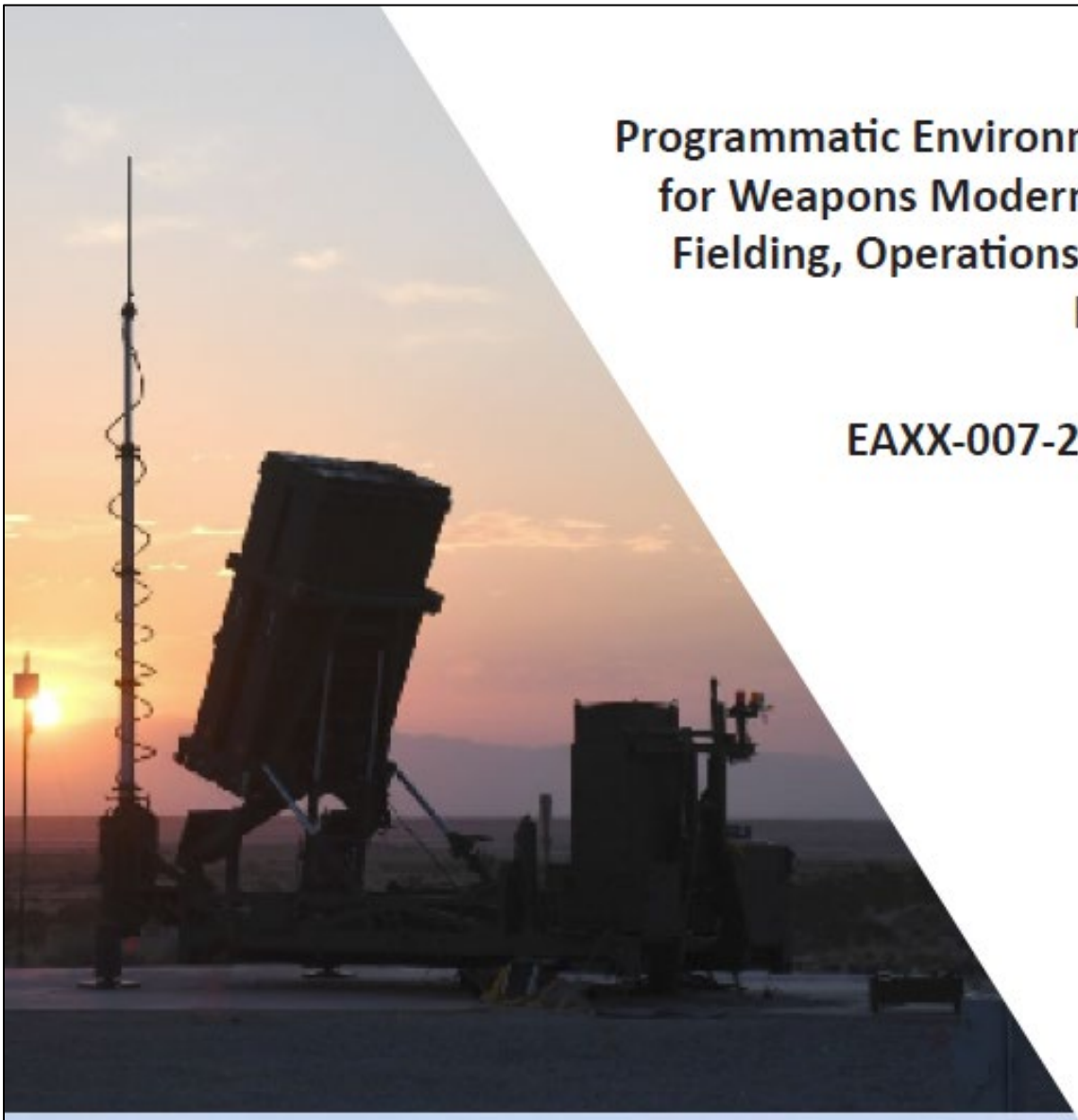

Programmatic Environmental Assessment for Weapons Modernization Stationing, Fielding, Operations, and Maintenance Fort Cavazos, Texas

EAXX-007-21-001-1736353390

Final

June 2025

Prepared by:
Chloeta and Scout

Cover:

Top photo: An IFPC system set before a sunset. Photo credit, U.S. Army David Huskey, Program Executive Office Missiles and Space

Bottom photo: A SGT STOUT vehicle driving up a dirt road. Photo credit, Spc. Andrew Simeri

INTRODUCTION

The National Environmental Policy Act of 1969 (NEPA) (42 United States [U.S.] Code Section 4321 et seq.) requires federal agencies to consider potential environmental impacts prior to undertaking a course of action.

The Department of the Army (Army) prepared a Programmatic Environmental Assessment (PEA) in accordance with NEPA and the Army's procedures for implementing NEPA, *Environmental Analysis of Army Actions* (32 CFR Part 651).

This PEA is titled "Programmatic Environmental Assessment for Weapons Modernization, Stationing, Fielding, Operations, and Maintenance Fort Cavazos, Texas." This PEA is incorporated by reference in this Finding of No Significant Impact (FONSI), and has been developed to analyze the potential environmental consequences that could result from implementation of stationing and fielding up to eight weapons systems at Fort Cavazos. These weapons systems include the SGT STOUT, Lower Tier Air and Missile Defense Sensor (LTAMDS), M10 Booker Combat Vehicle (M10 Booker), Indirect Fire Protection Capability (IFPC), Dark Eagle , Mid-Range Capability (MRC) System, Multi-Domain Task Force (MDTF), and the High-Power – Directed Energy (HP-DE) Systems.

Fielding these systems would enhance the Army's capability to defeat advanced and future threats, providing new capabilities to soldiers, and integrate with new and existing systems. The intent of fielding and stationing these weapons systems is to create a modernized Army capable of conducting multi-domain operations as part of an integrated Joint Force that is ready to conduct multi-domain operations across an array of scenarios in multiple theaters by 2035.

This PEA provides a broad and programmatic analysis to determine potential impacts on the environmental and socioeconomic areas of concern. Decisions on which weapons systems to station at Fort Cavazos will be made by Army decision makers based on the information in this PEA and FONSI as well as other mission-related considerations.

PROPOSED ACTION

The Army's proposed action is the fielding, stationing, operations, and maintenance of up to eight weapons systems at Fort Cavazos. These systems are an essential step in the realization of the Army Modernization Strategy (AMS) outline for transforming the Army into a multi-domain force by 2035.

PROPOSED ACTION ALTERNATIVES

The PEA evaluated three action alternatives and the no action alternative. The alternatives considered and analyzed in the PEA were:

No Action Alternative

Implementation of the no action alternative would mean that none of the proposed weapons systems would be fielded or stationed at Fort Cavazos. Under the no action alternative, the Army would not enhance its structural Multi-Domain Operations capabilities. 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.

Alternative 1

Alternative 1 includes the fielding and stationing of the SGT STOUT weapon system and associated soldiers to Fort Cavazos. Alternative 1 meets all six of the screening criteria.

