SWPPP addresses the requirements of the industrial NPDES Permits Tennessee Multi-Sector General Permit and KYR00 Permit. The SWPPP and SWMP provide specific BMPs to prevent surface water contamination from activities such as construction, storing and transferring of fuels, storage of coal, use of de-icing fluids, storage and use of lubrication oils and maintenance fluids, solid and hazardous waste management, and use of de-icing chemicals. Implementation of the following BMPs reduces the likelihood of pollutants entering the Fort Campbell storm system from construction activities: silt fences, sediment basins, rock check dams, temporary seeding, storm drain inlet protection, and dust control.

#### *3.6.10.1.2 Wetlands*

Based on USFWS National Wetland Inventory data and surveys, approximately 4,883 acres of potential wetlands are located on the installation. Most wetland areas are located near perennial streams and creeks in low-lying areas (Fort Campbell 2020). Depressions formed in karst areas on Fort Campbell are also potential wetland sites. Although numerous wetland areas are located in the north and south portions of the garrison, the cantonment area includes minimal wetland areas.

In 2000, Fort Campbell coordinated with the NRCS to conduct wetland delineations throughout the installation. The locations of potential wetlands were mapped using digital photographs. All potential wetlands thought to be "jurisdictional" were submitted for a jurisdictional determination by the USACE, Nashville District. A total of 398 wetlands, totaling approximately 682 acres, were identified on Fort Campbell. All identified wetlands were mapped using Global Positioning System technology; wetland locations and boundaries are maintained in a geographic information system database. Most wetlands on Fort Campbell are palustrine (Fort Campbell 2020).

Fort Campbell maintains vegetated buffers of 100 feet around all jurisdictional wetlands. Where it is determined that a wetland has, or could have, significant habitat value, or where current activities adjacent to a wetland are causing noticeable adverse impacts on the habitat, buffers of greater than 100 feet could be established. Activities within buffer zones are limited to those which would cause little or no impact on, or disturbance to, the wetland.

#### *3.6.10.1.3 Floodplains*

Floodplains are designated and mapped by the Federal Flood Insurance Program, which is administered by the Federal Emergency Management Agency (FEMA). Official floodplain maps prepared by FEMA delineate intermediate regional flood zones or land surface areas having the capacity of being inundated by a flood having an average frequency of occurrence once in 100 years. Based on review of Christian County, Kentucky, and Montgomery County, Tennessee, flood maps, the majority of the cantonment area is located in Zone C (area of minimal flooding) while the southern portion of the cantonment area, to the north and northeast of former Lake Taal, lies within Zone A (100-year flood). Little West Fork Creek traverses through Zone A in this area and also includes a confluence of former Lake Taal discharge waters. A deep gorge (up to 50 feet in elevation) exists in this portion of the cantonment area and where Little West Fork Creek travels through prior to exiting the cantonment area.

### 3.6.10.2 Environmental Consequences

#### *3.6.10.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in minor adverse impacts to water resources. The Proposed Action would require land-disturbing activities for approximately 93 acres within the cantonment area. These activities would require an NOI and NPDES permitting. A SWPPP would be completed as part of any construction activities.

Preliminary analysis performed by Fort Campbell determined that implementation of the Full MDTF Configuration could impact surface waters and wetlands which could require a FONPA be prepared. The extent of impacts to these resources is unknown at this time. Installation-specific designs and additional site evaluations of facility layouts relative to surface waters and wetlands would be required to fully assess impacts. There is insufficient detail to determine if Section 404 permitting would be required for the construction of MDTF facilities. Once installation-specific designs are completed, the Fort Campbell DPW would work with the design team to avoid and minimize potential impacts to wetlands, floodplains, and associated buffer areas to the maximum extent possible. If wetland impacts are determined to be unavoidable, depending on the extent of impacts, a nationwide or individual permit would be required. LID would be required to mitigate any impacts to streams.

Where wetlands cannot be completely avoided, the impacts to these sensitive resources would be minimized and the remaining impacts would be mitigated. All vegetation within the wetland areas and any required buffers would be flagged prior to the start of any work to ensure contractors clearly understand the physical demarcation limits and utilize appropriate equipment and techniques for felling and removing vegetation. The grubbing, grading, and discharge of dredged or fill material into streams and wetlands would require prior coordination with and permitting through the USACE-Regulatory Branch (Wetlands). Wetland impact minimization efforts are documented during the Proposed Action design phase to assist with completion of any required Section 404 application and mitigation proposal.

#### *3.6.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to water resources than those described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and NOI and NPDES permitting would

apply. Potential locations with surface waters could be avoided under this alternative and significant impacts to water resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Campbell. Impacts to water resources would be minor.

## 3.7 FORT CARSON

### *3.7.1 Background*

Founded in 1942, Fort Carson is located in central Colorado at the foot of the Rocky Mountain Front Range in El Paso, Fremont, and Pueblo Counties (Figure 1-1). The downtown area of Colorado Springs and Denver are approximately 8 and 75 miles, respectively, to the north, while the City of Pueblo is located approximately 35 miles south of the cantonment area.

Fort Carson encompasses approximately 137,400 acres and extends between 2 and 15 miles east to west and approximately 24 miles north to south. The cantonment area, which consists of developed land and a high density of urban uses, is in the northern portion of Fort Carson and covers approximately 6,000 acres. The downrange area covers approximately 131,000 acres of unimproved or open lands and is used for large-caliber and small-arms live-fire individual and collective training; wheeled and tracked vehicle maneuver operations; manned and unmanned aircraft; and mission readiness exercises.

Fort Carson is home to the 4th Infantry Division (ID), 10th Special Forces Group, 10th Combat Support Hospital, 13th Air Support Operations Squadron, 759th Military Police Battalion, 71st Ordnance Group (Explosive Ordnance Disposal), the Colorado Army National Guard, and the Evans Army Community Hospital. Fort Carson manages 85 different training ranges. Weapons training that occurs on these ranges includes small-arms qualification, tank, artillery, and helicopter gunnery.

Fort Carson Garrison is responsible for supporting the living and training requirements of Army troops stationed at the installation. Fort Carson's downrange area is used for weapons qualification and field training. The downrange area comprises the land area outside the cantonment area, including firing ranges, training areas, and impact areas.

### *3.7.2 Air Quality*

#### 3.7.2.1 Affected Environment

Fort Carson is located in the San Isabel Intrastate AQCR. The entire AQCR includes the Colorado counties of Chaffee, Custer, El Paso, Fremont, Huerfano, Lake, Las Animas, Park, Pueblo, and Teller. Fort Carson is in the portion of the AQCR that includes El Paso and Fremont Counties. The ROI for air quality analysis includes this portion of the AQCR, which includes the City of Colorado Springs.

The Colorado Department of Public Health and Environment (CDPHE) has adopted the NAAQS. Colorado also maintains its own ambient air quality standard for oxides of sulfur, which is a three-hour standard of 0.267 parts per million that cannot be exceeded more than once annually (Colorado Code of Regulations 1001-14, February 2021).

The northern portion of Fort Carson (cantonment area) is in a maintenance area for CO. The cantonment area of Fort Carson is part of a larger area over the City of Colorado Springs, which was re-designated from nonattainment to attainment on October 25, 1999 (Colorado Code of

Regulations 1001-14, February 2021). The Revised Carbon Monoxide Attainment/Maintenance Plan Colorado Springs Attainment/Maintenance Area covers Colorado Springs as a maintenance area through calendar year 2020 (CDPHE 2009; EPA 2013). Upon successful completion of the maintenance period, the area would revert to attainment only, and general conformity requirements would no longer apply. If future changes in mobile source models or other unforeseen considerations raise potential issues with the conformity process, the State of Colorado will address the need to revise the attainment/maintenance plan at that time.

Fort Carson is a major source for nitrogen oxides ($NO_X$) and CO and, as a result, has a Title V Operating Permit. The Title V Operating Permit covers emissions of both criteria pollutants and HAPs installation wide. Fort Carson updated this permit, 95OPEP110, in 2018 and requires renewal every 5 years.

#### 3.7.2.2 Environmental Consequences

##### *3.7.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The installation is in a maintenance zone for CO and has county restrictions on fugitive dust generation. A Title V permit is in place as well as a Fugitive Dust Control Plan that would ensure that any stationing action and associated construction activities were in compliance with the CAA.

##### *3.7.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Carson would be negligible.

### *3.7.3 Biological Resources*

#### 3.7.3.1 Affected Environment

The purpose of natural resources management at Fort Carson is to maintain high-quality lands for training, biodiversity, and recreation. Fort Carson manages natural resources through the INRMP (Fort Carson 2020) that outlines plans, goals, and objectives regarding natural resources programs on Fort Carson and integrates conservation management actions with Army military mission activities to meet natural resource management goals.

Fort Carson uses an adaptive ecosystem management strategy to protect, conserve, enhance, and monitor resources and to adjust INRMP management objectives based upon the effects of training activities. Management decisions are made based on the best available science and attempt, where practical, to mimic the natural historical disturbance regimes for the ecoregion. Ecosystem management is an evolving management scheme. As new information and ideas are gleaned from current research, Fort Carson's resource management changes to reflect the best information available. Monitoring programs indicate whether management measures and strategies are effective in achieving the intended objectives. This adaptive management approach preserves natural resources while providing the optimum environmental conditions required to sustain the

military mission and realistic training conditions. Climate change has the potential to increase the spread of exotic insects and noxious weeds (Fort Carson 2020).

#### *3.7.3.1.1 Flora*

Fort Carson is in the Central Shortgrass Prairie ecoregion, which is dominated by shortgrass species such as buffalo grass (*Buchloe dactyloides*), blue grama (*Bouteloua gracilis*), and western wheatgrass (*Pascopyrum smithii*) (Fort Carson 2020). The ecoregion encompasses approximately 56 million acres and includes parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, Texas, and Wyoming.

Fort Carson flora consist of a combination of shortgrass prairie grasslands (48%), shrublands (15%), and forest/woodlands (37%). Deciduous shrubland is found along major drainages and includes Gambel oak (*Quercus gambelii*), tamarisk (*Tamarix* spp.), snowberry (*Symphoricarpos* spp.), and willow (*Salix* spp.) (Fort Carson 2020). Ponderosa pine, piñon pine, and one-seed juniper (*Juniperus monosperma*) are the dominant species of higher elevation woodlands on rocky and steeper slopes, and cottonwood (*Populus* spp.), willow, and chokecherry (*Prunus* spp.) dominate woodlands near drainages (Fort Carson 2020). The remaining Fort Carson lands are developed or barren areas, classified as non-vegetation.

At Fort Carson, species such as Dalmatian toadflax (*Linaria dalmatica*), yellow toadflax (*Linaria vulgaris*), Scotch thistle (*Onopordum acanthium*), leafy spurge (*Euphorbia esula*), whitetop (*Cardaria draba*), Russian knapweed (*Acroptilon repens*), annual wheatgrass (*Eremopyrum triticeum*), and wild mignonette (*Reseda lutea*) are among the noxious weeds targeted for management (Fort Carson 2020).

To manage invasive plant populations, Fort Carson uses integrated pest management techniques including biological controls, herbicide applications, prescribed burning, cultural controls, and physical/mechanical measures. The installation's comprehensive, long-term weed management program promotes and sustains the military mission and protects the natural environment.

#### *3.7.3.1.2 Fauna*

Seventy-three species of mammals, 285 species of birds and 24 species of fish are known to occur on Fort Carson (Fort Carson 2020). Fort Carson and the associated range and training lands support a broad array of wildlife and ecosystems that are integral to landscape scale natural resources management in eastern Colorado.

#### *3.7.3.1.3 Protected Species*

Of the many species that utilize Fort Carson, only the black-footed ferret (*Mustela nigripes*) and Mexican spotted owl (*Strix occidentalis lucida*) are federally listed. Listed as endangered in 1967 and again in 1970 (USFWS 2019), the black-footed ferret was reintroduced on adjacent private landowner property in October of 2013 and subsequently immigrated onto Fort Carson along the southern boundary. The Mexican spotted owl is a federally threatened species known to winter in the rugged mountainous terrain located in the south-central part of Fort Carson, which includes Booth Mountain. The owl's habitat is managed according to provisions specified in the Mexican spotted owl management plan (Fort Carson 2020). Protections for the owl include resource management and limiting the types of training and recreational activities that can occur in areas occupied by the owl.

### 3.7.3.2 Environmental Consequences

#### *3.7.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened/endangered species because this action is limited to the cantonment area and there are no known populations of these species in the cantonment area. The cantonment area on Fort Carson is not managed for threatened/endangered species and does not contain habitat (critical or otherwise) for any of these species. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased.

The Full MDTF Configuration site contains an approximately 65-acre active prairie dog (*Cynomys* sp.) colony. The colony is a known foraging ground for golden eagles, likely for birds that nest on or near Cheyenne Mountain. If this colony needs to be treated, Fort Carson DPW wildlife biologists would first survey the colony and depending on the time of removal, the Fort Carson invasive species and pest manager would develop a treatment plan. Complete removal of that colony could require consultation with USFWS to ensure compliance with the MBTA and the Bald and Golden Eagle Protection Act (BGEPA) (16 *USC* 668-668c). To minimize impacts to migratory birds, the removal, disturbance, or destruction of trees, shrubs, cattails (*Typha* spp.) and riparian areas, and or prairie grass would occur outside of the nesting season between September 16 and April 14.

There would be an increased risk of the introduction and spread of noxious weeds and non-native plants as a result of the construction for either the Full or Base MDTF. This risk would be mitigated by following the control measures outlined in the invasive species management section of the INRMP and through the use of BMPs including using clean fill, washing equipment, and the use of herbicides on the site, if necessary. If necessary, herbicide and pesticide applications would be completed in coordination with the Fort Carson Installation Pest Management Coordinator. There would be a minor impact from noxious weeds. Tree removal could be required as part of the Proposed Action. Fort Carson requires four trees be replanted for every one tree that is removed, depending on the trees involved, at the discretion of the installation forester. The trees that are removed would be replaced in coordination with the installation forester in the landscaping of the footprint of the Full MDTF. The removal of trees, shrubs and other vegetation could lead to the loss of migratory bird habitat. Surveys would be conducted if vegetation removal needs to take place during the nesting season to ensure that no birds are disturbed while nesting to comply with the MBTA. Overall, the effects to wildlife and habitat would be temporary, minor, and adverse.

#### *3.7.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint and fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. An approximately 20-acre active prairie dog colony is located within the potential project area, but it is not known to be potential foraging habitat for golden eagles.

The removal of trees, shrubs, and other vegetation could lead to the loss of migratory bird habitat. Surveys would be conducted if vegetation removal needed to take place during the nesting season to ensure that no birds are disturbed while nesting to comply with the MBTA. Overall, the impacts to wildlife and habitat resulting from implementation of the Base MDTF Configuration would be temporary, minor, and adverse.

## *3.7.4 Cultural Resources*

### 3.7.4.1 Affected Environment

Management of cultural resources for Fort Carson is detailed in the Fort Carson ICRMP (Fort Carson 2017). Fort Carson manages cultural resources associated with all major prehistoric and historic cultural periods recognized on the southern Great Plains and the Rocky Mountains at Fort Carson. Cultural resources management on the installation encompasses conservation and preservation of historic properties, as well as properties of religious, traditional, and cultural importance to Native Americans.

Based on the Fort Carson ICRMP (Fort Carson 2017), as of May 2019, approximately 85% of Fort Carson-managed lands have been surveyed, resulting in the identification of approximately 2,377 known cultural resources at Fort Carson. Fort Carson has three designated historic districts: the Turkey Creek Ranch Historic District, located within the Turkey Creek Complex; the Incinerator Complex, located in the cantonment area; and the Turkey Creek Rock Art District, located downrange Fort Carson west of the digital multipurpose range complex. The Turkey Creek Rock Art District is listed in the NRHP.

To streamline the Section 106 process in accordance with 36 CFR 800.14(b), Fort Carson developed a PA for locations on Fort Carson:

- Programmatic Agreement Among the USAG Fort Carson, the Colorado State Historic Preservation Officer, and the ACHP regarding construction, maintenance, and operations activities for areas of Fort Carson, Colorado (Fort Carson 2013). This PA (referred to as the Fort Carson Built Environment PA) was executed in March 2013, amended in February 2018, and again in December 2019. Both amendments were to extend the expiration date so a new PA could be developed. It streamlines the Section 106 consultation process for certain undertakings that occur within the built environment areas on Fort Carson. In addition, it establishes a requirement to prepare an annual report of undertakings and actions completed during the fiscal year (FY) (U.S. Army 2021).

Stipulations within these PAs establish protection measures, monitoring strategies, and a list of activities exempted from further consultation. Fort Carson analyzes effects on historic properties and protected properties from military training, other activities, and natural processes. In cases where Section 106 consultation would be necessary, review, evaluation, and analysis regarding the potential for adverse effects to historic properties would consider all characteristics that qualify a site for inclusion in the NRHP.

### 3.7.4.2 Environmental Consequences

#### *3.7.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Carson has determined that implementation of the Proposed Action would result in moderate but not significant impacts to cultural resources. Construction association with this proposed stationing action is exempted under the Fort Carson Built Environment PA; therefore, further Section 106 consultation is not required. The use of SOPs for inadvertent discovery and entry as well as the avoidance of areas with known cultural resources would further minimize impacts.

#### *3.7.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint but similar impacts to those described under the Full MDTF Configuration alternative. Impacts would be moderate but significant impacts to cultural resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Carson.

## *3.7.5 Soils*

### 3.7.5.1 Affected Environment

Soil types commonly occurring in the Fort Carson region are aridisol (dry, desert-like soils) and entisol (soils that do not show any profile development, and which are largely unaltered from their parent rock) soils. These soil types are characterized by moderate to severe erodibility, landslides, and unstable clay formation movement due to variations in moisture content and temperature. Soil erosion is a problem at Fort Carson. Soils of greatest concern for erosion are clays, silty clays, and clay loams. In particular, the eastern portion of Fort Carson, located within the Fountain Creek Watershed, and the southwest corner of the post draining to Beaver Creek, contain soils that have been identified as being moderately to highly susceptible to erosion.

Natural resource management at Fort Carson focuses on maintaining the structure and integrity of soil resources, while maintaining high-quality lands for training, biodiversity, and recreation. Fort Carson manages natural resources, including soils, through the INRMP. The INRMP outlines plans, goals, and objectives for the natural resources programs on Fort Carson, and integrates conservation management actions with Army mission. Monitoring programs generate the soils and land recovery data needed to determine whether the management measures and strategies are effective in achieving their intended goals and objectives. These include maintaining sustainable training lands and minimizing soil movement, and minimizing soil loss from water and wind erosion.

### 3.7.5.2 Environmental Consequences

#### *3.7.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.7.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.7.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than those described under the Full MDTF Configuration alternative. Impacts would be minor and significant impacts to soil resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Carson.

## *3.7.6 Land Use*

### 3.7.6.1 Affected Environment

Fort Carson is in central Colorado at the foot of the Rocky Mountains and occupies portions of El Paso, Fremont, and Pueblo Counties. The installation is bounded by SH 115 on the west and I-25 and mixed development to the east. Colorado Springs and Denver lie approximately 8 and 75 miles, respectively, to the north, while the City of Pueblo is located approximately 35 miles south of the cantonment area.

Fort Carson covers approximately 137,000 acres, and extends between 2 and 15 miles, east to west, and approximately 24 miles, north to south. The cantonment area, located in the northern portion of the installation, covers approximately 6,000 acres. Of Fort Carson's total land area, more than half of the land provides maneuver land suited for vehicular and non-vehicular military training (U.S. Army 2021).

Fort Carson is an active military training facility for both weapons qualifications and field training. The Fort Carson Real Property Master Plan identifies 10 different districts. Districts are sections of the installation that are identified by their character, land use, intensity of development, or the type of activities occurring within them. The districts were developed as part of the 2016 Vision Plan. Land use in each district is defined in district-specific Area Development Plans (Fort Carson 2021). Land use falls generally into three broad categories: the cantonment area which consists of developed land and a high density of urban uses; downrange areas, which consist of open land used for training purposes; and land specified for non-training uses, which are designated in various areas and are accessible by the public.

The cantonment area contains most of the installation infrastructure, such as Soldier and family housing; administrative, maintenance, community support, recreation, supply, and storage facilities; utilities; and classroom and simulation training facilities. Principal industrial operations include the repair and maintenance of vehicles. These operations mostly occur within the vicinity of the “banana belt” (so called because it is a banana-shaped arc of brick buildings) located along the north and east side of the cantonment area.

Recreational uses include hunting, fishing, dog training, and activities such as picnics and trail rides. Military training is generally off limits at these sites, and the intensity, level, and type of recreational activities vary by site. Most of the sites that support recreational uses are also waterfowl nesting refuges; some sites also protect other species, including fish. Two permits have been issued by the State of Colorado to mine refractive clay on Fort Carson, near the Stone City site. Fort Carson is required by law to allow mining at existing sites provided permit conditions continue to be met by permittees.

Off-post land use remains consistent with that described in the Fort Carson Real Property Master Plan (Fort Carson 2021). Developed land and land planned for future development border the northern one-third of Fort Carson. These lands are part of unincorporated El Paso County to the west, the City of Colorado Springs to the north and west, and Security-Widefield and the City of Fountain to the east. The town of Penrose is located to the west of the southwest corner of Fort Carson. Land bordering the southern and southeastern portion of Fort Carson is generally composed of undeveloped agricultural land with parcels protected from development with conservation easements as part of the installation’s Army Compatible Use Buffer (ACUB) program.

### 3.7.6.2 Environmental Consequences

#### *3.7.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Carson would have no impacts to land use. The sites proposed for the Full MDTF Configuration are in the Wilderness Plateau District in the main cantonment area of the post. The Wilderness Plateau District is predominantly oriented toward mission uses, with other functions such as barracks, dining facilities, exchange services, and medical clinics serving the Soldiers working in the district. The proposal to site the MDTF in this area is consistent with current and planned land use. The siting would not lead to any land use changes.

The site proposed for the Full MDTF Configuration is adjacent and west of the Ammunition Supply Point (ASP). The sites are outside of the Inhabited Building Distance for the ASP. The risk to any buildings constructed to support the MDTF from an explosion at the ASP would be low.

#### *3.7.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would have no impacts to land use. Sites proposed for the Base MDTF Configuration are in the same districts and would have the same issues, but to a lesser scale, as those described for the Full MDTF Configuration.

## *3.7.7 Socioeconomics*

### 3.7.7.1 Affected Environment

#### *3.7.7.1.1 Population and Demographics*

Approximately 24,300 troops and 6,700 civilians work on Fort Carson. The population that lives on Fort Carson consists of 3,287 Soldiers and an estimated 12,200 dependents, for a total on-post resident population of 15,487 (U.S. Army 2020 cited in U.S. Army 2021).

Fort Carson's ROI consists of El Paso, Pueblo, and Fremont Counties. The estimated population for Pueblo County in 2019 was 168,424, Fremont County was 47,839, and El Paso County was 720,403, totaling 936,666 (Table 3-10) (USCB 2021). The values represent 5.9, 2.2, and 15.8% growth, respectively, since 2010. In comparison, Colorado experienced a population increase of 14.5% during the same period.

**Table 3-10. Fort Carson Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Pueblo | 168,424 | +5.9 |
| Fremont | 47,839 | +2.2 |
| El Paso | 720,403 | +15.8 |

In 2019, it was estimated that 48.3% of the population in Pueblo County, 21.2% in Fremont, and 31.4% in El Paso were categorized as minority (see Table 3-11). In comparison, the non-White population in Colorado was estimated to be approximately 32.3% over the same period (USCB 2021).

**Table 3-11. Fort Carson ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic (Percent)[2] | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Colorado | 67.7 | 4.6 | 1.6 | 21.8 | 3.5 | 3.1 | 0.2 |
| Pueblo | 51.7 | 2.6 | 3.2 | 43.2 | 1.1 | 3.0 | 0.2 |
| Fremont | 78.8 | 4.0 | 1.9 | 13.5 | 1.0 | 2.0 | 0.1 |
| El Paso | 68.6 | 6.9 | 1.4 | 17.7 | 3.1 | 4.9 | 0.4 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.7.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $25,051, $22,692, and $33,728 for Pueblo, Fremont, and El Paso Counties. The estimated per capita income was $38,226 for the state of Colorado for that same timeframe. The largest employment industry in the ROI is education, professional, scientific, management, and administrative services followed by retail trade and construction (USCB 2022).

The unemployment rate for Pueblo County as of October 2021 was 6.8%, compared to 5.5% for Fremont County, and 4.6% for El Paso County. The unemployment rate for Colorado for October 2021 was 5.4% (U.S. Bureau of Labor Statistics 2021).

#### *3.7.7.1.3 Housing*

There are currently 3,415 total military family housing units on Fort Carson, which are managed by the RCI partner Fort Carson Family Homes. These are all located in the cantonment area among several neighborhoods. Fort Carson Family Homes comprises 16 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Carson and welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods (Fort Carson 2012).

Unaccompanied personnel housing on Fort Carson has approximately 6,775 single Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 95%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in El Paso County/ROI was 14,776 (USCB 2019).

#### *3.7.7.1.4 Schools*

Children of military personnel attend either the schools on Fort Carson or school systems within ROI communities. Fort Carson is in Fountain-Fort Carson School District 8 with four elementary schools and one middle school located on post. During the 2020–2021 school year over 8,200 students attended the Fountain-Fort Carson School District 8 school system (Fountain-Fort Carson School District 8 2021). Cheyenne Mountain School District 12 and Colorado Springs School

District 11 located in Colorado Springs have student enrollments of over 5,000 and 24,000, respectively (Cheyenne Mountain School District 12 2021; Colorado Springs School District 11 2021). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

#### 3.7.7.2 Environmental Consequences

##### *3.7.7.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Carson has determined that implementation of the Proposed Action could result in minor to moderate adverse impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the ROI for this resource. Fort Carson is just south of Colorado Springs, Colorado. Colorado Springs is a large metropolitan area with a population of 465,000. By 2045, Colorado Springs will grow to be the size of the current City and County of Denver (about 700,000 people). A substantial amount of growth continues to occur outside of the city. This trend will continue to result in challenges for the fiscal sustainability of the city. The availability of homes in Colorado Springs and the surrounding cities is decreasing and the cost of the homes is rising because of this growth. According to the 2020 *City of Colorado Springs Annual Comprehensive Financial Report* (City of Colorado Springs 2021) the average price of a single-family home jumped 20% from 2019, to $437,000, while the average price of a condominium or townhome increased 18% to $295,000. The reason for the increase is an increase in demand and a low supply. The addition of 3,000 personnel and families could have an impact on the public services, cost of living, traffic levels, and other socioeconomic factors.

##### *3.7.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomics would be minor and significant impacts are not anticipated to result from implementation of the Base MDTF Configuration at Fort Carson.

### *3.7.8 Traffic and Transportation*

#### 3.7.8.1 Affected Environment

The Colorado Department of Transportation, the City of Colorado Springs, El Paso County, and the City of Fountain have jurisdiction over road networks that serve Fort Carson. Regional access to Fort Carson is from I-25 and Colorado SHs 115 and 83. Other major routes in the area include US-24, and SHs 85, 16, and 21. Colorado Springs and Pueblo, Colorado, are the largest cities located near Fort Carson. Many civilian and active military personnel commute from areas in the western portion of El Paso County including from the communities of Colorado Springs, Stratmoor, and Cimarron Hills. The primary transportation routes around Fort Carson are described below.

I-25 is a north-south interstate facility located east of Fort Carson. It provides indirect access to Fort Carson via Gate 19 (by way of Santa Fe Avenue and Charter Oak Ranch Road) and Gate 20 (by way of SH 16, which is renamed Magrath Avenue within Fort Carson). Academy Boulevard

is an east-west roadway located north of Fort Carson. It provides direct access to Fort Carson via Gates 3 and 4. SH 115 is north-south roadway located west of Fort Carson. It provides direct access to Fort Carson via Gates: 1, 2, 5, and 6. Improvements to roadways surrounding Fort Carson have been made to accommodate current and projected traffic volumes.

Within Fort Carson, on-base residential housing is primarily located between SH 115 and Chiles Avenue. Barracks are predominantly located along Barkeley Avenue. Recreational fields, restaurants, office buildings, and training facilities are predominantly located east of Chiles Avenue and south of O'Connell Boulevard. In 2015 Fort Carson completed a comprehensive traffic study that has been incorporated into various Area Development Plans. Projects that resulted from this study included improvements to ACPs, additional roads, tank trail underpasses of public roads, and traffic control features such as roundabouts and turn lanes.

The roadway network within Fort Carson features a grid network of vehicular transportation facilities in the northern cantonment area of the base. Fort Carson is accessed via eight ACPs. To the west, Gates 1, 2, 5, and 6 provide a vehicular connection to SH 115. To the north, Gates 3 and 4 provide a vehicular connection to Academy Boulevard. To the east, Gates 19 and 20 provide a vehicular connection to I-25.

#### 3.7.8.2 Environmental Consequences

##### *3.7.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Carson has determined that implementation of the Proposed Action would result in minor to moderate adverse impacts to traffic and transportation. Impacts would occur to traffic flow and due to increased congestion. The Full MDTF Configuration would affect traffic throughout the post but especially on Butts Road and Wilderness Road where existing traffic can be periodically heavy. The increase in additional personnel using the roads would require additional traffic signals, turn lanes, crosswalks, and other safety infrastructure installed to ensure the safety of those traversing the roads and to maintain the current LOS. The closest gate to potential project locations is Gate 6, which is a small gate with two lanes for incoming traffic and minimal support infrastructure. If the Full MDTF is stationed at Fort Carson, this gate could need to be upgraded to accommodate additional traffic.

##### *3.7.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. The Base MDTF Configuration would have a noticeable impact on traffic during heavy use times but would not overwhelm the existing safety infrastructure or impact the LOS. Impacts to traffic and transportation resulting from implementation of the Base MDTF Configuration would be minor.

### *3.7.9 Infrastructure and Utilities*

#### 3.7.9.1 Affected Environment

##### *3.7.9.1.1 Energy*

Fort Carson purchases natural gas and electricity from Colorado Springs Utilities (CSU). Fort Carson obtains approximately 2.3% of its energy needs from solar panels and is currently researching other sources of renewable energy for future use.

Electrical services are provided to Fort Carson through two aerial supply lines, which terminate at three power substations in the cantonment area. In 2020, the peak historical electrical demand at Fort Carson was 36.3 mega-volt amperes, while the total capacity available to the installation was 60.0 mega-volt amperes (Fort Carson 2022).

Fort Carson receives natural gas from CSU via three lines near the north end of the installation and an additional gas line along State Highway 115. The peak historical daily consumption of natural gas at Fort Carson is 824 million standard CFH. CSU's maximum delivery capacity to the installation is 1,325 million standard CFH (Fort Carson 2022).

#### *3.7.9.1.2 Potable Water*

Potable water is supplied to Fort Carson by CSU. CSU is capable of supplying up to 14 mgd to Fort Carson, far exceeding the current peak demand of 5.5 mgd. The water pressure in the eastern portion of the Logistics District is low, driving the need to install an additional water storage tank. The overall condition of the potable water facilities and infrastructure system is rated as adequate to accommodate current and future demands.

#### *3.7.9.1.3 Wastewater*

Fort Carson operates its own aerobic wastewater collection and treatment system. The current daily load is approximately 1.6 mgd with a rated capacity to effectively treat approximately 4 mgd (Fort Carson 2022). Recent upgrades to the plant have been completed and approved by the Colorado Department of Public Health and the Environment. The overall condition of the wastewater facilities and infrastructure system is rated as adequate to accommodate current and future demands.

### 3.7.9.2 Environmental Consequences

All essential utilities (electric, sanitary sewer, potable water, communications, natural gas, etc.) run adjacent to the proposed MDTF sites. Energy consumption would increase with the use of the facilities for both the full and base MDTF configurations. Impacts would be minimized by the use of Leadership in Energy and Environmental Design and Fort Carson's continued implementation of the Net Zero initiative (Potomac-Hudson Engineering, Inc. 2012).

#### *3.7.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in moderate impacts to infrastructure and utilities. Potential locations for the Proposed Action would require new connections as part of the action. Depending on final designs and locations, possible facility construction could include electrical power, communication, sanitary sewers with potential lift station, drinking water and storm sewer/stormwater management. Connections could range in length from approximately 475 feet to 3,500 feet. LID would be required to manage the increased runoff. The stationing of the full MDTF would increase the Soldier population and dependents leading to a strain on public and policing resources in the area adjacent to the installation.

#### *3.7.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Impacts would be negligible to minor as the number of

Soldiers associated with the Base MDTF Configuration would be smaller and would have fewer impacts on existing infrastructure and utilities.

## *3.7.10 Water Resources*

### 3.7.10.1 Affected Environment

#### *3.7.10.1.1 Surface Water*

The northern and eastern portions of Fort Carson are located within the Fountain Creek watershed of the Arkansas River Basin and drain southeasterly into Fountain Creek. Stormwater runoff in the northern portion of the installation flows into one of four main drainages: B-Ditch, Clover Ditch, Infantry Creek, or Rock Creek, which are all tributaries to Fountain Creek. The southern and western portions of the installation drain directly into the Arkansas River to the south (Fort Carson and USAEC 2009).

These northern drainages have historically been considered ephemeral or intermittent, in which no flow occurs in some reaches for long periods during the year, and with the high flow occurring between April and September (Fort Carson and USAEC 2009). Modern day conditions within the watershed, however, have changed the system dynamics, which now typically exhibit perennial flows in most areas of these drainages. Most flows in these drainages consist of runoff from precipitation and snowmelt that have increased due to the higher percentages of impervious areas within the watershed. Groundwater seepage and return flows also contribute to baseflows in these drainages (Fort Carson and USAEC 2009).

Teller Reservoir, the largest downrange water body, has been listed as an impaired water body on Colorado's Clean Water Act (CWA) Section 303(d) list and is on Colorado's Monitoring and Evaluation List to be re-evaluated. The impairment is the result of a fish consumption advisory that has been imposed because of mercury-contaminated soils leading to biological accumulation of mercury in plants and fish tissues (CDPHE 2016). The 303(d) list does not identify the source of mercury contamination.

#### *3.7.10.1.2 Wetlands*

Wetlands identified on Fort Carson are generally characterized as linear (e.g., streambeds) or small and isolated. Linear wetlands on Fort Carson occur along intermittent and perennial stream channels and tributaries, primarily of B-Ditch, Clover Ditch, Infantry, Rock, Little Fountain, Turkey, Little Turkey, Red, Sand, and Wild Horse Creeks. The current estimate of wetlands on Fort Carson is approximately 985 acres (Glass 2022). Isolated wetlands usually occur where a dam has been built for erosion control or for water storage. Most of these areas are 1 to 2 acres in size. The largest downrange wetland is on the upper reaches of Teller Reservoir, encompassing approximately 100 acres. In addition to cattails, rushes (*Juncus* spp.) and sedges (*Carex* spp.), common wetland woody species are cottonwood and willow. Some wetlands have been invaded by tamarisk and Russian olive (*Elaeagnus angustifolia*), woody noxious weeds of primary wetland management concern. Other invasive weeds of wetlands are Canada thistle (*Cirsium arvense*) and teasel (*Dipsacus fullonum*). About six major springs occur on Fort Carson, and they have very small associated wetlands. They are Cottonwood, Mary Ellen, TA 17, Lytle, Turkey Creek at Orchard Canyon, and Pierce Gulch springs. There are also several wetland areas scattered

throughout the area, typically in natural or stormwater runoff drainages and Cottonwood Spring in an area south of Butts AAF (Fort Carson and USAEC 2009).

#### *3.7.10.1.3 Floodplains*

In 2001 and 2008, Fort Carson completed two independent floodplain studies to determine the extent of the 100-year floodplain in the drainages of the main cantonment area. In 2012, the USACE completed an additional floodplain study that established floodplains in the Fort Carson cantonment area. A FEMA regulated 100-year floodplain is associated with three ditches in the cantonment area (B-Ditch, I-Ditch, and U-Ditch). Other floodplains on Fort Carson are located in the southern part of the installation away from the cantonment area (USACE 2007).

### 3.7.10.2 Environmental Consequences

#### *3.7.10.2.1 Full MDTF Configuration*

Preliminary analysis by Fort Carson has determined that implementation of the Proposed Action would result in moderate adverse impacts to water resources. The Proposed Action would require land-disturbing activities for approximately 93 acres within the cantonment area resulting in an increase of 22 acres of impervious surfaces. The effects would be mitigated through meeting the SWMP, required LID design, and the implementation of a SWPPP. No MDTF-related construction would occur in floodplains.

Potential project sites for the Full MDTF Configuration contain wetlands. Construction within these wetlands should be avoided in accordance with Fort Carson's policy of no net loss of wetlands. The construction would avoid any disturbance to the floodplain of Rock Creek. Following the stormwater requirements would minimize the effects to watershed resources. No Section 404 permits would be required, and impacts would be moderate and less than significant with the avoidance of wetlands and the floodplain of Rock Creek.

Because of its proximity to Rock Creek, the construction of the Full MDTF could introduce sediment to Rock Creek. This would be mitigated by the use of BMPs during construction as required by the SWMP and the project-specific SWPPP. There would also be an increase to stormwater response in the creek due to the increase in impermeable surfaces. This would be mitigated through the use of designed stormwater control structures and LID design. Long-term effects on stormwater would be moderate because of the increase in impermeable surfaces but not significant with the required BMPs and low impact design requirements.

#### *3.7.10.2.2 Base MDTF Configuration*

There are no wetlands or mapped floodplains within or adjacent to the site proposed for the Base MDTF Configuration. Section 404 permits for wetlands would not be required. The Base MDTF Configuration would be sited away from Rock Creek and the risk of introducing sediment into a jurisdictional waterway would be decreased. BMPs from the SWMP and the project-specific SWPPP would be implemented to further reduce the changes to stormwater from the site due to the increase in impervious surfaces. The effects would be moderate and less than significant with the avoidance of wetlands and the floodplain of Rock Creek.

# 3.8 FORT DRUM

## *3.8.1 Background*

Fort Drum is a 108,733-acre Army installation in northern New York (Figure 1-1). Fort Drum is approximately 24 miles in length and 8 miles wide, measured northeast to southwest (Matrix Design Group 2018). Fort Drum lies within Jefferson and Lewis Counties and is adjacent to St. Lawrence County, New York. The northeastern portion of the installation includes the western portion of the Adirondack Mountains of New York State (U.S. Army 2012). Fort Drum is approximately 10 miles northeast of the City of Watertown within the Great Lakes drainage basin. It is the largest military installation in the northeast United States. Fort Drum, formerly known as Pine Camp, has been used as a military training site since 1908. Pine Camp was the site of tactical field exercises used to test the mobilization ability of the Army. In 1941, Pine Camp was expanded when an additional 75,000 acres were purchased, and an entire city was built at Pine Camp to house the divisions scheduled to train there. In 1951, Pine Camp became Fort Drum named after Lieutenant General Hugh A. Drum, who commanded the First Army during WWII (U.S. Army 2018). Fort Drum was considered a temporary training facility for the Army until 1974 when a permanent garrison was assigned.