The SGT STOUT weapon system would be a new capability for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT weapon system involves the support of approximately 675 soldiers. An estimated 911 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 1,586 to the Fort Cavazos population.

Alternative 2

Alternative 2 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers to Fort Cavazos. Alternative 2 meets all six of the screening criteria.

The LTAMDS is similar to the PATRIOT AN/MPQ-65 radar system and is slated to replace the PATRIOT AN/MPQ-65 radar on a one for one basis. The SGT STOUT, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems would be new capabilities for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE involves the support of approximately 1,330 to 2,000 soldiers. An estimated 1,877 to 2,700 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 3,207 to 4,700 to the Fort Cavazos population.

Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems to Fort Cavazos. Alternative 3 meets all six of the screening criteria.

The LTAMDS is similar to the PATRIOT AN/MPQ-65 radar system and is slated to replace the PATRIOT AN/MPQ-65 radar on a one for one basis. The SGT STOUT, M10 Booker, Full MDTF, and HP-DE weapons systems would be new capabilities for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems involves the support of approximately 3,075 soldiers. An estimated 4,151 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 7,226 to the Fort Cavazos population.

SUMMARY OF ENVIRONMENTAL EFFECTS

Each resource area was analyzed for potential impacts resulting from the proposed action, including any reasonably foreseeable effects. Potential impacts that could result from the

implementation of the action can be both beneficial and adverse. The degree of environmental beneficial and adverse impacts is characterized as none, negligible, minor, moderate/less than significant, significant but mitigable, and significant.

Impacts are anticipated to be minimized through avoidance and the implementation of existing environmental protection measures. Avoidance strategies depend on the alternative selected and where construction activities are planned. Examples of environmental protection measures would include implementing erosion and stormwater control measures; maintaining vehicles and equipment, and sustaining vegetation cover at the construction sites. The Army will continue to adhere to legal and regulatory requirements and continue to implement its approved management plans, standard operation procedures, and best management practices.

Implementation of the selected alternative may require additional site-specific analyses, including follow-on NEPA evaluations, to address actions necessary for fielding, stationing, siting considerations, and other environmental issues. With the implementation of the identified best management practices (BMPs) outlined below and further evaluation of site-specific design plans, no significant impacts are anticipated from any of the proposed action alternatives assessed in this PEA.

The analysis in this PEA determined that BMPs may be implemented should future supporting construction and operation analysis activities be determined significant. Future anticipated operational impacts and associated BMP incorporation as follows will ensure impacts remain less than significant. These impacts and subsequent BMPs are detailed by resource area as described below.

- **Air Quality – less than significant**
  - *Impacts:* Alternative 1 would result in a slight increase in fuel use, air emissions, and traffic due to the fielding of new weapons systems and additional personnel, but emissions would not exceed air quality standards. Alternative 2 would have similar impacts as alternative 1, with slight increases in fuel use, air emissions, and traffic from the new weapons systems and personnel influx. This could affect local air quality, but emissions would remain within air quality standards. Alternative 3 would lead to a moderate increase in fuel use, air emissions and traffic potentially impacting air quality. While this alternative could have moderate adverse impacts on air quality, emissions would not exceed air quality standards, and no significant impacts are expected. None of the alternatives are expected to impact air quality to the extent of violating ambient air quality standards.
  - *Best Management Practice(s):* For all alternatives, fugitive dust generation from weapon system maneuvers is expected and dust control measures may need to be implemented. If additional infrastructure is needed to support the weapons systems, construction may require permitting, and new stationary sources may need to be reviewed and included in the installation's air permit. Supplemental NEPA analysis may be required depending on the specific infrastructure requirements.
- **Airspace – less than significant**
  - *Impacts:* All of the proposed alternatives involve the fielding and stationing of ground-based systems that would only have the opportunity to impact airspace through test-firing and training. It is assumed that the Special Use Airspace above ranges at Fort

Cavazos would follow all applicable regulations according to the Federal Aviation Administration (FAA) and Army Regulations. Implementation of alternative 1 would not cause a substantial infringement of general aviation or commercial flight. The airspace over Fort Cavazos is sufficient to support training for most of the alternative 2 weapons systems. If live fire cannot be accommodated in Fort Cavazos airspace, simulation fire would be utilized during training activities. Like alternative 2, the impact on airspace from alternative 3 is mitigable (through coordination) to a less than significant level.

- *Best Management Practice(s):* Coordination with the FAA (and potentially the Laser Clearinghouse) would ensure compliance with FAA safety regulations and prevent interference with general aviation and commercial flights.

- **Biological Resources – less than significant**
  - *Impacts:* All action alternatives could result in minor adverse impacts, with vegetation effects expected to be long-term due to ongoing live-fire and maneuver training. However, these impacts are considered minor and less than significant as they align with existing activities on the installation. Wildlife displacement would occur with a 7.5 percent (alternative 2) or 11.5 percent (alternative 3) increase in soldiers, while alternative 1, involving only a 2.5 percent population increase, is not expected to impact wildlife. Wildlife on Fort Cavazos has adapted to live-fire training and maneuvering on the ranges and is unlikely to react adversely to additional training.
  - *Best Management Practice(s):* Briefing units before each training event on sensitive areas, such as protected species habitats and protocols, along with implementing measures from the installation Integrated Natural Resources Management Plan, the 2015 Biological Opinion, and existing BMPs, would effectively mitigate impacts. If new construction is needed, Endangered Species Act consultation with the U.S. Fish and Wildlife Service may be required. Additionally, using existing roads and adhering to established limits within training ranges and maneuver areas would help minimize potential adverse effects on protected species and their habitats.
- **Cultural Resources – less than significant**
  - *Impacts:* Increased training activities are expected to have less than significant impacts on cultural resources. However, an increase in personnel raises the risk of encountering or disturbing cultural resources. Construction and ground-disturbing activities, including developing new training areas or infrastructure, could impact cultural resources and block access to sacred sites. Identifying cultural resources within the area of potential effect would be required before any ground-disturbing activities take place.
  - *Best Management Practice(s):* Identifying resources within the area of potential effect before activities begin, combined with applying BMPs would help avoid adverse effects. Monitoring, training personnel to report cultural materials, and implementing BMPs would further reduce potential impacts. While an increase in personnel raises the likelihood of encountering or disturbing cultural resources, adherence to Standard Operating Procedures and BMPs for resource training, identification, and protection would effectively mitigate these impacts. If new construction is required to implement this alternative, a supplemental NEPA analysis might be required.

- **Geological and Soil Resources – minor**
  - *Impacts:* Implementing any action alternative would increase maneuver training, potentially damaging vegetation, disturbing soils, and causing erosion or altered drainage patterns. Construction activities may also compact soils, increase erosion and stormwater runoff, and affect groundwater recharge. Alternative 1 is not anticipated to impact geologic or soil resources. For alternatives 2 and 3, population increases are not expected to impact soils beyond those effects from construction and training, resulting in only minor soil impacts.
  - *Best Management Practice(s):* Adhering to stormwater management plans and BMPs, along with the Integrated Training Area Management work plan and the installation's Integrated Natural Resource Management Plan, will help minimize these impacts. Additionally, the Army's use of existing facilities and control measures will further mitigate potential effects.
- **Hazardous and Toxic Materials and Waste – less than significant**
  - *Impacts:* It is assumed that the installation will adhere to all federal, state, local, and Army installation regulations. Alternative 1 is not expected to significantly increase hazardous materials (HM) or hazardous waste (HW), as it mainly involves fuel, vehicle fluids, lubricants, and munitions, with minimal environmental impact. Alternative 2 is similarly expected to have less than significant impacts on HM and HW. Alternative 3 would increase HM use and HW generation slightly compared to alternatives 1 and 2, but the overall impact would remain minor and less than significant. All alternatives are expected to have less than significant impacts on hazardous and toxic materials and waste.
  - *Best Management Practice(s):* Management of HM and HW will comply with regulations. Construction debris will be recycled or disposed of in approved landfills. HM and HW resulting from the action alternatives will be managed under the Hazardous Waste Management Plan, with procedures in place to minimize spills during refueling. In the event of a spill, clean-up will follow established plans and Standard Operating Procedures. Munitions will be handled safely, with spent casings disposed of according to environmental laws. All alternatives will follow the Hazardous Waste Management Plan and will comply with federal, state, local, and Army Regulations.
- **Noise – less than significant**
  - *Impacts:* Implementation of any of the action alternatives would not alter the peak noise levels currently generated on Fort Cavazos. If the operations tempo increases, then day-night noise levels would also increase, a quantitative noise analysis should be completed to determine whether noise contours extend off-installation in populated areas.
  - *Best Management Practice(s):* The approved noise models for small arms 50 caliber and below is Small Arms Range Noise Assessment Model and Blast Noise Version 2 for large caliber weapons greater than 50 caliber and includes artillery rounds. Should modeling be necessary for a supplemental NEPA analysis, Small Arms Range Noise Assessment Model and Blast Noise Version 2 would be used to assess noise impacts.

- **Socioeconomics – less than significant**
  - *Impacts:* Concerning socioeconomics, all action alternatives are anticipated to cause increases in employment, sales volume, income, and population which would all be beneficial but less than significant compared to the region of influence.
  - *Best Management Practice(s):* None needed, in terms of race and origin, the Army population generally reflects the diversity across the U.S. Actions associated with the fielding and stationing of the weapons systems, including training activities and construction of any required support facilities, would occur within the boundaries of the installation and therefore would not cause disproportionately high or adverse human health or environmental effects on minority or low-income populations.
- **Transportation and Traffic – less than significant**
  - *Impacts:* The increase of soldiers and their family members associated with all action alternatives, is expected to have only a minor impact on the existing road infrastructure. While some of the new personnel and their families may reside off-base and could potentially increase commuter traffic during peak hours, this too is anticipated to place a modest additional demand on the current road infrastructure.
  - *Best Management Practice(s):* Fully implementing the road improvements as outlined in the 2020 Traffic Study would aid in alleviating potential traffic increases associated with all action alternatives. Once the exact weapon system configurations and fielding decisions are made, supplemental NEPA analysis may be necessary to assess the specific impacts on traffic and transportation infrastructure.
- **Water Resources – less than significant**
  - *Impacts:* Under all action alternatives, increases in personnel could result in increases in trash and debris that could wind up in local waterways. However, these impacts are expected to be less than significant. The addition of personnel would only slightly increase water demand for consumption, aside from alternative 3, which could impact water resources. Vehicle washing associated with the increased training is accomplished by using several closed-loop wash racks. This increase is not expected to impact water resources. Activities related to construction, increased personnel, and increased maneuvering could take place within a floodplain. Building within a floodplain could exacerbate flooding, pose greater risks to soldier safety, increase the chance of inundation and facility damage, and introduce contaminants into floodwaters.
  - *Best Management Practice(s):* Proper design of drainage control measures would minimize the accumulation of pollutants and debris in nearby waterways. Increased training activities and population have the potential to impact water resources at Fort Cavazos, but due to existing BMPs and control measures, the impacts are anticipated to be minor. The Army would strive to avoid constructing on floodplains. If avoidance isn't feasible, then site design, construction standards, and BMPs described in the installation Integrated Natural Resource Management Plan would be followed. Additionally, adherence to the requirements outlined in EO 11988 reduces potential impacts on floodplains to less than significant.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

Introduction

The PEA and Draft FONSI are available for public, agency, and tribal review June 10, 2025, when a Notice of Availability was published in local newspapers. Electronic copies of the PEA and Draft FONSI are available for download from the Fort Cavazos website at: https://home.army.mil/cavazos/units-tenants/Garrison/DPW/ENV/NOA. Comments can be submitted by email at usarmyftcavazosid-readinesslistpaostaff@army.mil or by mail to U.S. Army Garrison Fort Cavazos, Directorate of Public Works, Environmental Division, Attn: NEPA Program Manager, 4612 Engineer Drive Fort Cavazos, Texas 76544-5028. If you have questions regarding these documents or the public comment process, please contact the NEPA Program Manager at usarmyftcavazosid-readinesslistpaostaff@army.mil.

To facilitate intergovernmental and interagency coordination of environmental planning (IICEP), Fort Cavazos also sent IICEP letters to government agencies and Native American Tribes requesting their review and input. These letters were sent to the State Historic Preservation Office, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the FAA, and local Native American Tribes.

Comments Received and Responses

Any substantive comments will be summarized and added to the Final FONSI.

CONCLUSION

Based on a careful review of the PEA and comments received during the June 10, 2025 public notice comment period, as well as coordination with relevant parties through IICEP letters, the Army has determined that no significant direct, indirect, or reasonably foreseeable impacts to the human or natural environment are anticipated as a result of implementation of the proposed action. The Army concludes that the three alternatives and no action alternative are not likely to have significant effects and that an environmental impact statement is not required and will not be prepared. This decision is based on the environmental and socioeconomic analysis contained in this PEA. This decision meets the requirements of NEPA and its Army NEPA regulations and has been made after considering all submitted information and examining a full range of reasonable alternatives and all environmental impacts. This concludes the NEPA process for this action.