On February 13, 1985, the Army's 10th Mountain Division (Light Infantry) was officially reactivated at Fort Drum. It was the first division of any kind formed by the Army since 1975 and the first based in the northeast since WWII. The 10th Mountain Division was established to meet a wide range of worldwide infantry-intensive contingency missions. It has played important roles in U.S. military operations in Iraq and Afghanistan and is currently the most deployed division in the Army. The 10th Mountain Division Team Mountain is an integrated, multi-component, joint team of Soldiers, Airmen, civilians, families, and regional partners that prepares globally responsive combat-ready forces; on order, rapidly deploys adaptive expeditionary units and executes unified land operations in support of the joint force to win in a complex world (U.S. Army Garrison Fort Drum 2020a). Fort Drum's current population includes 15,000 Soldiers and 2,500 civilians, and it also supports approximately 20,000 reservists and 9,000 active duty from all military services for training purposes. The installation provides operations support for multi-forces training, mobilization, and deployment and provides installation services for military and civilians. Fort Drum provides land and air space for firing range practice, combat skills practice, and cold weather training.

## *3.8.2 Air Quality*

### 3.8.2.1 Affected Environment

Fort Drum is in the Northern New York AQCR and the Northern Ozone Transport Region. The Northern New York AQCR includes 13 counties, including Jefferson County where Fort Drum is located. Northern New York, especially Jefferson County, was historically designated as a marginal nonattainment for $O_3$ but Jefferson County is currently in attainment for the 8-hour $O_3$ standard. As described in the Joint Land Use Study (JLUS) (Matrix Design Group 2018), data from the air monitoring station at the Perch River indicates periodic daily exceedances of the current $O_3$ standard, although not enough to re-classify the county as nonattainment. If data continue to show exceedances of the $O_3$ standard, the EPA could reinstitute the $O_3$ nonattainment

status for Jefferson County. If the $O_3$ nonattainment designation is reapplied to Jefferson County, it could result in development constraints and restrictions on emissions as part of a regional strategy to reduce emissions.

Fort Drum is designated as a major source of air pollutants. The major source designation requires Fort Drum to maintain a Title V Operating Permit (ID #6-9906-00006/00076). The Title V permit was recently modified on February 10, 2021. Modifications included the construction of a new paint booth and an associated sanding booth. The Title V permit expires on March 31, 2025. In addition to permitted emissions sources, air quality impacts in the form of dust are generated by vehicular movement, helicopter rotor wash, weapons firing, and ordnance impacts on the unpaved areas of the installation.

As documented in the INRMP, Fort Drum's exposure to climate change is relatively low compared to other installations. Based on the high emission scenario in the year 2085, Fort Drum ranks 125 out of 187 of all DoD installations. Examples of potential impacts resulting from climate change include less precipitation and more droughts (Fort Drum 2021).

#### 3.8.2.2 Environmental Consequences

##### *3.8.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The area surrounding Fort Drum is in attainment for all criteria pollutants and construction, operation, and utilization of the new facilities would not result in the any violations of the existing Title V Permit. Site development and operational use (emergency generators) could require updates to Fort Drum's state Title V Permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization, and construction and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions.

##### *3.8.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Drum would be negligible.

### *3.8.3 Biological Resources*

#### 3.8.3.1 Affected Environment

##### *3.8.3.1.1 Flora*

More than 1,000 plant species have been identified on Fort Drum, many of which the New York Natural Heritage Program designates as rare (U.S. Army Garrison Fort Drum 2021). Many more plant species, including rare species, are present outside the boundaries of Fort Drum but within the region (Edinger 2014 cited in USACE 2020).

Thirteen invasive upland plant species have been documented on Fort Drum, and many more occur in other parts of Fort Drum. The most common and widespread invasive species on Fort Drum

include spotted knapweed (*Centaurea* spp.), leafy spurge, common buckthorn (*Rhamnus cathartica* and *R. frangula*), and wild parsnip (*Pastinaca sativa*). Black and pale swallow-wort (*Cynanchum louiseae* and *C. rossicum*), Oriental bittersweet (*Celastrus orbiculatus*), and Japanese knotweed (*Reynoutria japonica*) are plants that currently exist on Fort Drum that have the greatest potential to impact training lands. Other invasive species that occur on Fort Drum include garlic mustard (*Alliaria petiolate*), purple or Himalayan balsam (*Impatiens glandulifera*), honeysuckles (*Lonicera* spp.), black locust (*Robinia pseudoacacia*), false spirea (*Sorbaria sorbifolia*), and Japanese barberry (*Berberis thunbergii*) (U.S. Army Garrison Fort Drum 2021).

#### *3.8.3.1.2 Fauna*

To date, 49 mammals, 252 birds, 42 fish, 14 reptiles, and 22 amphibian species have been documented on Fort Drum. Invertebrate species likely number in the thousands, although a full inventory has not been completed (U.S. Army Garrison Fort Drum 2021).

Common mammals include raccoon (*Procyon lotor*), black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon mephitis*), eastern cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and various species of mice and shrews (U.S. Army Garrison Fort Drum 2021).

Common reptiles and amphibians in upland habitats include eastern rat snake (*Pantherophis alleghaniensis*), milksnake (*Lampropeltis triangulum*), and common garter snake (*Thamnophis sirtalis*) (U.S. Army Garrison Fort Drum 2018). Common amphibians include American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), and spring peeper (*Pseudacris crucifer*) (U.S. Army Garrison Fort Drum 2021).

#### *3.8.3.1.3 Protected Species*

One federally listed endangered species, the Indiana bat, and one federally listed threatened species, the northern long-eared bat, have been documented on Fort Drum (U.S. Army Garrison Fort Drum 2021). The Indiana bat has been documented in and around the cantonment area. No hibernacula for this species are known from the installation. The northern long-eared bat has been identified as roosting and foraging throughout the installation but no hibernacula are known from the installation.

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle are not listed under the ESA but receive federal protection under the BGEPA. Similarly, many species of birds that occur on the installation receive federal protection under the MBTA.

### 3.8.3.2 Environmental Consequences

#### *3.8.3.2.1 Full MDTF Configuration*

Significant impacts to biological resources are not anticipated to result from implementation of the Full MDTF Configuration. Although both the Indiana bat and northern long-eared bat are known to occur in the cantonment area, Fort Drum conducts active vegetation and forest management and implements conservation measures to avoid impacts to these species in accordance with the Biological Assessment and the USFWS concurrence for these species.

Impacts to other migratory species and wildlife would be temporary and negligible, as these species typically flush from areas of disturbance and then return once the disturbance has ceased. Impacts to vegetation are anticipated to be temporary and minor.

#### *3.8.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint and fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Impacts would be negligible and significant impacts to biological resources are not anticipated to result from implementation of the Base MDTF Configuration.

### *3.8.4 Cultural Resources*

#### 3.8.4.1 Affected Environment

Fort Drum has completed an archaeological inventory of approximately 92% of its surveyable territory, excluding the permanent impact areas and the previously developed portion of the cantonment area. The archaeological survey identified a total of 937 sites that began with earliest human occupation of the region approximately 13,500 years ago and continued through construction of WWII military training features in the 1940s. Fort Drum currently tracks a total of 940 archaeological sites, one historic district with standing structures, and five archaeological districts; and supports management of 13 historic cemeteries (U.S. Army Garrison Fort Drum 2020b).

There are five designated historic buildings on Fort Drum, and all are in the LeRay Mansion Historic District which was listed in the NRHP in 1974. These buildings include the LeRay Mansion, the LeRay Mansion Farm Manager's House, the LeRay Mansion Servant's Quarters, a possible chapel or icehouse, and an office that currently serves as a garage. In addition to the LeRay Mansion Historic District and buildings, Fort Drum still has hundreds of WWII wood structures. Many of these structures have been rehabilitated and are used for a variety of offices, classrooms, workshops, and storage (U.S. Army Garrison Fort Drum 2020b). Archaeological sites range from transient Paleo-Indian occupations to WWII firing points. Sites occur at a wide range of depths and throughout all the physiographic landforms. Information regarding all known archaeological sites and their attributes on Fort Drum are kept and maintained in a database that can be linked to an associated spatial database in the Geographic Information System.

Fort Drum currently has official consultation partnerships with the Oneida Indian Nation, the St. Regis Mohawk Tribe, and the Onondaga Nation. The tribes have indicated much of Fort Drum was part of their ancestral hunting and fishing lands (U.S. Army Garrison Fort Drum 2020b). Fort Drum has signed an inadvertent discovery agreement with the Oneida Nation and the Garrison Commander signed a letter to the Onondaga Nation offering the opportunity to inter repatriated remains into appropriate areas of the Haudenosaunee Village site. The Calendar site is one of Fort Drum's sacred sites and has been identified by the elders of the St. Regis Mohawk Tribe as marking out the Mohawk Lunar Year (U.S. Army Garrison Fort Drum 2020b).

#### 3.8.4.2 Environmental Consequences

#### *3.8.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Drum has determined that implementation of the Proposed Action would result in negligible impacts to cultural resources. All potential locations for the

placement of a Full MDTF Configuration have been surveyed for cultural resources and no cultural resources are present. The closest cultural site is a subsurface site located approximately 3,200 feet from the proposed MDTF facilities. The LeRay Mansion Historic District is located approximately 4,800 feet from the proposed MDTF facilities.

#### *3.8.4.2.2 Base MDTF Configuration*

Preliminary analysis performed by Fort Drum has determined that implementation of the Base MDTF Configuration would result in negligible impacts to cultural resources. All potential locations for the placement of a Base MDTF Configuration have been surveyed for cultural resources and no cultural resources are present.

### *3.8.5 Soils*

#### 3.8.5.1 Affected Environment

In general, most of Fort Drum has been influenced by glacial processes, however, geology and soil types differ greatly within the nine-county adjacent area. There are 193 different soil types mapped on Fort Drum. The largest soil series by acreage across the installation is "Plainfield Sand, 0 to 8% slopes" with 8,587 acres; the soil series with the largest number of isolated occurrences is "Deerfield Loamy Fine Sand, 0 to 8% slopes" with 174 locations. Both soil types are prevalent in the Eastern Ontario Plains Ecoregion. The predominant soil series in the Main Impact Area and TAs 18, 19 and 20 is the "Insula-Millsite-Quetico-Rock Outcrop Complex, 3 to 15% slopes, very bouldery" comprising 8,227 acres. The "Lyman-Abram complex, very bouldery, very rocky of various slopes" is prevalent across Fort Drum where rocky outcrops are prevalent. Both soil types are typical in the Western Adirondack Transition Ecoregion. Soil series that are a silt loam composition—Hudson silt loam, Rhinebeck silt loam, Collamer silt loam, and Niagara silt loam—are dominant in the St. Lawrence Valley Ecoregion (U.S. Army Garrison Fort Drum 2021). Geological and soil characteristics would influence the suitability of a site for the Proposed Action.

#### 3.8.5.2 Environmental Consequences

#### *3.8.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.8.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Impacts would be minor and significant impacts to soil resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Drum.

## *3.8.6 Land Use*

### 3.8.6.1 Affected Environment

Fort Drum is located primarily in northeast Jefferson County, with a small portion in northwest Lewis County. Fort Drum's 108,733 acres are divided into three main areas of use: the cantonment area, Wheeler-Sack Army Airfield (WSAAF), and the training area. Most of Fort Drum is reserved for training (Missile Defense Agency 2016).

Except for WSAAF, most of the development on Fort Drum is contained in the cantonment area, which is located in the southwestern portion of the base. This area contains the housing and lodging units and support facilities, including the garrison headquarters, administrative buildings, vehicle maintenance facilities, barracks, classrooms and educational amenities, and recreational facilities.

WSAAF contains 1,930 acres of land immediately northeast of the cantonment area. The airfield, aviation ranges, and surrounding airspace are used by the Army, Air Force, Air National Guard, Marine Corps, and Navy for various training missions. This airfield currently has three fixed-wing runways, several locations for rotary-wing aircraft, and a 1,200-Soldier passenger terminal. There is also a launch and recovery runway used by unmanned aircraft.

Fort Drum prepared a JLUS which is a cooperative land use planning effort conducted as a joint venture between Fort Drum, surrounding cities and counties, state and federal agencies, and other affected stakeholders (Matrix Design Group 2018). The Fort Drum JLUS was completed in early 2018. The Fort Drum JLUS advocates a proactive approach to encourage increased communication about decisions relating to land use regulation, conservation, and natural resource management issues affecting both the community and the military.

Although there are few federal lands near Fort Drum, state lands are numerous including state forests, forest preserves, wildlife management areas, and state parks. State forest lands also border some areas of Fort Drum. The nearest state wildlife area is Perch River Wildlife Management Area approximately 5 miles to the northwest of the cantonment area of Fort Drum. This area is known for many recreational uses including sport fishing, boating, and winter recreation, which has made tourism a substantial part of the regional economy. This includes the Thousand Islands region along the St. Lawrence River approximately 20 miles to the north of Fort Drum, Lake Ontario approximately 16 miles to the west, the Black River which runs past Fort Drum, and Adirondack Park to the east.

### 3.8.6.2 Environmental Consequences

#### *3.8.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Drum would have no impacts to land use. Proposed construction would occur entirely within developed portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones. None of the physical development associated with implementation of the Proposed Action would impact land use because the proposed construction and renovation would occur in land uses designated for the proposed use. No changes to land use would result from implementation of the Proposed Action and no significant impacts to land use would occur.

#### *3.8.6.2.2 Base MDTF Configuration*

The Base MDTF Configuration would consist of a smaller facility project footprint than the Full MDTF Configuration. Therefore, there would be no impacts to land use from implementation of the Base MDTF Configuration at Fort Drum.

## *3.8.7 Socioeconomics*

### 3.8.7.1 Affected Environment

#### *3.8.7.1.1 Population and Demographics*

More than 15,000 military service members and about 3,700 civilian personnel including contractors work at Fort Drum with about 15,000 family members living on post or in the local area (Fort Drum 2021).

Fort Drum's ROI consists of Jefferson, Lewis, and St. Lawrence Counties. The estimated population for Jefferson County in 2019 was 109,834, Lewis County was 26,296, and St. Lawrence County was 107,740, totaling 243,870 (Table 3-12) (USCB 2021). The values represent -5.5, -2.9, and -3.8% growth, respectively, since 2010.

**Table 3-12. Fort Drum Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Jefferson | 109,834 | - 5.5 |
| Lewis | 26,296 | - 2.9 |
| St. Lawrence | 107,740 | - 3.8 |

In 2019, it was estimated that 18.7% of the population in Jefferson County, 4.1% in Lewis, and 8.0% in St. Lawrence were categorized as minority (see Table 3-13). In comparison, the non-White population in New York was estimated to be approximately 44.7% over the same period.

#### *3.8.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $26,194, $26,708, and $25,378 for Jefferson, Lewis, and St. Lawrence Counties, respectively. The estimated per capita income was $39,326 for the state of New York for that same timeframe (USCB 2021). The largest employment industry in the ROI is education, health care, and social services followed by retail trade and public administration (USCB 2022).

The unemployment rate for Jefferson County as of October 2021 was 4.2%, compared to 4.2% for Lewis County, and 4.4% for St. Lawrence County. The unemployment rate for New York for October 2021 was 6.9% (U.S. Bureau of Labor Statistics 2021).

**Table 3-13. Fort Drum ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| New York | 55.3 | 17.6 | 1.0 | 14.4 | 9.0 | 2.7 | 0.1 |
| Jefferson | 81.3 | 6.8 | 0.7 | 7.8 | 1.7 | 3.0 | 0.3 |
| Lewis | 95.9 | 0.7 | 0.3 | 1.6 | 0.4 | 1.1 | 0.1 |
| St. Lawrence | 92.0 | 2.6 | 1.0 | 1.8 | 1.1 | 1.5 | 0.1 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.8.7.1.3 Housing*

There are currently 3,971 military family housing units on Fort Drum, which are managed by the RCI partner Fort Drum Mountain Community Homes. These are all located in the cantonment area among several neighborhoods. Fort Drum Mountain Community Homes comprises four distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Drum. Approximately 97 to 99% of the available units in family housing on Fort Drum are occupied.

Unaccompanied personnel housing on Fort Drum has space for approximately 7,912 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 76%. Unaccompanied Officer/Senior Enlisted housing (Timbers Apartments) on Fort Drum has space for 192 Soldiers (unaccompanied). The current permanent party occupancy rate is approximately 96%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Jefferson and Lewis Counties/ROI, respectively, was 16,124 and 486 (USCB 2019).

#### *3.8.7.1.4 Schools*

Children of military personnel attend either the public or private schools throughout ROI communities. Installation housing falls within two area school districts, Carthage Central and Indian River Central, with a combined enrollment of over 6,500 students (NYSED 2021). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

### 3.8.7.2 Environmental Consequences

#### *3.8.7.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in negligible to minor beneficial impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which would result in beneficial impacts to employment, population, school districts, income, and sales volume.

#### *3.8.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in negligible to minor beneficial impacts to socioeconomics. Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative.

### *3.8.8 Traffic and Transportation*

#### 3.8.8.1 Affected Environment

The ROI for traffic and transportation aspects include Fort Drum, and several neighboring counties, to include Jefferson, Lewis, and St. Lawrence Counties, and the communities therein, to include the City of Watertown. Major road routes in the region include I-81 and US-11; I-81 is a north-south interstate highway located approximately 5 miles west of the installation. US-11 is a north-south major arterial that passes through the City of Watertown. I-781 leads to the Installation's Main Gate. New York State Routes 3, 283, and 342 lead to the installation cantonment area gates.

#### 3.8.8.2 Environmental Consequences

#### *3.8.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Drum has determined that implementation of the Proposed Action would result in negligible adverse impacts to traffic and transportation. No new roads are anticipated to result from the Proposed Action and no work on existing roads is proposed. Traffic congestion is not a defined issue of concern on Fort Drum. During periods of construction, traffic congestion could become an issue, as construction equipment and workers access the installation. This would be accommodated via staggering arrival/departure times and by having these vehicles enter/leave via lesser utilized ACPs, as well as other traffic management BMPs.

#### *3.8.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in negligible adverse impacts to traffic and transportation and would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Drum.

### *3.8.9 Infrastructure and Utilities*

#### 3.8.9.1 Affected Environment

#### *3.8.9.1.1 Energy*

ReEnergy Biomass plant (privately owned and within the installation cantonment area) provides electrical power to Fort Drum. In 2021, the ReEnergy Biomass plant had a total generating capacity of 54 MW of power and the current peak electricity usage within the Fort Drum service area was estimated to be 40% of available power. In 2021, it was estimated that Fort Drum consumes approximately 40% of the total energy production from the ReEnergy Biomass plant.

National Grid supplies natural gas to Fort Drum. In 2021, Fort Drum obtained approximately 65% of its energy from natural gas and propane. In 2021, Fort Drum used 9,502,712 Therms of natural gas.

#### *3.8.9.1.2 Potable Water*

Potable water is supplied to Fort Drum by five active water production wells and water purchased from the Development Authority of the North Country (DANC). The five production wells can supply up to 1.46 mgd to Fort Drum, and Fort Drum has a contract with DANC that allows Fort Drum to purchase 1.5+ mgd. This allows Fort Drum to produce over 2.96 mgd which far exceeds current peak demand of 2.2 mgd. The overall condition of the potable water facilities and infrastructure system is rated as good and adequate to accommodate current and future demands.

#### *3.8.9.1.3 Wastewater*

Sanitary wastewater at Fort Drums is treated at a WWTP owned, operated, and maintained by the City of Watertown, NY. The current daily load ranges from approximately 1.3 to 1.7 mgd with a rated capacity to effectively treat 16 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as good and adequate to accommodate current and future demands.

### 3.8.9.2 Environmental Consequences

#### *3.8.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in minor adverse impacts to infrastructure and utilities. The 2011 *Environmental Assessment of Stationing Actions to Support the Grow the Army Initiative at Fort Drum, New York* (U.S. Army 2011) and the 2012 *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment* (U.S. Army 2012) show that Fort Dum can sustain an additional brigade-sized element without stress to existing systems. The installation has more than adequate infrastructure for water, sewer capacity, electricity, natural gas, and communications to sustain stationing a Full MDTF. Some local utility infrastructure in the proposed new construction area would be replaced or removed.

#### *3.8.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in minor adverse impacts to infrastructure and utilities. Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Impacts would be negligible to minor as the number of Soldiers associated with the Base MDTF Configuration would be smaller and would have less impact on existing infrastructure and utilities.

## *3.8.10 Water Resources*

### 3.8.10.1 Affected Environment

#### *3.8.10.1.1 Surface Water*

Fort Drum is in the St. Lawrence River watershed, within the Indian Creek watershed. Surface water from Fort Drum primarily discharges into the Indian River, which in turn eventually flows into the Oswegatchie River and then on to the St. Lawrence River. A small portion of land at the

southern end of Fort Drum drains into the Black River basin. Waters in the Black River flow westward towards Lake Ontario. A considerable portion of Fort Drum is relatively flat and poorly drained resulting in approximately 20% of Fort Drum characterized as "wet" with wetlands, streams, and other waterbodies (U.S. Army Garrison Fort Drum 2021). There are 11 primary lakes and ponds totaling about 450 acres of surface area on Fort Drum (U.S. Army Garrison Fort Drum 2021). There are also two rivers and eight primary streams, as well as minor streams and tributaries that are widespread throughout Fort Drum. In general, most rivers and streams on Fort Drum are meandering, low gradient, and heavily influenced by beaver activity. No National Wild and Scenic Rivers are located within or near Fort Drum. Outside Fort Drum, the nine counties are known for having lakes, rivers, streams and ponds. These water bodies are used for fishing, recreation, and animal habitat.

Fort Drum's major streams have been surveyed, and water quality is generally good. Water quality in the surrounding nine-county area is dominated by atmospheric deposition of pollutants that originate largely outside the basin. Major water quality concerns in the area are acid rain, which limits the fish community and aquatic life; atmospheric deposition of mercury, which restricts fish consumption; agricultural activities and associated runoff, which contribute nutrients and sediments to waters; and hazardous wastes and legacy industrial impacts (U.S. Army Garrison Fort Drum 2021).

#### *3.8.10.1.2 Wetlands*

Wetlands are common throughout Fort Drum and cover approximately 20% of land area (approximately 20,200 acres) on the installation. Riverine, lacustrine and palustrine wetlands are the most common wetland types on the installation. Of the 20,200 acres of wetlands on Fort Drum, approximately 6,090 acres are classified by the New York State Department of Environmental Conservation as wetland and approximately 2,864 acres of their 100-foot protected buffers are protected under the New York State Article 24 process. One of the largest wetland areas is the Warren Swamp in TA 7. Other large wetland areas are in TAs 17 and 19 (U.S. Army Garrison Fort Drum 2021).

Fort Drum has also constructed wetlands on 13 compensatory mitigation wetlands sites on Fort Drum with two additional off post that total approximately 125 acres to compensate for the loss of wetland function and extent as the result of past construction projects. In addition, Fort Drum has constructed a wetland mitigation bank which consists of over 70 acres of constructed wetlands including protection and preservation of surrounding uplands and wetlands. The bank's wetland sites were constructed to provide mitigation in advance of impacts resulting from future construction projects (U.S. Army Garrison Fort Drum 2021).

#### *3.8.10.1.3 Floodplains*

Most of Fort Drum is in flood hazard Zone X, which includes those areas deemed to be outside of the 0.2% annual chance floodplain (500-year floodplain). Parts of Fort Drum that are located within the 100-year floodplain are areas that border the lakes, rivers, and streams (FEMA 1992/2014 cited in USACE 2020). Though all water bodies on Fort Drum have floodplains, the only one with a FEMA defined 100-year floodplain is the Black River. Off Fort Drum, the land is a mix of 100-year floodplain (near bodies of water), 500-year floodplain and areas outside the 500-year floodplain. Flooding is not a major concern in these areas and typically happens on the

banks of waterways. Ideally, development should be limited within the floodplains to facilitate natural hydrological function.

#### 3.8.10.2 Environmental Consequences

##### *3.8.10.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Drum has determined that implementation of the Proposed Action would result in minor adverse impacts to water resources. The Proposed Action would require land-disturbing activities up to 93 acres within the cantonment area and the creation of an estimated 1.2% increase in additional impervious surfaces. These activities would require an NOI and NPDES permit. The NOI would include preparation of a SWMP and would be coordinated through the Fort Drum DPW Environmental Division Stormwater/E&S POC with the State of New York. There are no wetlands, floodplains, or surface waters located in the areas proposed for the Full MDTF Configuration.

##### *3.8.10.2.2 Base MDTF Configuration*

Impacts associated with implementing the Base MDTF Configuration would be less than those described for the Full MDTF Configuration. Impacts would be minor. The Base MDTF Configuration would require land-disturbing activities up to 18 acres within the cantonment areas and the creation of an estimated 0.5% increase in impervious surfaces.

## 3.9 FORT HOOD

### *3.9.1 Background*

Fort Hood is an Army installation located in Bell and Coryell Counties, Texas, 60 miles northwest of Austin and 50 miles southwest of Waco (Figure 1-1). Fort Hood covers more than 218,823 acres, including 132,525 acres used for maneuver training, 64,272 acres as a live-fire impact area, and 22,026 acres for the installation's cantonment areas. There are three cantonment areas: the main cantonment, West Fort Hood, and North Fort Hood. Sixteen different units/tenants are located on Fort Hood. The units/tenants at Fort Hood are listed on the garrison web page: https://home.army.mil/hood/index.php/units-tenants. Fort Hood trains assigned units as a mobilization station for Army Reserve and National Guard units, and as a strategic power projection platform.

### *3.9.2 Air Quality*

#### 3.9.2.1 Affected Environment

Fort Hood is in the Austin-Waco Intrastate AQCR. This AQCR encompasses 30 counties in Texas, including Bell and Coryell Counties. Ambient air quality for this AQCR is classified as an unclassifiable/attainment area for all criteria pollutants as of April 2020. An unclassified area is where there is not sufficient data to make an attainment or nonattainment determination. Fort Hood is designated as a major source of air pollutants. As a major source of air emissions, Fort Hood was (re)issued its Title V air operating permit (#01659) by the TCEQ on August 8, 2017. As part of the permit requirements, Fort Hood tracks air emissions from the significant stationary emission sources on the installation. These include boilers, generators, a fuel-dispensing facility, landfills,

and paint booths. Fort Hood also has many insignificant emission sources, including closed municipal landfills, fuel-storage tanks, spray-painting operations, woodworking activities, abrasive blasting, small boilers, small emergency generators, unpaved roads, and other miscellaneous operations.

#### 3.9.2.2 Environmental Consequences

##### *3.9.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The installation is in an attainment area and construction, operation, and utilization of the new facilities would not result in the installation violating its existing Title V Permit. Site development and operational use (emergency generators) could require updates to Fort Hood's state Title V Permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization, and construction and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions.

##### *3.9.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Hood would be negligible.

### *3.9.3 Biological Resources*

#### 3.9.3.1 Affected Environment

The ROI for biological resources is the entirety of Fort Hood. The INRMP for Fort Hood guides the management of natural resources on the installation (Fort Hood 2019). In addition to the three cantonment areas on 8,604 acres, Fort Hood has two instrumented airfields on 2,915 acres and maneuver and live-fire training areas on 197,603 acres. The cantonment areas are dominated by urban land uses. The main cantonment area is at the southern edge of the large, central portion of the installation and is adjacent to Killeen, Texas. West Fort Hood is near Copperas Cove, Texas, in the center of the southern extension of the installation. North Fort Hood is near Gatesville, Texas, in the northernmost part of the installation. As described in the INRMP, climate change has the potential to affect natural resources at Fort Hood. Some of the actions that Fort Hood is already taking to manage natural resources to adapt to changing conditions include prescribed burning, planting native species, thinning unwanted vegetation, promoting habitat connectivity and controlling invasive species (Fort Hood 2019).

##### *3.9.3.1.1 Flora*

Grasslands, forests, and shrub communities dominate vegetation at Fort Hood. Historically, grasslands occurred in valleys and lowlands and in isolated patches on hills where disturbance occurred. Wooded mesas, hills, and canyons occupy large land areas of Fort Hood. Wildfires were suppressed to prevent impacts on structures and minimize risks to human life. Fire suppression and the loss of competitive grasses due to military training and livestock grazing have allowed

Ashe juniper and other woody species to encroach on rocky slopes and into the grasslands, forming dense thickets in many areas and reducing forage production (Fort Hood 2019). Grassland communities occur throughout the installation but are most common in the live- fire zone/impact area and the Western Maneuver Area. Wildfires caused by various training activities in these areas likely reduce the woody vegetation and allow grasses to dominate.

Grassland areas are composed primarily of perennial herbaceous species characteristic of mid-grass habitats. Common grass species include little bluestem (*Schizachyrium scoparium*), hairy grama (*Bouteloua hirsuta*), and sideoats grama (*Bouteloua curtipendula*). Common forbs are broomweeds (*Amphiachyris sp.*), ragweed (*Ambrosia artemisiifolia*), and snow-on-the-prairie (*Euphorbia bicolor*). Remnant patches of tallgrass prairie vegetation are dominated by yellow Indiangrass (*Sorghastrum nutans*) and big bluestem (*Andropogon gerardii*) (USACE 1999 cited in Fort Hood 2019).

Three distinct forest and shrub communities have been classified: coniferous forest and shrub, deciduous forest and shrub, and mixed forest and shrub. Small pockets of coniferous forest and shrub communities are found throughout the installation. They are primarily composed of Ashe juniper (*Juniperus ashei*, commonly referred to as "cedar"). Another relatively uncommon vegetation association throughout the installation is the deciduous forest and shrub community. This community is composed of broad- leaf trees and shrubs and is found near streams in lowlands and on protected slopes. Tree species representative of this community include plateau live oak (*Quercus fusiformis*), post oak (*Quercus stellata*), pecan (*Carya illinoinensis*), and sycamore (*Platanus occidentalis*) (Fort Hood 2019).

The most common vegetation community on the installation is the mixed forest and shrub community. In some areas, Ashe juniper dominates over either plateau live oak or Texas oak (*Quercus buckleyi*), and in others, the oaks dominate over the Ashe juniper (USACE 1999 cited in Fort Hood 2019). Vegetation in the cantonment areas is primarily landscape shrubs and mowed grass.

#### *3.9.3.1.2 Fauna*

Fort Hood's wildlife species include fish, mammals, herpetofauna, avifauna, and invertebrates [troglobitic (subsurface) and surface] typical to central Texas. Some Fort Hood species are widespread in Texas and the southwestern/southeastern United States. Some species are endemic to the Edward's Plateau ecoregion, while others are endemic to the Cross Timbers and Prairies ecoregion. Such wildlife diversity is attributed to Fort Hood's location on the boundary between the two ecoregions. In turn, the ecoregions influence ecosystem diversity on Fort Hood where grasslands, wetlands, mature juniper-oak forests, deciduous forests, riparian forests, shrublands, and karst features provide food, water, cover, and shelter for various populations of wildlife (Fort Hood 2019).

There are approximately 199,000 acres of mission land suitable for fish and wildlife management. The wildlife management program at Fort Hood is targeted toward restoring the ecological health of the mission lands (Fort Hood 2019). Fort Hood coordinates with the USFWS on issues regarding fish and wildlife management, as well as for regulatory issues concerning the ESA or the MBTA.

#### *3.9.3.1.3 Protected Species*

The whooping crane (*Grus americana*) and the golden-cheeked warbler (*Dendroica chrysoparia*) are the only two federally protected species known to occur on Fort Hood.

*Whooping Crane*

The endangered whooping crane is a rare migrant and is not known to occur in the cantonment area. Three whooping cranes were sighted in 2017, and this species was previously documented on Fort Hood. They could fly over or near Fort Hood during spring and fall migration. They could stop at Belton Lake during migration and have been observed at other wetland areas on Fort Hood.

*Golden-cheeked Warbler*

The endangered golden-cheeked warbler does not tend to occur in the immediate vicinity of developed areas on Fort Hood (Fort Hood 2019). During bird breeding season, however, all tree/brush trimming activities are coordinated with the Fort Hood natural resources office to ensure that limbs/trees that support active bird nests are not disturbed.

The USFWS issued a programmatic BO for the golden-cheeked warbler in August 2020. This BO adds additional flexibility through an adaptive management approach which gives the Army the ability to manage project parameters within the guidelines outlined in the Incidental Take Statement. The BO also includes an adaptive management framework intended to provide additional flexibility to the Army and improve upon management and minimization techniques to endangered species.

### 3.9.3.2 Environmental Consequences

#### *3.9.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened/endangered species as this action is limited to the cantonment area and there are no known populations of threatened/endangered in the cantonment area. The cantonment area on Fort Hood is not managed for threatened/endangered and does not contain habitat (critical or otherwise) for any of these species. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased.

Impacts to vegetation are anticipated to be temporary, minor, and adverse. As described above, vegetation in the cantonment area is primarily landscape shrubs and mowed grass. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Tree removal would be conducted in accordance with the Fort Hood tree management policy. A survey would be required to determine how many hardwoods/heritage trees are present. Fort Hood's tree replacement policy requires a 10:1 replacement ratio for any heritage trees removed. All disturbed areas would be stabilized and revegetated with grass at the conclusion of each construction project. Significant impacts to vegetation are not anticipated. Impacts to biological resources would be minor.

#### *3.9.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer impacts to biological resources than those described under the Full MDTF

Configuration alternative. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be minor.

### *3.9.4 Cultural Resources*

#### 3.9.4.1 Affected Environment

The ICRMP for Fort Hood guides the protection and management of all cultural resources on Fort Hood (Fort Hood 2015). The ICRMP includes the Historic Properties Component (HPC) for Fort Hood, Texas (Fort Hood 2021). The HPC contains a detailed description of the prehistoric and historic background for lands encompassed by the installation. Both documents are incorporated by reference.

The land occupied by Fort Hood is associated with the history of American Indians, western settlement, and the U.S. military. Numerous and varied cultural resources are known from within the boundaries of Fort Hood. These resources have been documented through extensive and systematic investigations.

All of the training and cantonment areas and the majority of the live-fire areas on Fort Hood have been surveyed for cultural resources. The impact areas or surface danger zones account for the greatest portion of the unsurveyed areas of Fort Hood. The 2021 HPC identifies 2,214 cultural resources on the installation. This total comprises 1,111 prehistoric archeological resources and 1,103 historic archeological resources. Of these, 211 are identified as eligible for listing in the NRHP, 130 require additional assessment or research to determine their eligibility for listing in the NRHP, and 1,873 are indicated as not eligible for listing in the NRHP (Fort Hood 2021). The archaeological sites on Fort Hood include concentrations or scatters of specific artifact types, hearths or baking pits, burned rock middens and mounds (earth ovens), post molds, and burial grounds. Historic sites on Fort Hood are related to European settlement and usually have documentation associated with the land use. Prehistoric sites are those related to earlier Native American land uses (Fort Hood 2021).

Fort Hood manages the Comanche National Indian Cemetery which was established in 1991. The cemetery is in a protected set-aside area, strictly for Native American use and reburial of NAGPRA-related remains and objects.

There are seven federally recognized Native American Tribes affiliated with the lands of the installation—the Apache Tribe of Oklahoma, Caddo Nation, Comanche Nation, Kiowa Tribe of Oklahoma, Mescalero Apache Tribe, Tonkawa Tribe of Oklahoma, and Wichita and Affiliated Tribes (Keechi, Waco, and Tawakonie). There is one Native American traditional cultural property located at Fort Hood—the Leon River Medicine Wheel—which has been recognized by tribal representatives and is used for ceremonial activities. Access to the location of the Medicine Wheel is restricted to Native Americans and Fort Hood cultural resource personnel for condition monitoring. Fort Hood has not conducted a systematic inventory of traditional cultural properties or sacred sites. In 2014, Fort Hood conducted an inventory of traditional cultural properties and sacred sites for the Comanche Nation. During this survey, archaeologists identified prehistoric archeological resources including one Native American sacred site. This site is actively used for ceremonial purposes (Fort Hood 2015).

Fort Hood has inventoried all structures on the installation and is currently in the process of identifying and assessing the buildings and landscapes that are important to local and national

heritage and could be eligible for listing in the NRHP. Fort Hood has recently identified seven historic landscapes within the cantonment areas: (1) the Capehart-Wherry Family Housing, (2) the HQ/Ceremonial Landscape, (3) the Hood AAF, (4) the Killeen Base, (5) the Motorpool Corridor, (6) the Railroad and Transportation Corridors, and (7) the Unaccompanied personnel housing. The original post chapel, Building 53, is a significant contributing element of the HQ/ceremonial landscape.

#### 3.9.4.2 Environmental Consequences

##### *3.9.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Hood has determined that implementation of the Proposed Action would result in no impacts to cultural resources. Cultural resource surveys of potential project sites are complete and there are no protected sites and no structures/buildings/sites eligible for listing in the NRHP. The closest known cultural resource is a lithic scatter located approximately 0.7 mile from the closest proposed MDTF facility.

##### *3.9.4.2.2 Base MDTF Configuration*

The Base MDTF Configuration would consist of a smaller facility project footprint than the Full MDTF Configuration alternative. Therefore, no impacts to cultural resources are anticipated from implementation of the Base MDTF Configuration at Fort Hood.

### *3.9.5 Soils*

#### 3.9.5.1 Affected Environment

Fort Hood is located in the Lampasas Cut-Plains region which includes the Edwards Plateau and Cross Timbers and Prairie Regions. The topography is dominated by remnant mesas separated by wide valleys and rolling lowlands with steep canyon breaks. Karst topographic features are present across the landscape and include caves, sinkholes and springs. Soils on Fort Hood are well-drained and moderately permeable. Due to the topography, however, soils on Fort Hood can vary widely in other characteristics such as depth, slope and parent material. Thirty different soil series are known from Fort Hood. Hydric soils cover approximately 2.5% of the installation along streams. Prime farmland soils cover approximately 19% of the installation and are generally located near the main cantonment area (NRCS 2017 cited in U.S. Army 2021).

Soils on Fort Hood are naturally susceptible to water erosion. Five soil types on Fort Hood are categorized as having very high-water erosion potential, covering approximately 68,128 acres, or 31% of the installation. Nine soil types are categorized as having a high to moderate water erosion potential, covering approximately 82,504 acres, or 38% of the installation. The remainder of the installation has a low to very low water erosion potential (NRCS 2017 cited in U.S. Army 2021). Erosion and sediment runoff are the most prevalent water quality threats at Fort Hood. Training exercises and land practices (e.g., cattle grazing) have resulted in erosion and sediment deposition in water bodies across the installation. To combat erosion and sedimentation, Fort Hood has created 33 sediment retention structures to limit soil loss into Belton Lake, the installation's supply for drinking water. Construction and maintenance activities can also contribute to erosion and sedimentation. Stormwater runoff transports eroded soils into nearby water bodies. Erosion and

sedimentation adversely affect the water quality of streams and lakes and reduce the capacity of lakes and ponds.

#### 3.9.5.2 Environmental Consequences

##### *3.9.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.9.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. An E&S Pollution Control Plan will be coordinated through the Fort Hood DPW Environmental Division Stormwater/E&S POC, who will conduct all coordination with the State of Texas NRCS Office. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion.

##### *3.9.5.2.2 Base MDTF Configuration*

The Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than those described under the Full MDTF Configuration alternative. Implementation of the Base MDTF Configuration would result in temporary, minor, and adverse impacts to soil resources.

### *3.9.6 Land Use*

#### 3.9.6.1 Affected Environment

Fort Hood is in central Texas in Coryell and Bell Counties adjacent to the City of Killeen. Fort Hood is bounded on the east by Belton Lake and the south by the cities of Copperas Cove, Killeen, and Harker Heights. The City of Gatesville is located north of the installation. Fort Hood encompasses over 218,000 acres including the three cantonment areas, two instrumented airfields, and maneuver and live-fire training areas.