_____ _____

Lakicia R. Stokes
Colonel, U.S. Army
Commanding

Date

FONSI APPENDIX A: SUMMARY OF THE EFFECTS FROM THE EVALUATED ALTERNATIVES

Summarized effects include direct, indirect, and reasonably foreseeable effects

Resource Area	Alternative 1	Alternative 2	Alternative 3	No Action Alternative
Air Quality	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Airspace	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Biological Resources	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Cultural Resources	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Geological and Soil Resources	Minor adverse effects	Minor adverse effects	Minor adverse effects	None
Hazardous and Toxic Materials and Waste	Negligible adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Noise	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Socioeconomics	Less than significant beneficial effects	Less than significant beneficial effects	Less than significant beneficial effects	None
Transportation and Traffic	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None
Water Resources	Less than significant adverse effects	Less than significant adverse effects	Less than significant adverse effects	None

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ABBREVIATIONS AND ACRONYMS

A2/AD	Anti-Access/Area Denial
AAP	Army Alternate Procedures
AIRFA	American Indian Religious Freedom Act
AMS	Army Modernization Strategy
APE	Area of Potential Effect
AR	Army Regulation
Army	United States Army
BMPs	Best Management Practices
BN	Battalion
BNoise2	Blast Noise Version 2
BO	Biological Opinion
CFR	Code of Federal Regulations
CO	Carbon monoxide
COF	Company operations facilities
C-sUAS	Counter-small Unmanned Aircraft Systems
dB	Decibel
dBA	A-weighted decibels
DE	Directed Energy
DIVAD	Divisional Air Defense
DoD	United States Department of Defense
DOT	Department of Transportation
DPW	Department of Public Works
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCCRM	Fort Cavazos Cultural Resource Management
FONSI	Finding of No Significant Impact
FY	Fiscal year
HEMTT	Heavy Expanded Mobility Tactical Truck
HM	Hazardous Material
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HPC	Historic Properties Component
HP-DE	High-Power – Directed Energy
HW	Hazardous Waste
HWMP	Hazardous Waste Management Plan
I	Interstate
IBCS	Integrated Air and Missile Defense Battle Command System
ICRMP	Integrated Cultural Resources Management Plan
IFPC	Indirect Fire Protection Capability
IFPC-HEL	Indirect Fire Protection Capability – High Energy Laser
IFPC-HPM	Indirect Fire Protection Capability – High Power Microwave
Inc 2	Increment 2
INRMP	Integrated Natural Resources Management Plan
K_u	K-Under
kW	Kilowatt
LOS	Level of Service
LTAMDS	Lower Tier Air and Missile Defense Sensor

LRHW	Long-Range Hypersonic Weapon
LUPZ	Land Use Planning Zone
MC	Munitions Constituents
MDO	Multi-Domain Operations
MDTF	Multi-Domain Task Force
MOAs	Military operations areas
MRC	Mid-Range Capability
M-SHORAD	Maneuver Short Range Air Defense Capability
MSL	Mean sea level
M10 Booker	M10 Booker Combat Vehicle
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDS	National Defense Strategy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PATRIOT	Phased Array Tracking Radar to Intercept on Target
PEA	Programmatic Environmental Assessment
$PM_{2.5}$	Particulate matter with a diameter less than or equal to 2.5 microns
PM_{10}	Particulate matter with a diameter less than or equal to 10 microns
POL	Petroleum, oil, and lubricants
PTRCI	Properties of Traditional Religious and Cultural Importance
RCRA	Resource Conservation Recovery Act
ROI	Region of Influence
SAA	Satellite Accumulation Areas
SARNAM	Small Arms Range Noise Assessment Model
SGT STOUT	Formerly Maneuver Short Range Air Defense Capability (M-SHORAD)
SO_2	Sulfur dioxide
SOPs	Standard operating procedures
SUA	Special Use Airspace
T&E	Threatened and Endangered
TCEQ	Texas Commission on Environmental Quality
TEMF	Tactical equipment maintenance facility
TPDES	Texas Pollutant Discharge Elimination System
TSS	Total suspended solids
TxDOT	Texas Department of Transportation
UAS	Unmanned Aircraft Systems
U.S.	United States
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Command
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

This Programmatic Environmental Assessment (PEA) evaluates the potential environmental effects that could result from the stationing[1] and fielding[2], operations and maintenance of up to eight weapons systems in combinations described in the three action alternatives at Fort Cavazos, Texas.

The 2022 National Defense Strategy (NDS) outlines strategic objectives and priorities of the United States (U.S.) military in addressing emerging threats and challenges. The NDS identifies four overarching defense priorities that the Department of Defense (DoD) must pursue to strengthen deterrence. First, to defend the homeland. Second, it seeks to deter strategic attacks against the U.S., our allies, and our partners. Third, it focuses on deterring aggression and preparing to prevail in conflict when necessary. Lastly, it aims to secure the future military advantage of the U.S. by developing a resilient Joint Force and defense ecosystem (DoD, 2022).

The U.S. Army (Army) Modernization Strategy (AMS), introduced in 2019 and updated in 2021, aligns with the 2022 NDS and delineates how the Army will transform into a multi-domain force by 2035. The ultimate objective of the AMS is to have a modernized Army capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force in one major action by 2028 and to be prepared to conduct MDO in various scenarios across multiple threats by 2035. The MDO concept describes how the Army will support the Joint Force by rapidly and continuously integrating all domains of warfare – land, sea, air, space, and cyberspace – to deter and prevail if deterrence fails. This transformation is crucial for fulfilling the Army's enduring responsibility as part of the Joint Force, which encompasses all U.S. and allied military forces, to ensure the defense of the U.S. and maintain its position as the globally dominant land power. To prepare for the battlefield of the future, the Army must be ready to fight in a very different operational environment from any previously fought wars. The character of war has changed significantly, and the Army, along with its joint service partners, must be ready to deploy and fight in a high-intensity, MDO environment. (U.S. Army, 2021a).

The AMS establishes six modernization priorities to rebuild readiness and modernize the force:

- Long Range Precision Fires
- Next Generation Combat Vehicles
- Future Vertical Lift
- Network Technology
- Air and Missile Defense
- Soldier Lethality

[1] Stationing is the process of combining force structure and physical capabilities at a specific location to satisfy a specific mission requirement. Stationing includes a force structure component and a facility component.
[2] Fielding refers to sending new equipment and technology to an installation. As part of a fielding action, soldiers are stationed at an installation to train and maintain the weapon system capability.

The Army, in support of the AMS, is considering stationing and fielding the following eight weapons systems at Fort Cavazos:

1. SGT STOUT (formerly Maneuver Short Range Air Defense Capability [M-SHORAD])
2. Lower Tier Air and Missile Defense Sensor (LTAMDS)
3. M10 Booker Combat Vehicle (M10 Booker)
4. Indirect Fire Protection Capability (IFPC)
5. Dark Eagle (formerly Long-Range Hypersonic Weapon [LRHW] System)
6. Mid-Range Capability (MRC) System
7. Multi-Domain Task Force (MDTF)
8. High-Power – Directed Energy (HP-DE) Systems

Fielding these systems would enhance the Army's capability to defeat advanced and future threats, provide new capabilities to Fort Cavazos soldiers, and integrate with new and existing systems.

This PEA has been prepared to fulfill the requirements of the National Environmental Policy Act (NEPA) (42 U.S. Code [USC] 4321 et seq.) and the Army's NEPA implementation procedures, as outlined in 32 Code of Federal Regulations (CFR) 651, Army Regulation (AR) 200-2 *Environmental Analysis of Army* Environmental Analysis of Army Actions (U.S. Army, 2002), and applicable Army policy (U.S. Army, 2017).