The cantonment areas on Fort Hood are dominated by urban land uses. The main cantonment area and Hood AAF are located on the southern edge of the training area and adjacent to Killeen, Texas. West Fort Hood is located south of US-190, near the City of Copperas Cove, Texas, and includes Robert Gray AAF. North Fort Hood, located near Gatesville, Texas, is the primary site for Army Reserve and National Guard training, equipment service, and storage (USACE 1999 as cited in U.S. Army 2021). Urban land uses typically include residential, business, and industrial.

The cantonment areas contain administrative, maintenance, industrial, supply/storage, operations, housing, community support facilities, medical, outdoor recreation, and open space land uses. The maneuver/live-fire training areas provide the open locations for combat training activities, which is Fort Hood's primary purpose. A limited amount of cattle grazing is permitted throughout the training and live-fire areas. The airfields are located adjacent to the cantonment areas. The airfields include hangars and structures for both fixed and rotary-wing assets and support facilities. Various other land uses on Fort Hood include the outdoor recreation areas of Belton Lake and miscellaneous uses such as roadways and easements. The rural areas surrounding Fort Hood support agricultural land-use practices such as farming and ranching.

Fort Hood is participating in the ACUB program to minimize encroachment and incompatible land-use practices that could conflict with the Army mission. The ACUB program seeks to maintain current compatible uses through the purchase of agricultural conservation easements from willing landowners. Maintaining the current land use surrounding the installation boundary, primarily rural agricultural lands, would prevent potential conflicts from arising with future training conducted on Fort Hood. The ACUB program at Fort Hood also minimizes the need to establish internal buffers to conduct required training and ensure residential and commercial development does not encroach on Fort Hood.

#### 3.9.6.2 Environmental Consequences

##### *3.9.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Hood would have no impacts to land use. Proposed construction would occur entirely within developed portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones. None of the physical development associated with implementation of the Proposed Action would impact land use, because the proposed construction and renovation would occur in land uses designated for the proposed use. The area proposed to accommodate facility requirements in support of future MDTF stationing was previously designated to accommodate this type of future capacity growth. The 93 acres defined as requirement for the future MDTF footprint is slightly larger than the approximately 75-acre area previously identified for a new brigade footprint, however, up to 120 acres are available in this area with low-impact changes to the Fort Hood Master Plan. No significant changes to land use would result from implementation of the Proposed Action and no significant impacts to land use would occur.

##### *3.9.6.2.2 Base MDTF Configuration*

The Base MDTF Configuration would consist of a smaller facility project footprint than the Full MDTF Configuration. Therefore, implementation of the Base MDTF Configuration at Fort Hood would have no impact to land use at Fort Hood.

### *3.9.7 Socioeconomics*

#### 3.9.7.1 Affected Environment

##### *3.9.7.1.1 Population and Demographics*

Fort Hood supports an on-post population of approximately 62,089 people. This number includes 36,580 military assigned personnel, 13,784 on-post family members plus an additional 11,725 civilian employees, contractors, and employees that work in the commissaries and schools on Fort Hood (USAG Fort Hood 2021).

Fort Hood's ROI consists of Bell and Coryell Counties. The estimated population for Bell County in 2019 was 362,924 and Coryell County was 75,951, totaling 438,875 (Table 3-14) (USCB 2021). The values represent a 17.0 and 0.6% growth, respectively, since 2010.

**Table 3-14. Fort Hood Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Bell | 362,924 | +17.0 |
| Coryell | 75,951 | +0.6 |

In 2019, it was estimated that 55.4% of the population in Bell County and 32.4% in Coryell were categorized as minority (see Table 3-15). In comparison, the non-White population in Texas was estimated to be approximately 58.8% over the same period.

**Table 3-15. Fort Hood ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino [2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Texas | 41.2 | 12.9 | 1.0 | 39.7 | 5.2 | 2.1 | 0.1 |
| Bell | 44.6 | 24.4 | 1.1 | 25.6 | 3.2 | 4.7 | 0.8 |
| Coryell | 67.6 | 17.7 | 1.2 | 18.9 | 2.2 | 4.5 | 1.0 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.9.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $26,677 and $22,400 for Bell and Coryell Counties, respectively. The estimated per capita income was $31,277 for the state of Texas for that same timeframe. The largest employment industry in the ROI is education, health care, and social assistance followed by retail trade and public administration (USCB 2022).

The unemployment rate for both Bell and Coryell Counties as of October 2021 was 5.0%. The unemployment rate for Texas for October 2021 was 5.4% (U.S. Bureau of Labor Statistics 2021).

#### *3.9.7.1.3 Housing*

There are currently 5,913 military family housing units on Fort Hood, which are managed by the Fort Hood family housing and RCI partner LendLease. These are all located in the cantonment area among several neighborhoods. Fort Hood family housing comprises 12 housing areas and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Hood and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 96% of the available units in family housing on Fort Hood are occupied.

Unaccompanied personnel housing on Fort Hood has space for approximately 15,553 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 85%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the number of vacant units in Bell and Coryell Counties was estimated to be 11,926 and 2,960, respectively (USCB 2019).

Most Fort Hood military and civilian personnel who reside off post live in the cities of Killeen and Harker Heights within Bell County, and the City of Copperas Cove in Coryell County (U.S. Army 2012).

#### *3.9.7.1.4 Schools*

The Killeen, Copperas Cove, and Gatesville Independent School Districts (ISDs) provide educational services to Fort Hood school children. In the 2017–2018 school year, the Killeen ISD student enrollment was 44,319. There were 24,414 students in elementary schools, 8,893 middle school, and 11,012 high school students. The district employs about 6,350 staff members in the ROI (Killeen ISD 2017 cited in U.S. Army Environmental Command 2018). The Copperas Cove ISD serves the community of Copperas Cove. The Copperas Cove student population for the 2017–2018 school year was approximately 8,200 students. Exact population by school is unknown, however, it is estimated that approximately 35% of the student population are military family members (Copperas Cove ISD 2017 cited in U.S. Army Environmental Command 2018). Gatesville ISD is within Coryell County and located at North Fort Hood. The student population for the 2016–2017 school year was approximately 2,815 students (Texas Education Agency 2018 cited in U.S. Army Environmental Command 2018). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

### 3.9.7.2 Environmental Consequences

#### *3.9.7.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the immediate ROI for this resource. On-post housing at Fort Hood is essentially at capacity and the off-post housing market is tight with few vacancies in housing. An influx of personnel would have moderate and adverse impacts on local housing, schools, and other community services but no significant socioeconomic impacts are anticipated to result from implementation of the Full MDTF Configuration at Fort Hood.

#### *3.9.7.2.2 Base MDTF*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomics would be minor and adverse but no significant socioeconomic impacts are anticipated to result from implementation of the Base MDTF Configuration at Fort Hood.

## *3.9.8 Traffic and Transportation*

### 3.9.8.1 Affected Environment

Transportation systems around and in Fort Hood include road networks, rail routes, and airports. Pedestrian walkways, bike paths, and trails are also available throughout the Fort Hood cantonment area.

Major transportation routes near Fort Hood include I-35, US-190, and SH 36. I-35 is a north-south interstate highway located approximately 20 miles east of Fort Hood. US-190 extends through the

southern portion of Fort Hood and through the City of Killeen. The 50-mile stretch of US-190 through the Killeen-Temple region has an average of 36,500 vehicles pass through daily. Current upgrades include expanding the highway from 4 to 6 lanes in the Harker Heights and Killeen area. On January 26, 2017, the Texas Transportation Commission voted to approve the designation of a part of US-190 in Bell County as I-14. The 25-mile section of US-190 from the east side of Copperas Cove to I-35 in Belton is now recognized as I-14. SH 36 is located on the northeast side of Fort Hood and connects Gatesville to Temple, Texas.

The Central Texas Regional Transportation Advisory Group is responsible for promoting the most efficient use of transportation resources over a nine-county region including Fort Hood. In addition, the Killeen-Temple Metropolitan Planning Organization (KTMPO) is responsible for establishing comprehensive transportation plans for the greater area around Killeen and Temple including Fort Hood. In 2020, the KTMPO published a *Future Growth Scenario Report* (KTMPO 2020). This report identified various options for transportation systems to accommodate future growth. The planning horizon for this report was 2045. The plan identified that emerging trends in transportation demand and shifts in projected growth patterns would have a noticeable effect on transportation systems.

A 2008 post-wide Traffic Engineering and Safety Study indicated a variety of traffic infrastructure improvements that would improve the traffic flow on post with Fort Hood's population changes over the next few years. Improvements included adding additional lanes, constructing new access roads, adding crosswalks, widening roads, adding new signs, adding curb cuts, and realigning intersections. Long-term analyses of the traffic patterns at Fort Hood suggested a new need for the development of a four-lane highway to facilitate traffic flow to the north of the main cantonment area (Gannett Fleming 2008 cited in U.S. Army 2021). Currently, Fort Hood's primary roads are restricted by the number of intersections with traffic lights, which causes traffic congestion on the cantonment area.

Traffic engineering studies indicate that approximately 107,285 vehicles per day (vpd) enter and exit the gates around the main cantonment area. Access points to Fort Hood include the Fort Hood East Gate (fed by SH 195) with 18,084 vpd, the Main Gate with 35,439 vpd, Clear Creek Gate with 22,070 vpd, Santa Fe Gate with 12,871 vpd, Warrior Way Gate with 17,073 vpd, and East Range Gate with 1,751 vpd. The North Clarke Road Gate and West Fort Hood Gate are also primary ACPs. From the Main Gate, Hood Road serves as the primary arterial corridor on post with a traffic volume of 34,000 vpd (Gannett Fleming 2008).

### 3.9.8.2 Environmental Consequences

#### *3.9.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Hood has determined that implementation of the Proposed Action would result in minor adverse impacts to traffic and transportation. The MDTF stationing action would bring an 8% increase to the Soldier population along with additional dependents. Increases in the population of Fort Hood and its environs would increase traffic, especially during peak periods. No new roads are anticipated to result from the Proposed Action and no work on existing roads is proposed. Fort Hood has approximately 9,000 fewer Soldiers than were assigned in 2005.

#### *3.9.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would have minor adverse impacts to traffic and transportation. The Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to traffic and transportation than that described under the Full MDTF Configuration.

## *3.9.9 Infrastructure and Utilities*

### 3.9.9.1 Affected Environment

#### *3.9.9.1.1 Energy*

Texas Utilities Corporation and Apex Energy provide electrical power to Fort Hood via two 138,000-volt transmission lines to four substations. The 2011 *Environmental Assessment of Stationing Actions to Support the Grow the Army Initiative at Fort Hood, Texas* (U.S. Army 2011) and the 2012 *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment* (U.S. Army 2012) stated that the energy system at Fort Hood is sufficient to handle an infrastructure to support additional Soldiers for the next 20 years.

In FY 2021, Fort Hood obtained approximately 41.4% of energy from natural gas and propane. Atmos Energy supplies natural gas to Fort Hood at an estimated total capacity of 492 million CFH. In FY 2021, Fort Hood used approximately 273 million CFH on the coldest days, which equates to approximately 55% of total capacity.

#### *3.9.9.1.2 Potable Water*

Potable water is supplied to South and West Fort Hood by Bell County Water Control & Improvement District No. 1. North Fort Hood's potable water is supplied by the Gatesville Regional Water Supply. These utilities are capable of supplying up to 16.5 mgd to Fort Hood, far exceeding the current peak demand of 8.5 mgd. The overall condition of the potable water facilities and infrastructure system is rated as green and adequate to accommodate current and future demands.

#### *3.9.9.1.3 Wastewater*

Sanitary wastewater from the two southern cantonment areas at Fort Hood is treated by Bell County, Texas. Sanitary wastewater from North Fort Hood is treated by the City of Gatesville, Texas. The current daily load ranges from approximately 2.0 to 4.2 mgd with a rated capacity to effectively treat 18 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as green and adequate to accommodate current and future demands.

### 3.9.9.2 Environmental Consequences

#### *3.9.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in minor adverse impacts to infrastructure and utilities. The area proposed for a future brigade footprint previously had a large housing area implying utility-supporting infrastructure capacity exists in this area. The installation has adequate infrastructure for water, sewer capacity, electricity, natural gas, and communications to sustain

stationing a Full MDTF Configuration. Some local utility infrastructure in the proposed new construction area would be replaced or removed.

#### *3.9.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Impacts would be negligible to minor as the number of Soldiers associated with the Base MDTF Configuration would be smaller and would have less impact on existing infrastructure and utilities.

## *3.9.10 Water Resources*

### 3.9.10.1 Affected Environment

#### *3.9.10.1.1 Surface Water*

Fort Hood is divided into two major watersheds with numerous sub-watersheds. The major watersheds are the Leon River (including Belton Lake) and the Lampasas River. The Leon River drains most of the installation, including all maneuver training lands.

There are 692 acres of lakes and ponds, and approximately 200 miles of named intermittent and perennial streams with numerous additional tributaries associated with these features. There are 43 miles of shoreline access to Belton Lake on Fort Hood. All water impoundments are manmade for purposes such as flood control, sediment retention, recreation, water supply, wildlife and livestock water, and fish habitat. Additional impoundments have been constructed for the primary purpose of storing sediment from the training areas (Fort Hood 2019).

Water quality is a major concern on Fort Hood due to sediment loads being carried by the streams above. Cowhouse Creek and its sub-watersheds drain directly into Belton Lake. North and South Nolan Creeks drain into the Leon River below Belton Lake (Fort Hood 2019). Training exercises and land practices (e.g., cattle grazing) have resulted in erosion and sediment deposition in water bodies across the installation. Stormwater runoff transports eroded soils into nearby water bodies. Erosion and sedimentation have adversely affected the water quality of streams and lakes and reduced the capacity of lakes and ponds.

A small portion of the southern end of Fort Hood, used primarily for dismounted training, drains into the Lampasas River. The river empties into the Stillhouse Hollow reservoir. Only dismounted training, which has a smaller impact on the environment than vehicular training, occurs in this area (Fort Hood 2019).

Fort Hood stream channels are ephemeral or intermittent and flow only in direct response to rainfall. The existing cantonment area stream channels are altered to accommodate urban runoff and protect the infrastructure. Currently, Fort Hood operates under an industrial stormwater permit (Texas Pollutant Discharge Elimination System Permit No. TXR05F998) that comes from the general permit, TXR050000. The municipal storm sewer system is operated under a Municipal Separate Storm Sewer System (MS4) permit with Fort Hood as the owner.

For new development and redevelopment, the Fort Hood DPW has been implementing stormwater management programs under a general industrial permit, and a general construction permit since 1995. Fort Hood has a TCEQ-approved SWMP.

#### *3.9.10.1.2 Wetlands*

According to the INRMP, most of the surface water features located on Fort Hood are classified as WOTUS. Approximately 30% of the installation has been delineated. The areas of the installation that have been delineated are primarily in the cantonment area where construction projects are planned or in areas associated with construction on the ranges (Fort Hood 2019).

#### *3.9.10.1.3 Floodplains*

The Fort Hood area includes rolling hills, shallow soils, woodlands, prairies, and rocky streams, all of which are conducive to flash flooding. Fort Hood is also located in the middle of a curve that follows the Balcones Escarpment from Dallas to San Antonio and west to Uvalde (Blackland undated).

FEMA has mapped floodplains associated with the many creeks that extend across Fort Hood and drain into Belton Lake. In the main cantonment area, there are mapped floodplains associated with Clear Creek and North and South Nolan Creeks (Fort Hood 2019).

### 3.9.10.2 Environmental Consequences

#### *3.9.10.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Hood determined that implementation of the MDTF Full Configuration would impact water resources, which could require a FONPA be prepared, and result in moderate adverse impacts. No wetlands or floodplains are located in potential project locations. Streams that are WOTUS are located at the edges of areas proposed for construction. Control measures would be required to avoid impacting the streams by design or minimize/limit the impacts by limiting activity in the waterway buffer zones to just crossings. Should stream impacts be unavoidable then impacts would require mitigation. The grubbing, grading, and discharge of dredged or fill material into streams would require prior coordination with/permitting through the USACE-Regulatory Branch (Wetlands). Impact minimization efforts would be documented during the Proposed Action design phase to assist with completion of any required Section 404 application and mitigation proposal.

#### *3.9.10.2.2 Base MDTF Configuration*

Impacts associated with implementing the Base MDTF Configuration would result in minor adverse impacts to water resources. Impacts would be fewer than those described for the Full MDTF Configuration. The Base MDTF Configuration would require land-disturbing activities up to 18 acres within the cantonment areas.

## 3.10 FORT KNOX

### *3.10.1 Background*

Fort Knox is in Hardin, Meade, and Bullitt Counties in north-central Kentucky and encompasses 108,026 acres of land. Prior to the creation of Fort Knox, the landscape was dominated by farming and rural residential land uses. Currently, Fort Knox comprises the cantonment area, 18 training and maneuver areas, and 6 live-firing and impact areas. The cantonment area encompasses approximately 6,902 acres and is in the west-central portion of the installation.

## *3.10.2 Air Quality*

### 3.10.2.1 Affected Environment

Fort Knox is located in the Kentucky North Central Quality Control Region for air quality and in the Kentucky portion of the southeast air quality transport zone. Fort Knox is currently in compliance with all regulatory regional air quality standards.

Fort Knox operates under a Title V air permit (V-13-005 R3) issued by the Kentucky Department for Environmental Protection. The Fort Knox Title V air permit was first issued June 13, 2003, and is renewed every 5 years. The most recent renewal application was submitted on November 5, 2018, and the final draft renewal permit is expected to be issued in late 2022. The permit covers all known point sources located at Fort Knox. Emission sources include storage and use of gasoline, emergency and peak shaving generators, distillate fuel, jet fuel (JP-8), paint booth operations, oil and gas-fired boilers, and degreaser tanks. The permit requirements include an annual inventory update on each of these sources.

The Fort Knox cantonment area is not located in a nonattainment or maintenance area and is not subject to a conformity analysis; however, the "major source" designation triggers the provisions of 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The PSD provisions require Fort Knox to assess all new emission units to determine if their operation constitutes a major modification.

### 3.10.2.2 Environmental Consequences

#### *3.10.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. An impact to air quality would be considered significant if it affects the achievement or maintenance of NAAQS.

Direct short-term impacts to the ambient air quality could occur due to the renovation of existing facilities and the construction of MDTF facilities. Air contaminants include fugitive dust particles from the soil. Engine exhaust emission from construction vehicles could also contribute to increased levels of $NO_X$, $SO_2$, CO, PM, and volatile organic compounds. Due to the size of the construction and renovation projects, however, fugitive dust and engine exhaust emissions are not expected to contribute significantly to the degradation of air quality standards.

Most likely, generators would be installed to provide emergency back-up power to MDTF facilities. A “Permit to Construct,” from the Kentucky Department for Environmental Protection Division of Air Quality, would be required for any project that would construct an air emissions source, such as boilers, large heating, ventilation, and air conditioning (HVAC) and refrigeration systems, paint booths, and generators. The “permit to construct” must be issued by the Division of Air Quality prior to beginning of any construction. The application for the “permit to construct” must be received by the Division of Air Quality 6 months prior to the beginning of the project. The facility is to provide manufacturer specifications for the proposed units to Environmental Management Division staff who will complete and submit applications to Division of Air Quality.

#### *3.10.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Knox would be negligible.

### *3.10.3 Biological Resources*

#### 3.10.3.1 Affected Environment

#### *3.10.3.1.1 Flora*

Wooded areas on Fort Knox are dominated by both pine and hardwood deciduous trees. Pine species include Austrian (*Pinus nigra*), loblolly (*Pinus taeda*), shortleaf (*Pinus echinata)*, white (*Pinus strobus*), and Virginia pine (*Pinus virginiana*). The predominant species of deciduous trees are black gum (*Nyssa sylvatica*), cottonwood (*Populus deltoids*), elm (*Ulmus americana*), hickory, and oak. Common grass species prevalent in the open and paved areas include meadow fescue (*Festuca pratensis*), broomsedge (*Andropogon virginicus*), festal grass (*Festuca rubra*), panic grass (*Panicum turgidum*), Johnson grass (*Sorghum halepense*), barnyard (*Echinochloa crusgalli)*, and fall panicum (*Panicum dichtomiflorum*). The Kentucky State Nature Preserves Commission (KSNPC) performed a plant and animal survey in 1992 and 1993 to locate sensitive plant species on the installation. The survey did not identify any federally listed species. A threatened and endangered plant survey was updated in 2004 and 2005 by the Environmental Laboratory, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi. The survey revealed no new species from those found in the KSNPC report in 1994 (U.S. Army Garrison Fort Knox 2018). As described in the INRMP, the DoD actively manages for climate change impacts and the effects on mission activities so current and future operations can be effectively and efficiently completed (U.S. Army Garrison Fort Knox 2018).

#### *3.10.3.1.2 Fauna*

Terrestrial wildlife at Fort Knox includes a wide variety of mammals, reptiles, amphibians, insects and birds. Game species regularly hunted at Fort Knox include white-tailed deer, rabbit (*Sylvilagus* spp.), raccoon, turkey (*Meleagris gallopavo)*, bobwhite quail (*Colinus virginianus*), mourning dove (*Zenaida macroura*), and woodcocks (*Scolopax minor*). Common non-game bird species include hawks, pigeons, owls, horned larks (*Eremophila alpestris*), sparrows, robins (*Turdus migratorius*), crows, cardinals (*Cardinalis cardinalis)*, kingfishers (*Alcedo atthis*), catbirds (*Dumetella carolinensis*), and swallows (various species). A survey for animals was conducted by KSNPC in 1992–1993. The survey identified the northern long-eared, gray, and Indiana bats as the only federally listed animal species on Fort Knox. The Environmental Laboratory, U.S. Army Engineer Research and Development Center, conducted a follow-up survey in 2004 and 2005 and did not identify any additional federally listed species on Fort Knox (U.S. Army Garrison Fort Knox 2018).

#### *3.10.3.1.3 Protected Species*

Some trees in the cantonment area could serve as roosting and/or maternity habitat for the federally endangered Indiana bat and the threatened northern long-eared bat. To reduce direct impacts to

protected bats, trees slated for removal are evaluated by Fort Knox Natural Resources Branch personnel as to their suitability prior to removal, in accordance with the terms outlined in the Fort Knox cantonment area Tree Removal Policy Biological Opinion (USFWS 2012-B-0318). All tree evaluation and removal policies are included in the INRMP.

#### 3.10.3.2 Environmental Consequences

##### *3.10.3.2.1 Full MDTF Configuration*

Impacts to biological resources would be negligible. Implementation of the Proposed Action would not result in adverse impacts to threatened/endangered species as this action is limited to the cantonment area, which has been heavily disturbed from past activities. The area has been surveyed for endangered species and plants and none have been identified. Per the Fort Knox cantonment area/Fitness Trail Tree Removal Policy, Environmental Management Division's Natural Resources Branch personnel would evaluate trees for the presence of bats prior to any tree removal. Personnel would determine bat usage through the presence of exfoliating/loose bark, staining, guano deposits, and listening for bat vocalizations. If the tree exhibits potential roosting habitat and must be removed, the tree is monitored for emerging bats at dusk through complete darkness. If the tree has no emerging bats, then it can be removed the following day. Since this area has been heavily disturbed and previous surveys have been conducted, tree removal would likely not require consultation with the USFWS.

##### *3.10.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts biological resources than those described under the Full MDTF Configuration alternative. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.10.4 Cultural Resources*

#### 3.10.4.1 Affected Environment

Fort Knox has a rich cultural history and contains many cultural resources. Fort Knox includes 1 historic site listed in the NRHP; 3 archaeological sites eligible for listing in the NRHP; 88 sites potentially eligible for listing in the NRHP; a total of 186 historic buildings, 180 of which constitute the Fort Knox Cantonment Historic District; and 120 cemeteries. The Fort Knox ICRMP was recently updated in February 2017. Multiple cultural resources surveys have been completed at Fort Knox to document cultural resources (U.S. Army Garrison Fort Knox 2017).

#### 3.10.4.2 Environmental Consequences

##### *3.10.4.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in negligible impacts to cultural resources. An impact to cultural resources would be considered significant if the action would diminish the integrity of a historic property or archaeological site such that it was no longer eligible for listing in the NRHP. It is possible that facilities that contribute to the installation's historic district would require modification as a result of MDTF implementation. If these facilities could be reutilized, then the overall historic integrity of the district could potentially benefit from the preservation of

a contributing building. If there are any modifications or renovations to the exterior of the building, the Environmental Management Division's Cultural Resources Manager would determine if it is an adverse effect and consult with the SHPO. There are no known resources of cultural interest or significance for federally recognized tribes on the installation.

#### *3.10.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in negligible impacts to cultural resources. It is possible that facilities that contribute to the installation's historic district would require modification as a result of Base MDTF Configuration implementation. If these facilities could be reutilized, then the overall historic integrity of the district could potentially benefit from the preservation of a contributing building. If there are any modifications or renovations to the exterior of the building, the Environmental Management Division's Cultural Resources Manager would determine if it is an adverse effect and consult with the SHPO. Development in the proposed Base MDTF Configuration would not affect any archaeological sites. Impacts to archaeological sites would be negligible.

### *3.10.5 Soils*

#### 3.10.5.1 Affected Environment

Fort Knox is in the Western Pennyroyal physiographic region of Kentucky as part of the Mississippian Plateau. The topography of Fort Knox ranges from flat, alluvial floodplains along rivers to rugged knobs and broad ridge tops, narrow valleys, and steep to sloping cliffs. The majority of the Fort Knox landscape is rolling to hilly and features karst topography including intermittent sinkholes, outcropping knobs, springs, narrow steep ridges, sinking streams, caves, and other karst features (U.S. Army Garrison Fort Knox 2018).

The Fort Knox INRMP contains detailed descriptions of all soils on the installation. A wide range of soil types are present on Fort Knox due to the size of the military installation, the varied topography, and the diverse geology of the parent materials from which the soils developed (U.S. Army Garrison Fort Knox 2018). In general, Fort Knox soils are susceptible to erosion when cleared of vegetation. The installation's topography and complex drainage systems contribute to erosion and sedimentation. The Integrated Training Area Management program includes BMPs and conservation practices to control erosion and sedimentation on the installation. Grading, seeding, mulching, and BMP installation (check dams, rock-lined channels, etc.) are the primary means of controlling erosion.

#### 3.10.5.2 Environmental Consequences

#### *3.10.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, negligible impacts to soil resources. The proposed construction of facilities would involve ground-disturbing activities that could result in bare/exposed soils. Any construction activity would comply with the installation's NPDES permit requirements and the need to submit Notice of Construction Activity for Stormwater Discharges to the Environmental Management Division. If needed, construction proponents could have to submit a plan to the Environmental Management Division that outlines

how they will minimize soil erosion. Site-specific NPDES or construction permits are not required since they are managed under the installation's NPDES permit.

#### *3.10.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Impacts to soil resources resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.10.6 Land Use*

#### 3.10.6.1 Affected Environment

Fort Knox occupies 108,026 acres, of which approximately 7,000 acres are the cantonment area lands. Land outside the cantonment area is primarily used for training, small arms, and artillery impact and vehicle uses. Approximately 52,000 acres of land are under forest management. These lands are used as training grounds, buffer areas, timber supply and recreation. Overall, the primary land use at Fort Knox, occupying approximately two-thirds of the installation, consists of live-fire ranges and impact areas (U.S. Army 1995 cited in U.S. Army 2012). The installation has a 405-acre ammunition storage area and a well-developed road system, with 175 miles of paved roads and 79 miles of unpaved roads (U.S. Army Garrison Fort Knox 2018). Prior to military ownership, Fort Knox lands consisted primarily of prairie and woodland areas. The woodland areas were cleared for agriculture and have been extensively farmed over the years.

Land use surrounding Fort Knox consists of small communities and numerous private landowners. The neighboring towns include Radcliff, Muldraugh, West Point, Lebanon Junction, Colesburg, Shepherdsville, and Vine Grove. A small portion of the installation boundary is shared with Otter Creek Outdoor Recreation Area (U.S. Army Garrison Fort Knox 2018).

#### 3.10.6.2 Environmental Consequences

#### *3.10.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Knox would have negligible impacts to land use. Proposed construction would occur entirely within developed portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones and would have negligible impacts on adjacent land uses (military training and the installation boundary) and the overall land use at Fort Knox. None of the physical development associated with implementation of the Proposed Action would impact land use, because the proposed construction and renovation would occur in land uses designated for the proposed use.

#### *3.10.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer potential impacts to land use than those described under the Full MDTF Configuration alternative. Implementation of the Base MDTF Configuration at Fort Knox would have no impacts to land use.

## *3.10.7 Socioeconomics*

### 3.10.7.1 Affected Environment

#### *3.10.7.1.1 Population and Demographics*

Fort Knox has a daytime population of more than 26,000 Soldiers, family members, and DoD civilian workers.[12] Fort Knox offers family housing, permanent party barracks, transient guest barracks rooms and single-occupant studio apartments.

Fort Knox's ROI consists of Hardin and Meade Counties. The estimated population for Hardin County in 2019 was 110,958 and for Meade County was 28,572, totaling 139,530. The values represent an 8.5 and -2.2% growth, respectively, since 2010 (Table 3-16) (USCB 2021).

**Table 3-16. Fort Knox Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Hardin | 110,958 | +5.1 |
| Meade | 28,572 | -0.1 |

In 2019, it was estimated that 24.2% of the population in Hardin County and 11.0% in Meade were categorized as minority (see Table 3-17). In comparison, the non-White population in Kentucky was estimated to be approximately 15.9% over the same period.

**Table 3-17. Fort Knox ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Kentucky | 84.1 | 8.5 | 0.3 | 3.9 | 1.6 | 2.0 | 0.1 |
| Hardin | 75.8 | 12.7 | 0.5 | 5.8 | 2.3 | 3.8 | 0.3 |
| Meade | 89.0 | 4.0 | 0.7 | 3.9 | 0.8 | 2.2 | 0.2 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.10.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $28,606 and $27,861 for  and Meade Counties, respectively. The estimated per capita income was $28,178 for the state of Kentucky for that same timeframe. The largest employment industry in the ROI is educational services, health care, and social assistance followed by manufacturing and retail trade (USCB 2022).

[12] https://installations.militaryonesource.mil/in-depth-overview/fort-knox

The unemployment rate for Hardin County as of October 2021 was 3.8% and 4.2% for Meade County. The unemployment rate for Kentucky for October 2021 was 4.2% U.S. Bureau of Labor Statistics 2021).

#### *3.10.7.1.3 Housing*

There are currently 2,382 military family housing units on Fort Knox, which are managed by the RCI partner Knox Hills LLC. These are all located in the cantonment area among several neighborhoods. Knox Hills LLC comprises 20 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Knox and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 94 to 95% of the available units in family housing on Fort Knox are occupied. There are currently 413 civilians and retirees living in military housing units. Additional four-bedroom units are scheduled to be constructed in 2022.

Unaccompanied personnel housing on Fort Knox has space for approximately 18,014 Soldiers (unaccompanied) in on-post barracks. Approximately 672 spaces are reserved for permanent party Soldiers with the remaining spaces held for students, trainees, support cadre, and geographic bachelors. There are 57 transient barracks, and several can be converted back to permanent party residences if necessary. The current permanent party occupancy rate is approximately 60%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Hardin; Meade; and Bullitt Counties/ROI was 3,736; 898; and 1,295, respectively (USCB 2019).

#### *3.10.7.1.4 Schools*

Approximately 1,775 students are enrolled in DoD Education Activity schools on the installation. School enrollment in the school districts within the ROI is 14,756 in Hardin County and 4,879 in Meade County.[13] School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

### 3.10.7.2 Environmental Consequences

#### *3.10.7.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Knox has determined that implementation of the Proposed Action could result in minor impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts due to increases in sales volume, income, employment, and to the local tax base. The on-post housing rate, however, is approximately 95%. Fort Knox was one of six Army posts to receive millions of dollars in private-sector funding for renovations and construction of new homes. Fort Knox is programmed to construct 64 new homes on the installation in the next several years. There is also limited off-post housing. An influx of personnel would have a minor impact to the existing housing situation.

[13] https://www.dodea.edu/americas/southeast/fortknox/index.cfm

#### *3.10.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomics would be minor but no significant impacts are anticipated to result from implementation of the Base MDTF Configuration at Fort Knox.

### *3.10.8 Traffic and Transportation*

#### 3.10.8.1 Affected Environment

I-65, located east of the installation, is the primary major roadway near Fort Knox. I-65 connects into the Bluegrass Parkway, the Western Kentucky Parkway, U.S. Route 31W (U.S. 31W) and Kentucky Routes 44, 61 and 62 at Elizabethtown south of the installation. U.S. 31W provides direct access to Fort Knox via the three ACPs. The Main Chaffee Gate is along U.S. 31W, north of Radcliff and Elizabethtown. The Brandenberg Gate is located on U.S. 31W near Muldraugh and the Wilson Gate is located on Wilson Boulevard. Approximately 25,000 people per day access Fort Knox through the three ACPs (U.S. Army Garrison Fort Knox 2021).

In 2021, a U.S. 31W accessibility and connectivity study recommended several upgrades that would enhance access to Fort Knox. This study recommended direction median U-turns at 14 intersections on US. 31W between Elizabethtown and Fort Knox and a new ramp from U.S. 31W to North Wilson Road.[14] U.S. 31W extends north and south through the western side of the cantonment area and provides primary access into the cantonment area via Bullion Boulevard. A new interchange was recently constructed on I-65 in Bullitt County known as Exit 114.

Two railroad lines provide mainline service to Fort Knox. CSX Transportation provides mainline service to Shepherdsville, Lebanon Junction, Elizabethtown, and Brandenburg. The Paducah and Louisville Railway provides mainline service to Elizabethtown and Radcliff.

Louisville International Airport is located approximately 36 miles north of the main cantonment area on Fort Knox.

#### 3.10.8.2 Environmental Consequences

#### *3.10.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Knox has determined that implementation of the Proposed Action would result in moderate adverse impacts to traffic and transportation. The Full MDTF Configuration would result in increases in vehicle traffic volume both on the installation and in the local community. There would be short- and long-term impacts on traffic and transportation systems on the installation due to the presence of an additional 3,000 Soldiers. As more Soldiers are assigned to the installation, an increasing percentage of married Soldiers, and unmarried Soldiers with a grade of E-6 (Staff Sergeant) and higher would reside in off-post housing. The increase in off-post traffic would have a noticeable impact on traffic in the community overall and could contribute to a notable decrease in the LOS in the road network leading to the installation, particularly during peak morning and afternoon travel periods. The increased traffic volume in

[14] https://ltadd.org/services/transportation-planning/

both the neighboring community and on the installation would pose an increased level of risk to the safety of pedestrians and bicyclists.

#### *3.10.8.2.2 Base MDTF Configuration*

Preliminary analysis performed by Fort Knox has determined that implementation of the Base MDTF Configuration would result in negligible impacts to traffic and transportation. Implementation of the Base MDTF would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. The proposed 400-Soldier Base MDTF Configuration would not result in critical traffic or congestion on or off post. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Knox.

### *3.10.9 Infrastructure and Utilities*

#### 3.10.9.1 Affected Environment

#### *3.10.9.1.1 Energy*

Louisville Gas and Electric and Fort Knox Energy Security Independence System (ESIS) provides gas power to Fort Knox. In 2020, ESIS had a total generating capacity of 44 MW of power and the current peak electricity usage within the Fort Knox service area was estimated to be 77% of available power. In 2021, Fort Knox consumes less than 50% of 44 MW total generating capacity. There is no need to purchase outside power. Fort Knox currently has the ability to meet Army regulation to go off the grid for 14 days and has the target of off the grid operation for an entire year in the Fort Knox's Installation Energy and Water Plan 5-year plan.

Louisville Gas and Electric and Fort Knox ESIS supplies natural gas to Fort Knox. Fort Knox has the ability to harvest methane gas from the Devonian Shale below the installation. Gas production began in January 2009 and provides enough gas for the entire summertime electrical load without electrical generation. In 2020, Fort Knox used approximately 900,000 MCF of natural gas. Fort Knox also has plans to install natural gas fuel cells for long-term storage of more than 1 years' worth of the garrison's natural gas needs.

#### *3.10.9.1.2 Potable Water*

Potable water is supplied to Fort Knox by Hardin County Water District #1. Fort Knox also purchases water from Louisville Water Company, Hardin County Water District #2, and Meade County Water District. Hardin County Water District #1 is capable of supplying up to 7.0 mgd to Fort Knox, far exceeding the current peak demand of 2.8 mgd. The overall condition of the potable water facilities and infrastructure system is rated as 100% (green/good) and adequate to accommodate current and future demands.

#### *3.10.9.1.3 Wastewater*

Sanitary wastewater system at Fort Knox is owned, operated, and maintained by Hardin County Water District #1. The average daily load is approximately 2.5 mgd with a rated capacity to effectively treat 14 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as good and adequate to accommodate current and future demands.

### 3.10.9.2 Environmental Consequences

#### *3.10.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in negligible impacts to infrastructure and utilities. Fort Knox has existing previously disturbed area to accommodate the up to 93-acre Full MDTF Configuration. There are some existing facilities that can be utilized but would require renovations and repairs to meet the MDTF mission. Construction would be required for the majority of the facilities required for the proposed Full MDTF Configuration. All the utilities systems are privatized except for the gas distribution system. The gas distribution system is maintained by DPW in-house Department of Army Civilians.

Current electrical, drinking water, and wastewater utilities can support the Full MDTF Configuration. With the increase in 3,000 Soldiers, energy demands would go up marginally. The current daily population for Fort Knox is approximately 26,000 and the increase would be 11%. Fort Knox continues to explore alternate energy sources like fuel cells to reduce its dependence of fossil fuels.

An existing Battalion HQ facility (Building 204) is available but would require repairs. There are 17 company operations facilities that can be utilized to meet the requirements; however, this would displace activities like the HVAC contractor, training aid support center, and private organizations that do not require company operations facilities.

There is a 27,000-square foot motor pool facility that could meet the Tactical Equipment Maintenance Facility requirement but needs analysis. This would displace a primary inactive Mobilization Force Generation installation motor pool to smaller facilities that would require repairs.

There is organizational storage and supply/storage area requirements available with repairs. This would require consolidating other mission storage requirements into other spaces that could also require repairs and removing facilities from the demolition plan. There is plenty of excess non-organizational parking, but it might not be at the locations desired to meeting Full MDTF Configuration mission.

Fort Knox's current drinking water treatment plant (WTP) has the capacity to produce 7,000,000 gallons/day. In the past five FYs, 2,004,000 gallons/day was the highest amount of water produced by the Muldraugh WTP. With a daytime work week population of 26,260, this equates to approximately 76 gallons per day per person. With the addition of 3,000 Soldiers with the Full MDTF, this would increase the amount by 228,941 gallons/day. This is a 10.3% increase (2,232,941 gallons/day) which is well below the treatment plant capacity of 7,000,000 gallons/day.

Fort Knox's current WWTP has the capacity to treat 6,000,000 gallon/day. In the past five FYs, 1,836,000 gallons/day was the highest amount of water produced by the Muldraugh WTP to meet the demands on post and off post. With a daytime work week population of 26,260, this equates to approximately 70 gallons per day per person. With the addition of 3,000 Soldiers with the Full MDTF, this would increase the amount by 209,749 gallons per day. This is a 10.3% increase (2,045,749 gallons/day) which is well below the treatment plant capacity of 6,000,000 gallons/day.