1.1.1 Background

Fort Cavazos covers approximately 340 square miles of Coryell and Bell Counties, Texas, and is located approximately 60 miles north of Austin and approximately 50 miles south of Waco, Texas (Figure 1-1). The City of Killeen borders Fort Cavazos on the southeast, and the City of Copperas Cove borders the installation to the southwest. The principal cantonment area and the adjacent West Fort Cavazos are bisected by Interstate (I)-14.

Fort Cavazos encompasses approximately 218,926 total acres, including 132,175 acres used for maneuver training, 64,647 acres as live-fire impact areas and ranges, and 22,104 acres for the installation's cantonment areas. There are three cantonment areas: the main cantonment, West Fort Cavazos, and North Fort Cavazos (Figure 1-2).

Due to its vast size and ideal terrain, Fort Cavazos is the only post in the U.S. capable of stationing and training two armored divisions. Fort Cavazos is home to one armored division, 1st Calvary Division. The semi-arid rolling landscape provides an optimal environment for diverse training and testing activities for military units and troops (Fort Cavazos, 2023b). Fort Cavazos has an on-post population of approximately 66,800, including approximately 38,000 assigned military personnel, 14,000 on post family members, and approximately 14,200 civilian workers (Fort Cavazos, 2025).

The mission of Fort Cavazos III Armored Corps is to deploy globally and conduct MDO as part of a combined joint land force to deter or defeat adversaries, support Combatant Command operations, and achieve national defense objectives. The Fort Cavazos Garrison's mission is to provide integrated installation support services to include facilities, infrastructure, and programs

to enable Fort Cavazos commanders to train and deploy their units and take care of their soldiers, families, civilians, and retirees (Fort Cavazos, 2023a).

Figure 1-1: Vicinity Map

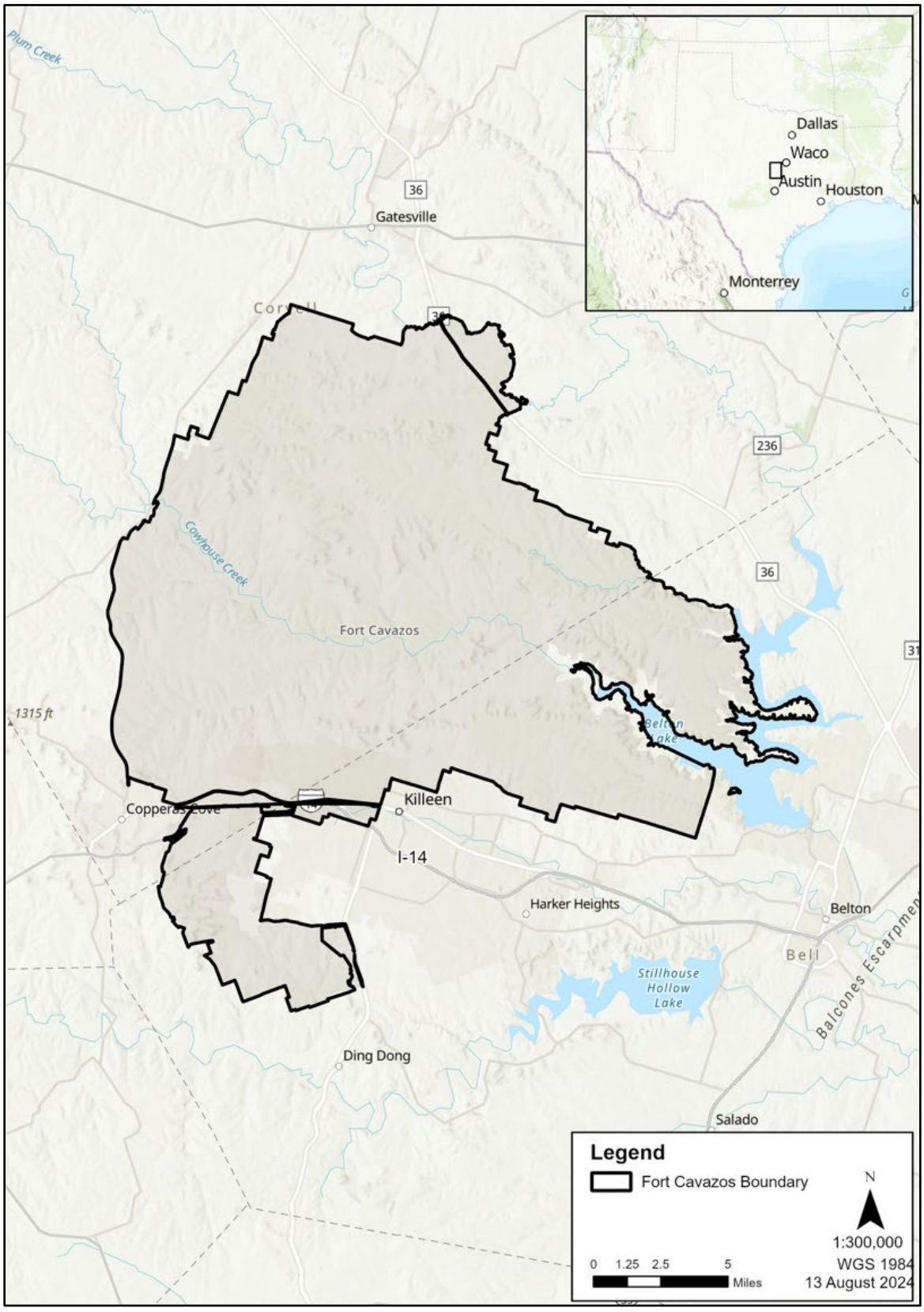
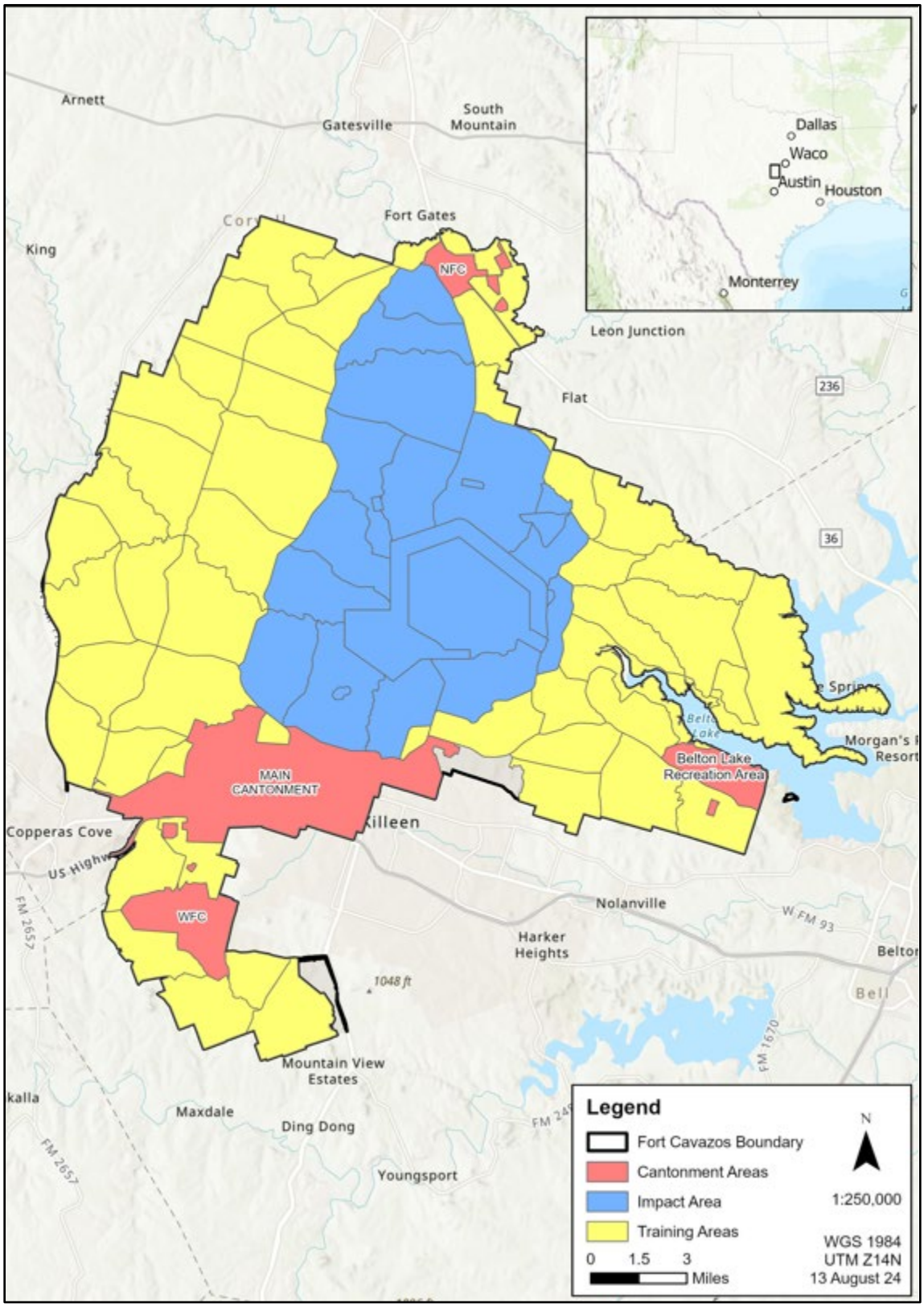


Figure 1-2: Project Area



Legend: NFC=North Fort Cavazos, WFC=West Fort Cavazos

Effective May 9, 2023, the installation underwent a formal name redesignation from Fort Hood to Fort Cavazos as part of the Army Naming Commission's recommendations to remove names, symbols, displays, monuments, and paraphernalia honoring or commemorating the Confederate States of America (Fort Cavazos, 2024a).

As a result, this PEA references documents and materials that may still utilize the now defunct installation name. While ongoing efforts are in place to update referenced materials, such as plans, agreements, and studies, to reflect the redesignation, it is possible that some materials referenced in this PEA may refer to the installation as Fort Hood. However, the content of these referenced materials remains applicable to Fort Cavazos as it stands at the time of this PEA publication.

1.1.2 Weapons Systems

The following sections provide general descriptions of each of the eight weapons systems analyzed in this PEA.

1.1.2.1 SGT STOUT (formerly Maneuver Short-Range Air Defense [M-SHORAD])

As of June 15, 2024, the SGT STOUT underwent a formal name redesignation from M-SHORAD to SGT STOUT[3]. This is in honor of the only Air Defense Artillery Soldier to receive the Medal of Honor, Sgt. Mitchell W. Stout (U.S. Army, 2024). As a result, this PEA references documents and materials that may refer to the SGT STOUT as the M-SHORAD. The content of these reference materials remains applicable.

The SGT STOUT integrated air defense vehicle provides the capability to detect, track, identify, and destroy low-altitude air targets using onboard acquisition and tracking sensor capability in a wide variety of combat conditions. The SGT STOUT also has the capability to accept cueing and tracking information from other sources. Weapons on the SGT STOUT include a Stinger missile, a 30-millimeter autocannon, and a 7.62-millimeter coaxial machine gun (U.S. Army Environmental Command [USAEC], 2021). See Figure 1-3.

The SGT STOUT would field as a primary warfighting capability of a Divisional Air Defense (DIVAD) Battalion (BN). The DIVAD BN, when fully resourced, would provide air and missile defense for maneuvering forces, fixed and semi-fixed sites, and against small Unmanned Aircraft Systems (UAS[4]). Each DIVAD BN would also field approximately 20 additional Strykers with infantry carrier vehicles serving as Platoon leader vehicles and medical evacuation vehicles. The Army may field the MaxxPro mine resistant ambush protected vehicle in lieu of some or all of the additional 20 Stryker vehicles. Each DIVAD BN is planned to include an IFPC Battery once the capability is fully developed and fielded, see Section 1.1.2.4.

[3] The Directed Energy variant of the M-SHORAD was not included as part of the name redesignation and continues to be referred to as the M-SHORAD Inc 2 (DE).
[4] The term "UAS" can refer to *unmanned* or *uncrewed* aircraft systems. The terms "unmanned" and "uncrewed" are used interchangeably and do not alter the overall definition or meaning of UAS.

Figure 1-3: SGT STOUT Weapon System

The Army is adding a Counter-small Unmanned Aircraft Systems (C-sUAS) Battery to each DIVAD BN to provide better protection of assets against a rapidly emerging small UAS threat. The C-sUAS Battery would be organized with a Headquarters Platoon and teams to operate the systems fielded. Soldiers of the C-sUAS Battery would be capable of operating the multiple systems shown in Table 1-1 that can detect, track, identify, and defeat small UAS by non-kinetic (electromagnetic) or kinetic (guns/tube launched anti-UAS) effectors. Systems could be fixed-site or mobile (mounted or dismounted) to cover the spectrum of threats.

Table 1-1: C-sUAS Equipment Set

Type of Equipment	***Approximate Quantity***	***Configuration***	***System Type***
Drone-Buster	20	Handheld / Dismounted	Non-Kinetic
Modi	20	Handheld / Dismounted	Non-Kinetic
Forward Area Air Defense Command and Control (C2)	11	Handheld / Dismounted	C2
Bal Chatri	10	Handheld / Dismounted	Non-Kinetic
Smart Shooter	10	Handheld / Dismounted	Kinetic
Fixed Site-Low, Slow, Small Unmanned Aircraft Vehicle Integrated Defeat System	6	Fixed / Semi-Fixed	Non-Kinetic / Kinetic
Mobile-Low, Slow, Small Unmanned Aircraft System Integrated Defeat System	5	Mobile / Mounted	Non-Kinetic / Kinetic

Legend: C2=Command and Control

The Army is considering fielding and stationing the SGT STOUT system and its associated BN at Fort Cavazos as part of the 2021 AMS in Fiscal Year (FY) 2024 or later, as analyzed in this PEA. The Army endeavors to field a DIVAD BN at Fort Cavazos to enhance the defensive capability of installation units against aerial threats, and it is a key component of Air and Missile Defense modernization.