#### *3.10.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Impacts would be negligible as the number of Soldiers

associated with the Base MDTF Configuration would be smaller and would have fewer impacts on existing infrastructure and utilities. The only new construction would be for the All-Domain Operations Center which includes the 200-person SCIF (39,858 gross square feet). All other aspects of the action would utilize existing facilities. With the increase in 400 Soldiers, energy demands resulting from implementation of the Base MDTF Configuration would go up slightly.

## *3.10.10 Water Resources*

### 3.10.10.1 Affected Environment

#### *3.10.10.1.1 Surface Water*

Surface waters on Fort Knox include both streams and lakes. There are more than 25 water bodies that serve multiple purposes. In the vicinity of the cantonment area, there are several creeks and two ponds. Mill Creek, the nearest major body of water, is classified as "water quality limited" by Kentucky, due to metals, ammonia, and low dissolved oxygen concentrations.

#### *3.10.10.1.2 Wetlands*

An on-site survey of potentially jurisdictional wetlands, exclusive of the impact area, was conducted by the USFWS in 1994. The report generated from the USFWS survey, The Wetlands of Fort Knox Military Reservation (Merritt and Carter 1994 cited in U.S. Army Garrison Fort Knox 2018), describes the wetlands identified on-site and provides recommendations for the protection and enhancement of Fort Knox wetlands. The survey indicated that 2,310 acres of wetlands exist on Fort Knox (U.S. Army Garrison Fort Knox 2018).

The report also notes that a major threat to wetlands, streams, and rivers is erosion and resulting sedimentation caused by mounted maneuver training activities. Additional wetland surveys have been conducted for individual range construction projects on Cedar Creek, Yano, and Boydston Ranges. National Wetland Inventory maps (1982) are available for the installation (U.S. Army Garrison Fort Knox 2018).

#### *3.10.10.1.3 Floodplains*

Fort Knox is in portions of Bullitt, Hardin, and Meade Counties. Bullitt and Hardin Counties participate in the National Flood Insurance Program and have the location and extent of the 100-year flood plains identified on the Flood Insurance Rate Maps. Both Bullitt and Hardin Counties show 100-year flood plains as occurring within Fort Knox (U.S. Army Garrison Fort Knox 2018).

The Salt River is a major drainage that enters the Ohio River just northwest of the installation. The 100-year flood plains of the Salt River, Mud Creek, Pond Creek, and Cedar Point Branch, which are tributaries of the Salt River, traverse portions of the installation. Also, the 100-year floodplains of Mill Creek, Rolling Fork, and Flat Lick traverse portions of the installation. The Salt River floodplains and floodplains associated with its major tributary, the Rolling Fork River, intersect the impact area. Flooding in these areas can be severe when flooding of the Ohio River causes upstream flooding along the Salt and Rolling Fork Rivers. Some training areas are not usable or have restricted access during times of flooding (U.S. Army Garrison Fort Knox 2018).

If construction is to take place within a floodplain, an Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification would need to be submitted to the Kentucky

Department for Environmental Protection Division of Water and an Application/Permit to Construct Along a Stream/Floodplain would need to be submitted to Hardin County. Also pursuant to EOs 11988, *Floodplain Management*, 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Solicitation and Considering Stakeholder Input*, and 11990, *Protection of Wetlands*, the Army must find there are no practicable alternatives to construct in a floodplain or wetland, and to do so, all practicable measures should be taken to minimize harm to the floodplain and wetland. A FONPA could have to be prepared and approved by the Deputy ASA for Installations, Housing and Partnerships.

#### 3.10.10.2 Environmental Consequences

##### *3.10.10.2.1 Full MDTF*

Preliminary analysis performed by Fort Knox determined that implementation of the Full MDTF Configuration would have no impacts to wetlands or floodplains. Negligible impacts would occur to surface water resources. The proposed Full MDTF Configuration, with associated renovation, construction, and operations, would be in the cantonment area of the installation. No wetlands or floodplains occur in this area.

The proposed 3,000-Soldier Full MDTF Configuration with associated renovation, construction, and operations would only minimally impact surface water. BMPs are in place to prevent or minimize the potential for the release of pollutants from ancillary activities through site runoff, spillage or leaks, or drainage from raw material storage. For ground-disturbance activities, a Notice of Construction is required to be submitted to the Environmental Management Division to determine if a Construction Site Best Management Practice Plan is required.

##### *3.10.10.2.2 Base MDTF*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to water resources than that described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and Notice of Construction would still apply. Potential locations with surface waters could be avoided under this alternative and impacts to water resources would be negligible.

## 3.11 FORT RILEY

### *3.11.1 Background*

Fort Riley is a U.S. Army installation in North Central Kansas, on the Kansas River, between Junction City and Manhattan (Figure 1-1). The installation was established in 1853 as a military post to protect the movement of people and goods across the Oregon, California, and Santa Fe trails. The installation covers 101,733 acres in Geary and Riley Counties. Fort Riley's population includes 15,009 Soldiers (Army), 164 Airmen (Air Force), and 18,028 family members (9,347 on post, 8,681 off post).

In addition to numerous tenants, Fort Riley is home to the 1st ID. The mission of the 1st ID and Fort Riley is to build and maintain combat-ready forces; and on order, deploy these forces in an

expeditionary manner to conduct Decisive Action to fight and win in complex environments as members of a Joint, Inter-organizational, and Multinational team.[15]

## *3.11.2 Air Quality*

### 3.11.2.1 Affected Environment

Fort Riley is located in the North Central Kansas Intrastate AQCR. This AQCR encompasses 16 counties in Kansas, including Geary and Riley Counties where Fort Riley is located. Ambient air quality for this AQCR is classified as attainment area for all criteria pollutants Fort Riley operates under a Class I Air Emission Source Operating permit (ID 161001) issued by the Kansas Department of Health and Environment (KDHE). The permit was issued on March 30, 2016. As part of the permit requirements, Fort Riley tracks air emissions from the many sources including boilers, generators, fuel tanks and paint booths. Other emission sources at Fort Riley include woodworking activities, abrasive blasting, small boilers, small emergency generators, and unpaved roads and other miscellaneous operations.

### 3.11.2.2 Environmental Consequences

#### *3.11.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. An impact to air quality would be considered significant if it affects the achievement or maintenance of NAAQS.

Direct short-term impacts to the ambient air quality could occur due to renovation of existing facilities and new facility construction. Air contaminants include fugitive dust particles from the soil. Engine exhaust emission from construction vehicles could also contribute to increased levels of $NO_X$, $SO_2$, CO, PM, and volatile organic compounds. Due to the size of the construction and renovation projects, however, fugitive dust and engine exhaust emissions are not expected to contribute significantly to the degradation of air quality standards. No impact or change to Fort Riley's Title V permit is foreseen. Maintenance activities appear to be consistent with existing maintenance activities and would not cause a significant increase in HAPs.

Should generators be installed to provide emergency back-up power, a "Permit to Construct" from the KDHE would be required. Any project that would include an air emissions source, such as boilers, large HVAC and refrigeration systems, paint booths, and generators, would require a permit. The "permit to construct" must be issued by the Division of Air Quality prior to beginning of any construction. The application for the "permit to construct" must be received by the Division of Air Quality 6 months prior to the beginning of the project. The facility is to provide manufacturer specifications for the proposed units to Environmental Management Division staff who would complete and submit applications to Division of Air Quality.

#### *3.11.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described

[15] http://www.riley.army.mil/Units/1st-Infantry-Division/

under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Riley would be negligible.

## *3.11.3 Biological Resources*

### 3.11.3.1 Affected Environment

#### *3.11.3.1.1 Flora*

Grasslands cover approximately 67% of the installation (Fort Riley 2016a). The native grasslands of Fort Riley consist primarily of tallgrass prairie. Some elements of the mixed-grass prairie exist because Fort Riley is located near the transition zone between the tallgrass prairie and the mixed-grass prairie to the west (Kuchler 1974 cited in Fort Riley 2016a).

The native grasslands on Fort Riley generally do not exhibit classic tallgrass prairie, which would be composed of big bluestem, indiangrass, switchgrass (*Panicum virgatum*), or the mixed-grass prairie, such as little bluestem and sideoats grama. Past land-use activities, minimal management, lack of large herbivore grazing, and military training exercises have produced native grasslands that exhibit a less than pristine species composition and that have been invaded by woody species. The grasslands with the least disturbance contain the highest percentages of native warm-season grasses and associated forbs (Fort Riley 2016a).

Forested lands cover approximately 16% of Fort Riley. Most of this acreage is associated with the bottomland forests along the Republican and Kansas Rivers and the woodlands within the drainages of Threemile, Sevenmile, and Wildcat Creeks. Upland forests occur along the mainstems of most streams on the installation.

Freeman and Delisle (2004) identified three forest communities (Eastern cottonwood-Willow Forest, Eastern cottonwood-Sycamore Forest, and Green ash-Elm-Hackberry Forest) and one woodland community (Chinquapin oak-Bur oak Ravine Woodland) on Fort Riley. Forest communities generally had 61 to 100% tree canopy cover, three distinct canopy layers (overstory trees, understory shrubs, herbaceous layer), and trees greater than 16.4 feet tall. Woodland communities usually had 26 to 60% canopy cover and trees less than 16.4 feet tall (Fort Riley 2016a).

The University of Nebraska-Lincoln is conducting a Strategic Environmental Research and Development Program study to investigate the impacts of global climate change. The study objectives are to develop models to detect ecological regime shifts, identify components of adaptive capacity relevant to resilience, and identify species and techniques that could serve as leading indicators of thresholds of changing ecological regimes (Fort Riley 2016a).

#### *3.11.3.1.2 Fauna*

Fort Riley's habitat supports at least 40 species of mammals, 269 species of birds, 47 species of turtles, reptiles, and amphibians, and 60 species of fish. This includes a variety of upland game birds, big game species, and furbearer species (Fort Riley 2016a).

Fort Riley contains a rich and diverse bird community, with 269 bird species documented on the installation. As is typical for Kansas, most of these species are migrant, non-game songbirds. The birds occupy a wide range of habitat types on the installation, from riverine sandbars to interior woodlands (Fort Riley 2016a).

Numerous inventories of birds have been conducted on Fort Riley. Surveys have documented 134 bird species on Fort Riley during "breeding safe dates," i.e., periods when migrants of that species are expected to be absent from Kansas. Of these, 110 are confirmed or probable breeders. The most abundant breeding birds are brown-headed cowbird (*Molothrus ater*), dickcissel (*Spiza americana*), grasshopper sparrow (*Ammodramus savannarum*), eastern meadowlark, and mourning dove. Other notable breeding birds include Henslow's sparrow (*Centronyx henslowii*), loggerhead shrike (*Lanius ludovicianus*), the interior woodland species ovenbird (*Seiurus aurocapilla*), wood thrush (*Hylocichla mustelina*), and prothonotary warbler (*Protonotaria citrea*). Common woodland species include blue jay (*Cyanocitta cristata*), black-capped chickadee (*Poecile atricapillus*), and northern cardinal. Common shrubby edge species include brown thrasher (*Toxostoma rufum*), common yellowthroat (*Geothlypis trichas*), and field sparrow (*Spizella pusilla*) (Fort Riley 2016a).

Common raptors are the red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), great horned owl (*Bubo virginianus*), barred owl (*Strix varia*), bald eagle, eastern screech-owl (*Megascops asio*), and American kestrel (*Falco sparverius*). Common shorebirds are killdeer (*Charadrius vociferus*), yellowlegs (*Tringa* spp.), least sandpiper (*Calidris minutilla*), and spotted sandpiper (*Actitis macularius*). Common wading birds are great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and little blue heron (*Egretta caerulea*). Common winter birds are Harris's sparrow (*Zonotrichia querula*), American tree sparrow (*Spizelloides arborea*), and dark-eyed junco (*Junco hyemalis*) (Fort Riley 2016a).

Fort Riley supports a variety of snakes, turtles, lizards, frogs, and toads commonly found in the tallgrass prairie region (Busby et al. 1994 cited in Fort Riley 2016a). Forty-seven species of reptiles and amphibians (21 species of snakes, 9 lizards, 7 turtles, and 10 amphibians) have been captured or observed on Fort Riley. The most common species are ringneck snake (*Diadophis punctatus*) and western chorus frog (*Pseudacris triseriata*). The venomous copperhead (*Agkistrodon contortrix/laticinctus*) is common in woodlands on Fort Riley. In 2005, there was a report of a massasauga (*Sistrurus tergeminus*) in Maneuver Area N but the snake was not captured. No picture was taken to confirm the identification and the individual was not certain of the identification. Thus, the species is not included. A photo of a timber rattlesnake (*Crotalus horridus*) reportedly taken from Fort Riley in 2010 has been received by the Conservation Branch (Fort Riley 2016a).

#### *3.11.3.1.3 Protected Species*

The five federally listed species that are documented on Fort Riley are the least tern and Topeka shiner (*Notropis topeka*), both endangered, and the piping plover (*Charadrius melodus*), and the eastern black rail (*Laterallus jamaicensis jamaicensis)* which are threatened. The monarch butterfly (*Danaus plexippus*) has also been documented on Fort Riley and is listed as a Candidate species. The least tern is currently being considered for delisting by the USFWS. The Topeka shiner has been found in Wildcat, Sevenmile, Wind, Honey, Silver and Little Arkansas Creeks. It is believed that Topeka shiners potentially migrate into Fourmile, Threemile, and Forsyth Creeks. The least tern and piping plover are uncommon, primarily transient migrants, but are also potential breeders along the Republican and Kansas Rivers' sandbars. The least tern has been observed along the Kansas River and Milford Lake shorelines. The piping plover has been observed along the Republican and Kansas Rivers sandbars. The black rail is uncommon but is a potential breeder in wetland areas. The black rail has been observed in upland habitats on Fort Riley during the migratory seasons. The monarch butterfly is a common resident of the Fort Riley prairie landscapes.

Fort Riley falls within the migratory path and historic range of three other rare species. The endangered whooping crane, a spring and fall migrant, has been observed on the Milford Lake Wildlife Area within two and a half miles of Fort Riley. The historic range of threatened northern long-eared bat includes much of Kansas but has not been found in the Fort Riley area. The threatened red knot (*Calidris canutus*) is a rare spring and fall transient shorebird that could be found throughout Kansas.

There are two resident species of Fort Riley that were petitioned to be listed under the ESA and are currently under review. The regal fritillary butterfly (*Speyeria idalia*) is a common resident of the Fort Riley prairie landscapes. The tri-colored bat (*Perimyotis subflavus*) has been documented during acoustic bat surveys and observed in multiple roost sites and in one hibernacula (Fort Riley 2016a).

The bald eagle, federally protected by the BGEPA, is a year-round resident and five locations with eagle nests occur on and around Fort Riley. Three eagle nests occur near Madison Creek Cove, Milford Lake on Fort Riley. This area has had one pair of nesting eagles annually since 2004. The second area with an eagle nest is on USACE property along Farnum Creek, adjacent to Fort Riley. This nest was first used in 2005, was occupied annually for 11 years, but was unoccupied in 2016. Meanwhile, a new, active bald eagle nest was located on Fort Riley (TA 54) in 2016, approximately 3.5 miles from the Farnum Creek nest. The fourth area is around the confluence of the Kansas River, where four nests exist. Two nests are along the Kansas River on Fort Riley, and two nests are along the Smoky Hill River just upstream from the installation. One pair of nesting eagles have been active in this locale annually since 2009. Additionally, a fifth eagle nesting location exists approximately one mile west of the installation along the old channel of the Republican River below Milford Dam. Bald eagles roost along the Kansas and Smoky Hill rivers, and are frequently observed perched along the Republican River, Kansas River, and Milford Lake shorelines, and flying over Fort Riley. Additionally, Fort Riley has documented sightings of golden eagles in Maneuver Areas A, G, and H (Fort Riley 2016a).

There is no federally listed critical habitat on Fort Riley. The Department of the Interior initiated a policy to exclude military facilities from critical habitat if there was an approved INRMP for that facility, which addressed the species in question. The rationale for this policy was that an INRMP is a planning document that allows the military to implement landscape-level management of its natural resources while coordinating with various stakeholders.

### 3.11.3.2 Environmental Consequences

#### *3.11.3.2.1 Full MDTF Configuration*

Impacts to biological resources would be minor. No endangered or threatened species or their habitats are located in the area proposed for the Full MDTF Configuration. The area has been surveyed for endangered species and plants and none have been identified. The removal of existing vegetation and habitat would represent a small fraction of similar habitats at Fort Riley and would not present a significant impact. Minor impacts would occur to any wildlife occurring in the proposed project area.

#### *3.11.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts biological resources than those

described under the Full MDTF Configuration alternative. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.11.4 Cultural Resources*

#### 3.11.4.1 Affected Environment

Fort Riley has identified and manages 990 archeological sites—473 historic civilian, 139 historic military, 30 multi-component, and 348 prehistoric archeological sites. To date, 57 archeological sites have been determined eligible for listing in the NRHP. The Fort Riley cultural resources management program manages three Historic Districts, including Marshall AAF, the Packers Camp, and the MPHD. Nearly 459 historic facilities are present on Fort Riley. Of those, 256 buildings and structures are present in the MPHD. Examples of some of the buildings and structures include enlisted and officer Soldiers' quarters, supply buildings, barracks, historic hospitals, stables, headquarters, garages, and pump houses. In addition to the standing structures listed in the NRHP, the MPHD also includes archeological sites and numerous historic landscape features. The first Territorial Capitol Building of Kansas, located near the Kansas River on Fort Riley, is an independent listing in the NRHP. Additional historic buildings and structures have been identified in outlying areas, to include (but not limited to) Marshall AAF, Camp Funston, Camp Forsyth, and Custer Hill (Fort Riley 2021). Pursuant to Section 110 of the NHPA, archeological and architectural surveys and evaluations of cultural resources at Fort Riley are ongoing to provide a complete inventory of prehistoric and historic cultural resources. Additionally, various management plans and SOPs at multiple levels provide guidance and an integrated approach to the treatment and protection of cultural resources, serving to avoid and minimize impacts to them.

Fort Riley operates under three PAs with the Kansas SHPO and ACHP. Two related to privatized housing address unaccompanied Army lodging and family housing. The 2016 PA with the Kansas SHPO and the ACHP (Fort Riley 2016b) addresses installation-wide operations, maintenance, and development. The PA ties together the more specific management practices and activities that the garrison had been accomplishing under several individual management plans and agreements. Stipulations within the PA include ground-disturbance review protocols with the cultural resources manager, protection measures, a monitoring strategy, and annual reporting to the SHPO. The PA also includes a list of activities that are exempted from further consultation as Fort Riley analyzes effects on historic properties and protected properties from military training, other activities, and natural processes. None of the three PAs address consultation with tribes, which follow standard Section 106 procedures or understandings developed with individual tribes.

As of 2015, 12 federally recognized tribes indicated continued interest in prehistoric archeological resources at Fort Riley and expressed a desire to continue consultation under various preservation laws. The tribes with which Fort Riley consults and has informal NHPA Section 106 consultation agreements, include the Cheyenne River Sioux Tribe; Kaw Nation of Oklahoma; Kickapoo Tribe in Kansas; Kiowa Tribe of Oklahoma; Osage Nation; Otoe-Missouria Tribe of Indians; Pawnee Nation of Oklahoma; Ponca Tribes of Oklahoma and Nebraska; Prairie Band Potawatomi Nation; Sac and Fox Nation of Missouri in Kansas and Nebraska; and the Wichita and Affiliated Tribes. Fort Riley also maintains formal Comprehensive Agreements, related to compliance with NAGPRA, with both the Kaw Nation of Oklahoma and Pawnee Nation of Oklahoma.

#### 3.11.4.2 Environmental Consequences

##### *3.11.4.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration would result in no impacts to cultural resources. All areas likely to be affected by the MDTF stationing have been inventoried for historic properties and no properties would be impacted. The closest NRHP-eligible cultural resource is located more than 2 miles from any proposed project area. There are no known resources of cultural interest or significance for federally recognized tribes on the installation.

##### *3.11.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in no impacts to cultural resources. All areas likely to be affected by the MDTF stationing have been inventoried for historic properties and no properties would be impacted. The closest NRHP-eligible cultural resource is located more than 2 miles from any proposed project area. There are no known resources of cultural interest or significance for federally recognized tribes on the installation.

### *3.11.5 Soils*

#### 3.11.5.1 Affected Environment

The primary soil association encountered in Fort Riley is the Wymore-Irwin. It is a deep, nearly level group of silty, clay loams found in the upland. The Smolan-Geary and the Clime-Sogn are also prevalent. Smolan soils are composed of deep, gently sloping to sloping materials and are typically formed in loess. These tend to be moderately well to well-drained soils with slow permeability. Geary soils consist of deep, gently sloping and sloping deposits that are well drained and have moderate permeability. Clime soils consist of moderately deep, sloping to moderately steep deposits that are calcareous as a result of being formed from the weathered residuum of calcareous clayey shales. These soils have moderately well to well-drained characteristics with moderately slow permeability. Sogn soils are shallow, sloping underlain by limestone and were formed in residual material weathered from shale and limestone. They have moderate permeability and can be excessively drained. The Eudora-Haynie-Sarpy Eudora association is found on floodplains and terraces. The soils tend to be deep, nearly level silt loams, very fine sandy loams, and loamy fine sands with well-drained characteristics and are moderately permeable (Jantz et al. 1975).

#### 3.11.5.2 Environmental Consequences

##### *3.11.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, negligible impacts to soil resources. The proposed construction of facilities would involve ground-disturbing activities that could result in bare/exposed soils. Any construction activity would comply with the installation's NPDES permit and the need to submit Notice of Construction Activity for Stormwater Discharges to the Environmental Management Division. Standard BMPs and SOPs would be implemented during ground-disturbance activities to minimize soil erosion. Preliminary analysis has indicated that a substantial amount of fill material could be required for one of the areas identified for the MDTF Full Configuration facilities. Once installation-specific designs are completed, the Fort Riley DPW would work with the design team to determine the amount of fill material that could be required and identify cost-effective sources for that material.

#### *3.11.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Impacts to soil resources resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.11.6 Land Use*

#### 3.11.6.1 Affected Environment

Fort Riley land use is divided between the cantonment area and training ranges. Cantonment areas provide housing, community/recreation, and industrial and transportation operations and are mostly in the southern portion of the installation in six distinct areas. The training/range land-use category is the dominant one on Fort Riley.

Cantonment areas total approximately 12,000 acres and are Main Post, Camp Forsyth, Camp Funston, Camp Whiteside, Custer Hill, and Marshall AAF. Improved grounds include improved and semi-improved areas. Improved grounds contain many native and non-native trees, shrubs, and groundcovers on approximately 5,613 acres. Improved areas are maintained as mowed turf and planted with ornamental and native trees and shrubs. Semi-improved areas are grassy fields and larger groves of trees that receive periodic mowing and maintenance.

Custer Hill Golf Course was a 170-acre, 18-hole course that has been converted to the Adventure Park. Three additional parks/picnic areas totaling approximately 60 acres are maintained in a semi-natural condition; they are Moon Lake and McCormick and Wyman Parks.

#### 3.11.6.2 Environmental Consequences

Both the Full and Base MDTF Configurations would require a Supplemental Agreement to be executed to remove the area from an existing agricultural out lease. Approximately 60 days are required to meet this requirement. The area is known to contain noxious weeds. If the area is selected, measures would need to be implemented to prevent spreading noxious weed plants and seeds from the construction site. Fort Riley does not expect facility construction would result in severe incompatibility with adjacent land uses.

#### *3.11.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Riley would have negligible impacts to land use. Proposed construction in the area South of Sustainment Drive would occur in an undeveloped portion of the garrison. Suitable locations available for the proposed construction are in compatible land use zones and would have negligible impacts on adjacent land uses (military training and the installation boundary) and the overall land use at Fort Riley. None of the physical development associated with implementation of the Proposed Action would impact land use because the proposed construction and renovation would occur in land uses designated for the proposed use. No significant changes to land use would result from implementation of the Proposed Action and no significant impacts to land use would occur.

#### *3.11.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint in the old golf course area of the installation with fewer potential impacts to land use than

those described under the Full MDTF Configuration alternative. Implementation of the Base MDTF Configuration at Fort Riley would have negligible impacts to land use.

## *3.11.7 Socioeconomics*

### 3.11.7.1 Affected Environment

#### *3.11.7.1.1 Population and Demographics*

Fort Riley serves nearly 14,998 active-duty service members, more than 15,073 family members, more than 4,810 retirees and more than 5,488 DoD civilian employees. These numbers do not include guard and reserve members that train at Fort Riley.[16]

Fort Riley's ROI consists of Riley and Geary Counties. The estimated population for Riley County in 2019 was 74,232 and Geary County was 31,670 totaling 105,902 (Table 3-18). The values represent a 4.4 and -7.8% change in growth, for Riley and Geary Counties, respectively, since 2010 (USCB 2021).

**Table 3-18. Fort Riley Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Riley | 74,232 | 4.4 |
| Geary | 31,670 | -7.8 |

In 2019, it was estimated that 23.6% of the percent of the population in Riley County and 43.4% in Geary County were categorized as minority (see Table 3-19). In comparison, the non-White population in Kansas was estimated to be approximately 24.6% over the same period.

**Table 3-19. Fort Riley ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Kansas | 75.4 | 6.1 | 1.2 | 12.2 | 3.2 | 3.1 | 0.1 |
| Riley | 76.4 | 7.0 | 0.7 | 8.4 | 4.9 | 3.6 | 0.3 |
| Geary | 56.6 | 18.1 | 1.5 | 16.3 | 3.3 | 6.2 | 1.4 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.11.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $27,272 and $23,897 for Riley and Geary Counties, respectively. The estimated per capita income was $31,814 for the state of Kansas for that same

[16] https://installations.militaryonesource.mil/in-depth-overview/fort-riley

timeframe. The largest employment industry in the ROI is educational services, health care, and social services followed by retail trade and recreation (USCB 2022).

The unemployment rate for Riley County as of October 2021 was 2.9%, compared to 4.5% for Geary County. The unemployment rate for Kansas for October 2021 was 3.9% (U.S. Bureau of Labor Statistics 2021).

#### *3.11.7.1.3 Housing*

There are currently 3,826 military family housing units on Fort Riley, which are managed by the RCI partner Corvias Property Management. These are all located in the cantonment area among several neighborhoods. Fort Riley family housing comprises 5 distinct neighborhoods. The Corvias management contract allows occupancy by active-duty service members with dependents and stationed within 50 miles of Fort Riley. Additionally, active-duty unaccompanied service members and E6 and above service members receiving Basic Allowance for Housing and stationed within 50 miles of Fort Riley are eligible for on-post housing. Families get priority over unaccompanied and single personnel in on-post housing waiting lists. Approximately 94 to 96% of the available units in family housing on Fort Riley are occupied.

Unaccompanied personnel housing on Fort Riley has space for approximately 5,336 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 87%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Riley and Geary Counties/ROI was 3,766 and 2,440 respectively (USCB 2019).

#### *3.11.7.1.4 Schools*

Fort Riley is in the Geary County School District which enrolls over 6,930 students. The Manhattan-Ogden School District is another major school district in the ROI with an enrollment of 6,557 students (Kansas State Department of Education 2021). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

### 3.11.7.2 Environmental Consequences

#### *3.11.7.2.1 Full MDTF Configuration*

Preliminary analysis by Fort Riley has determined that implementation of the Proposed Action would result in negligible to minor beneficial impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which would result in beneficial impacts to employment, population, school districts, income, and sales volume. Community public services, schools, and housing supported a larger population of military and family members in FY 2013 than currently exists on Fort Riley (18,176 military and 24,011 family members – FY 2013 Economic Impact Summary data). The FY 2020 military population is 14,998 and family members are 15,703.

#### *3.11.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel with fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomics resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.11.8 Traffic and Transportation*

### 3.11.8.1 Affected Environment

I-70 is the major east-west highway that serves Fort Riley. I-70 is an important transportation facility that extends from eastern Indiana into Utah. I-70 is less than 0.5 mile to the south of the cantonment area. Other major routes include US-77 and Kansas State Routes 18, 57, and 82. Fort Riley is served by an extensive, well-maintained, off post, roadway system. Seven principal roadways access the installation: Grant Avenue (from Junction City, at West Huebner); K18 Highway (at 12th Street, Camp Funston and via Riley Avenue, Ogden, at East Huebner); I-70, Exit 301 (Henry Drive at Marshall AAF); Washington Street (from Junction City at Trooper Drive); US-77 (Range Road, into Camp Forsyth); and old US-77 (Estes Road, into Custer Hill). Fort Riley operates six ACPs. The visitor center is near the Henry Gate ACP at exit 301 on I-70. Deliveries and commercial vehicles use the 12 Street Gate or Estes Gate off US-77. Fort Riley has approximately 241 miles of paved roads and 124 miles of graveled tank trails. In addition, the installation's training areas are threaded with a vast network of dirt roads and trails.

Fort Riley is served by the Union Pacific Railroad and the Camp Funston area is the primary location for rail loading activities. Fort Riley has 12 miles of rail track located in three areas of the main installation. The Manhattan Regional Airport is located approximately 10 miles east of the installation. American Airlines provides regional service with flights between Dallas, Chicago, and Manhattan. The Kansas City International Airport is located approximately 140 miles east of Fort Riley.

### 3.11.8.2 Environmental Consequences

#### *3.11.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Riley has determined that implementation of the Proposed Action would result in moderate adverse impacts to traffic and transportation. The Full MDTF Configuration stationing action would result in increases in vehicle traffic volume both on the installation and in the local community. Development of potential sites would cause a considerable increase in traffic volume in the vicinity of the project area and these areas are currently challenged by peak traffic conditions. Improvements to key intersections of Trooper Drive, with Thomas and Sustainment Avenues would potentially be required to handle the traffic increases. Turn lanes, roundabout intersections and widening of Trooper Drive are anticipated. A study of the traffic increases would be required to fully assess the proposed changes. Development would cause a minor increase in personal vehicle traffic and could require intersection improvements.

#### *3.11.8.2.2 Base MDTF Configuration*

Preliminary analysis performed by Fort Riley has determined that implementation of the Base MDTF Configuration would result in negligible impacts to traffic and transportation. Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and less disturbance to traffic than that described under the Full MDTF Configuration. The proposed 400-Soldier Base MDTF Configuration would not result in critical traffic or congestion on or off post. Significant impacts to traffic and transportation are not anticipated to result from implementation of the Base MDTF Configuration at Fort Riley.

## *3.11.9 Infrastructure and Utilities*

### 3.11.9.1 Affected Environment

#### *3.11.9.1.1 Energy*

Evergy Energy provides electrical power to Fort Riley. In 2021, Evergy Energy had a total generating capacity of 16,000 MW of power and the current peak electricity usage within the Fort Riley service area was estimated to be 65% of available power. In 2021, it was estimated that Fort Riley consumes approximately 0.0025% of Evergy Energy's total energy production.

As of December 2021, Kansas Gas Service supplies natural gas to Fort Riley at an estimated total capacity of 175,000 MCF/day on its transportation system. As of December 2021, Fort Riley used approximately 7,786 MCF on the coldest days of the year, which equates to approximately 4.5% of total transportation system capacity.

#### *3.11.9.1.2 Potable Water*

Potable water is supplied to Fort Riley by Fort Riley Utility Services (FRUS), a subsidiary of American States Utility Services, Inc. FRUS owns and operates the potable WTP and distribution system at Fort Riley under a 50-year privatization contract. The WTP is designed and capable of supplying up to 10 mgd to Fort Riley, far exceeding the current peak demand of 5.5 mgd. The overall condition of the potable water facilities and infrastructure system is rated as good and adequate to accommodate current and future demands. Currently and within the next 2 years, the oldest portions of the system are being replaced and modernized through the FRUS privatization contract, which would greatly improve the system rating to better than good.

#### *3.11.9.1.3 Wastewater*

Sanitary wastewater at Fort Riley is treated at a WWTP which is also owned, operated, and maintained by FRUS under the same Army utilities privatization contract as the potable water plant and system. The current daily load ranges from approximately 1 to 1.5 mgd with a rated capacity to effectively treat 3 mgd. Due to lower than design usage of the WWTP, increased populations at Fort Riley would allow the treatment plant to operate more efficiently. The overall condition of the wastewater facilities and infrastructure system is rated as good and adequate to accommodate current and future demands. Because of the privatization of the WWTP and the collection system, the entire system would be replaced at least once during the life cycle of the 50-year privatization contract with FRUS. Currently and within the next 2 years, the oldest portions of the system are being replaced and modernized through the FRUS privatization contract which will greatly improve the system rating to better than good.

### 3.11.9.2 Environmental Consequences

#### *3.11.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in minor beneficial impacts to infrastructure and utilities. The installation has adequate infrastructure for water, sewer capacity, electricity, natural gas, and communications to sustain stationing the Full MDTF Configuration. Some local utility infrastructure in the proposed new construction area would be replaced or removed. Extensions of existing utilities would be required for electric power, communication, sanitary

sewer, storm sewer, and natural gas. The Proposed Action would add flow to the Fort Riley WWTP. This would be beneficial as the plant does not currently have enough influent to run as designed and struggles to meet the current NPDES permit discharge limits. KDHE will soon add total maximum daily loads to the NPDES permit held by American States Utility Services, Inc. American States Utility Services, Inc. would not be able to meet some of the total maximum daily loads without additional flow or costly additions to the treatment plant (Duckworth 2021).

#### *3.11.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint but would require similar utility connects. Impacts would be negligible to minor as the number of Soldiers associated with the Base MDTF Configuration would be smaller and have fewer impacts on existing infrastructure and utilities.

## *3.11.10 Water Resources*

### 3.11.10.1 Affected Environment

#### *3.11.10.1.1 Surface Water*

Surface water resources on Fort Riley include lakes, rivers, and streams. On Fort Riley, the KDHE has designated surface water use categories for the Republican, Smoky Hill, and Kansas Rivers; Fourmile, Rush, Timber, Little Arkansas, Sevenmile, Threemile, and Wildcat Creeks; and Milford Lake (Fort Riley 2016a). The KDHE has determined these surface water bodies are suitable for and should be protected for, contact recreation, expected or special aquatic life, food procurement, domestic water supply, irrigation, livestock watering, industrial water supply, and groundwater recharge (Fort Riley 2016a).

The KDHE listed Wildcat Creek as an impaired stream, under Section 303(d) of the CWA, due to high fecal coliform bacteria count and low dissolved oxygen. Anecdotal information provided by Riley County indicated the quality of water in Wildcat Creek passing through Fort Riley was good. It is suspected that high fecal coliform counts occurring in the lower end of the stream, below the confluence of Little Kitten Creek, are related to poorly functioning on-site waste systems in the vicinity of Manhattan (Fort Riley 2016a). Urban development occurring on the west side of Manhattan, downstream from Fort Riley, is altering hydrogeomorphology and thereby increasing sediment and contaminant loads in Wildcat Creek.

#### *3.11.10.1.2 Wetlands*

Wetland areas on Fort Riley include springs and seeps, streams, rivers, ponds and lakes, low areas behind terraces in abandoned crop-fields, and emergent marshes along the periphery of water bodies, such as those within the Madison Creek and Farnum Creek arms of Milford Lake. In 1991, the USFWS documented approximately 1,536 acres of wetlands. Of this total, 972 acres are considered permanently inundated. The riverine habitat comprises 145 miles and encompasses 748 acres (Fort Riley 2016a).

#### *3.11.10.1.3 Floodplains*

Under Kansas state law, floodplains are considered to be the lands adjoining lakes and rivers that are covered by the 100-year or regional flood. The principal concern with flooding is the potential

for loss of or damage to troops, livestock, and property. All three intermittent streams and their major tributaries are within the 100-year floodplain (U.S. Army 2021).

The 100-year floodplain of Fort Riley consists of 6,155 acres located near the Republican and Kansas Rivers, Wildcat, Rush, Farnum, and Madison Creeks. A system of levees has been constructed adjacent to the Kansas River, making the areas safe and acceptable for building sites. During the spring and summer months, dirt roads serving the range occasionally become inundated, causing transportation difficulties, or temporarily halting transportation to some areas. Flash floods also occur along the smaller streams from brief, intense periods of rainfall during these months (U.S. Army 2021).

### 3.11.10.2 Environmental Consequences

#### *3.11.10.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in minor to moderate adverse impacts to water resources. The Proposed Action would require land-disturbing activities for approximately 93 acres within the cantonment area. These activities would require an NOI and NPDES permitting. A SWPPP would be completed as part of any construction activities.

Preliminary analysis performed by Fort Riley has determined that implementation of the Full MDTF Configuration stationing action could impact surface waters and wetlands, which could require a FONPA be prepared. Small tributaries and drainages are present on the site as well as one potential wetland site. The extent of impacts to these resources is unknown at this time. Installation-specific designs and additional site evaluations of facility layouts relative to these small tributaries, drainages, and wetlands would be required to fully assess impacts to wetlands and floodplains. There is insufficient detail to determine if Section 404 permitting would be required for the construction of MDTF facilities. Once installation-specific designs are completed, the Fort Riley DPW would work with the design team to avoid and minimize potential impacts to tributaries, drainages, and wetlands to the maximum extent possible. If impacts are determined to be unavoidable, depending on the extent of impacts, a nationwide or individual permit would be required.

If direct impacts to tributaries and drainages can be avoided then implementation of the Full MDTF Configuration with associated renovation, construction, and operations would only minimally impact surface water. BMPs are in place to prevent or minimize the potential for the release of pollutants from ancillary activities through site runoff, spillage or leaks, or drainage from raw material storage. For ground-disturbance activities, procedural requirements (i.e., construction stormwater permit) would be required. Building 5320, formerly the Army and Air Force Exchange Service gas station, has petroleum, oil, and lubricant-contaminated groundwater. The site is poorly defined. At this time, it is not known how far the contaminant plume has moved towards the golf course. This site is scheduled to be studied and remediated under the current 5-year Installation Restoration Program contract. Whether or not this contamination would affect the proposed development of the site is unknown until the plume is better characterized. The stormwater ditch entering Cameron Springs would need to be widened to reduce flow and prevent erosion as it is undersized and there is evidence of sediment entering the pond.

#### *3.11.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to water resources than that described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and appropriate permitting would apply. Potential locations with surface waters could be avoided under this alternative and impacts resulting from implementation of the Base MDTF Configuration would be minor.

## 3.12 FORT STEWART

### *3.12.1 Background*

Home to the 3rd ID and numerous deployable units, Fort Stewart is a U.S. Army post in Georgia, primarily in Liberty and Bryan Counties, but also extending into smaller portions of Evans, Long, and Tattnall Counties (Figure 1-1). The installation is located approximately 41 miles southwest of the City of Savannah and is the largest Army installation east of the Mississippi River. Fort Stewart encompasses approximately 280,000 acres of land. Wright AAF and Evans AAF are located within the boundaries of Fort Stewart proper.

Hunter AAF encompasses 5,400 acres of land and is a separate facility located approximately 35 miles northeast of Fort Stewart. Fort Stewart and Hunter AAF are the Army's training and military armored power projection combination on the eastern seaboard of the United States. Tank, field artillery, helicopter gunnery, and small-arms ranges operate simultaneously throughout the year. Fort Stewart–Hunter AAF's mission is to provide a safe, secure, and responsive community that enhances the Fort Stewart–Hunter AAF power projection platform in support of national security objectives.

### *3.12.2 Air Quality*

#### 3.12.2.1 Affected Environment

Fort Stewart is located in the Savannah Georgia – Beaufort South Carolina Interstate AQCR (40 CFR 81.113). The AQCR includes the Georgia counties of Bryan, Bulloch, Candler, Chatham, Effingham, Evans, Liberty, and Tattnall. The ROI for air quality analysis includes Bryan and Liberty Counties, as these two counties cover the majority of the installation. The ROI for Fort Stewart was in attainment status as of November 30, 2021 (EPA 2021).