The DIVAD BN also includes stationing approximately 675 soldiers. Fielding of the DIVAD BN includes approximately 125 Joint Light Tactical Vehicles (JLTVs) or High Mobility Multipurpose Wheeled Vehicles (HMMWVs), approximately 215 other support vehicles and trailers, plus individual weapons, sensors, communications equipment, and support and maintenance equipment for all systems.

Facilities required for the DIVAD BN include a BN Headquarters, seven command operation facilities (COFs), a tactical equipment maintenance facility (TEMF)/motor pool with equipment parking and soldier housing and support spaces. The system would be housed in existing infrastructure, or new infrastructure would be provided prior to fielding the SGT STOUT. Supplemental NEPA documentation might be required before the start of construction of any new facilities.

The DIVAD BN completes training events and exercises as individuals and collectively in groups as large as the full BN of approximately 675 soldiers. The new soldiers would include an estimated 911 family members (including spouses and children). BN soldiers would train to maintain physical fitness and to employ individual and crew-served weapons effectively and properly, drive and maintain assigned vehicles, utilize assigned sensors and communications equipment, and integrate into the supported division and brigade combat teams to provide an effective defense against aerial threats.

1.1.2.2 Lower Tier Air and Missile Defense Sensor

The LTAMDS, as shown on Figure 1-4, is a 360-degree active electronically scanned array radar with improved power and sensitivity. The sensor is designed to detect and track cruise and ballistic missiles, aircraft, and UAS, and it would integrate with the Integrated Air and Missile Defense Battle Command System (IBCS), the Army’s air and missile defense network backbone designed to link disparate air and missile defense assets on the battlefield.

Figure 1-4: LTAMDS Weapon System

The Army is considering fielding and stationing the LTAMDS at Fort Cavazos as part of the 2021 AMS in FY 2026 or later, as analyzed in this PEA. The LTAMDS radar would be a crucial component of the Army's future integrated air and missile defense architecture.

The LTAMDS is a one-for-one replacement for the current Phased Array Tracking Radar to Intercept on Target (PATRIOT) AN/MPQ-65 radar, which is currently stationed at Fort Cavazos. There is no expected growth in personnel required to field and operate the LTAMDS. The system is somewhat larger and heavier than the MPQ-65 and operates at different frequencies and power levels than the PATRIOT AN/MPQ-65. The LTAMDS would be accompanied by a new electrical power supply that would replace the current PATRIOT AN/MPQ-65 electrical power supply on a one-for-one basis. Both power supplies are trailer mounted and similar in physical dimensions. The system would be housed in existing infrastructure, or new infrastructure would be provided prior to fielding the LTAMDS.

1.1.2.3 M10 Booker Combat Vehicle

The M10 Booker, as shown on Figure 1-5, provides protected, long-range, precision direct-fire capability to neutralize enemy prepared positions and bunkers as well as defeat heavy machine guns and armored vehicle threats during offensive operations or when conducting defensive operations against attacking enemies. Overall, the M10 Booker would enhance the Infantry Brigade Combat Team's ability to assault by fire and maneuver through urban and restrictive terrain to seize, occupy, and defend land areas, increasing the lethality and survivability of Army light infantry forces. Ultimately, its use would prevent or deter conflict and create the conditions for favorable conflict resolution. The M10 Booker would provide the Army's Infantry Brigade Combat Team with an Armored Infantry Support Vehicle that is a highly mobile, multi-terrain tracked vehicle with direct-fire capabilities.

Figure 1-5: M10 Booker Weapon System

The M10 Booker could field as a BN assigned to the 1st Calvary Division. The division could assign the M10 Booker companies to an Infantry Brigade Combat Team as needed based on training and operational requirements. The typical M10 Booker BN composition requires a BN Headquarters, five COFs, and a TEMF/motor pool. The BN is expected to consist of approximately 400 soldiers. The new soldiers would include an estimated 540 family members (including spouses and children). There are estimated to be approximately 50 tracked vehicles, including the M10 Booker and M-88 recovery vehicles. Quantities of other major equipment fielding with the M10 Booker BN, including trucks, trailers, and portable generators, are not known at this time. Standard communication, small arms, and soldier equipment could field with the BN. The system would be housed in existing infrastructure, or new infrastructure would be provided prior to fielding the M10 Booker. Supplemental NEPA documentation could be required before beginning construction.

The Army is considering fielding and stationing the M10 Booker at Fort Cavazos as part of the 2021 AMS in the 2025-2030 timeframe, as analyzed in this PEA. The M10 Booker enhances the ability of an Infantry Brigade Combat Team to seize, retain, and exploit the initiative and to gain and maintain a position of relative advantage in sustained land operations.

1.1.2.4 Indirect Fire Protection Capability

The IFPC, as shown on Figure 1-6, provides defense against cruise missiles, rockets, and UAS to fixed and semi-fixed sites such as an airfield or forward operation base.

Figure 1-6: IFPC Weapon System

The IFPC BN structure includes a Headquarters and Headquarters Battery, a Forward Support Company, three IFPC Batteries, and a C-sUAS Battery. The Headquarters and Headquarters Battery would provide command, administrative, intelligence, and medical support to the BN. The Forward Support Company provides maintenance, logistics, and sustainment for all fielded systems, equipment, and personnel of the BN.

The IFPC Battery is organized similar to current Air Defense Artillery Batteries, consisting of a small Headquarters Platoon, a Launcher Platoon, a Fire Control/Radar Platoon, and a system support section. The IFPC BN and Batteries would initially field with kinetic weapons in a missile and launcher configuration similar to the PATRIOT AN/MPQ-65 radar system. Primary mission equipment in an IFPC Battery includes an Engagement Operations Center for command and control; a Sentinel radar for search, tracking, and targeting; and launcher/interceptors in an All-Up-Round Magazine configuration (shown on Figure 1-6) firing the AIM-9X Sidewinder missile. Alternate IFPC configurations could include directed energy (DE) effectors such as high-energy lasers and high-power microwaves. The DE effectors are the subject of a separate assessment, see Section 1.1.2.8.

The C-sUAS Battery is organized and equipped like that of a SGT STOUT BN, see Section 1.1.2.1.

Major items of equipment fielded with an IFPC BN are shown in Table 1-2. Tracked vehicles are not expected to field with an IFPC BN. To facilitate operation, storage and maintenance of all systems, an array of individual weapons, sensors, communications equipment, and support and maintenance equipment would be fielded with an IFPC BN.