Fort Stewart is considered a major source of air emissions and falls under Title V of the CAA because it has the potential to emit 100 tons per year (tpy) of any one criteria pollutant and 25 tpy of total combined HAPs. The state of Georgia issued Fort Stewart a Title V Permit (Part 70 Operating Permit No. 9711-179-0018-V-03-0) on July 8, 2015. There were also 3 Amendments to the Permit (9711-179-0018-V-03-1, 9711-179-0018-V-03-2, and 9711-179-0018-V-03-3). These Amendments were issued on August 8, 2016; March 11, 2019; and May 7, 2020. Federal New Source Performance Standards, 40 CFR 60, Subpart A "General Provisions," and Subpart D "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" apply to boilers that have an input capacity from 10x106 to 100x106 British thermal units per hour built after June 1989. Three boilers (ID H009-H011) at Fort Stewart are subject to these requirements. The state of Georgia issued Fort Stewart a new Title V Permit (No. 9711-179-0018-V-04-0) on June 28, 2021. There are no amendments to the permit issued in 2021.

#### 3.12.2.2 Environmental Consequences

##### *3.12.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. The installation is in an attainment area and construction, operation, and utilization of the new facilities would not result in the installation violating its existing Title V Permit. Most impacts are anticipated to be the result of vegetation/site clearing/grading/stabilization and construction and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions.

##### *3.12.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Stewart would be negligible.

### *3.12.3 Biological Resources*

#### 3.12.3.1 Affected Environment

##### *3.12.3.1.1 Flora*

A wide variety of habitat types are known from Fort Stewart, including: longleaf pine forests, mesic lowland pine forests, evergreen scrub forests, lowland broadleaf evergreen forest hammocks, dwarf oak forests, upland broadleaf deciduous-needleleaf forests, bay swamp, bogs and cypress ponds, blackwater streams, and river and swamp systems. The longleaf pine community dominates Fort Stewart's vegetation. The longleaf pine forests located on uplands have an overstory of longleaf pine and an understory of wiregrass. The sandhill areas are characterized by a midstory of oak species. Slash pine (*Pinus elliottii*) and loblolly pine (*Pinus taeda*) dominate mesic pine flatwoods and contain an understory of grass and berry species. Wetlands are dominated by an overstory of bald cypress (*Taxodium distichum*), sweet gum (*Liquidambar styraciflua*), and tupelo (*Nyssa*) species while isolated wetlands are dominated by pond cypress (*Taxodium ascendens*), slash, and loblolly pine (Fort Stewart 2017).

##### *3.12.3.1.2 Fauna*

Common wildlife species on Fort Stewart include large mammals that have been affected by urbanization in the southeast. White-tailed deer and feral hogs (*Sus scrofa*) are common species. Fox, coyotes (*Canis latrans*), and bobcats (*Lynx rufus*) are the primary predators and small mammals such as rabbits and squirrels occur throughout the installation. Migratory birds use many of the forests and wetlands on the installation. Approximately 340 species of migratory birds are known to use Fort Stewart (Fort Stewart 2017).

##### *3.12.3.1.3 Protected Species*

One federally endangered plant (smooth coneflower [*Echinacea laevigata*]) and seven federally listed animal species are known to occur on Fort Stewart. The protected animal species include:

the red-cockaded woodpecker (endangered), the eastern black rail (threatened), the wood stork (*Mycteria americana*) (threatened), the shortnose sturgeon (*Acipenser brevirostrum*) (endangered), the Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) (endangered), the eastern indigo snake (*Drymarchon corais couperi*) (threatened), and the frosted flatwoods salamander (*Ambystoma cingulatum*) (threatened) (Fort Stewart 2017). The frosted flatwoods salamander has been identified as an indicator species which means they are more sensitive to changes in the environment. There is concern that severe droughts potentially related to climate change are affecting this species (The Current 2021).

#### 3.12.3.2 Environmental Consequences

##### *3.12.3.2.1 Full MDTF Configuration*

Impacts to vegetation are anticipated to be temporary, minor, and adverse. As described above, vegetation in the cantonment area is primarily landscape shrubs and mowed grass. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Tree removal would be conducted in accordance with the Fort Stewart Tree Management Plan and all disturbed areas would be stabilized and revegetated with grass at the conclusion of each construction project. No significant impacts to vegetation are anticipated.

Implementation of the Proposed Action would not result in adverse impacts to threatened and endangered species because this action is limited to the cantonment area and there are no known populations of threatened and endangered species in the cantonment area. The cantonment area on Fort Stewart is not managed for threatened and endangered species and does not contain habitat (critical or otherwise) for any of these species. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased. Overall impacts to biological resources would be minor.

##### *3.12.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Although floodplain, wetland, and stream buffer permitting could be required, significant impacts to biological resources are not anticipated to result from implementation of the Base MDTF Configuration at Fort Stewart. Impacts to biological resources are anticipated to be minor.

### *3.12.4 Cultural Resources*

#### 3.12.4.1 Affected Environment

Of the 279,270 acres on Fort Stewart, 220,525 acres of training lands have been surveyed and 951 acres remain (Greer 2020 cited in U.S. Army 2021). From this work, the Army developed a refined site prediction model that identified 59,219 acres, or 21% of the installation, as having a high probability for the occurrence of archaeological resources. Approximately 225,548 acres, or 79% of the installation, have been identified as having low probabilities for the occurrence of archaeological resources (Fort Stewart 2014).

Although archaeological sites that are ineligible for listing in the NRHP do not require protection from an unauthorized excavation under the NHPA, all archaeological sites that are at least

100 years old and are of scientific value are prohibited from unauthorized disturbance under the ARPA. As such, Fort Stewart routinely monitors archaeological sites susceptible to vandalism and looting. Furthermore, Fort Stewart prohibits metal detection to recover artifacts without an ARPA permit.

NRHP eligibility of archaeological resources identified on Fort Stewart are summarized in Table 3-20. To protect them, in accordance with NHPA and ARPA, the locations of these archaeological resources are not graphically depicted within this public document, although general information regarding their location and eligibility to the NRHP is provided. Cultural resource management personnel schedule surveys as needed. As a result of these surveys, Fort Stewart has identified 4,194 archaeological sites, as of 2020 (Greer 2020 cited in U.S. Army 2021).

**Table 3-20. Archaeological Resource Eligibility on Fort Stewart and Hunter AAF**

| Eligibility Status | Number of Sites |
|---|---|
| Listed in NRHP | 1 |
| Eligible for NRHP Inclusion | 82 |
| Potentially Eligible for NRHP Inclusion | 48 |
| Indeterminate Eligibility for NRHP inclusion (includes sites not fully delineated or pending final Phase I analysis) | 81 |
| Not Eligible for NRHP | 3,982 |

Source: U.S. Army 2021
Key: AAF = Army Airfield; NRHP = National Register of Historic Places

There are 103 range and impact areas totaling 25,856 acres on Fort Stewart, including pistol, rifle, machine gun, tank, anti-tank, aerial gunnery, and demolition ranges (Malcolm Pirnie 2006a cited in Fort Stewart 2014). In addition to these official range footprints, 110,472 additional maneuver area acres have been identified as having an elevated potential for unexploded ordnance (UXO). With this added acreage, there is an estimated total of 136,328 acres on Fort Stewart that are potentially UXO-contaminated.

In some cases, previously identified cultural resources have been recommended potentially eligible and were subsequently identified as containing UXO. Although these resources have remained potentially eligible, it is anticipated that these sites would be re-evaluated for listing in the NRHP on a case-by-case basis.

All lands that are neither cantonment nor range/impact areas are considered maneuver areas, which total approximately 250,000 acres on Fort Stewart (this count includes the 110,472 UXO-contaminated maneuver areas) and 2,600 acres on Hunter AAF (Malcolm Pirnie 2006b cited in Fort Stewart 2014). Training activities in maneuver areas include artillery firing, demolition training, and tactical training exercises. The term “maneuver areas,” for this document, also includes special-use areas, such as firing points and bivouac areas.

When the military acquired Fort Stewart and Hunter AAF, it also took responsibility for cemeteries that had been previously established on the properties. The Army, subject to available resources, is dedicated to the preservation of the cemeteries on the military reservation.

There are several NRHP-eligible sites that are associated with Native American resources on Fort Stewart including three sacred sites (one confirmed burial mound and two other suspected burial mounds). Fort Stewart consults with the federally recognized Native American Tribes regarding

effects to historic properties and ensures tribal concerns are taken into account following the appropriate cultural resource laws (Fort Stewart 2010). Furthermore, Fort Stewart recognizes the importance of access to sacred sites and has established procedures that integrate not only the military mission, but also the safety and well-being of the requestor, and the rights and privacies of the requesting tribes.

Fort Stewart and the Georgia SHPO developed a PA in May 2011 that expired in May 2021, but a follow-on agreement is expected. It provides Fort Stewart with a flexible tool to manage its cultural resources, allowing Fort Stewart to meet the requirements of the Cultural Resource Management review of undertakings with no effect or no adverse effect without waiting for the 30-day response from the SHPO. In short, the PA is the Cultural Resource Management Program's regulatory backbone, guiding and streamlining the program's compliance with federal laws and regulations while providing a timely, effective method of managing Fort Stewart's cultural resources.

#### 3.12.4.2 Environmental Consequences

##### *3.12.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Stewart has determined that implementation of the Proposed Action would result in no impacts to cultural resources. Cultural resource surveys of potential project sites are complete and there are no protected sites and no structures/buildings/sites eligible for listing in the NRHP. The closest potentially eligible property is the Fort Stewart Road 90 railroad located within the cantonment area and a railroad spur that is more than 1,300 feet away from potential project locations. Review by Fort Stewart cultural resource personnel has determined there is no potential to impact these resources.

##### *3.12.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance of historical resources than that described under the Full MDTF Configuration alternative. Therefore, no impacts to cultural resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Stewart.

### *3.12.5 Soils*

#### 3.12.5.1 Affected Environment

In coastal Georgia, drainage from three physiographic provinces, the Blue Ridge Mountains, Piedmont Plateau, and Coastal Plain, affects the composition of alluvial deposits. Near Fort Stewart–Hunter AAF, the parent material for all soils is water-lain sediments deposited during and before the Pleistocene. As a result of the mild climate, freezing and thawing cycles have little effect on soil weathering. Much of the rainfall percolates through the soil and moves dissolved and suspended materials downward. As a result, most soils on uplands are highly weathered, leached, strongly acid, and low in natural fertility and organic matter (Thomas et al. 1996 cited in Fort Stewart 2013).

Soil surveys have been completed for Fort Stewart by the USDA NRCS (then the Soil Conservation Service). Site-specific soil testing could be required for grounds maintenance or turf management, but a further classification of soil series is unnecessary. Most soils are classified as sandy and infertile. Most soils at Hunter AAF are in the Cape Fear, Ellabelle loamy sand, Ocilla,

and salty tidal marsh series. At Fort Stewart, Ellabelle loamy sand, Ogeechee, Pelham, Stilson, Rutlege, Leefield, and Mascotte are common soil series. Many of these series are well suited to the production of forest trees and are unsuitable to cross-country movements of heavy equipment during wet periods (Directorate of Engineering and Housing 1993 cited in Fort Stewart 2013).

#### 3.12.5.2 Environmental Consequences

##### *3.12.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.12.3.2, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. An E&S Pollution Control Plan would be coordinated through the Fort Stewart DPW Environmental Division Stormwater/E&S POC, who would conduct all coordination with the State of Georgia NRCS Office. Appropriate NPDES permits would be acquired and standard BMPs would be implemented to minimize soil erosion.

##### *3.12.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance of soil resources than that described under the Full MDTF Configuration alternative. Minor impacts to soil resources are anticipated to result from implementation of the Base MDTF Configuration at Fort Stewart.

### *3.12.6 Land Use*

#### 3.12.6.1 Affected Environment

The Fort Stewart cantonment area is a single complex in the south-central portion of Fort Stewart next to the City of Hinesville and consists of the administrative, operational, and residential portions of Fort Stewart. The cantonment area encompasses about 8,465 acres and constitutes the majority of development on Fort Stewart, including buildings, roads, parking, and adjacent open spaces for administrative functions, community activities, housing, barracks, installation support services, and Wright AAF (Fort Stewart 2010 cited in U.S. Army 2021).

Recreational resources include areas for swimming, boating, hiking, hunting, and fishing. Fort Stewart has allowed the public access to installation lands for hunting and fishing since 1959. In general, any hunting or fishing area not closed for military use is open to the public with appropriate permits and restrictions. Access is denied to specific areas when safety or security concerns exist, prescribed burning is underway, or natural resources do not support such usage. As of 2010, about 1,500 to 2,000 people had permits to hunt at Fort Stewart, and they make 40,000 to 50,000 hunting trips annually. About 3,000 to 4,000 people held a fishing permit, and they make 60,000 to 80,000 fishing trips annually. Existing fishing facilities include piers, docks, and boat ramps on installation ponds and waterways. A limited number of landing sites provide access to the Canoochee and Ogeechee Rivers (Fort Stewart 2010).

White-tailed deer, feral hogs, and wild turkeys are prominent game species on Fort Stewart, and largemouth bass and redbreast sunfish are popular species for anglers. Additional outdoor recreation activities include wildlife observation, camping, shooting sports (including archery and

skeet), volleyball, horseshoes, and playgrounds, which are in the Holbrook Pond Recreational Area (Fort Stewart 2010).

Fort Stewart's range and training land infrastructure supports Abrams Tank, Bradley Fighting Vehicle, Aerial Gunnery, Artillery, and other live-fire training, maneuver training, and individual team and collective tasks. Range Support Operations estimates about 200,000 Soldiers annually use the range facilities at Fort Stewart for mounted and dismounted individual weapons and crew qualifications. This number includes company/Team through BCT maneuver exercises (Fort Stewart 2010).

Heavy training activities occur in maneuver lands in the western portion of Fort Stewart, and light infantry training occurs in the eastern portion. The *heavy* designation refers to armor and mechanized infantry forces or to areas where maneuvers are unrestricted consisting of all types of vehicles and equipment, including tracked vehicles. *Light* refers to light infantry forces or to areas where maneuvers could be restricted to only small units or units having only wheeled vehicles (Fort Stewart 2010).

#### 3.12.6.2 Environmental Consequences

##### *3.12.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at Fort Stewart would have negligible impacts to land use. Proposed construction would occur entirely within developed portions of the garrison and all suitable locations available for proposed construction are within compatible land use zones. None of the physical development associated with implementation of the Proposed Action would impact land use, because the proposed construction and renovation would occur in land uses designated for the proposed use. No changes to land use would result from implementation of the Proposed Action and no significant impacts to land use would occur.

##### *3.12.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer potential impacts to land use than those described under the Full MDTF Configuration alternative. Negligible impacts to land use would result from implementation of the Base MDTF Configuration at Fort Stewart.

### *3.12.7 Socioeconomics*

#### 3.12.7.1 Affected Environment

##### *3.12.7.1.1 Population and Demographics*

Fort Stewart and Hunter AAF serve about 21,000 Army Soldiers, 29,500 family members, over 3,500 civilians, and National Guard Soldiers.[17]

Fort Stewart's ROI is Liberty County. The estimated population for Liberty County in 2019 was 61,435. The population decreased since 2010 by 3.4% (Table 3-21) (USCB 2021).

[17] http://www.militarybases.us/army/fort-stewart/

**Table 3-21. Fort Stewart Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Liberty | 61,435 | -3.4 |

In 2019, it was estimated that 62.3% of the population in Liberty County was categorized as minority (see Table 3-22). In comparison, the non-White population in Georgia was estimated to be approximately 48.0% over the same period.

**Table 3-22. Fort Stewart ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Georgia | 52.0 | 32.6 | 0.5 | 9.9 | 4.4 | 2.2 | 0.1 |
| Liberty | 37.7 | 45.0 | 0.8 | 12.7 | 2.1 | 4.7 | 0.6 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.12.7.1.2 Employment and Income*

The estimated annual per capita income for Liberty County is $22,811 in 2019, compared to that of Georgia at $31,067 in 2019. The unemployment rate is slightly lower at 2.4% as of October 2021, compared to that of Georgia at 3.1% for the same period (USCB 2021).

#### *3.12.7.1.3 Housing*

There are currently 2,570 military family housing units and 334 Housing Private Partner Unaccompanied Housing apartments on Fort Stewart, which are managed by the RCI partner Fort Stewart Family Homes. These are all located in the cantonment area among several neighborhoods. Fort Stewart Family Homes comprises 10 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Stewart and also welcomes qualified military retiree, DoD civilian, and general public applicants in select neighborhoods. Currently 91% of the available units in family housing on Fort Stewart are occupied.

Unaccompanied personnel housing on Fort Stewart has space for approximately 4,516 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 89%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Liberty and Bryan Counties, Georgia was 3,151 and 1,258 respectively (USCB 2019).

#### *3.12.7.1.4 Schools*

Approximately 1,400 students are enrolled in DoD Education Activity schools on the installation. Students living off post primarily attend schools in the Liberty County School District. Enrollment in the Liberty County School District is over 11,000 students (Governor's Office of Student

Achievement 2021). School systems within the ROI receive substantial federal funding based on the number of military dependents they support.

#### 3.12.7.2 Environmental Consequences

##### *3.12.7.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Stewart has determined that implementation of the Proposed Action would result in negligible to minor beneficial impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the immediate ROI for this resource. Fort Stewart has a deficit of unaccompanied personnel housing, so residential areas (such as apartments) in the multi-county area outside the post could see an increase in rentals. Soldiers with families have the option to live off post and they could also contribute to this number.

##### *3.12.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomic resources resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.12.8 Traffic and Transportation*

#### 3.12.8.1 Affected Environment

For this PEA, transportation resources surrounding and within Fort Stewart are the affected environment for analysis. Regional access to Fort Stewart and Hinesville is from I-95 and I-16, US-84, and Georgia Highways 119 and 144 (Fort Stewart 2010 as cited in U.S. Army 2021). Georgia Highway 119, a north-south highway, bisects Fort Stewart and separates the primary heavy maneuver training areas from the collective firing ranges. Georgia Highway 144, an east-west highway, separates TAs A and D to the south from TAs B, C, E, and F in the northern portion of Fort Stewart and is the primary ground route to Hunter AAF, Savannah, and I-95. A network of improved roads serves the main cantonment area. About 400 miles of tank trails and unpaved roadways are outside the cantonment areas (Fort Stewart 2010 as cited in U.S. Army 2021).

The two main entrances to the Fort Stewart cantonment area are on General Screven Way (Gate #1) to the south and Highway 119 (Gate #5) to the north. Additionally, there are five secondary access points located at 4th Street (Gate #2), Harmon Avenue (Gate #3), Austin Road (Gate #4), 15th Street (Gate #7), and Frank Cochran Drive (Gate #8). Gate #4 is a temporary gate with limited hours of operation (U.S. Army 2021).

Multiple 24-hour traffic counts (or average daily traffic) were collected on December 5 and 6, 2006. The average daily traffic counts identified the amount of traffic on each roadway on a typical day at peak traffic periods, as well as the amount of traffic for any particular hour of the day. Gate 1 (main) has the heaviest inbound and outbound traffic, followed by Gate 8 (Frank Cochran Drive) and Gate 5 (Gulick Avenue) (U.S. Army 2021).

The access points feed the primary internal roadway network, which disperses traffic onto secondary roadways to reach different destinations on post. Gulick Avenue carries 15,620 vpd with 7,930 traveling northbound and 7,690 southbound. Hero Road north of Gulick Avenue has

11,050 vpd with equal volumes in each direction. 6th Street carries 11,810 vpd with 5,480 vehicles eastbound and 6,330 vehicles westbound. Hase Road carries 5,250 vehicles northbound and 5,190 vehicles southbound per day. East Bultman Avenue has a total traffic volume of 11,120 vpd with 5,430 traveling eastbound and 5,690 westbound. Harmon Avenue has 5,330 vpd with eastbound and westbound evenly split. Austin Road, serving mainly residential land uses, carries 5,570 vpd with 2,750 eastbound and 2,820 westbound (U.S. Army 2021).

Intersections currently experiencing traffic congestion and poor operating conditions were analyzed to determine if improvements were warranted. Operational capacity analyses were performed during the morning, noon, and afternoon peak hours. The capacity analyses determined the operating LOS at the studied intersections. LOS for an intersection is based on the vehicular delay at the intersection and is a typical measure of effectiveness. The Highway Capacity Manual provides ranges of delay for each LOS definition, spanning from very minimal (LOS A) to high (LOS F). LOS F is considered unacceptable for most drivers. The capacity analyses indicate the following intersections are operating at poor LOS (LOS F) on the minor street approaches during at least one peak period of a typical weekday: Hero Road at Bundy Avenue, Hase Road at McNeely Avenue, Hero Road at Davis Drive, Frank Cochran Drive at McFarland Avenue, and McFarland Avenue at 15th Street (U.S. Army 2021).

#### 3.12.8.2 Environmental Consequences

##### *3.12.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Stewart has determined that implementation of the Proposed Action would result in negligible adverse impacts to traffic and transportation. No new roads are anticipated to result from the Proposed Action and no work on existing roads is proposed. Traffic congestion is not a defined issue of concern on Fort Stewart. During periods of construction, traffic congestion could become an issue, as construction equipment and workers access the installation. This would be accommodated via staggering arrival/departure times and by having these vehicles enter/leave via lesser utilized ACPs, as well as other traffic management BMPs.

##### *3.12.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to traffic than that described under the Full MDTF Configuration. Impacts to traffic and transportation resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.12.9 Infrastructure and Utilities*

#### 3.12.9.1 Affected Environment

##### *3.12.9.1.1 Energy*

Georgia Power Company (GPC) provides electrical power to Fort Stewart. In 2020, GPC had a total generating capacity of 14,413 MW of power and the current peak electricity usage within the Fort Stewart service area was estimated to be 0.29% of available power. In 2020, it was estimated that Fort Stewart consumes approximately 0.26% of GPC's total energy production.

In 2020, Fort Stewart obtained approximately 34% of energy from natural gas and propane. Gas South supplies natural gas to Fort Stewart and it is mainly used for the High Temperature Hot Water boilers at the Central Energy Plant, for cooking at food preparation sites, to heat some facilities, and as a fuel source for some back-up generators.

#### *3.12.9.1.2 Potable Water*

Potable water is supplied to Fort Stewart by six groundwater wells capable of supplying up to 4.817 (permit limits) mgd to Fort Stewart, far exceeding the current peak demand of 1.9 mgd. The overall condition of the potable water facilities and infrastructure system is rated as adequate to accommodate current and future demands.

#### *3.12.9.1.3 Wastewater*

Sanitary wastewater at Fort Stewart is treated at a WWTP owned, operated, and maintained by the City of Hinesville. The current daily load ranges from approximately 2.55 to 2.75 mgd with a rated capacity to effectively treat 7.15 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as F1/Q1 (meeting or exceeding standards and client needs). The collection system is currently meeting demands; however, it is aging and in need of upgrades.

### 3.12.9.2 Environmental Consequences

#### *3.12.9.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Stewart has determined that implementation of the Proposed Action would result in negligible to minor adverse impacts to infrastructure and utilities. Potential locations for the Proposed Action either have existing connections to utilities or these connections could be created as part of the action. Depending on final designs and locations, possible facility construction could include installation of new wastewater collection systems, new wastewater pump stations, and importing fill dirt from off-post locations.

#### *3.12.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint and fewer requirements for infrastructure and utilities improvements than that described under the Full MDTF Configuration. Impacts to infrastructure and utilities resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.12.10 Water Resources*

### 3.12.10.1 Affected Environment

Aquatic resources at Fort Stewart include natural cypress bogs, evergreen bays, streams and rivers, and their associated bottomland hardwood swamps. Some manmade facilities were present before military occupation, including millponds and rice fields. Existing aquatic resources are discussed as surface water bodies, groundwater, surface water quality, and wetlands and floodplains.

Four watersheds occur within Fort Stewart's boundaries: the Altamaha, Canoochee, Lower Ogeechee, and Ogeechee Coastal watersheds. Most of Fort Stewart is in the Canoochee River watershed, which is also the site of most of the ranges. The Canoochee River traverses from the northwest corner to the eastern side with about 30 miles inside Fort Stewart. The Canoochee River

originates in Emanuel County, Georgia, about 60 miles northwest of Fort Stewart (The Nature Conservancy 1995 cited in U.S. Army 2021).

#### *3.12.10.1.1 Surface Water*

Within the greater Fort Stewart watershed, surface water resources are diverse and include over 265 miles of freshwater rivers, streams, and creeks, numerous ponds and lakes, and over 12 miles of brackish streams (Fort Stewart 2010). Although Fort Stewart occupies parts of four separate watersheds, the majority of the installation lies within the Canoochee and Ogeechee coastal watersheds. The Canoochee River crosses the installation from its northwest corner to its eastern side. The Ogeechee River forms the eastern boundary of the installation and discharges into the ocean. In addition, the southeast boundary of Fort Stewart drains into Goshen Swamp, which ultimately discharges into Peacock Creek, a 303(d) impaired water body designated by the Georgia Department of Natural Resources as impaired due to high levels of fecal coliform and low levels of dissolved oxygen. As there are navigable waters and streams present, additional specific requirements would apply to timber harvest and construction if locations in the area are selected.

The central cantonment area and the Liberty Woods development (along the northeastern edge of the cantonment area) drain toward Taylors Creek. Taylors Creek flows to Canoochee Creek and then to Canoochee River, generally flowing in an easterly direction through the center of Fort Stewart. Taylors Creek and the tributary to Taylors Creek are 303(d) impaired water bodies designated by the Georgia Department of Natural Resources as impaired due to high levels of fecal coliform and low levels of dissolved oxygen. The Canoochee River joins the Ogeechee River at the City of Richmond Hill. The Ogeechee River flows southward and forms the eastern boundary of Fort Stewart.

#### *3.12.10.1.2 Wetlands*

Fort Stewart contains approximately 82,148 acres of wetlands (Fort Stewart geographic information system database). Palustrine wetlands make up 77.3% of the total, while forested wetlands make up 68.8% of the Palustrine system (Directorate of Engineering and Housing 1993 cited in Fort Stewart 2013).

#### *3.12.10.1.3 Floodplains*

The FEMA maps flood-prone areas and lands, to include those lying within the 100-year floodplain on Fort Stewart. There are approximately 120,000 acres of 100-year floodplain on Fort Stewart. Floodplains adjacent to the Ogeechee River, Canoochee River, and the lower reaches of Canoochee Creek, Taylors Creek, and Savage Creek can be inundated for eight months or more annually (U.S. Army 2021).

### 3.12.10.2 Environmental Consequences

#### *3.12.10.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Stewart has determined that implementation of the Proposed Action would result in minor adverse impacts to water resources. The Proposed Action would require land-disturbing activities greater than 0.75 acre within the cantonment area. These activities would require an NOI. The NOI would include an E&S Pollution Control Plan and would

be coordinated through the Fort Stewart DPW Environmental Division Stormwater/E&S POC with the State of Georgia NRCS Office.

Implementation of the MDTF stationing action would impact wetlands, which could require a FONPA be prepared. The extent of impacts to wetlands is unknown at this time. Installation-specific designs and additional site evaluations of facility layouts relative to wetlands would be required to fully assess impacts to wetlands and floodplains. There is insufficient detail to determine if Section 404 permitting would be required for the construction of MDTF facilities. Once installation-specific designs are completed, the Fort Stewart DPW would work with the design team to avoid and minimize potential impacts to wetlands, floodplains, and associated buffer areas to the maximum extent possible. If wetland impacts are determined to be unavoidable, depending on the extent of impacts, a nationwide or individual permit could be required.

Given the presence of wetlands on the installation, Fort Stewart has made avoidance and minimization of wetlands impacts a top priority and wetlands are one of the primary factors considered when planning a new project. In this manner, much of the avoidance and minimization of wetlands impacts takes place before actual site selection occurs. Where wetlands cannot be completely avoided, the impacts to these sensitive resources would be minimized and the remaining impacts would be mitigated. All vegetation within the wetland areas and their buffers would be flagged prior to the start of any work to ensure contractors clearly understand the physical demarcation limits and utilize appropriate equipment and techniques for felling and removing vegetation. The grubbing, grading, and discharge of dredged or fill material into streams and wetlands would require prior coordination with/permitting through the USACE-Regulatory Branch (Wetlands). Wetland impact minimization efforts would be documented during the Proposed Action design phase to assist with completion of any required Section 404 application and mitigation proposal.

Implementation of the Proposed Action has the potential to impact floodplains, and should those impacts be unavoidable, and no alternative locations be available, a FONPA could need to be prepared. The installation is well-versed at accommodating construction in and in the vicinity of floodplains, to include avoidance and minimization, followed by mitigation and engineering controls where impacts cannot be avoided. These measures would be worked into the design and implementation of all construction within and in the vicinity of the floodplain, as well as wetlands.

Implementation of the Proposed Action could occur in the vicinity of streams. In all areas where vegetation has been wrested by normal stream flow, a 25-foot vegetative stream buffer must be maintained, to include surrounding surface water sources, wetlands, and natural or manmade stormwater drainage systems. Construction is generally not allowed within the buffer area; however, if construction requires intrusion into the buffer, a stream buffer variance is required from the Georgia Department of Natural Resources. Streams identified as impaired (Section 303(d)) would have additional requirements.

#### *3.12.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to water resources than that described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and appropriate permitting would apply. Potential impacts to wetlands, floodplains, and streams would be easier to avoid but impacts to these resources would still be possible and would be similar to those described under the Full

MDTF Configuration. Impacts to water resources resulting from implementation of the Base MDTF Configuration would be minor.

## 3.13 JOINT BASE LEWIS-MCCHORD

### *3.13.1 Background*

JBLM encompasses more than 90,000 acres in western Washington in Pierce and Thurston Counties (Figure 1-1). It is bordered on the north by several municipalities, including Lakewood, DuPont, and Steilacoom, and on the east by urban and rural unincorporated areas of Pierce County. JBLM is bordered on the south by the Yelm, Rainier and urban and rural unincorporated areas of Thurston County. On the west, JBLM is bordered by Puget Sound, the Nisqually National Wildlife Refuge, the Nisqually Indian Reservation, the City of Lacey, and other unincorporated areas of Thurston County. The City of Tacoma is located approximately 9 miles to the north and Seattle is approximately 35 miles to the north. The Nisqually Indian Reservation is located adjacent to the Nisqually River west of the installation. The main transportation corridor in the Puget Sound region, I-5, extends through the installation.

### *3.13.2 Air Quality*

#### 3.13.2.1 Affected Environment

JBLM is in the Puget Sound region where air quality is regulated by the Puget Sound Clean Air Agency in Pierce County, and by the Olympic Region Clean Air Agency in Thurston County. In 2019, the overall air quality of the region remained good, continuing the trend of improvement. (Puget Sound Clean Air Agency 2020).

The primary sources of air pollution are PM and vehicular emissions, which contribute to the formation of $O_3$. The Washington Department of Ecology has designated the entire state of Washington as in attainment with the NAAQS for $O_3$. In addition, the entire western Washington region is either in attainment for CO or is unclassified for attainment. These areas are treated as attainment areas by the Washington Department of Ecology. JBLM is located in an unclassifiable area for $PM_{10}$, and in an area that was previously designated as a nonattainment area for both $O_3$ and CO. As part of the redesignation process, the state submitted a maintenance plan under which JBLM can continue to maintain attainment standards for a 10-year period. Opacity is regulated at JBLM under the jurisdiction of the local air pollution control agencies. The closest PSD Class I area to JBLM is Mount Rainier National Park, which is located approximately 50 miles to the east.

Motor vehicles and industrial sources are the primary emission sources at JBLM. Industrial sources include aerospace maintenance and rework operations, fuel burning, fuel storage and dispensing, degreasing, woodworking, and painting operations. Currently, JBLM maintains a "Synthetic Minor" operating permit which means that any increase in stationary source emissions could require the transition back to major source status. Additional thresholds are pollutant-specific for nonattainment and maintenance areas. Portions of JBLM (northern half) are partially within an $O_3$ and CO maintenance area. Any action at JBLM that would result in an increase of 100 tpy of $O_3$ or CO would trigger a conformity analysis (U.S. Army Environmental Command 2011).

#### 3.13.2.2 Environmental Consequences

##### *3.13.2.2.1 Full MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. JBLM operates under a synthetic minor permit. The impact to criteria pollutants would be minimal. The only potential for air quality impacts relative to permit limits would be standby generators. Proper maintenance and ensuring generators are turned off following emergencies would mitigate this impact. There is a low risk of exceeding the limits for HAPs.

##### *3.13.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at JBLM would be negligible.

### *3.13.3 Biological Resources*

#### 3.13.3.1 Affected Environment

##### *3.13.3.1.1 Flora*

JBLM is in the Puget Trough ecoregion, which extends the length of Washington between the Cascade Mountains on the east and the Olympic Mountains and Willapa Hills on the west. Four broad plant communities occur on JBLM: oak/oak-mixed woodlands, coniferous forests, grasslands, and wetlands or riparian areas. Approximately 52,600 acres of the former Fort Lewis is dominated by closed forest and includes prairie colonization forest. Forested areas adjacent to JBLM are fragmented and less valuable to forest-dependent species than forests on the installation (Forestry 2002 cited in U.S. Army Environmental Command 2011; JBLM 2019). Approximately 20,000 acres of JBLM is prairie habitat (JBLM 2019). Given that less than 10% of the original prairie grasslands in the south Puget Sound region remain (Crawford and Hall 1997), and that JBLM contains some of the largest tracts of remaining prairie habitat in the region, JBLM prairies are very important from a regional landscape perspective. Additionally, prairies on JBLM provide habitat for numerous special status plant and animal species.

The oak/oak-mixed woodlands are also regionally important because it is estimated that the former Fort Lewis contains 35% of the remaining oak habitat in western Washington State (GBA Forestry 2002 cited in U.S. Army Environmental Command 2011). Noxious weeds are located across all habitats on JBLM, and management of invasive species is guided by the installation's *Invasive Species Management Plan*, which considers county noxious weed control board priorities. Most of the former Fort Lewis cantonment area has been developed or consists of previously disturbed soils and vegetation.

##### *3.13.3.1.2 Fauna*

The wide diversity of vegetation provides habitat for numerous species of fish and wildlife. At least 25 species of fish, including resident, anadromous, and water species live in aquatic habitats across the installation (U.S. Army 2019). The coniferous and deciduous forests on the installation

provide habitat for large mammals such as black bears, mule deer, raccoons and coyotes and small mammal species such as rodents and shrews.

Bird species that use JBLM are vast and diverse. Forest, riparian and wetland habitats support eagles, hawks, owls, woodpeckers, and various resident and migrant passerine and warbler species. Waterfowl, primarily geese and ducks, inhabit the lake, wetlands, and prairie communities for nesting, loafing, and foraging. These areas also provide habitats for bats and various amphibians and reptiles (U.S. Army 2019).

Hunting and fishing activities are allowed throughout JBLM in areas that do not interfere with military training activities. Game species on JBLM include black bear and Columbia black-tailed deer (*Odocoileus hemionus columbianus*), 11 additional species of mammals, 8 species of upland birds, 24 species of waterfowl, and 24 species of fish.

Wildland fire management is used to manage habitats on JBLM (e.g., pine restoration process and prairie ecosystems) and reduce the risk of wildfires causing damage to life and property. The combination of climate (relatively mild) and vegetation at JBLM contribute to a low to moderate wildfire danger at the installation for the majority of the year. For most of the year, precipitation maintains a high-moisture content in the installation's vegetation and reduces its ability to burn. The warmer, drier summer months (between June and October) can create a high fire danger. The intensive troop training over the entire installation, and the use of incendiary devices for training purposes, creates the potential for numerous fires in grass, brush, and timber. JBLM's Wildland Fire Management Plan sets forth the responsibilities and procedures needed to safely control and use wildfire on JBLM, maximizing military training while at the same time protecting government property, natural resources, and adjoining properties (JBLM 2010a cited in U.S. Army Environmental Command 2011).

#### *3.13.3.1.3 Protected Species*

Numerous species in the JBLM region have been given a special status at the federal level. The presence of several of these species has not been documented in the recent past, but potential habitat for these species does exist on the installation. In addition, some species occupy small territories or occur in isolated sites in Pierce or Thurston counties that are located outside the JBLM boundary. Listed flora include the federally threatened golden paintbrush (*Castilleja levisecta*). Terrestrial listed fauna that could occur on or near JBLM include the federally listed endangered Taylor's checkerspot (*Euphydryas editha taylori*), and federally listed threatened northern spotted owl (*Strix occidentalis caurina*), streaked horned lark (*Eremophila alpestris strigata*), and yellow-billed cuckoo (JBLM 2020).

Numerous aquatic species also occur on JBLM, many of which are federally protected. Federally listed threatened species include three anadromous fish, Puget Sound steelhead (*Oncorhynchus mykiss*), Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), Coastal/Puget Sound bull trout (*Salvelinus confluentus*); and the aquatic plant water howellia (*Howellia aquatilis*). The federally threatened Oregon spotted frog (*Rana pretiosa*) is monitored in the Muck Creek system by JBLM (JBLM 2020).

Many bird species use JBLM throughout the year, but migratory birds protected by the MBTA, such as kinglets, flycatchers, and warblers, migrate through this area. Migratory birds could winter or breed on JBLM or could just use the installation for short periods while migrating between their breeding grounds to the north and wintering grounds to the south.

#### 3.13.3.2 Environmental Consequences

##### *3.13.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action has the potential to result in adverse impacts to biological resources should activities occur outside the JBLM cantonment area. All impacts are considered significant but mitigatable. Mitigation actions to minimize impacts to biological resources are described in Section 4.4. There is a moderate potential to degrade high-quality natural areas or sensitive sites, or the destruction of rare/sensitive plant species or habitat. There is a moderate potential to violate conditions of the JBLM BO.

##### *3.13.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be moderate.

### *3.13.4 Cultural Resources*

#### 3.13.4.1 Affected Environment

JBLM is home to a wide variety of both archaeological and historical sites. Before American Soldiers arrived at what is now JBLM, this area was used by early Native Americans. JBLM has recorded more than 400 archaeological sites on the installation. These sites include burials, artifacts, shell middens, cemeteries, rock piles, rock shelters, and building remains. The cultural resources program at JBLM manages more than 350 historic buildings and historic landscapes in three NRHP-eligible historic districts with more than 400 contributing buildings, structures and objects built between 1917 and 1948. The historic districts include the JBLM Garrison Historic District, the Old Madigan Historic District, and the McChord Field Historic District. In addition, JBLM is home to several NRHP-eligible buildings and structures such as Liberty Gate, the Red Shield Inn, the Mount Rainier Ordnance Depot Gate and Headquarters Building, and Carey Theater (JBLM 2016a).

In addition to maintaining close coordination with the Washington SHPO, JBLM coordinates and consults with a number of different Native American Tribes including the Nisqually, the Puyallup and the Squaxin Island tribes. JBLM is located within the traditional homelands of the Nisqually Indian Tribe. The Nisqually Tribe exercises treaty-reserved rights to hunt, fish, and gather at all their usual and accustomed places on JBLM. In 1918, more than two-thirds of the Nisqually Indian Reservation was condemned by Pierce County and donated to the U.S. Government for the purpose of establishing Camp Lewis. The remaining Nisqually Indian Reservation lands are located adjacent to the JBLM boundary. The Squaxin Island Tribe and the Puyallup Tribe of Indians also exercise treaty-reserved rights to hunt, fish, and gather at all their usual and accustomed places on JBLM. All three Tribes recognize sacred sites and Traditional Cultural Properties on JBLM lands (JBLM 2016a).

Both historic and archaeological sites are evaluated and monitored on a 5-year cycle through update of the ICRMP to ensure that these sites maintain their archaeological and historical integrity and are not damaged.

Approximately 90% of the former Fort Lewis cantonment area that is suitable for development has been surveyed for archaeological resources. Twenty-nine archaeological sites have been identified in the cantonment area and five historic cemeteries are known to exist on the former Fort Lewis that are managed and protected as archaeological sites (U.S. Army Environmental Command 2011).

#### 3.13.4.2 Environmental Consequences

##### *3.13.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by JBLM has determined that implementation of the Proposed Action could result in significant but mitigatable impacts to cultural resources. Proposed projects could occur within the Historic Garrison District and the McChord Field Historic District. Projects in these districts require coordination with the SHPO and ACHP and could require a Memorandum of Agreement. Modifications to the exterior of historic buildings, including doors, as well as some interior modifications could require mitigation. Should potential impacts to historic buildings be unavoidable then those impacts would be coordinated with the SHPO and ACHP and impacts would be mitigated to less than significant.

##### *3.13.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to historical resources than that described under the Full MDTF Configuration alternative. Impacts to cultural resources resulting from implementation of the Base MDTF Configuration would be moderate.

### *3.13.5 Soils*

#### 3.13.5.1 Affected Environment

JBLM is located in the Puget Trough which is a long north-south trending lowland between the Cascade Mountains on the east and the Olympic Mountains on the west. The geology of JBLM results from historic volcanic activity and lava from fissures, sedimentation, deformation-producing mountains, erosion, and glaciations. Glaciation is responsible for most of the topography which is relatively flat to gently rolling with moderate areas of sloped land. Slopes are generally less than 15%, except along the steep escarpments along the Nisqually River and Puget Sound (U.S. Army Environmental Command 2011).

The soil types on JBLM are dominated by the Spanaway-Nisqually association (Pringle 1990; JBLM 2019). Spanaway soils, where most JBLM prairies are located, were formed on gravelly glacial outwash and are typically gravelly sandy loam, whereas the Nisqually soils are formed on sandy glacial outwash and are loamy fine sands. Other major soil types include moderately well-drained, sandy-gravelly forest soils over glacial till, which are common in the southern portion of the installation in Thurston County. The soil types on JBLM that support forest vegetation are the Alderwood-Everett association. Within the cantonment areas, soil erosion is caused by disturbance from clearing and construction. JBLM conducts active management activities during construction to mitigate impacts to soil resources (JBLM 2019).

#### 3.13.5.2 Environmental Consequences

##### *3.13.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. As described in Section 3.13.3, vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion.

##### *3.13.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Impacts to soils resulting from implementation of the Base MDTF Configuration would be minor.

### *3.13.6 Land Use*

#### 3.13.6.1 Affected Environment

Encompassing more than 90,000 acres, JBLM is the largest military installation on the west coast. JBLM includes the cantonment area, four impact areas, and 32 training areas. The cantonment area, located in the northern part of the installation, is bisected by the I-5 highway and encompasses approximately 10,600 acres. The McChord Airfield and associated land uses are located on the eastern and northern sides of the McChord area. Grant AAF is located in the southern portion of the cantonment area. Residential, recreational, commercial, and industrial facilities and operations are the primary developed land uses on JBLM. Most of these are located in the cantonment area. These include administrative, maintenance, medical services, community support, recreation, supply and storage, classroom and simulation training, reserve component support, deployment facilities, Soldier and family housing, and utilities. Aviation-related facilities dominate land use at Grant AAF and the McChord Airfield. Principal industrial operations at JBLM have been the repair and maintenance of vehicles and aircraft. Land use surrounding the installation is dominated by urban growth (AECOM 2015).

In 2015, the South Sound Military & Community Partnership updated the 1992 Fort Lewis JLUS for the recently formed JBLM. The JLUS identified urban growth as the leading compatibility issue for the installation. The JLUS presented a variety of different actions to manage urban growth around the installation including the incorporation of compatibility of the installation in local comprehensive plans.

#### 3.13.6.2 Environmental Consequences

##### *3.13.6.2.1 Full MDTF Configuration*

Implementation of the Proposed Action at JBLM is anticipated to result in minor to moderate impacts to land use. JBLM does not have 93 acres of continuous land available for development/conversion. Additional acreage could be available if the Master Plan is updated to allow further development. Other locations could be available for development, but site topography would be challenging for new construction and require using land in existing training areas.

#### *3.13.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer potential impacts to land use than those described under the Full MDTF Configuration. Impacts to land use resulting from implementation of the Base MDTF Configuration would be minor.

## *3.13.7 Socioeconomics*

### 3.13.7.1 Affected Environment

#### *3.13.7.1.1 Population and Demographics*

Approximately 40,000 active duty, guard, and reserve service members and approximately 15,000 DoD civilians work on JBLM. The installation supports 60,000 family members who live on or outside the base. There are 3,800 Army units available for the Fort Lewis base population of 46,500 Soldiers and Airmen.[18]

JBLM's ROI consists of Pierce and Thurston Counties. The estimated population for Pierce County in 2019 was 904,980 and Thurston County was 290,536, totaling 1,195,516. The values represent 13.8 and 15.2% growth, respectively, since 2010 (Table 3-23) (USCB 2021).

**Table 3-23. JBLM Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Pierce | 904,980 | 13.8 |
| Thurston | 290,536 | 15.2 |

Key: JBLM = Joint Base Lewis-McChord

In 2019, it was estimated that 34.3% of the population in Pierce County and 25.9% in Thurston County were categorized as minority (see Table 3-24). In comparison, the non-White population in Washington was estimated to be approximately 32.5% over the same period.

**Table 3-24. JBLM ROI Demographic Composition [1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Washington | 67.5 | 4.4 | 1.9 | 13.0 | 9.6 | 4.9 | 0.8 |
| Pierce | 65.7 | 7.7 | 1.8 | 11.4 | 7.1 | 7.4 | 1.8 |
| Thurston | 74.1 | 3.6 | 1.8 | 9.4 | 6.3 | 5.8 | 1.0 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

[18] https://www.liveabout.com/overview-joint-base-lewis-mcchord-jblm-fort-lewis-3344683

#### *3.13.7.1.2 Employment and Income*

The estimated per capita income in 2019 was $34,618 and $35,169 for  and Thurston Counties, respectively. The estimated per capita income was $38,915 for the state of Washington for that same timeframe. The largest employment industry in the ROI is educational services, health care, and social assistance followed by retail trade and professional services (USCB 2022).

The unemployment rate for Pierce County as of October 2021 was 4.5% and 3.8% for Thurston County. The unemployment rate for Washington for October 2021 was 5.0% (U.S. Bureau of Labor Statistics 2021).

#### *3.13.7.1.3 Housing*

There are currently 5,159 military family housing units on JBLM, which are managed by the RCI partner Lewis-McChord Communities, Liberty Military Housing. These are all located in the cantonment area among several neighborhoods. Family housing on JBLM comprises 22 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to JBLM. Liberty Military Housing also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 96 to 98% of the available units in family housing on JBLM are occupied.

Unaccompanied personnel housing on JBLM has space for approximately 9,301 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 88%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Pierce and Thurston Counties/ROI was 6,041 and 19,649, respectively (USCB 2019).

#### *3.13.7.1.4 Schools*

The primary school districts on and around JBLM include the Clover Park School District, the Steilacoom Historical School District, North Thurston Public Schools, the Puyallup School District, the Tacoma School District, the Franklin-Pierce School District, and the Yelm School District. The Clover Park Public School District (CPSD) manages six elementary schools on JBLM as well as 20 other schools (elementary, middle school, and high school) in the City of Lakewood, adjacent to the installation. In 2021, 31% of the CPSD's average daily attendance consisted of federally connected students.

School enrollment in 2020–2021 was down from previous years. For example, the CPSD enrollment in 2020–2021 was 20,114 which is down from 20,811 in 2019–2020. The Steilacoom Historical School District enrollment in 2020–2021 was 3,192 students which is down by 241 students in 2019–2020. The Yelm School District enrollment in 2020–2021 was 5,433 students which is also down by 468 students in 2019–2020.

There are 21 different school districts in the ROI. During the 2019–2020 school year the total enrollment for the 21 school districts was 241,379 students. During the 2020–2021 school year the total enrollment for these same schools was 230,668 students which is a reduction of 10,711 students (Washington Office of Superintendent of Public Instruction 2021).

Only about 20% of JBLM families utilize on-base housing and their children can attend on-base schools. Children of military personnel living off-base attend school at numerous ROI communities in one of the 21 different districts which they are zoned.

### 3.13.7.2 Environmental Consequences

#### *3.13.7.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Full MDTF Configuration would result in minor impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area. The area has adequate capacity for housing for incoming personnel and based on the reductions in student enrollments over the last three years, the addition of approximately 1,350 students would result in minor impacts to schools.

#### *3.13.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomic resources resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.13.8 Traffic and Transportation*

### 3.13.8.1 Affected Environment

The ROI for the affected environment for traffic and transportation aspects includes areas of Pierce and Thurston Counties, including the communities of DuPont, Lacey, Steilacoom, and Lakewood. Major routes in the region include I-5, a north-south interstate highway that separates Lewis North from Lewis Main and McChord Field. I-5 is the primary transportation artery throughout this area with JBLM and other urban areas along the corridor. Other arterials used by JBLM personnel and connected to the interstate are Washington State Routes 507, 510, and 512. Along with non-military related growth in the ROI over the last decade, JBLM traffic (military and civilian) negatively affects traffic flow on I-5 and LOS ratings at numerous intersections both on and off the installation (U.S. Army 2012).

### 3.13.8.2 Environmental Consequences

#### *3.13.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by JBLM has determined that implementation of the Proposed Action would result in negligible adverse impacts to traffic and transportation. No new roads are anticipated to result from the Proposed Action and no work on existing roads is proposed. Traffic congestion is not a defined issue of concern on JBLM. During periods of construction, traffic congestion could become an issue when construction equipment and workers access the installation. This would be accommodated via staggering arrival/departure times and by having these vehicles enter/leave via lesser utilized ACPs, as well as other traffic management BMPs.

#### *3.13.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to traffic than that described under the Full MDTF Configuration. Impacts to traffic and transportation resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.13.9 Infrastructure and Utilities*

### 3.13.9.1 Affected Environment

#### *3.13.9.1.1 Energy*

Tacoma Power Utilities provides electrical power to JBLM. The current electrical system is sufficient to meet existing JBLM electrical needs (JBLM 2016b). In 2016, it was documented that the maximum peak electrical demand was 54 MW, and the current cumulative substation capacity is 105 MW. The 54 MW peak load represents 51% of the total existing substation capacity (JBLM 2016b). Regarding climate change, one way JBLM addresses climate change is by emphasizing energy and water conservation and resilience. Some effects of climate change could be unavoidable, but with improved infrastructure and resilient installations, JBLM can minimize operational impacts and maintain readiness (JBLM website accessed on 1/27/22; https://www.army.mil/article/251474/energy_action_month_focuses_on_resilience).

#### *3.13.9.1.2 Potable Water*

The main cantonment area of JBLM is served by seven wells and the Sequalitchew Springs with Wells 12A, 12B, and the springs operating as the primary source of supply with a combined capacity of approximately 17.7 mgd. Treatment is provided by a plant located immediately adjacent to Sequalitchew Springs. High lift pumps deliver treated water to the distribution system. The capacity of the treatment plant and high lift pumps is approximately 21.6 mgd, which exceeds the capacity of the primary supply sources. The rated capacity of the treatment plant is 12.9 mgd, its capacity when operating on emergency power (JBLM 2016b).

#### *3.13.9.1.3 Wastewater*

In September of 2020, American Water was awarded a 50-year contract to privatize the water and wastewater utilities at JBLM (https://www.amwater.com/corp/Products-Services/Military-Services/jblm). The Solo Point WWTP has an average design flow rate of 7 mgd. Over the past few years, the annual average daily flow rate has been 3.77 mgd (EPA 2012).

### 3.13.9.2 Environmental Consequences

#### *3.13.9.2.1 Full MDTF Configuration*

Preliminary analysis based on information from the similar PEA for the Realignment, Growth, and Stationing of Army Aviation Assets (U.S. Army 2011) determined that implementation of the Proposed Action would result in minor impacts to infrastructure and utilities. This PEA analyzed the potential impacts of the addition of up to 2,700 Soldiers, 120 helicopters, and associated facilities to the installation. This PEA anticipated that utility demand would increase in the short-term during construction and in the long term to support the new mission Soldiers and families. However, because the new Soldiers and families were anticipated to result in a population increase of less than one percent, the impact to infrastructure and utilities was anticipated to be minor. Because the Full MDTF Configuration would result in similar numbers of Soldiers (up to 3,000), families and infrastructure, impacts to infrastructure and utilities would also be anticipated to be minor.

Depending on final designs and locations, possible facility construction could include the installation of new electrical power, communications, sanitary sewer, drinking water, and storm sewer/stormwater management.

#### *3.13.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with fewer requirements for infrastructure and utilities improvements than that described under the Full MDTF Configuration. Impacts to infrastructure and utilities resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.13.10 Water Resources*

#### 3.13.10.1 Affected Environment

#### *3.13.10.1.1 Surface Water*

JBLM is located in three Water Resource Inventory Areas (WRIAs), as designated by the Washington Department of Ecology. The three WRIAs are Nisqually River (WRIA 11), Chambers-Clover (WRIA 12), and the Deschutes River Basin. (WRIA 13). WRIAs were established throughout the state of Washington to facilitate watershed planning. The Nisqually River, extending from the southeast to the northwest, is the predominant surface water feature on JBLM. The Nisqually River eventually discharges into the Nisqually Reach of Puget Sound.

Historic glaciation, the pervious nature of surface soils, and presence of groundwater near the surface of the land have resulted in surface expressions of the shallow groundwater table on JBLM. American Lake, Sequalitchew Lake, several wetlands and, at times, Sequalitchew and Murray Creeks in the cantonment area are examples of these surface expressions. Some of these areas on JBLM are both groundwater discharge and recharge areas, depending on seasonal changes in groundwater elevation and on the direction of groundwater flow.

Surface water quality problems have resulted in several water bodies being placed on the 303(d) list for impairment. These off-post impairments result from fecal coliform, dissolved oxygen, temperature, and/or phosphorus. American Lake, half of which is within JBLM's boundary, is listed as impaired within the boundary of JBLM (JBLM 2010b cited in U.S. Army Environmental Command 2011; WDOE 2016). Spanaway Lake, located outside of JBLM, is also on the 303(d) list. Water from JBLM flows into Spanaway Lake but Spanaway Lake's contamination is not derived from the inflow of JBLM waters.

#### *3.13.10.1.2 Wetlands*

Due to historical land use practices before the Army acquired the land on JBLM, many wetlands were ditched and drained for agricultural purposes. These practices severely degraded many aquatic habitats on the installation. Extensive restoration of lakes and marshes on JBLM occurred during the 1970s and 1980s. The former Fort Lewis area of JBLM contains approximately 4,600 acres of widely distributed wetlands. Wetlands on JBLM are managed to maintain wetland training opportunities, enhance anadromous fish habitat, provide recreational opportunities, and control noninvasive species. The primary means of wetland management on JBLM is enforcement of regulations that protect wetland habitat, including limiting the types of activities that can occur within 164 feet of wetlands (JBLM 2019).

#### *3.13.10.1.3 Floodplains*

The FEMA Flood Insurance Rate Map "Special Flood Hazard Areas" maps suggest that the Nisqually River and Muck Creek are the only drainages subject to major flooding (U.S. Army

Environmental Command 2011). Some local flooding occurs in the cantonment area due to backups in the storm drainage system or blocked drain inlets (U.S. Army Environmental Command 2011).

#### 3.13.10.2 Environmental Consequences

##### *3.13.10.2.1 Full MDTF Configuration*

Preliminary analysis has determined that implementation of the Proposed Action would result in significant but mitigatable impacts to water resources. The Proposed Action would require land-disturbing activities of approximately 93 acres within the cantonment area. There is the potential for notice of violations under the MS4 permit if permit requirements are not followed. The JBLM MS4 Permit requires installation of LID BMPs for any ground disturbances greater than 5,000 square feet. All designs must follow the JBLM Stormwater Design Guidance document to comply with permit requirements.

##### *3.13.10.2.2 Base MDTF Configuration*

Preliminary analysis has determined that implementation of the Base MDTF Configuration would result in significant but mitigatable impacts to water resources. This alternative would require land-disturbing activities of approximately 18 acres within the cantonment area. There is the potential for notice of violations under the MS4 permit if permit requirements are not followed. The JBLM MS4 Permit requires installation of LID BMPs for any ground disturbances greater than 5,000 square feet. All designs must follow the JBLM Stormwater Design Guidance document to comply with permit requirements.

## 3.14 JOINT BASE ELMENDORF-RICHARDSON

### *3.14.1 Background*

Joint Base Elmendorf-Richardson (JBER), the former Air Force-owned Elmendorf Air Force Base and Army-owned Fort Richardson, became a joint base in 2010. JBER is located north and east of the Municipality of Anchorage (Figure 1-1). JBER is under Air Force command as part of the Pacific Air Forces and is the home of the Alaskan Command, 11th Air Force, Alaskan North American Air Defense region, Air National Guard, and the 3rd Wing. The base includes the U.S. Army Alaska (USARAK) and Alaska National Guard.

The focus of this analysis is on the JBER-Richardson cantonment area. This area contains the potential locations for an MDTF. JBER-Richardson is bounded by the Knik Arm of the Cook Inlet to the north, the community of Eagle River and Chugach State Park to the east, Anchorage to the west, and Chugach State Park to the south.

Today, the major units under USARAK are the 1st Stryker BCT, 25th ID, 1-52nd General Support Aviation Battalion, and 6-17th Air Cavalry, all three located at Fort Wainwright; and the 4th BCT (Airborne), 25th ID (commonly referred to as the Airborne BCT or 4/25 Airborne BCT), located at JBER-Richardson. In 2008, Army growth resulted in approximately 1,800 additional Soldiers stationed at Fort Richardson, Alaska (FRA).

The 4/25 Airborne BCT comprises a Brigade Headquarters, two infantry battalions, one field artillery battalion, a cavalry squadron, a brigade special troops battalion, and a brigade support

battalion. The recent transformation of the 4/25 Airborne BCT is documented in *Environmental Assessment, Conversion of the Airborne Task Force to an Airborne Brigade Combat Team, Fort Richardson, Alaska* (USAG FRA 2005 cited in U.S. Army 2012), which was prepared subsequent to *Final Environmental Impact Statement for Transformation of U.S. Army Alaska* (USARAK 2004 cited in U.S. Army 2012).

The total Soldier population of the 4/25 Airborne BCT is approximately 3,500 Soldiers. The current estimated JBER population is 38,685: U.S. Air Force at 5,700, U.S. Army at 6,900, U.S. Marine Corp at 90, U.S. Navy at 135, National Guard at 1,040, Air National Guard at 1,480, Coast Guard at 90, with approximately 20,250 joint service family members, and 3,000 civilian employees (JBER Brochure undated cited in U.S. Army 2012).

## *3.14.2 Air Quality*

### 3.14.2.1 Affected Environment

JBER is adjacent to the northern boundary of the Municipality of Anchorage and is within the Cook Inlet Intrastate AQCR of Alaska. This AQCR consists of the territorial area encompassed by the greater Anchorage Area Borough, Kenai Peninsula Borough, and the Matanuska-Susitna Borough. The Municipality of Anchorage remains a CO Maintenance Area and neighboring Eagle River remains a $PM_{10}$ Maintenance Area. Mobile sources include aircraft, government-owned vehicles, and nonroad equipment. JBER is considered to be a major source of air emissions, and various sources are accumulated under air permits for purposes of regulation (U.S. Air Force 2018).

JBER has been separated into multiple stationary sources based on standard industrial classification (SIC) codes rather than operate under a single stationary source. Family housing is permitted and operated by a private property management company. Doyon Utilities owns and operates the power plant and other base utilities. The Alaska Air National Guard and the Alaska Army National Guard also operate separate minor stationary sources within the boundary of JBER.

Most of the stationary sources owned and operated by JBER have such low emissions that they do not operate under a formal air permit. The sole Title V major stationary source operated by JBER covers the activities that occur within the airfield to support the flying mission on the installation. This stationary source is referred to formally as the Flight Line Title V stationary source. JBER also manages a few minor stationary sources for which operating permits are required.

### 3.14.2.2 Environmental Consequences

#### *3.14.2.2.1 Full MDTF Configuration*

Based on existing operations at JBER, implementation of the Proposed Action would result in negligible adverse impacts to air quality since the installation is in attainment for all criteria pollutants.

Construction phase emissions from vegetation/site clearing/grading/stabilization and facility construction would primarily consist of emissions from mobile equipment and fugitive dust. Standard air quality BMPs, such as watering of exposed surfaces and covering of areas with exposed soils, would be implemented to minimize these emissions. Long-term emissions from small, natural gas-fired boilers and a few emergency generators would potentially be installed to

support the MDTF mission. Emissions from these new stationary sources are expected to be minor and would likely fall under the existing Fort Richardson SIC 97 National Security minor stationary source.

#### *3.14.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance with fewer impacts to air quality than those described under the Full MDTF Configuration alternative. Impacts to air quality resulting from implementation of the Base MDTF Configuration at JBER would be negligible.

### *3.14.3 Biological Resources*

#### 3.14.3.1 Affected Environment

#### *3.14.3.1.1 Flora*

Five physiographic zones of vegetation and plant habitat are found on JBER: Coastal Halophytic Zone along Cook Inlet; Lowland Interior Forest Zone characterized by paper birch (*Betula papyrifera*) forest, white spruce (*Picea glauca*), quaking aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), black cottonwood (*Populus trichocarpa*), and mixed birch-spruce forest, with wetlands including black spruce (*Picea mariana*) and treeless bogs and graminoid forbs, and alder (*Alnus spp.*) as the dominant shrub; Subalpine Zone consisting of intermittent forest of white spruce, white spruce-paper birch, balsam poplar, and mountain hemlock (*Tsuga mertensiana*), interspersed with alder shrub and grass forb meadows, and occasional treeless bogs; Alpine Zone above the tree line with shrub habitat and rock talus; and Artificially Cleared or Disturbed Area Zone. Most bogs are treeless and support stands of stunted black spruce. Grasses, herbs, alder, and willow dominate the vegetation in a narrow band along Cook Inlet. Wetland communities include depressional, lacustrine, estuarine, and riverine; including alpine depressional swales, black spruce forested swamps, and vegetated mudflats. The human-modified areas include cantonment areas and airfields, roads and roadsides, paved areas, rights-of-way, borrow pits, moose mitigation areas, landing zones, and other areas where turf and landscape maintenance occurs as required (U.S. Air Force 2021). According to the INRMP, the effects of climate change are already affecting Alaska. Damage to forests, loss of wetlands, degradation of fish habitat, rising ocean levels, and widespread melting of permafrost are being attributed to a permanent climate regime shift. JBER is monitoring the effects of climate change on natural resources and JBLM is evaluating potential impacts to the mission at JBER (U.S. Air Force 2021).

#### *3.14.3.1.2 Fauna*

Most of the species that are indigenous to this part of Alaska are known to occur on JBER. All five Pacific salmon species found in North America return to JBER streams to spawn. Large mammals such as moose, black bears, brown bears, and wolves are prevalent on the base and are typical residents of the Alaskan environment. A small number of black and brown bears winter in dens on JBER. Coyotes are also common and lynx, wolverines (*Gulo gulo*), and red fox occur (U.S. Air Force 2021).

Wildlife and supporting habitat are abundant throughout JBER and its surrounding areas, which include a variety of large mammals (including marine mammals); small mammals; amphibians;

fish; and avian species including game birds, waterfowl, passerines, and raptors. For the most current complete list, see the 2021 INRMP (U.S. Air Force 2021). Army regulations prohibit the intentional targeting of wildlife, including marine mammals (e.g., beluga whales [*Delphinapterus leucas*]) that could be present in the Eagle River during live-fire training. Current management efforts at JBER are focused on the beluga, moose, large predators, waterfowl, and salmon. The JBER INRMP sets forth natural resources management programs and/or activities on JBER.

#### *3.14.3.1.3 Protected Species.*

Besides the Cook Inlet beluga whale, no federally listed, proposed, or candidate threatened or endangered terrestrial plant or wildlife species (or their critical habitat) occur on the JBER installation (U.S. Air Force 2021). The federally endangered Cook Inlet beluga whale inhabits reaches of Eagle River, up to 3 miles from the confluence with the Knik Arm, and well within the boundary of the JBER Installation. JBER identified 45 bald eagle nests and 1 golden eagle nest on the installation in 2021.

### 3.14.3.2 Environmental Consequences

#### *3.14.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened/endangered species as no such species or their habitats are present on JBER. Impacts to migratory species and wildlife would be temporary, negligible, and adverse. Impacts to vegetation are anticipated to be temporary, minor and adverse. Tree removal would require coordination with JBER Forestry. Removal would need to be conducted outside the migratory bird nesting period, generally from May 1 to July 15. Vegetation removed during construction would be replaced as landscaped areas once construction is complete. Overall impacts to biological resources would be minor.

#### *3.14.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer impacts to biological resources than those described under the Full MDTF Configuration alternative. Overall impacts to biological resources resulting from implementation of the Base MDTF Configuration would be minor.

## *3.14.4 Cultural Resources*

### 3.14.4.1 Affected Environment

Several cultural resource studies, archeological surveys, and consultations with Alaska Native Organizations have resulted in identification of archaeological sites, historic properties, and/or sites with traditional, religious, or cultural significance at JBER-Richardson. Certain areas within JBER-Richardson were excluded from past archaeological inventories in the former FRA ICRMP because of mission considerations (including hazards), low site potential, or low potential for mission impact. Five areas within JBER have a high potential to contain archaeological resources The five areas are the mouth of Eagle River; the shoreline of Knik Arm; upstream portions of Ship Creek; the Fossil Creek drainage; and the Elmendorf Moraine. The Elmendorf Moraine is generally located north of the cantonment areas and south of the Eagle River Flats (ERF) Impact Area (JBER 2012).

Most known cultural resource sites on JBER are military (WWII and Cold War) and are located within and/or near the cantonment areas within JBER. Other sites include Alaska Native (prehistoric and historic), homestead-era, and unknown sites, which are located further out from the cantonment area. Approximately 45% of JBER land has been surveyed for archaeological resources (Grover personnel comments 2022).

Despite the findings of past studies and surveys, coordination with the JBER Cultural Resource Manager should be conducted prior to any work as the boundaries between low-medium-high probability areas are not clearly defined. For example, the areas near the cantonment area are low probability areas, but the Elmendorf Moraine is located just north of the cantonment area and has been previously stated to be in an area with a high potential to contain archeological resources.

In addition, all major projects on historic or historic-eligible buildings require consultation with the SHPO. SHPO consultation is also required for demolitions of any permanent building, even non-historic (Scudder 2011 cited in U.S. Army 2012). As a result of coordination or consultation, cultural resource surveys and/or archeological surveys could be required for projects where more information is needed and/or as a mitigation measure. A base-wide PA is currently being developed that will affect how cultural resources are managed on the installation.

There is one historic district on JBER that is listed in the NRHP, which is the Cold War-era Nike Site Summit Historic District. Nike Site Summit is located on the eastern edge of JBER. Twelve other significant Cold War-era buildings and structures occur at JBER. In addition, there are three historic-eligible districts on JBER-Elmendorf – Alaska Air Depot, General's Quarters, and Flight Line. An eligible archaeological district is located north of the ERF impact area.

### 3.14.4.2 Environmental Consequences

#### *3.14.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by JBER has determined that implementation of the Proposed Action could result in moderate to significant but mitigatable adverse impacts to cultural resources. Cultural resource surveys have been conducted throughout JBER but comprehensive archaeological surveys have not been conducted for all of the potential project sites and these surveys would be required at potential project locations before a determination of effect under the Section 106 requirements could be made. One potential project site is known to contain an archaeological site that requires additional evaluation. Potential project locations therefore have the potential to impact known cultural resources and design plans would be required in order to make a Section 106 determination. Should follow-up studies determine that NRHP-eligible resources are located in the proposed project locations and it is determined that these resources would be adversely impacted by the final design of the proposed facilities, then appropriate mitigation would be completed.

#### *3.14.4.2.2 Base MDTF Configuration*

Preliminary analysis performed by JBER has determined that implementation of the Base MDTF Configuration could result in moderate to significant but mitigatable adverse impacts to cultural resources. Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with slightly less potential disturbance to cultural resources than that described under the Full MDTF Configuration alternative. Archaeological surveys would be required and additional information collected before a Section 106 determination could be made.

## *3.14.5 Soils*

### 3.14.5.1 Affected Environment

Most of the developed area of JBER is constructed over an outwash plain composed of alluvial deposits from Eagle Creek during glacial advances and from Ship Creek during modern times. It covers much of the runway and cantonment areas of JBER, and it ends roughly at the base of the hills. The primary substrate components are sand and gravel, with organic matter that has washed onto the plain after eroding from the surrounding hills.

JBER soils are dominated by three types of deposits. These include coarse-grained deposits consisting of alluvial sand and gravel; fine-grained deposits consisting of silt and clay; and glacial till, which includes Elmendorf Moraine, and in which particle sizes vary from clay to boulders. The underlying till can be relatively impermeable, which allows water to pond in kettles and other small depressions. Soils found at JBER represent four orders, including entisols, histosols, inceptisols, and spodosols. Entisols show little or no soil development (e.g., horizons, mineral leaching, etc.). Histosols are dominantly organic (vs. mineral) and are generally called mucks, peats, etc. Inceptisols are mineral soils characterized by the loss of iron and some bases, but also retain some weatherable materials. Spodosols are mineral soils characterized by the accumulation of organic matter (but less than in Histosols) and aluminum, with or without iron (U.S. Air Force 2016).

### 3.14.5.2 Environmental Consequences

#### *3.14.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

#### *3.14.5.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to soil resources than that described under the Full MDTF Configuration alternative. Impacts to soil resources resulting from implementation of the Base MDTF Configuration would be minor.

## *3.14.6 Land Use*

### 3.14.6.1 Affected Environment

Land uses are correlated to the Air Installation Compatible Use Zone compatible land use guidance defined by the DoD. The land use study area includes all lands at JBER surrounding the project area. Since lands outside of JBER would not be affected by the proposed project, they are not included in the land use analysis.

The Installation Development Plan (IDP) is the primary land use and planning document for JBER and was adopted by the base in 2015 (JBER 2015). The IDP identifies 12 distinct land use

categories, in addition to aquatic areas. Land use at JBER is dominated by the large airfields and attendant facilities. These facilities are generally located in the center of the base, with industrial uses dominating the perimeter of the airfield area. The IDP identifies large areas dedicated to training in the northern, eastern, and southern portions of the base, and open space dominates the western portion of the base. Land use includes recreational access to the Richardson Training Areas. Hunting, fishing, sightseeing, and boating are common activities in these areas (see https//JBER.isportsman.net).

#### 3.14.6.2 Environmental Consequences

##### *3.14.6.2.1 Full MDTF Configuration*

Implementation of the Full MDTF Configuration at JBER would have minor to moderate impacts to land use. Proposed construction would entirely occur within developed portions of the installation, but a project of this size has not been included in the IDP and would require additional review and approvals to determine the full extent of potential impacts.

##### *3.14.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer potential impacts to land use than those described under the Full MDTF Configuration alternative. Impacts to land use resulting from implementation of the Base MDTF Configuration would be minor.

### *3.14.7 Socioeconomics*

#### 3.14.7.1 Affected Environment

##### *3.14.7.1.1 Population and Demographics*

Approximately 13,000 active duty, reserve and guard personal and 3,562 civilians work on JBER. The population that lives on JBER consists of 5,493 Soldiers and an estimated 9,305 dependents, for a total on-post resident population of 14,798 (JBER 2016).

JBER's ROI is Anchorage County. The estimated population for Anchorage County in 2019 was 288,000. The population decreased since 2010 by 1.3% (Table 3-25) (USCB 2021).

**Table 3-25. JBER Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Anchorage | 288,000 | -1.3 |

Key: JBER = Joint Base Elmendorf-Richardson

In 2019, it was estimated that 42.9% of the population in Anchorage County was categorized as minority (see Table 3-26). In comparison, the non-White population in Alaska was estimated to be approximately 39.8% over the same period.

**Table 3-26. JBER ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Alaska | 60.2 | 3.7 | 15.6 | 7.3 | 6.5 | 7.5 | 1.4 |
| Anchorage | 57.1 | 6.0 | 9.1 | 9.4 | 10.0 | 8.4 | 2.8 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.14.7.1.2 Employment and Income*

The estimated annual per capita income for Anchorage County is $41,415 in 2019 (USCB 2021). The unemployment rate is slightly lower at 4.7% as of October 2021, compared to that of Alaska at 6.1% for the same period (U.S. Bureau of Labor Statistics 2021).

#### *3.14.7.1.3 Housing*

There are currently 3,262 military family housing units on JBER, which are managed by Aurora Military Housing. These are all located in the cantonment area among several neighborhoods. Aurora Military Housing comprises 19 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to JBER.

The Aurora Military Housing also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 94 to 96% of the available units in family housing on JBER are occupied.

Unaccompanied personnel housing on JBER has space for approximately 1,955 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 97%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Anchorage municipality was 9,297 (USCB 2019).

#### *3.14.7.1.4 Schools*

Children of military personnel attend either the public or private schools throughout ROI community. The ROI includes one public school district, the Anchorage School District, which has an enrollment of nearly 43,500 students. Enrollment at the Anchorage School District has decreased by over 10% over the last 10 years (Anchorage School District 2021).

### 3.14.7.2 Environmental Consequences

#### *3.14.7.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in minor to moderate impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the

immediate ROI for this resource. On-post housing at JBER, however, is essentially at capacity and the off-post housing market has few vacancies. MILCON would be required to alleviate on-post housing shortages. Hidden impacts created by this project, including impacts to medical, community, and support services are unknown.

#### *3.14.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration alternative. Impacts to socioeconomics resulting from implementation of the Base MDTF Configuration would be minor.

### *3.14.8 Traffic and Transportation*

#### 3.14.8.1 Affected Environment

JBER is accessed through four gates on the south side of the base, and one gate on the Davis Highway. Primary access to the base is by the Glenn Highway (US-1) which bisects JBER. From Glenn Highway, access is provided by the Richardson Drive, Muldoon Road, and Boniface Parkway gates. Richardson Drive proceeds to the heart of the base and becomes the Davis Highway as it approaches the cantonment area. JBER is also accessible from Post Road and the A/C Street Couplet. Rail service is provided to JBER on an as-needed basis by the Alaska Railroad Corporation. The main rail line crosses between the two cantonment areas, and a spur extends to a loading facility and an ammunition storage complex. The railroad offers both freight and deployment services to various ports and cities in southern Alaska.

The JBER-Elmendorf airfield includes the east-west runway (Runway 06/24) and a north-south runway (Runway 16/34), both of which are Class B asphalt runways. In 2014, the predominant direction of departures of the F-22 fighter on Runway 16/34 was from south to north (Runway 34). The north-south runway is 7,493 feet long and 150 feet wide. Bryant AAF is located adjacent to the JBER-Richardson cantonment area and the Glenn Highway and has a 4,088-foot-long, north-south runway. Operations to and from the south are challenging given the proximity to the City of Anchorage and numerous conflicts with nearby airfields including Merrill Field, the Lake Hood Seaplane base, and the Ted Stevens Anchorage International Airport.

#### 3.14.8.2 Environmental Consequences

#### *3.14.8.2.1 Full MDTF Configuration*

Preliminary analysis performed by JBER has determined that implementation of the Proposed Action would result in minor adverse impacts to traffic and transportation. No new roads are anticipated to result from the Proposed Action and no work on existing roads is proposed. Traffic congestion is not defined as an issue of concern on JBER. During periods of construction, traffic congestion could become a minor issue, as construction equipment and workers access the installation. This would be accommodated via staggering arrival/departure times and by having these vehicles enter/leave via lesser utilized ACPs, as well as other traffic management BMPs. Development of any of the potential sites is anticipated to cause a minor increase in traffic volume in the area of the site.

#### *3.14.8.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to traffic than that described under the Full MDTF Configuration. Impacts to traffic and transportation resulting from implementation of the Base MDTF Configuration would be minor.

### *3.14.9 Infrastructure and Utilities*

#### 3.14.9.1 Affected Environment

#### *3.14.9.1.1 Energy*

Chugach Electric Association provides electrical power to JBER. In 2021, Chugach Electric Association had a total generating capacity of 937.2 MW of power and the current peak electricity usage within the JBER service area was estimated to be 7.2% of available power. In 2021, it was estimated that JBER consumes approximately 7.2% of 2.0 billion kilowatt hours total energy production.

In 2021, JBER obtained approximately 100% of energy from natural gas and propane. ENSTAR supplies natural gas to JBER at an estimated total capacity of 550 million CFH. In 2021, JBER used approximately 250 million CFH on the coldest days, which equates to approximately 46% of total capacity.

#### *3.14.9.1.2 Potable Water*

Potable water is supplied to JBER by the JBER-Richardson Potable Water Distribution System. This system is capable of supplying up to 7.0 mgd to JBER, far exceeding the current peak demand of 2.8 mgd. The overall condition of the potable water facilities and infrastructure system is rated as satisfactory and adequate to accommodate current and future demands.

#### 3.14.9.1.3 *Wastewater*

Sanitary wastewater at JBER is treated at a WWTP owned, operated, and maintained by Anchorage Water and Wastewater Utility. The current daily load ranges from approximately 2.65 to 4.25 mgd with a rated capacity to effectively treat 6.0 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as average and adequate to accommodate current and future demands (daily load ranges are higher due to water seepage into the wastewater system).

#### 3.14.9.2 Environmental Consequences

#### *3.14.9.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in negligible to minor adverse impacts to infrastructure and utilities. Potential locations for the Proposed Action either have existing connections to utilities or these connections could be created as part of the action. Depending on final designs and locations, possible facility construction could include the installation of new electrical power, communications, sanitary sewer, drinking water, and storm sewer/stormwater management.

#### *3.14.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with fewer requirements for infrastructure and utilities improvements than that described under the Full MDTF Configuration. Impacts to infrastructure and utilities resulting from implementation of the Base MDTF Configuration would be negligible.

### *3.14.10 Water Resources*

#### 3.14.10.1 Affected Environment

#### *3.14.10.1.1 Surface Water*

JBER is located within the Knik Arm watershed. Most of the streams on JBER flow from the headwaters in the Chugach Mountains to the Knik Arm of the Cook Inlet (U.S. Army 2021). Major waterways in Alaska can be classified as either glacial or non-glacial. Each variety of waterway experiences higher flow conditions during spring and summer, whereas water flow is reduced (low flow) during the fall and winter seasons. Non-glacial waterways experience a sharper increase in flow during May coinciding with snowmelt; and glacial waterways tend to experience peak discharge in June or July, coinciding with melting of glaciers (U.S. Army 2008 cited in U.S. Army 2012). Eagle River is the largest stream that traverses JBER and is glacial fed. Eagle River flows through JBER-Richardson and settles out at ERF, the estuarine tidal marsh located at the mouth of the river (U.S. Army 2021).

Ship Creek is the second largest river. Ship Creek (a non-glacial waterway) flows from Ship Lake at the Chugach Mountains to the Knik Arm. Other perennial streams on JBER include Chester Creek and the North Fork of Campbell Creek. Chester Creek (located south of Ship Creek) flows through the southwestern portion of JBER-Richardson and into a marsh wetland at the base of the Chugach Mountains and then is re-channeled near JBER-Richardson's western border. North Fork Campbell Creek is a non-glacial stream that stems from Long Lake (in the Chugach Mountains) and flows across JBER-Richardson's southwestern corner where water flow there recharges the groundwater aquifer. McVeigh Creek also begins near the Chugach Mountains and flows west to southwest (parallel to Glenn Highway) and flows through JBER-Richardson's small-arms range where it continues to McVeigh Marsh and drains into Ship Creek upstream from the Glenn Highway Bridge (U.S. Army 2021).

Snowhawk Creek (also non-glacial) is a tributary to Ship Creek and flows northeast through Snowhawk Valley and joins Ship Creek upstream of Ship Creek Dam and Reservoir. Clunie Creek flows from wetlands located south of Clunie Lake into ERF and ultimately drains into Knik Arm.

#### *3.14.10.1.2 Wetlands*

JBER has a total of 7,418.71 acres of wetlands. This area of wetlands accounts for approximately 10% of JBER's land base (U.S. Air Force 2021). Wetland areas on JBER are diverse and widespread throughout the various slopes, depressions, flats, riverine and estuarine systems on base. All wetlands on JBER are potentially jurisdictional and must be verified by the Corps prior to incurring any disturbance, in order to complete an evaluation of purpose and need, assessment of practicable alternatives, and, if necessary, assess compensatory or other mitigation requirements (U.S. Air Force 2021).

#### *3.14.10.1.3 Floodplains*

Most of the streams on JBER originate from headwaters in the Chugach Mountains and flow across the installation in a generally westerly direction toward Cook Inlet. During winter when most water is frozen, flow is limited to seepage from aquifers into streams. Snowmelt usually starts in April and peaks in June. Snowmelt typically has the greatest impact on stream flow during June and July. High rainfall amounts often occur in August to October, and flood events in the Upper Cook Inlet have occurred during these months, affecting Ship Creek and the Eagle River (U.S. Air Force 2021).

### 3.14.10.2 Environmental Consequences

#### *3.14.10.2.1 Full MDTF Configuration*

Implementation of the MDTF Full Configuration would have no direct impacts to surface waters, wetlands, or floodplains. Negligible indirect adverse impacts would occur to surface water resources. The proposed Full MDTF Configuration with associated renovation, construction, and operations would be in the cantonment area of the installation and would be completed in compliance with Section 438 of the Energy Independence and Security Act. No surface waters, wetlands, or floodplains occur in the areas proposed for construction.

The proposed 3,000 Soldiers Full MDTF Configuration with associated renovation, construction, and operations would only minimally impact surface water. BMPs are in place to prevent or minimize the potential for the release of pollutants from ancillary activities through site runoff, spillage or leaks, or drainage from raw material storage. For ground-disturbance activities, appropriate permits for land disturbance would be obtained.

#### *3.14.10.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with less disturbance to water resources than that described under the Full MDTF Configuration. Land-disturbing activities for up to 18 acres would occur and permitting would still apply. Impacts to water resources resulting from implementation of the Base MDTF Configuration would be negligible.

## 3.15 USAG HAWAIʻI

### *3.15.1 Background*

USAG Hawaiʻi (Figure 1-1) manages all Army installations in Hawaiʻi. USAG Hawaiʻi provides installation management service and logistical support for approximately 93,700 Soldiers, civilian personnel, military retirees and dependents, and others. Many of USAG Hawaiʻi's responsibilities are comparable to the operation of a mid-size urban area, with purview over housing, roads, utilities, schools, libraries, recreational facilities and programs, safety and emergency responses, and other amenities that support the mission and both life and work of those on the installation.

USAG Hawaiʻi manages 22 sub-installations on the islands of Oʻahu and Hawaiʻi. Nineteen sub-installations are located on Oʻahu and three are located on Hawaiʻi. MDTF development activities are proposed to occur at both Schofield Barracks Military Reservation (SBMR) and the Helemano Military Reservation (HMR), both of which are located on the island of Oʻahu. MDTF development activities at both of these sub-installations would primarily occur in the cantonment

areas with no proposed activities in any of the training areas. The cantonment area on SBMR includes approximately 1,952 acres of land that contains troop and family housing, operational and training facilities, warehouses and community services (USAG Hawai‘i 2010). The HMR is primarily a military housing area for Army personnel stationed at SBMR.

As described in Section 2.4.5, due to the land restrictions at USAG Hawai‘i, this installation would only be able to accommodate the Base MDTF Configuration and therefore only the Base MDTF Configuration was analyzed in this PEA.

## *3.15.2 Air Quality*

### 3.15.2.1 Affected Environment

The Hawai‘i Department of Health has established ambient air quality standards similar to the NAAQS. The ROI for assessing potential impacts to air quality is the Hawai‘i AQCR. Federal regulations designate AQCRs with levels below the NAAQS as attainment areas. Honolulu County (and, therefore, all areas associated with the Proposed Action) is in the State of Hawai‘i AQCR (AQCR 246) (40 CFR 81.76). Based on ambient air monitoring data, EPA has designated the state as in attainment for all criteria pollutants for which designations have been issued (EPA 2021).

### 3.15.2.2 Environmental Consequences

#### *3.15.2.2.1 Base MDTF Configuration*

Based on a preliminary analysis of the potential MDTF construction, implementation of the Base MDTF Configuration would result in negligible impacts to air quality. The installation is located in an attainment area and construction, operation, and utilization of the new facilities would not result in the installation violating its existing Title V Permit. Most impacts to air quality are anticipated to be the result of construction equipment and vegetation/site clearing/grading/stabilization, and construction and would result in the discharge of airborne particulates/fugitive dust. Standard air quality BMPs would be implemented to minimize these emissions, such as watering of exposed surfaces and covering of areas with exposed soils.

## *3.15.3 Biological Resources*

### 3.15.3.1 Affected Environment

#### *3.15.3.1.1 Flora*

There are four native vegetative communities located on SBMR: Montane Wet, Lowland Wet, Lowland Mesic, and Aquatic Natural communities. These community types are categorized into ecological zones that are defined by elevation, topography, and prevailing ecological conditions. The vegetation at SBMR is native dominated in the upper elevations and transitioning to non-native in the lowlands. At SBMR there are over 300 documented native plant taxa, of which 57 are federally listed under the ESA. Flora in the cantonment area is limited in diversity and dominated by non-native species and species that are accustomed to human disturbance. As described in the INRMP, changes in climate are expected to disrupt the connectedness of species and climate change can amplify the impacts of military training activities. Extended droughts increase the potential for fire and heavy enduring rains increase the frequency and extent of slope slippage (USAG Hawai‘i 2020).

#### *3.15.3.1.2 Fauna*

Although the diversity of vegetative communities throughout the entirety of SBMR provide habitat for numerous animal species, most of these species occur in less-disturbed portions of the installation (USAG Hawai‘i 2015). For example, the cantonment area has limited habitat diversity, high-quality forage areas or other habitat for wildlife species is generally not available in the cantonment area. Wildlife are managed in accordance with the INRMP. Faunal species consists primarily of birds with the greatest diversity of birds in the forested areas of the installation (USAG Hawai‘i 2015). Invasive species such as rats, cats, and mongoose (Herpestidae) are known to occur on SBMR. USAG Hawai‘i has developed an aggressive invasive species program to detect and manage invasive species and to minimize effects on sensitive species and habitats. The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only indigenous terrestrial mammal on the Hawaiian Islands and bats are present on SBMR.

#### *3.15.3.1.3 Protected Species*

No listed plant species are likely to occur in the project area because of its disturbed nature. Protected animal species known from the SBMR include five different species of birds and one species of bat. These species include the Hawaiian goose, or nēnē, (*Branta sandvicensis*), the Hawaiian stilt (*Himantopus mexicanus knudseni*), the Hawaiian coot (*Fulica americana alai*), the Hawaiian common moorhen (*Gallinula chloropus sandvicensis*), the Hawaiian duck (*Anas wyvilliana*), and the Hawaiian hoary bat (USAG Hawai‘i 2015). Although the Hawaiian hoary bat is known to occur in the cantonment area, no critical habitat is located in this area.

### 3.15.3.2 Environmental Consequences

#### *3.15.3.2.1 Base MDTF Configuration*

Although the Hawaiian hoary bat is known to occur in the cantonment area, all site development would be conducted in accordance with the tree cutting moratorium designed to prevent harm to roosting Hawaiian hoary bats. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased. The impacts to wildlife from construction on the garrison are anticipated to be negligible.

Impacts to vegetation are anticipated to be temporary, minor, and adverse. Vegetation in the proposed project areas consists of landscape shrubs and mowed grass. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. No significant impacts to vegetation are anticipated. Overall impacts to biological resources from implementation of the Base MDTF Configuration would be negligible.

## *3.15.4 Cultural Resources*

### 3.15.4.1 Affected Environment

As a whole, SBMR contains a total of 134 identified archaeological sites yet to be evaluated. Most identified sites are of Native Hawaiian origin and include heiau structures, agricultural terraces, ‘auwai, mounds, enclosures, stone alignments, irrigation complexes, pondfields, and roads. SBMR also contains several historic era sites, including concrete foundations, tunnels/bunkers, and a reservoir. SBMR, including the cantonment area, east, west, and south ranges, has 280 buildings

and structures with an active historic status (listed, eligible, or contributing to an eligible district) and five are determined to be non-contributing elements or not eligible for listing. There are 172 buildings and structures over 50 years of age yet to be evaluated (RPLANS 2016).

Previous studies of the SBMR cantonment area unanimously concluded that more than a century of intensive impacts by military land use, urban development, and commercial agriculture have substantially altered the cultural landscape of the central plateau's tablelands and thus, most, if not all, evidence of traditional cultural activity has been eliminated. There are 10 sites in the cantonment area that have yet to be evaluated (USAG Hawai‘i 2018).

HMR was extensively developed during WWII and the postwar years, and subsequent archaeological surveys did not result in any identified sites. HMR has one building considered eligible for the purposes of a Program Comment and six buildings over 50 years old in need of evaluation (USAG Hawai‘i 2018).

As of June 2017, no sacred sites had been designated at any of the Army installations managed by USAG Hawai‘i.

#### 3.15.4.2 Environmental Consequences

##### *3.15.4.2.1 Base MDTF Configuration*

Preliminary analysis performed by USAG Hawai‘i has determined that implementation of the Base MDTF Configuration could result in minor impacts to cultural resources. The Base MDTF Configuration would occur on previously disturbed land and utilize existing buildings. Proposed construction activities would occur in the vicinity of a historic landscape that has been identified as having some value and significance. Past coordination with the Hawai‘i SHPO has confirmed the Army's findings that the landscape should be retained and preserved. Minor impacts would occur if impacts to the landscape (e.g., removal of trees) could not be avoided. If impacts could not be avoided, then those impacts would be mitigated. Once final design plans are available and appropriate cultural resource surveys are complete, a determination regarding the NRHP eligibility of resources could be made. If historical resource impacts would be unavoidable, then Section 106 consultation would be initiated with the Hawai‘i SHPO.

### *3.15.5 Soils*

#### 3.15.5.1 Affected Environment

The soils of Hawai‘i are reflective of the volcanic history of the state but can vary drastically between islands. Rainfall and the amount of time the surface is exposed to weathering play a large role in the soil type of a particular area. There are seven soil associations on O‘ahu, which reflect the volcanic history of the area. In the mountainous areas and low slopes of the Wai‘anae Range, Mahana, Kolekole, Halawa, Helemano, Kemoo, Kawaihapai, and Alaka'i soil types can be found (USAG Hawai‘i 2010).

Soil erosion can be locally significant and considered severe in areas where natural drainages and gulches occur. Due to the high shrink-swell potential of soils, erosion can be significant where slopes are steep. Exposed lava, dry climate, and lack of permanent streambeds could play a role in reducing erosion (USAG Hawai‘i 2010).

#### 3.15.5.2 Environmental Consequences

##### *3.15.5.2.1 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 18 acres. Vegetation removed during construction would be replaced as landscaped areas and mowed grass once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion.

### *3.15.6 Land Use*

#### 3.15.6.1 Affected Environment

USAG Hawai‘i’s 19 sub-installations occupy substantial portions of the island of O‘ahu, particularly the central plateau and the northern Ko‘olau Range. SBMR, including the cantonment area and training ranges, is situated at the crest of the central O‘ahu plateau. HMR on the northern slope of the plateau.

On-post land use development is governed by the applicable provisions of Army regulations, primarily Army Regulation 210-20, which regulates land use on property administered by the Army. These regulations do not limit land use per se, but they do require that the uses be in accordance with Army installation land use planning procedures and regulations.

#### 3.15.6.2 Environmental Consequences

##### *3.15.6.2.1 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in negligible impacts to land use. Existing facilities would be utilized and any new construction would occur on previously disturbed areas with land uses appropriate for the new construction.

### *3.15.7 Socioeconomics*

#### 3.15.7.1 Affected Environment

##### *3.15.7.1.1 Population and Demographics*

Approximately 22,642 troops and 11,162 civilians work on USAG Hawai‘i (O‘ahu only). The population that lives on USAG Hawai‘i consists of 6,830 Soldiers with an estimated 15,944 dependents. In addition, 258 non-military personnel with 623 non-military dependents live on USAG Hawai‘i for a total on-post resident population of 23,655.

USAG Hawai‘i’s ROI is City and County of Honolulu (which includes the entire island of O‘ahu). The estimated population for Honolulu County in 2019 was 974,563 (USCB 2021). The population increased by 2.2% since 2010 (Table 3-27).

**Table 3-27. USAG Hawai'i Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| Honolulu | 974,563 | 2.2 |

Key: USAG = U.S. Army Garrison

In 2019, it was estimated that 82.1% of the population in Honolulu County was categorized as minority (see Table 3-28). In comparison, the non-White population in Hawai'i was estimated to be approximately 78.3% over the same period.

**Table 3-28. USAG Hawai'i ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Hawai'i | 21.7 | 2.2 | 0.4 | 10.7 | 37.6 | 24.2 | 10.1 |
| Honolulu | 17.9 | 2.8 | 0.3 | 10.0 | 42.9 | 22.8 | 9.6 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.15.7.1.2 Employment and Income*

The estimated annual per capita income for Honolulu County is $36,816 in 2019. The unemployment rate is slightly lower at 5.4% as of December 2019, compared to that of Hawai'i at 6.3% for the same period (USCB 2021). Management, business, science, and arts form the industries with the highest employment in this county (U.S. Bureau of Labor Statistics 2021).

#### *3.15.7.1.3 Housing*

There are currently 7,580 military family housing units on SBMR, which are managed by the RCI partner, Island Palm Communities, LLC. These are all located in the cantonment area among several neighborhoods. Island Palm Communities, LLC, manages nine distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to SBMR and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 97% of the available units in family housing on SBMR are occupied.

Unaccompanied personnel housing on SBMR has space for approximately 5,697 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 95%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Honolulu County/ROI was 34,253 (USCB 2019).

#### *3.15.7.1.4 Schools*

The public school district that accommodates SBMR children is the Central Oahu District. These schools in this district serve the SBMR on-post community: Solomon Elementary, Hale Kula Elementary, Wheeler Middle, and Leilehua, Mililani and Waialua High Schools. The Solomon and Hale Kula elementary schools are on the SBMR cantonment area and the Wheeler Middle School is on Wheeler Army Airfield (WAAF). Leilehua High School is off post, about 5 miles east of SBMR in Wahiawa (USAG Hawai‘i 2015) and Mililani and Waialua High Schools are located off post approximately 5 to 8 miles, respectively from the installation.

### 3.15.7.2 Environmental Consequences

#### *3.15.7.2.1 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in minor impacts to socioeconomics. The stationing action would result in the influx of new personnel and their families into the area, which typically results in positive impacts to the immediate ROI for this resource. The schools that surround the installation would work with military liaison officers to accommodate capacity increases in a collaborative matter (Murphy 2022). Impacts socioeconomics resulting from implementation of the Base MDTF Configuration would be minor.

## *3.15.8 Traffic and Transportation*

### 3.15.8.1 Affected Environment

SBMR is in central Oahu approximately 15 miles northwest of Honolulu. SBMR is bounded by Veteran’s Memorial Highway (H-2), SH 99 (Kamehameha Highway), and Kunia Road to the east. Kunia Road runs northeast-southwest, separating SBMR from WAAF. SHs 99 and 930 (Farrington Highway) are the northbound routes leading to Haleiwa and Waialua. H-2 begins at Wilikina Drive outside SBMR and WAAF and continues south to its interchange with the Queen Liliuokalani Freeway (H-1) in Pearl City. H-1 is one of two continuous east-west routes in the Honolulu roadway network at the southern portion of the island. H-1 extends from Makakilo on the west coast through Pearl City and Honolulu to its termination near Maunalua Bay on the south coast. The John A. Burns Freeway (H-3) extends from its interchange with H-1 and the Moanalua Freeway (H-201) in Halawa Heights to the border of Marine Corps Base Hawai‘i on the east coast. H-201 connects with H-1 and H-3 and passes Fort Shafter, Tripler Army Medical Center, and Red Hill.

The two main roadways serving SBMR are Foote Avenue/Trimble Road and Lyman Road, which are east-west roadways that traverse the main cantonment area. Traffic on roadways in and leading to SBMR and WAAF experience delays during peak periods. SBMR provides access from the external roadway network through four gates, Lyman, Foote, Macomb, and McNair (USAG Hawai‘i 2015).

The closest airport is WAAF, adjacent to SBMR to the east. The closest international airport is Honolulu International, which is 15 miles away.

The nearest public harbor is Barbers Point Harbor, about 17 miles to the south. The State of Hawai‘i’s Harbors Division is the port authority for Barbers Point Harbor. Barbers Point Harbor serves a niche market in the Hawaiian port community and contains several specialized cargo handling facilities not available in Honolulu Harbor.

### 3.15.8.2 Environmental Consequences

#### *3.15.8.2.1 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in minor increases in traffic volumes at potential project locations after completion of the project. Impacts would be minor to moderate for traffic flows and increased congestion. Short-term minor impacts would result during periods of construction. Impacts to traffic and transportation resulting from implementation of the Base MDTF Configuration would be minor.

## *3.15.9 Infrastructure and Utilities*

### 3.15.9.1 Affected Environment

#### *3.15.9.1.1 Energy*

Hawaiian Electric provides electrical power to USAG Hawai‘i. In 2021, Hawaiian Electric had a total generating capacity of 1,800 MW of power and the current peak electricity usage within the USAG Hawai‘i service area was estimated to be 3% of available power. In 2021, it was estimated that USAG Hawai‘i consumes approximately 4% of Hawaiian Electric’s total energy production. In 2020, USAG Hawai‘i obtained approximately 5% of energy from natural gas and propane. Hawai‘i Gas supplies natural gas to USAG Hawai‘i at an estimated total capacity of 342,000 CFH.

#### *3.15.9.1.2 Potable Water*

Potable water is supplied to USAG Hawai‘i by the Schofield Shaft of the central sector of the Central Oahu Aquifer. The aquifer is capable of supplying up to 9.0 mgd to USAG Hawai‘i, far exceeding the current peak demand of 6.95 mgd. The overall condition of the potable water facilities and infrastructure system is rated as adequate to accommodate current and future demands (USACE Honolulu District 2010 cited in USAG Hawai‘i 2015).

#### *3.15.9.1.3 Wastewater*

Sanitary wastewater at USAG Hawai‘i is treated at a WWTP owned, operated, and maintained by AQUA Engineering. The current daily load averages approximately 1.9 mgd with a rated capacity to effectively treat 4.2 mgd. The overall condition of the wastewater facilities and infrastructure system is rated as satisfactory and adequate to accommodate current and future demands.

### 3.15.9.2 Environmental Consequences

#### *3.15.9.2.1 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would result in negligible to minor adverse impacts to infrastructure and utilities. Potential locations for the MDTF Base Configuration facilities would require new connections into existing utility systems as part of the action. Depending on final designs and locations, possible facility construction could include electrical power, communication, sanitary sewers with the potential for lift stations, drinking water and storm sewer/stormwater management.

## *3.15.10 Water Resources*

### 3.15.10.1 Affected Environment

#### *3.15.10.1.1 Surface Water*

SBMR is located in the Waikele watershed near the drainage divide between the Kiikii watershed and the Waikele watershed (Parham et al. 2008). The principal surface water feature of the Kiikii watershed is the Wahiawa Reservoir (Lake Wilson), just outside the northeastern boundary of SBMR, north and east of Highway 99, and about a mile northeast of the generating station parcel.

The Waikoloa Gulch and the Waikele Stream serve as the primary drainages for SBMR. Along the northeast boundary of SBMR flows the North Fork of the Kaukonahua Stream, along with two tributaries. Many streams on SBMR are intermittent, meaning they typically only flow during the wet season and remain dry during the dry season. All streams on SBMR flow into the Pacific Ocean at Waialua, except for the Waikele, which flows into Pearl Harbor from the north. Plants and animals are sustained by rainfall, fog drip, and occasional frost (USAG Hawai‘i 2010).

#### *3.15.10.1.2 Wetlands*

Although there are some regulated wetlands on the range and training areas of USAG Hawai‘i, there are no documented regulated wetlands in the SBMR cantonment area.

#### *3.15.10.1.3 Floodplains*

Although there are mapped floodplains designated by FEMA on SBMR, much of the cantonment area is in flood zone D which is unstudied where flood hazards are undetermined, but flooding is possible.

#### *3.15.10.1.4 Coastal Zone*

The Coastal Zone Management area for Hawai‘i encompasses the entire state. The federal consistency provision of the Coastal Zone Management Act requires federal activities and development projects to be consistent with approved state coastal programs to the maximum extent practicable. Federally permitted, licensed, or assisted activities occurring in or affecting a state’s coastal zone also must be in agreement with the state Coastal Zone Management program’s objectives and policies.

### 3.15.10.2 Environmental Consequences

#### *3.15.10.2.1 Base MDTF Configuration*

Preliminary analysis performed by USAG Hawaii determined that implementation of the Base MDTF Configuration would have no direct impacts to surface waters, wetlands, or floodplains. Existing facilities would be utilized and new construction would occur on previously disturbed areas.

The proposed 400-Soldier Base MDTF Configuration with associated renovation, construction, and operations would only have a minimal potential indirect impact to surface water through increased erosion. BMPs are in place to prevent or minimize the potential for the release of pollutants from ancillary activities through site runoff, spillage or leaks, or drainage from raw material storage. The closest surface water is located 300 feet from any potential disturbance. For

ground-disturbance activities, procedural requirements (i.e., construction stormwater permit) would be required. Impacts to water resources would be negligible.

## 3.16 FORT WAINWRIGHT

### *3.16.1 Background*

USAG Alaska Fort Wainwright (Fort Wainwright) is in the Tanana River Valley of central Alaska, north of the Alaska Range, approximately 120 miles south of the Arctic Circle (Figure 1-1). The installation is on the eastern edge of the urbanized areas of the City of Fairbanks. The focus of this analysis is only on the cantonment area. The cantonment area of Fort Wainwright is approximately 15,369 acres (including the Small Arms Complex). Fort Wainwright is the home of the U.S. Army Garrison Alaska and units of the USARAK including the 1st Stryker BCT, 25th ID; the 1st Battalion, 52nd Aviation Regiment, 1st Attack Reconnaissance Battalion, 25th Aviation Regiment and the Medical Department Activity-Alaska. More than 8,500 Soldiers, civilians, and contractors use the installation, and the installation supports more than 8,100 family members. Fort Wainwright also supports several tenants including Cold Regions Test Center, the Cold Regions Research and Engineering Laboratory, Medical Department Activity, and the Bureau of Land Management Alaska Fire Service. Fort Wainwright is responsible for ownership and stewardship of withdrawn training lands for Army use.

### *3.16.2 Air Quality*

#### 3.16.2.1 Affected Environment

Fort Wainwright and the City of Fairbanks are located in the Fairbanks North Star Borough (FNSB) of the Northern Alaska Interstate AQCR, or AQCR 09. The EPA has designated the FNSB portion of AQCR 09 as serious nonattainment for $PM_{2.5}$, maintenance for CO, and attainment for all other criteria pollutants. In 2009, the portion of the Fairbanks area in which Fort Wainwright is located was designated as a $PM_{2.5}$ moderate nonattainment area. Because the Fairbanks area was a moderate nonattainment area for the $PM_{2.5}$ NAAQS, the State of Alaska was required to develop a State Implementation Plan (SIP) that outlines the actions to be taken to achieve the $PM_{2.5}$ NAAQS. This plan was submitted to EPA in December 2014 with an attainment date, set by the requirements of the CAA, of December 31, 2015. This attainment date was not obtainable or practical for the levels of $PM_{2.5}$ recorded for the locations. On April 28, 2017, EPA reclassified the area from moderate to serious for the 2006 24-hour $PM_{2.5}$ NAAQS because the standard had not been attained by the December 31, 2015, deadline. This reclassification triggered the requirement to develop, submit, obtain EPA approval for, and implement a SIP to ensure attainment of the standard by December 31, 2019. Alaska Department of Environmental Conservation (ADEC) adopted the SIP on November 19, 2019, which became effective January 8, 2020. On September 15, 2021, the EPA signed a notice finalizing approval of parts of the SIP. The requirements addressed in the signed notice include the base year emissions inventory and the $PM_{2.5}$ precursor demonstration. The EPA stated that they will act on other portions of the Fairbanks nonattainment plan, and associated SIP revisions later.

Air quality conditions around the Fort Wainwright cantonment area where the Proposed Action would occur are also affected by emissions from existing stationary combustion sources, onroad vehicles, and aircraft and their ground support equipment. Other background sources such as

highway vehicles, off-base stationary facilities, and construction activities in neighborhoods also affect ambient air quality conditions.

#### 3.16.2.2 Environmental Consequences

##### *3.16.2.2.1 Full MDTF Configuration*

Fort Wainwright lies with in a $PM_{2.5}$ nonattainment area for air quality and a CO maintenance area. Further analysis would be needed to make an actual determination depending on vehicles and equipment being used. Based on a preliminary analysis of the potential MDTF construction, implementation of the Full MDTF Configuration would result in minor adverse impacts to air quality that would be temporary. Once short-term construction is completed the only potential impacts to air quality would result from would be standby generators and these are anticipated to be minor. Proper maintenance and ensuring generators are turned off following emergencies would mitigate the impact. There is low risk to exceeding the limits for HAPs.

##### *3.16.2.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less construction disturbance and fewer impacts to air quality than those described under the Full MDTF Configuration. Impacts to air quality resulting from implementation of the Base MDTF Configuration at Fort Wainwright would be negligible.

### *3.16.3 Biological Resources*

#### 3.16.3.1 Affected Environment

Biological resources at Fort Wainwright are managed under the INRMP (U.S. Army 2020). The overall goal of the ecosystem management program is to maintain an environment in which Soldiers can train to a high-level of military readiness and to maintain natural landscape features and ecosystem integrity at a broad landscape scale. As documented in the INRMP, climate change could have an impact on habitat transition or modification as a result of increased temperature, drought, altered hydrology, and alteration of fire regimes. Fort Wainwright proposes to use adaptive management to adjust to the changes resulting from climate change (U.S. Army 2020).

##### *3.16.3.1.1 Flora*

Fort Wainwright is within the Upper Yukon Highlands ecoregion section (USFS 1994). This ecoregion consists of rounded, low mountains and hills, interspersed frequently by valleys. On average, the growing season extends from May 15 to September 10. Average annual precipitation ranges from 6 to 14 inches. There are approximately 509 vascular plant species known from Fort Wainwright (U.S. Army 2020).

White spruce, birch and aspen trees dominate the forests along the lower slopes in the south and south-facing slopes in the north. Black spruce trees typically grow at higher elevations, on all north-facing slopes in the south, and on all but steep south-facing slopes in the north. Black spruce forests also occur at lower elevations where drainage is impeded. Highest elevations are either barren or have tundra vegetation, with sedge and mosses dominating poorly drained sites and low-growing shrubs on drier sites (e.g., scrub birch [*Betula glandulosa*] and willow).

Native vegetation on Fort Wainwright was removed from much of the cantonment area during original construction in the 1940s. Due to landscaping and other human activities, vegetation in the cantonment area generally does not reflect natural vegetation patterns of the area (Nakata Planning Group 1987 cited in USAG Alaska 2019).

#### *3.16.3.1.2 Fauna*

The diverse habitats of the Upper Yukon Highlands ecoregion section support a large variety of wildlife species. Fort Wainwright is home to 38 mammal species, 16 fish species, one amphibian and 158 bird species (U.S. Army 2020). Commonly occurring breeding birds include gray jays (*Perisoreus canadensis*), boreal chickadees (*Poecile hudsonicus*), northern flickers (*Colaptes auratus*), red-tailed hawks, and boreal owls (*Aegolius funereus*). Sharp-tailed grouse (*Tympanuchus phasianellus*) and upland sandpipers (*Bartramia longicauda*), although considered uncommon, are also characteristic of this area. Hoary marmots (*Marmota caligata*) occur in the mountainous areas, while woodchucks (*Marmota monax*) are found in the lower, open woodlands. This ecoregion section provides prime habitat for Arctic ground squirrels (*Spermophilus parryii*) and northern flying squirrels (*Glaucomys sabrinus*). The range of long-tailed voles (*Microtus longicaudus*) and yellow-cheeked voles (*Microtus xanthognathus*) in interior Alaska corresponds closely with this ecoregion section. Upland furbearers, such as American marten (*Martes americana*), American mink (*Neovison vison*), short-tailed weasels (*Mustela erminea*), and least weasels (*Mustela nivalis*), are common. Wood frogs (*Rana sylvestris*) are also known to occur in this ecoregion section.

Most vertebrate species indigenous to central Alaska can be found on Fort Wainwright. Game species found on Fort Wainwright are managed by the Alaska Department of Fish and Game, which monitors these species to determine population status, reproductive success, harvest, and home ranges. Fort Wainwright falls within the State of Alaska Game Management Unit 20B and within the special management area entitled "Fairbanks Management Area."

Wildlife game species found on Fort Wainwright lands include black and grizzly (*Ursus arctos*) bears, moose, beaver (*Castor canadensis*), muskrat (*Ondontra zibithicus*), ruffed grouse (*Bonasus umbellus*), spruce grouse (*Falcipennis canadensis*), sharp-tailed grouse. Wood frogs are the only amphibians on Fort Wainwright. The bald eagle is locally common on Fort Wainwright.

#### *3.16.3.1.3 Protected Species*

There are no federally listed threatened or endangered animal or plant species known from Fort Wainwright. The BGEPA (16 USC 668-668d) provides protection for bald and golden eagles. The MBTA, which incorporates EO 13186, *Responsibility of Federal Agencies to Protect Migratory Birds*, provides protection for all migratory bird species, including their nests. The Alaska Department of Fish and Game is responsible for managing wildlife populations that are not otherwise protected under federal regulations.

### 3.16.3.2 Environmental Consequences

#### *3.16.3.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would not result in adverse impacts to threatened and endangered species as no federally listed threatened or endangered species occur at Fort Wainwright. In addition, all locations for the Proposed Action would occur in previously disturbed

or developed areas. The removal of trees would be managed in accordance with Fort Wainwright policies on timber harvesting and salvage. No impacts to bald and golden eagles would result from implementation of the Full MDTF Configuration. Impacts to migratory species and wildlife would be temporary, negligible, and adverse, as these species typically flush from areas of disturbance and then return once the disturbance has ceased. The impacts to wildlife from construction on the garrison are anticipated to be negligible.

Impacts to vegetation are anticipated to be temporary, minor, and adverse. Vegetation in the proposed project areas consists of landscape shrubs and mowed grass. Vegetation removed during construction would be replaced as landscaped areas once construction is complete. Overall impacts to biological resources would be negligible.

#### *3.16.3.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with fewer impacts to biological resources than those described under the Full MDTF Configuration. Impacts to biological resources resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.16.4 Cultural Resources*

### 3.16.4.1 Affected Environment

Cultural resources on Fort Wainwright are managed under the ICRMP (USAG Alaska 2020). The ICRMP provides the information necessary to make decisions regarding the treatment of cultural resources managed by the Army. The ICRMP includes management procedures for NHPA Section 106 consultation as well as for unanticipated discoveries (USAG Alaska 2020).

Fort Wainwright and its training lands contain 716 known archaeological sites, one traditional cultural property and six archaeological districts. Seventy-nine sites are eligible for the NRHP, 526 sites have not been evaluated, and 111 additional sites have been determined ineligible for the NRHP. Of the eligible or un-evaluated sites, 9 are historic sites and 596 are prehistoric sites (USAG Alaska 2020).

In 2011 and 2012, surveys were completed of the entire cantonment area, north and south of the Chena River, discovering three additional historic sites. Two sites were evaluated for the NRHP in 2013. Of the 11 archaeological sites known from the Fort Wainwright cantonment area, 10 have been determined not eligible and one has been determined eligible for the NRHP. This total does not include any historic buildings located on the installation (USAG Alaska 2020).

The National Park Service conducted the first building survey of Fort Wainwright in 1984. This survey was conducted as part of the process to identify extant buildings associated with the WWII era Ladd Field. This survey resulted in the designation of Ladd Field as a National Historic Landmark (NHL) (USAG Alaska 2020).

The entire Fort Wainwright cantonment area has been inventoried and evaluated for eligibility for inclusion in the NRHP under the WWII and Cold War historic contexts. Under the WWII context, Ladd Field was designated as an NHL. The Ladd Field NHL district (FAI-00236) currently includes 18 buildings and structures centered on the runways (USAG Alaska 2020).

Under the Cold War context, the cantonment area has been inventoried and evaluated with 70 buildings and structures centered on the runways contributing to the Ladd Air Force Base Cold War Historic District. This Historic District was determined eligible for inclusion in the NRHP in 2001 with 68 contributing resources. It was re-evaluated in 2010 during which time it was reduced in sized with 36 contributing resources.

Also, in 2010, Fort Wainwright determined three buildings to be individually eligible for the National Register: Building 1060 (FAI-01257), Building 4391 (FAI-01789), and Building 4070 (FAI-01283). Previously, Buildings 1060 and 4070 had been part of the Cold War historic district. Building 1060 was concurred not eligible in 2016. In 2018, based on new data, Fort Wainwright's Bailey Bridge (FAI-02138) was re-evaluated and found to be eligible (USAG Alaska 2020).

#### 3.16.4.2 Environmental Consequences

##### *3.16.4.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Wainwright has determined that implementation of the Proposed Action would result in minor impacts to cultural resources. No cultural resources are located at the proposed locations. However, if cultural resources are found during construction all work would cease and the DPW, Environmental Division would be notified. The closest cultural resource to the potential project areas is approximately 3,500 feet.

##### *3.16.4.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint with less potential disturbance to historical resources than that described under the Full MDTF Configuration. Impacts to cultural resources resulting from implementation of the Base MDTF Configuration would be minor.

### *3.16.5 Soils*

#### 3.16.5.1 Affected Environment

Fort Wainwright is located along the northern edge of the Tanana Lowlands physiographic province, and sloughs and oxbow lakes representing former channel positions of the Tanana or Chena Rivers (USAG Alaska 2019).

Soils in the Tanana Lowlands typically consist of interbedded alluvial sand and gravel covered by silty overbank deposits. Cobbles can be observed in alluvial sand and gravel. Former channels are commonly filled with organic silt and wood. These deposits are laterally discontinuous and vary in thickness. The density of the alluvial soils generally ranges from loose to medium dense (Shannon and Wilson 2014 cited in USAG Alaska 2019).

Windblown silt (loess) mantles portions of the middle and upper slopes and lower ridgetops. The loess is generally absent on the highest ridges and hills and thickens downslope. The lower slopes of the ridges and hills and the valley bottoms are generally covered with reworked silt containing varying amounts of organics and rock fragments. The silt on north-facing slopes and in the valley bottoms is typically perennially frozen. In valley bottoms, the silt often contains moderate to very high amounts of ice in addition to high amounts of organics. Localized peat deposits occur in valley bottoms in historical lake basins (Shannon and Wilson, Inc. 2014 cited in USAG Alaska 2019). As reported in soil survey data from the NRCS, an 8,000-acre rectangle consisting mostly

of the main cantonment area includes 25 different soil map units. The developed cantonment area primarily consists of four soil map units. These include urban land, Salchaket-Typic Cryonthents Complex, Tanana mucky silt loam, and Mosquito mucky peat. These soils are generally flat, with slopes of 1 to 2% and small areas with slopes of 5 to 15% (USAG Alaska 2019).

The soils of Fort Wainwright are generally weakly developed because of the extreme cold climate and the relatively young parent materials. Unless disturbed by human activity or periodic flooding, most of the soils have an insulating organic mat that has formed at the soil surface (USAG Fort Wainwright 2017).

The Fort Wainwright area has a high seismic hazard risk, with between 100 and 250 occurrences of damaging earthquake shaking expected over a 10,000-year period according to probabilistic hazard maps (U.S. Geological Survey 2019 cited in USAG Alaska 2019). Earthquake-induced geologic hazards that could affect the project area include soil densification and resulting settlement, and liquefaction and associated effects (e.g., loss of shear strength, bearing capacity failures, loss of lateral support, ground oscillation, and lateral spreading). Within the Fairbanks-Nenana area, sediments in and near active river channels were assessed as having a very high liquefaction susceptibility, while adjacent floodplain deposits have moderate to high susceptibility when thawed (ADNR 1984 cited in USAG Alaska 2019).

#### 3.16.5.2 Environmental Consequences

##### *3.16.5.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 93 acres. Vegetation removed during construction would be replaced as landscaped areas once construction is complete. Appropriate NPDES permits would be acquired and standard BMPs would be implemented to minimize soil erosion. Proposed project areas are underlain with permafrost. BMPs and SOPs to mitigate soil erosion would be implemented. No significant impacts to soil resources are anticipated.

##### *3.16.5.2.2 Base MDTF Configuration*

Implementation of the Proposed Action would result in temporary, minor, and adverse impacts to soil resources. Construction and land-disturbance activities would occur in previously disturbed areas and would require land disturbance up to 18 acres. Vegetation removed during construction would be replaced as landscaped areas once construction is complete. Proposed project areas are underlain with permafrost. Appropriate NPDES permits would be acquired and standard BMPs and SOPs would be implemented to minimize soil erosion. No significant impacts to soil resources are anticipated.

### *3.16.6 Land Use*

#### 3.16.6.1 Affected Environment

Most of the land surrounding the installation is owned by the State of Alaska. Principal land use management categories around the installation include fish and wildlife habitat, public recreation, forestry, agricultural sale, and various rural settlements. The Tanana Valley State Forest is located north of the installation with private and FNSB-owned land parcels located to the south. Alaska Native corporation-owned and Native allotment parcels also border the installation.

Land use on Fort Wainwright includes both urbanized and rural areas. The urbanized areas of Fort Wainwright have been developed into a number of different land uses that are necessary for both readiness and community composition. Existing land uses on Fort Wainwright include (USAG Fort Wainwright 2017):

- *Airfield:* The airfield land use category encompasses all airfield operations, including runways, taxiways, airfield support facilities, and testing facilities; aviation refueling; and maintenance.
- *Community:* The community land use category allows religious, family support, personnel, professional, medical, commercial, housing, and recreational services.
- *Industrial:* The industrial land use category is designated for production, maintenance, depot, storage facilities, and activities that generate heavy traffic and pollution.
- *Professional/Institutional:* The professional/institutional land use category is designated for non-tactical operations, including military schools, installation headquarters, major commands, and non-industrial research and development.
- *Ranges and training:* This land use category includes areas used for training purposes, weapons demonstration, qualification ranges, combat training, live-fire training, bivouac sites, and maneuver sites.
- *Residential:* The residential land use category includes family and unaccompanied housing.
- *Troop:* The troop land use category includes operational facilities for force readiness, support troop operations for deployable units, and circulation of Soldiers between designated facilities.

The FNSB comprehensive plan identifies four borough area designations (Outskirt, Perimeter, Rural, and Urban) that are further divided into land categories (FNSB 2019 cited in USAG Alaska 2020b). The Fort Wainwright cantonment area is surrounded by urban area to the west and southeast, perimeter area to the north and east, and outskirt Area to the northeast and south. Urban areas consist of areas that are served or can be served with community water and sewer, and contain the most intensive residential, commercial, and industrial development. The urban area west of the cantonment area also includes Urban Preferred Commercial and Light Industrial areas; the perimeter areas to the north and east include Preferred Residential Land; and the outskirt areas to the northeast and south include Reserve Areas (FNSB 2005 cited in USAG Alaska 2020b).

Zoning districts of FNSB surrounding the Fort Wainwright cantonment area include residential, recreational, and business to the northwest; residential, commercial, and light industrial to the west; general use and general commercial to the southwest; general use, residential, and heavy industrial to the south and east; and agriculture, residential, and recreational to the north (FNSB 2019b). Portions of the general use, residential, and heavy industrial zoning districts to the south and east of the cantonment area are also within the military noise overlay zone; a designation applied to certain existing zoning districts to ensure the health and safety of the public by imposing additional regulations on land use development. Current residential and recreation land uses around Fort Wainwright are compatible with cantonment area land uses because they are adjacent to open space and family housing of similar density (USAG Fort Wainwright 2017).

The 2006 JLUS identified 13 local jurisdiction recommendations and 22 different military recommendations. These recommendations included, reviewing procedures, increasing awareness

of the military mission, and communicating with the public, adoption of encroachment prevention measures and zoning ordinances, enforcement of compatible use zoning, the identification of lands for acquisition, maintenance of noise contours, study the potential to relocate firing areas and study long-term lease agreements.

The Fort Wainwright Real Property Master Plan (RPMP) provides guidance for future physical development at the installation (USAG Fort Wainwright 2017). The RPMP was developed using a collaborative approach to identify and consider site limitations and benefits, provide a community that maximizes mission readiness and environmental stewardship, and ensures that Fort Wainwright provides modern and efficient facilities to accommodate multiple functions and uses while considering relationships to adjacent facilities and land uses. To achieve the goals of the RPMP, current and proposed land uses must consider a variety of factors, including the environment, noise, geography, and community safety (USAG Fort Wainwright 2017).

In accordance with the RPMP, the Fort Wainwright cantonment area is organized into five districts based on geographical features, land use patterns, building types, and transportation networks. Each district implements an Area Development Plan that guides the adaption of the planning goals and principles of the RPMP.

USAG Alaska is completing a Legislative EIS for the land withdrawal extension of PL 106-65 land (Donnelly TAs East and West, and the Yukon TA). The website for this EIS is located at: https://www.aklweleis.com/.

#### 3.16.6.2 Environmental Consequences

##### *3.16.6.2.1 Full MDTF Configuration*

The proposed construction would occur entirely within the boundaries of Fort Wainwright. Two of the most likely sites for the Full MDTF Configuration are located in existing training areas that would require a change to the land use designation. Although there would be changes to land use types, impacts to land use resulting from implementation of the Full MDTF Configuration would be minor and beneficial.

##### *3.16.6.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller facility project footprint than the Full MDTF Configuration. The siting of MDTF facilities would be compatible with existing land uses on Fort Wainwright and land use in surrounding areas. Impacts to land use resulting from implementation of the Base MDTF Configuration would be minor and beneficial. No changes to land use would result from implementation of the Base MDTF Configuration.

### *3.16.7 Socioeconomics*

#### 3.16.7.1 Affected Environment

##### 3.16.7.1.1 *Population and Demographics*

Approximately 8,500 troops and 2,500 civilians work on Fort Wainwright. The population that lives on Fort Wainwright consists of 4,310 Soldiers and an estimated 3,875family members, for a total on-post resident population of 8,185 (U.S. Army 2012).

Fort Wainwright's ROI is the FNSB. The estimated population for FNSB in 2019 was 96,849. The population decreased since 2010 by 0.8% (Table 3-29) (USCB 2021).

**Table 3-29. Fort Wainwright Area Population**

| Region of Influence Counties | Population 2019 | Population Change 2010-2019 (Percent) |
|---|---|---|
| FNSB | 96,849 | -0.8 |

Key: FNSB = Fairbanks North Star Borough

In 2019, it was estimated that 30.8% of the population in FNSB was categorized as minority (see Table 3-30). In comparison, the non-White population in Alaska was estimated to be approximately 39.8% over the same period.

#### *3.16.7.1.2 Employment and Income*

The estimated annual per capita income for FNSB is $37,025 in 2019 (USCB 2021). The unemployment rate is slightly lower at 4.4% as of December 2019, compared to that of Alaska at 6.1% for the same period (U.S. Bureau of Labor Statistics 2021).

**Table 3-30. Fort Wainwright ROI Demographic Composition[1]**

| State and Region of Influence Counties | Caucasian (Percent) | African American (Percent) | Native American (Percent) | Hispanic or Latino[2] (Percent) | Asian (Percent) | Multiracial (Percent) | Other (Percent) |
|---|---|---|---|---|---|---|---|
| Alaska | 60.2 | 3.7 | 15.6 | 7.3 | 6.5 | 7.5 | 1.4 |
| FNSB | 69.2 | 5.3 | 8.2 | 8.2 | 3.4 | 6.9 | 0.6 |

Source: USCB 2021
Key: ROI = region of influence; U.S. = United States
Notes:
1. The percentages reported by the U.S. Census Bureau for each geographic region could total more than 100% because individuals could report more than one race.
2. People of Hispanic or Latino origin could be of any race.

#### *3.16.7.1.3 Housing*

There are currently 1,870 military family housing units on Fort Wainwright, which are managed by the RCI partner, North Haven Communities. These are all located in the cantonment area among several neighborhoods. North Haven Communities manages 10 distinct neighborhoods and serves the on-base housing community of families of active-duty Soldiers assigned to Fort Wainwright and also welcomes qualified military retirees, DoD civilians, and general public applicants in select neighborhoods. Approximately 95 to 96% of the available units in family housing on Fort Wainwright are occupied.

Unaccompanied personnel housing on Fort Wainwright has space for approximately 2,637 Soldiers (unaccompanied) living in on-post barracks. The current permanent party occupancy rate is approximately 99%. Off-post housing consists predominately of apartments and single-family homes. As of 2019, the estimated number of vacant units in Fairbanks North Star Borough/ROI was 6,138 (USCB 2019).

#### *3.16.7.1.4 Schools*

Children of military personnel attend either the public or private schools throughout ROI community. The ROI includes one public school district, the FNSB School District, which has an enrollment of over 11,200 students. Enrollment at the FNSB School District has decreased by over 20% over the last 10 years (Tableau Public 2021).

### 3.16.7.2 Environmental Consequences

#### *3.16.7.2.1 Full MDTF Configuration*

Preliminary analysis has tentatively determined that implementation of the Proposed Action would result in moderate/less than significant adverse and minor beneficial impacts to socioeconomics. Implementation of the Proposed Action would result in the influx of new personnel and their families into the area, which would result in beneficial impacts to employment, population, school districts, income, and sales volume. It is possible that a lease amendment for additional land and homes would be required to accommodate the incoming personnel and families.

#### *3.16.7.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller influx of personnel and would have fewer potential impacts to socioeconomics than those described under the Full MDTF Configuration. Impacts to socioeconomics resulting from implementation of the Base MDTF Configuration would be negligible.

## *3.16.8 Traffic and Transportation*

### 3.16.8.1 Affected Environment

Fort Wainwright is a controlled access installation with four ACPs. The primary ACP to Fort Wainwright is provided via Airport Way, a four-lane roadway that provides a direct connection to the Main Gate located on Gaffney Road. The remaining three ACPs consist of Trainor Gate, located on Trainor Road; Badger Gate, located on Badger Road; and Richardson Gate, located on Richardson Highway (USAG Fort Wainwright 2017). The Richardson Gate is not regularly used and is generally closed for use except when needed for occasional circumstances.

Traffic levels on Airport Way are generally moderate; however, noticeably heavier traffic during peak hours and the summer tourist season can cause congestion at major arterial intersections. Peak hours for Fairbanks (and Fort Wainwright) are typically 7:00 a.m. to 8:00 a.m., and 4:30 p.m. to 5:30 p.m. (USAG Fort Wainwright 2017). The installation is working on the final design of a project that will reduce congestion and improve safety at the intersection of Gaffney Road, Airport Way, Richardson Highway, and Steese Expressway near the Fort Wainwright main gate in Fairbanks, Alaska.

Within the Fort Wainwright cantonment area, 14 primary roadways support the majority of commute traffic (i.e., work and school-related), with the remaining secondary roadways supporting shorter trips within the base. The cantonment area contains approximately 30 miles of paved roads and ten miles of gravel/clay unpaved roads (USAG Fort Wainwright 2017). Roads within the project area include River Road, Kinney Road, Ketcham Road, Gaffney Road, and Meridian Road. Gaffney Road is the main base arterial that extends from the Main Gate through to Marks Road on the eastern portion of Fort Wainwright.

Gaffney Road consists of a four-lane section to Marks Road for directional traffic, dropping to two lanes and continuing east to the Badger Road Gate entrance. Posted speeds range between 20 and 35 miles per hour (mph). A separated pedestrian trail is also located along the north side of Gaffney Road between the Main Gate and Apple Road (USAG Fort Wainwright 2017).

The remaining roadways of Fort Wainwright consist primarily of two-lane roads with either adjacent paved shoulders or sidewalks. Posted speeds range from 20 mph to 25 mph. The primary north-south routes are 599th Street, 600th Street, 9th Street, Whidden Road, Meridian Road, River Road, Santiago Avenue, Luzon Avenue, Apple Road, Marks Road, 102nd Street, 61st Street, 103rd Street, and Ketcham Road (USAG Fort Wainwright 2017).

The Alaska Railroad main line serving Fairbanks and the cantonment area crosses the city north of the Chena River and enters the cantonment area, paralleling Trainor Road at Trainor Gate. It crosses the Chena River, provides loops and spurs to the South Post industrial area and to the North Post warehouse area, and connects to the Fairbanks industrial spur. The spur to Fort Wainwright does not provide passenger service (USAG Fort Wainwright 2017).

#### 3.16.8.2 Environmental Consequences

##### *3.16.8.2.1 Full MDTF Configuration*

Implementation of the Proposed Action would result in minor to moderate impacts due to increases in traffic volumes and potential impacts to the Alaska railroad which is located in the proposed project area. Short-term minor impacts would result during periods of construction.

##### *3.16.8.2.2 Base MDTF Configuration*

Implementation of the Proposed Action for the Base MDTF Configuration would result in the same minor to moderate impacts due to increases in traffic volumes and potential impacts to the Alaska railroad which is located in the proposed project area. Short-term minor impacts to traffic and transportation during periods of construction would result from implementation of the Base MDTF Configuration.

### *3.16.9 Infrastructure and Utilities*

#### 3.16.9.1 Affected Environment

USAG Alaska is completing an EIS for heat and energy generation and distribution upgrades on Fort Wainwright. The Record of Decision, anticipated to be approved in 2022, could identify a change to how heat and energy is generated and distributed on the installation. The website for this project is located at: https://home.army.mil/alaska/index.php/fort-wainwright/NEPA/HEU-EIS.

##### *3.16.9.1.1 Energy*

Doyon Utilities and Golden Valley Electric Association (GVEA) provides electrical power to Fort Wainwright. In 2020, Doyon Utilities and GVEA had a total generating capacity of 497 total MW of power (Doyon 19 MW, GVEA Generation 381 MW, and GVEA Available Purchased Power 97 MW) and the current peak electricity usage within the Fort Wainwright service area was estimated to be 21 MW (4%) of available power.

In 2020, Fort Wainwright did not use natural gas or propane for power or heat generation. Fort Wainwright used approximately 138,000 tons of coal to provide heating needs for Fort Wainwright from the Central Heat and Power Plant.

#### *3.16.9.1.2 Potable Water*

Potable water is supplied to Fort Wainwright by Doyon Utilities. Doyon Utilities is capable of supplying up to 4.3 mgd to Fort Wainwright, far exceeding the current peak demand of 1.8 mgd. The overall condition of the potable water facilities and infrastructure system is rated as green (Installation Status Report Rating) and adequate to accommodate current and future demands.

#### *3.16.9.1.3 Wastewater*

Sanitary wastewater at Fort Wainwright is treated at a WWTP owned, operated, and maintained by Golden Heart Utilities. The current daily load ranges from approximately 4.5 to 5.8 mgd with a rated capacity to effectively treat 11.2 mgd but permitted to discharge 8 mgd. USAG Alaska holds an Industrial Wastewater Discharge Permit for pretreatment and discharge to this system and discharges daily load ranges from 0.65 to 0.83 mgd. The overall condition of the wastewater facilities and infrastructure system is adequate to accommodate current and future demands.

### 3.16.9.2 Environmental Consequences

#### *3.16.9.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Wainwright has determined that implementation of the Proposed Action would result in significant but mitigatable impacts to infrastructure and utilities. Stationing of 3,000 MDTF personnel and dependents would impact all utilities. There are some electrical distribution feeders on the installation that might not have sufficient capacity (without a major upgrade) to support significant infrastructure increases. In addition, providing new steam heat to the southeast portion of the installation could be challenging with the build-up of additional infrastructure (without major upgrades to the main distribution system). At the central heat and power plant, the electrical generation capacity has room to accommodate the demand of approximately 5 MW without major cost or infrastructure impacts. Another consideration would be the environmental impacts that would be encountered and would need to be mitigated in order to support utility needs.

#### *3.16.9.2.2 Base MDTF Configuration*

Implementation of the Base MDTF Configuration would consist of a smaller construction footprint with fewer requirements for infrastructure and utility improvements than that described under the Full MDTF Configuration. Impacts to infrastructure and utilities resulting from implementation of the Base MDTF Configuration would be minor.

## *3.16.10 Water Resources*

### 3.16.10.1 Affected Environment

#### *3.16.10.1.1 Surface Waters*

The FNSB is in central interior Alaska, encompassing the area near the confluence of the Chena River and Tanana River. The Tanana and Chena Rivers are the principal water courses in the

FNSB. The Chena River is located north of the Tanana River and flows from east to west in a meandering course through a broad floodplain. The Chena River drains to the Tanana River. The Tanana River is a tributary to the Yukon River which flows to the Bering Sea.

Designated uses for the Chena River under CWA Section 303 include water supply for agriculture (including irrigation and stock watering) and industrial use, as well as water supply for drinking water, culinary use, food processing and aquaculture; fresh water for growth and propagation of fish, shellfish, other aquatic life and wildlife; and water recreation (contact recreation and secondary recreation) (EPA 2019 cited in USAG Alaska 2019).

Chena River and Noyes Slough which are not on the installation were previously listed as impaired for sediment under CWA Section 303(d) but are now meeting the objective. Noyes Slough continues to be listed as impaired for petroleum hydrocarbons, oil, and grease (ADEC 2018 cited in USAG Alaska 2019). The contamination is not directly related to Army activities.

#### *3.16.10.1.2 Wetlands*

The cantonment area on Fort Wainwright supports a variety of palustrine freshwater wetlands, most of which are concentrated in the floodplains of the Tanana and Chena Rivers. Coniferous trees, such as black spruce dominate forested wetlands. These areas have an understory of feather mosses that insulate soils, allowing them to remain frozen for extended periods. Scrub-shrub wetlands are also common on the cantonment area. Scrub-shrub wetlands dominated by severely stunted black spruce trees are found on cold north-facing slopes and valley bottoms where saturated soils underlain with permafrost prevent larger trees from growing. Scrub-shrub wetlands composed of shrub birch and willow tend to form in seasonally flooded drainages, on terraces, and in areas disturbed by fire and mowing, such as the Small Arms Complex. Grasses and sedges dominate emergent wetlands and occur in seasonally or permanently flooded flat, low-lying areas. Emergent wetlands are found on floodplains, the margins of ponds and lakes, in sloughs, and in localized depressions.

#### *3.16.10.1.3 Floodplains*

USAG Alaska is located in a recognized Flood Hazard Area, although a large portion of the installation is protected from anticipated 100-year flood events from the Chena River Lakes Flood Control Project (USAG Fort Wainwright 2017). The last 100-year flood event on USAG Alaska was recorded in 1967 and is what prompted the Chena River Lakes Flood Control System (USAG Fort Wainwright 2017). FEMA identifies the Chena and Tanana rivers and directly adjacent lands as Regulatory Floodways, Zone AE (Floodway). FEMA identifies most of the cantonment area as being within a Flood Hazard Area, Zone X (area with reduced flood risk due to levee). Additionally, FEMA identifies two small streams within the cantonment area as Zone A, which means that these areas are subject to flooding, but no base flood elevations were available. Many drainage ditches associated with the stormwater system discharge directly to the Chena River in the vicinity of the airfield. High-water events in this area have the potential to backlog the drainage system with water, impeding water flow and overloading localized areas (USAG Fort Wainwright 2017).

### 3.16.10.2 Environmental Consequences

#### *3.16.10.2.1 Full MDTF Configuration*

Preliminary analysis performed by Fort Wainwright determined that implementation of the Full MDTF Configuration would have no direct impacts to surface waters, wetlands, or floodplains. Impacts to water resources would be minor. The proposed Full MDTF Configuration with associated renovation, construction, and operations would be in the cantonment area of the installation. Implementation of the MDTF stationing action could impact wetlands, which could require a FONPA to be prepared. The extent of impacts to wetlands is unknown at this time. Installation-specific designs and additional site evaluations of facility layouts relative to wetlands would be required to fully assess impacts to wetlands. There is insufficient detail to determine if Section 404 permitting would be required for the construction of MDTF facilities. Once installation-specific designs are completed, Fort Wainwright would work with the design team to avoid and minimize potential impacts to wetlands, floodplains, and associated buffer areas to the maximum extent possible. If wetland impacts are determined to be unavoidable, depending on the extent of impacts, a nationwide or individual permit could be required.

Project areas are mostly permeable surfaces which would be altered to impermeable and alter surface water flows in the area. Design and construction mitigations would need to be implemented to reduce impacts to surface water resources.

#### *3.16.10.2.2 Base MDTF Configuration*

Preliminary analysis performed by Fort Wainwright determined that implementation of the Base MDTF Configuration would have no direct impacts to surface waters, wetlands, or floodplains. Impacts to water resources would be minor. Project areas are mostly permeable surfaces which would be altered to impermeable and surface water flows in the area could be altered. Design and construction BMPs and SOPs would be implemented to reduce the impacts to surface water considerations. Impacts to water resources resulting from implementation of the Base MDTF Configuration would be minor.

# 4 SUMMARY OF ENVIRONMENTAL EFFECTS

This PEA analyzed and evaluated the potential impacts to nine different resource areas that would result from the no action alternative, the Full MDTF Configuration alternative, and the Base MDTF Configuration alternative at 13 installations. Although the personnel and facility requirements for each of the MDTF Configurations have been developed, the weapons systems training doctrine requirements for the MDTF are currently under development and not available at this time. The impact analysis contained in this PEA does not include analysis of any MDTF training activities. When the MDTF weapons systems training doctrine requirements are developed, they will be compared against installation-specific ongoing training to determine if additional environmental analysis could be required.

As described in Chapter 2, the MDTF concept is still evolving, and it is expected that its organization, manning, and/or equipment would change after it is permanently stationed based on an analysis of world threats and consequent adjustments of MDTF capability requirements. When installations eventually receive the MDTF stationing action, they must identify if there are any differences between the requirements and analyses described in this PEA versus the installation-specific design plans to be developed later and whether it would be appropriate to tier from this PEA and associated FONSI and prepare an installation-specific EA, a Notice of Intent to prepare an EIS, or a REC (32 CFR § 651.19).

Listed below is a summary of the potential impacts that would result from implementation of the no action alternative, the Full MDTF Configuration alternative and the Base MDTF Configuration alternative.

## 4.1 NO ACTION ALTERNATIVE

Implementation of the No Action Alternative would result in minimal impacts to the nine resource areas at each of the installations evaluated in this PEA. Under the No Action Alternative, the MDTF Full or Base Configurations would not be stationed. No MDTF-related construction would occur and no additional Soldiers or family members would work and reside on any of the installations. There would also be no changes to the force structure at any of the installations. Impacts to the nine resource areas evaluated for each of the 13 installations would not be significant.

## 4.2 FULL MDTF CONFIGURATION ALTERNATIVE

Based on the analysis contained in this PEA of the 12 installations considered for Full MDTF Configuration stationing, no significant impacts would result from implementation of this stationing alternative. Impacts that could approach significant would be mitigatable as detailed in Section 4.4 of this PEA.

As described in Sections 2.4.5 and 3.15.1, due to the land restrictions at USAG Hawai‘i, this installation would only be able to accommodate the Base MDTF Configuration and therefore, at USAG Hawai‘i, only the Base MDTF Configuration was analyzed in this PEA.

## 4.3 BASE MDTF CONFIGURATION ALTERNATIVE

Based on the analysis contained in this PEA and pending further evaluation of installation-specific design plans, significant impacts would not result from implementation of the Base MDTF Configuration stationing alternative at any of the installations evaluated in this PEA.

**Table 4-1. Summary of Potential Impacts Resulting from Implementation of the MDTF Full and Base Configurations**

| Installation | Resource Area | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air Quality | | Biological Resources | | Cultural Resources | | Soils | | Land Use | | Socioeconomics | | Traffic and Transportation | | Infrastructure and Utilities | | Water Resources | |
| | Full | Base | Full | Base | Full | Base | Full | Base | Full | Base | Full | Base | Full | Base | Full | Base | Full | Base |
| Fort Bliss | M | N | N | N | N | N | M | M | N | N | N, M, B | B | MO | MO | N, M | N, M | M | M |
| Fort Bragg | M | N | SM | MO | MO | N | M | M | N | N | M | N | M, MO | N | N | N | M | M |
| Fort Campbell | M | N | M | N | MO, SM | MO, SM | M | M | M | M | M, MO | M | M, MO | M | N, M | N, M | M | M |
| Fort Carson | M | N | M | M | MO | MO | M | M | N | N | M, MO | M | M, MO | M | MO | N, M | MO | MO |
| Fort Drum | M | N | M | N | N | N | M | M | N | N | N, M, B | N, M, B | N | N | M | M | M | M |
| Fort Hood | M | N | M | M | N | N | M | M | N | N | MO | M | M | M | M | N, M | MO | M |
| Fort Knox | M | N | N | N | N | N | N | N | N | N | M | M | MO | N | N | N | N | N |
| Fort Riley | M | N | M | N | N | N | N | N | N | N | N, M, B | N, B | MO | N | M, B | N, M | M, MO | M |
| Fort Stewart | M | N | M | M | N | N | M | M | N | N | N, M | N | N | N | N, M | N | M | M |
| Joint Base Lewis-McChord | M | N | SM | MO | SM | MO | M | M | M, MO | M | M | N | N | N | M | N | SM | SM |
| Joint Base Elmendorf-Richardson | M | N | M | M | MO, SM | MO, SM | M | M | M, MO | M | M, MO | M | M | M | N, M | N | N | N |
| USAG Hawai‘i | NA | N | NA | N | NA | M | NA | M | NA | N | NA | M | NA | M | NA | M | NA | N |
| Fort Wainwright | M | N | N | N | M | M | M | M | M, B | M, B | MO, B | N | M, MO | M, MO | SM | M | M | M |

Key: B = beneficial; M = minor; MDTF = Multi-Domain Task Force; MO = Moderate/less than significant; N = negligible/no impact; NA = Not Applicable; S = significant; SM = significant but mitigatable; USAG = U.S. Army Garrison.

## 4.4 MITIGATION ACTIONS

Based on the analysis contained in this PEA, it was determined that certain actions would be required to mitigate potential impacts to various resource areas such that impacts would be less than significant. These actions are described by resource area and by installation as listed below.

- Air Quality
  - No mitigation required at any of the 13 installations.
- Biological Resources
  - Fort Bragg, Full MDTF Configuration. Once the final installation-specific design plans have been developed, surveys would be completed to determine the potential for impacts to rare plant species and foraging habitat for the red-cockaded woodpecker. Should impacts to federally listed species be unavoidable then Fort Bragg would implement procedures listed in the INRMP including but not limited to the initiation of Section 7 consultation with the USFWS.
  - JBLM, Full MDTF Configuration. Once the final installation-specific design plans have been developed, surveys would be completed to determine the potential impacts to federally listed species. Should impacts to federally listed species be unavoidable then JBLM would implement procedures listed in the INRMP including but not limited to the initiation of Section 7 consultation with the USFWS.
- Cultural Resources
  - Fort Campbell, Full and Base MDTF Configurations. Once the final installation-specific design plans have been developed, comprehensive cultural surveys would be completed to determine if any of the proposed MDTF facilities would impact NRHP-eligible resources or the Clarksville Base Historic District. If the historic district or any NRHP-eligible resources are identified to be potentially affected, Section 106 consultation would be initiated. Fort Campbell has a PA with the Tennessee SHPO regarding development, construction, and operations within the historic district. This agreement requires coordination once the installation-specific design plans are available and a determination of effect could be made for the District at that time.
  - JBLM, Full MDTF Configuration. Once the final installation-specific engineered design plans have been developed, surveys would be completed to determine if any MDTF facilities would affect the Historic Garrison District and the McChord Field Historic District. Projects in these districts would be coordinated with the SHPO and ACHP. If necessary, a Memorandum of Agreement would be developed to identify if changes to the exterior of historic buildings, including doors, as well as some interior modifications would require mitigation. Should potential impacts to historic buildings be unavoidable then those impacts would be coordinated with the SHPO and ACHP and impacts would be mitigated to less than significant.
  - JBER, Full and Base MDTF Configurations. Once the final installation-specific engineered design plans have been developed, comprehensive cultural surveys would be completed to determine if any of the proposed MDTF facilities would adversely affect any cultural resources. Should follow-up studies determine that NRHP-eligible resources are located in the proposed project locations and it is determined that these

resources would be adversely affected by the final design of the proposed MDTF facilities then appropriate mitigation would be completed to reduce to impacts to less than significant.

- Soils
  - No mitigation required at any of the 13 installations.
- Land Use
  - No mitigation required at any of the 13 installations.
- Socioeconomics
  - No mitigation required at any of the 13 installations.
- Traffic and Transportation
  - No mitigation required at any of the 13 installations.
- Infrastructure and Utilities
  - Fort Wainwright, Full MDTF Configuration. Once the final installation-specific engineered design plans have been developed, the need for expansion of utility systems would be evaluated. A complete and accurate utilities Service Application along with approved funding to construct the needed utility systems would reduce impacts to infrastructure and utility systems to less than significant.
- Water Resources
  - JBLM, Full MDTF Configuration. Impacts to water resources would be reduced to less than significant through the incorporation of MS4 permit requirements and LID BMPs into final installation-specific design plans. In addition, all construction would be completed in accordance with the JBLM Stormwater Design Guidance document to ensure compliance with permit requirements.

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# Appendix A SIGNED MEMORANDUM FOR EXCEEDING PAGE LIMIT FOR THE PEA

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**DEPARTMENT OF THE ARMY**
**OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY**
**INSTALLATIONS, ENERGY AND ENVIRONMENT**
**110 ARMY PENTAGON**
**WASHINGTON DC 20310-0110**

SAIE

28 February 2022

MEMORANDUM FOR THE DIRECTOR INSTALLATION SERVICES OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9

SUBJECT: Request for Approval to Exceed Page Limit for the Programmatic Environmental Assessment (EA) for the Multi-Domain Task Force (MDTF) Stationing Action

1. Reference:

a. 40 CFR 1500-1508 Council of Environmental Quality, National Environmental Policy Act Implementing Regulations, Purpose and Policy.

b. Memorandum, SAIE-ZA, 26 Aug 2020, subject: Implementation of the Council on Environmental Quality's Updated National Environmental Policy Act (NEPA) Final Rule.

c. Memorandum, SAIE-ESO, 08 Jan 2021, subject: Criteria and Procedures for Requests to Exceed Page and Time Limits for Army NEPA Documents.

d. Memorandum, DCS, G-9, 13 Jan 2021, subject: Request for Approval to Exceed Page Limit for the Programmatic Environmental Assessment (PEA) for the Multi-Domain Task Force (MDTF) Stationing Action.

2. DCS G-9 has requested an exception to the 75-page limit for the MDTF PEA as stated and justified in reference 1.d. Pursuant to references 1.a.-1. c., I approve the exceedance of page limit to 300-pages.

3. The point of contact for this action is Ms. Lorri Schwartz, (571) 363-7511 or lorri.a.schwartz.civ@army.mil.

PAUL W. FARNAN
Acting Assistant Secretary of the Army
(Installations, Energy and Environment)

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# Appendix B RECORD OF ENVIRONMENTAL CONSIDERATION, CHECKLIST, AND PRELIMINARY EVALUATION

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## RECORD OF ENVIRONMENTAL CONSIDERATION, CHECKLIST, AND PRELIMINARY EVALUATION FOR THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR U.S. ARMY MULTI-DOMAIN TASK FORCE STATIONING

This checklist is intended to provide a framework for identifying any National Environmental Policy Act (NEPA) requirements beyond this Programmatic Environmental Assessment (PEA) for anticipated impacts associated with stationing the Multi-Domain Task Force (MDTF) at an installation in the United States. This checklist would certify that both the installation staff and proponent understand and support the requirements and discussions in this PEA, particularly the site conditions, the Proposed Action and its effects, and any required mitigations. The considerations in this PEA and the Record of Environmental Consideration (REC) checklist are comprehensive, but may not be sufficiently exhaustive to address site-specific conditions at every installation. For this reason, the installation's environmental staff must review this PEA, evaluate the checklist conditions and requirements, and determine the appropriate course of action.

CATEGORY I: For the 13 installations addressed in the PEA, if after reviewing the PEA and completing the REC checklist and all conditions described in the analysis are met, then they may adopt this PEA, complete a REC, and implement the Proposed Action.

CATEGORY II: For the 13 installations addressed in the PEA, if all conditions are not met after completing the REC checklist, or if impacts change, any of the 13 installations may adopt the PEA, prepare a supplemental EA and FONSI before implementing the Proposed Action. If impacts are significant, then the installation would prepare a Notice of Intent announcing the preparation of an Environmental Impact Statement (EIS) before MDTF stationing can proceed.

CATEGORY III: If an installation not covered under this PEA wishes to implement the Proposed Action, they may complete the REC checklist, adopt this PEA, and produce a tiered EA that describes the affected environment and impacts of the Proposed Action, prepare a Finding of No Significant Impact, and stationing an MDTF can proceed. If impacts are significant, then the installation would prepare a Notice of Intent announcing the preparation of an EIS before stationing the MDTF can proceed.

To use the attached checklist to evaluate the Proposed Action, the following format is recommended:

- "Yes" implies an issue may require further NEPA analysis.
- "No" implies applicability of this PEA
- "N/A" implies the question does not apply

The "Comments" column may be used for any comments pertaining to the Proposed Action or identify existing programs or best management practices, regulations, or policies that mitigate an issue identified in the questionnaire.

Any questions regarding the completion of this checklist should be directed to the installation's environmental staff. This checklist references portions of Title 32, Code of Federal Regulations Part 651, "Environmental Analysis of Army Actions."

MEMORANDUM FOR RECORD DATE:

SUBJECT: Evaluation, Under the National Environmental Policy Act (NEPA) of stationing the MDTF at (*installation name*).

1. Brief description: (Provide details of facility locations, dimensions and locations, and any differences in the Affected Environment that are described in the PEA.)

2. It has been determined that stationing the MDTF as described above (choose a. b. or c.):

a. Is adequately addressed in a completed: EA_____ EIS_____

Title and date:_____

b. Qualifies for Categorical Exclusion under provisions of 32 CFR Part 651, Appendix B, Paragraph ____and no extraordinary circumstances apply.

c. Qualifies for a Record of Environmental Consideration, based on the evaluation of the criteria in the checklist below because the issues requiring consideration under NEPA are addressed in the Programmatic Environmental Assessment entitled, "Programmatic Environmental Assessment for U.S. Army Multi-Domain Task Force Stationing."

The following signatories certify their understanding of the Programmatic Environmental Assessment and the analyses therein and certify compliance with the provisions and mitigations that are presented. This includes compliance with the procedures (Standard Operating Procedures and Best Management Practices) that are specified and the funding necessary to ensure that the required mitigations will be implemented.

| | |
|---|---|
| _____ | _____ |
| Proponent signature | Environmental Officer signature |
| _____ | _____ |
| Proponent, printed name | Environmental Officer, printed name |
| _____ | _____ |
| e-mail | e-mail |
| _____ | _____ |
| Phone number | Phone number |

# CHECKLIST FOR THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR U.S. ARMY MULTI-DOMAIN TASK FORCE STATIONING

| Resource Area and Questions | Check the appropriate response: | Comments |
|---|---|---|
| **Air Quality** | | |
| Will any action taken to station the MDTF contribute to a change in the air quality compliance status in the region (e.g., from attainment to nonattainment)? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF violate the installation's air operating permit? | ☐ Yes ☐ No ☐ N/A | |
| **Biological Resources** | | |
| Will any action taken to station the MDTF adversely affect a federally protected plant or animal species? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF contradict an installation-specific tree replacement or other natural resources protection policy or not comply with any previously agreed upon NEPA mitigation actions for natural resources protection? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF not comply with the Endangered Species Act, Migratory Bird Treaty Act, Marine Mammal Protection Act, and/or Bald and Golden Eagle Protection Act, including compliance with any previously agreed upon NEPA mitigation actions? *(Note: All required U.S. Fish and Wildlife Service or National Marine Fisheries Service informal or formal consultation must be completed prior to implementing the Proposed Action.)* | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF result in an unauthorized "take" of a state-protected species for which the installation is required to comply with the associated legal and regulatory requirements of the state? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF include activities in biological sensitive areas other than those mentioned above? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF trigger a survey for one or more protected species, such as threatened or endangered species protected under the Endangered Species Act? *(Note: A Yes means that the appropriate biological resource survey does not exist for all or part of the project area.)* | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF cause a substantial decrease in the relative percentage of any one vegetation type (native to the region) on the installation, particularly a vegetation type in the region that is already highly fragmented because of human activity? | ☐ Yes ☐ No ☐ N/A | |

| Resource Area and Questions | Check the appropriate response: | Comments |
|---|---|---|
| **Cultural Resources** | | |
| Will any action taken to station the MDTF disturb buildings or structures that are eligible for or listed on the National Register of Historic Places (NRHP)? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF adversely affect a historic district that is eligible for or listed on the NRHP? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF trigger a survey for cultural resources? *(Note: A Yes means that a cultural resources survey does not exist for all or part of the construction area.)* | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF have an adverse effect on a NRHP-listed or -eligible historic property that is unlikely to be able to be avoided or mitigated? *(Note: All required NHPA Section 106 consultation with the State Historic Preservation Office [SHPO], Advisory Council on Historic Preservation [ACHP], Tribes, and other interested parties must be completed prior to commencing with the proposed project.)* | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF prevent the traditional use of sacred or ceremonial sites or resources by Federally recognized Native Americans, Alaska Natives, or Native Hawaiians? *(Note: All required NHPA Section 106 consultation with SHPO, ACHP, Tribes, and other interested parties must be completed prior to commencing with the proposed project.)* | ☐ Yes ☐ No ☐ N/A | |
| **Soils** | | |
| Will any action taken to station the MDTF be conducted in a manner that conflicts with accepted state best management practices (BMPs) applicable to the activity (e.g., forestry BMPs for timber harvesting, wetlands, and riparian area protection BMPs)? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF involve construction activities on highly erodible soils? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF disturb contaminated soil? | ☐ Yes ☐ No ☐ N/A | |
| **Land Use** | | |
| Will any action taken to station the MDTF conflict with an installation planning document (master plan, land use plan, etc.)? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF create a land use incompatibility? | ☐ Yes ☐ No ☐ N/A | |

| Resource Area and Questions | Check the appropriate response: | Comments |
|---|---|---|
| **Socioeconomics** | | |
| Will any action taken to station the MDTF cause a long-term loss or displacement of recreational opportunities and resources? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF have a disproportionate adverse economic, social, or health impact on a minority or low-income population? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF create a disproportionate environmental health or safety risk to children? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF result in substantial loss or displacement of recreational opportunities and resources (e.g.,hunting and fishing) relative to the baseline? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF be accomplished adjacent or near a low-income or minority population area that is one of only a few residential areas bordering the installation that are primarily occupied by low-income or minority populations? | ☐ Yes ☐ No ☐ N/A | |
| **Traffic and Transportation** | | |
| Will any action taken to station the MDTF create any long-term road closures or traffic delays? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF require large road or access control point construction and delivery vehicles to use roads that are already congested? | ☐ Yes ☐ No ☐ N/A | |
| **Infrastructure and Utilities** | | |
| Will any action taken to station the MDTF cause an exceedance of the existing capacity of an element of infrastructure and utilities? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF violate a regulatory limit of any infrastructure system (e.g., wastewater discharge)? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF be incompatible with the existing installation or regional electrical grid system? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF create utility shortages (electricity, natural gas, water, telecommunication service, wastewater management services, solid waste management service [non-hazardous], and other essentials) to local communities, homes, and businesses for a length of time that would affect health, welfare, and economic viability? | ☐ Yes ☐ No ☐ N/A | |

| Resource Area and Questions | Check the appropriate response: | Comments |
|---|---|---|
| **Water Resources** | | |
| Will any action taken to station the MDTF violate a National Pollutant Discharge Elimination System (NPDES) stormwater permit? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF modify a floodplain such that the floodplain's natural and beneficial values are diminished? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF occur completely or partially within a floodplain, requiring implementation of Executive Order 11988, possibly resulting in a Finding of No Practicable Alternative? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF cause an exceedance of a Total Maximum Daily Load? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF cause a change in the impairment status of a surface water? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF result in unpermitted direct impacts to waters of the U.S., regulated recharge zones, and/or groundwater aquifers? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF occur on or within jurisdictional wetlands or require additional surveys to identify and delineate jurisdictional wetlands? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF cause the unpermitted loss or destruction of more than 1 acre of jurisdictional wetlands? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF affect a coastal zone regulated by the Coastal Zone Management Act (CZMA), requiring a CZMA consistency evaluation that has not yet been completed? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF require substantial modification of the installation's storm water discharge prevention plan? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF depend on groundwater resources that are stretched to or beyond their capacity, or cause or worsen a problem of brackish or saltwater intrusion? | ☐ Yes ☐ No ☐ N/A | |
| Will any action taken to station the MDTF be done on a site known to contain contamination and be done in a way that could cause surface water or groundwater contamination or violate water quality regulations? | ☐ Yes ☐ No ☐ N/A | |