Table 1-2: Approximate Quantity of Anticipated Equipment for IFPC and C-sUAS per BNs

Equipment Type	*IFPC Battery Only*	*IFPC BN with C-sUAS*
JLTV & HMMWV	20	100
Trucks, Vans, & MTV	25	190
Trailers	30	140
Generators	35	165
Radars	5	25
Kinetic Launchers	15	50

Legend: IFPC=Indirect Fire Protection Capability; BN=Battalion; C-sUAS=Counter-small unmanned aircraft systems; JLTV=Joint Light Tactical Vehicle, HMMWV=High Mobility Multipurpose Wheeled Vehicles, MTV=Medium Tactical Vehicle

The Army is considering fielding and stationing an IFPC BN or Battery at Fort Cavazos as part of the 2021 AMS in FY 2026 or later. The total personnel would be approximately 735 for an IFPC BN with as many as 992 family members (including spouses and children). If an individual Battery were fielded it would consist of about 125 personnel, as many as 169 family members, and equipment as shown in Table 1-2. The system would be housed in existing infrastructure or new infrastructure would be provided prior to fielding the IFPC. Supplemental NEPA documentation could be required before beginning construction.

1.1.2.5 Dark Eagle (formerly Long Range Hypersonic Weapon)

As of April 24, 2024, the U.S. Army officially designated its LRHW system as the "Dark Eagle". This name reflects the speed, agility, and precision of the weapon system. As a result, this PEA references documents and materials that may refer to the Dark Eagle as the LRHW. The content of these reference materials remains applicable.

The Dark Eagle system is a strategic attack weapon system designed to counter Anti-Access/Area Denial (A2/AD) capabilities, mitigate adversary long-range fires, and effectively engage high-value and time sensitive targets.

A Dark Eagle Battery includes a mobile Battery Operations Center comprised of one Family of Medium Tactical Vehicles mounted Battery Operations Center, four Dark Eagle Transporter Erector Launchers mounted on four modified M870A4 tri-axle trailers with two Environmental Control Units and two generators per trailer, four primary movers (M983A4 Light Equipment Transporter tractors), one rough terrain container handler, and one HMMWV and trailer. Tactical munitions for the Dark Eagle comprise All Up Rounds + Canisters. Weighted and empty training canisters and canister-mounted missile emulators would also be received for use in training exercises. These munitions would be stored in earth-covered magazines at the ammunition supply point at the installation. A Transporter Erector Launcher and Light Equipment Transporter are shown on Figure 1-7.

Figure 1-7: Dark Eagle System

The Dark Eagle Battery is supported by a Headquarters Section, two Firing Platoons, and a Field Support Platoon. The Headquarters Section provides administrative support and an operations center. The system could be transportable between locations by Air Force C-17 and be road-mobile for transport on base/installations.

The Army is considering fielding and stationing the Dark Eagle at Fort Cavazos as part of the 2021 AMS in FY 2025 or later. The Dark Eagle may field to Fort Cavazos as an element of a Full MDTF or as an individual Battery. Approximately 60-90 soldiers are required to oversee Dark Eagle maintenance, operations, and training. Using the upper limit, the new soldiers include an estimated 122 family members (including spouses and children). If fielded as a Battery, the Dark Eagle requires one COF, space at a TEMF/motor pool, and barracks and support facilities for soldiers. If fielded as an element of a Full MDTF, the Dark Eagle would require facilities within the Long-Range Fires BN. The system would be housed in existing infrastructure or new infrastructure would be provided prior to fielding the Dark Eagle. Supplemental NEPA documentation could be required before beginning construction.

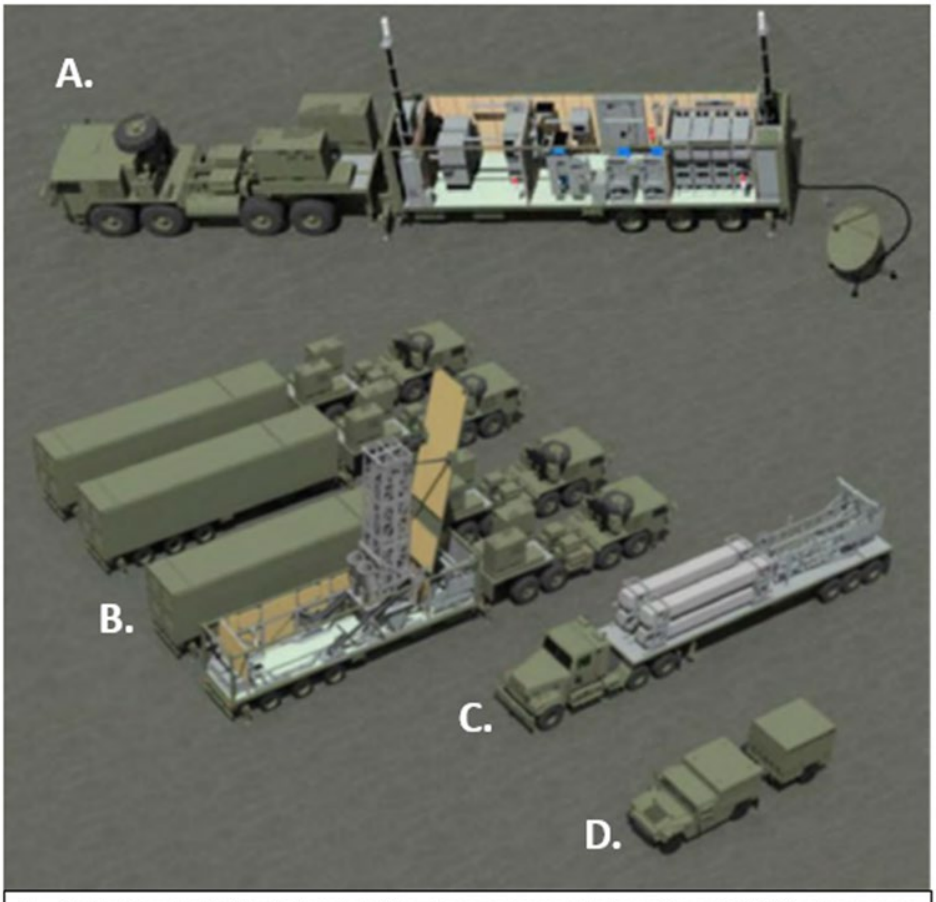
1.1.2.6 Mid-Range Capability Weapon System

The MRC provides mid-range missile capabilities that allow the Army to respond against peer adversaries in a more challenging environment. A MRC Battery could field individually or be a component of the Long-Range Fires BN of a Full MDTF.

The MRC Battery is organized as a Headquarters Platoon, two Firing Platoons, and a Field Support Platoon. The Battery, shown on Figure 1-8, consists of four containerized, multi-purpose launchers, a Battery Operations Center, and Battery Operations Center support vehicle, and reload capability. The launchers and Battery Operations Center are towed by M983A4 Heavy Expanded Mobility Tactical Truck (HEMTT) Prime Movers for a total of five

HEMTT per Battery. Each launcher holds four missiles, which can either be Tomahawks or SM-6 missiles, for a total of 16 missiles per Battery. MRC munitions would be stored in in earth-covered magazines at the ammunition supply point at the installation. Each launcher is also outfitted with two MEP-1050A (15-Kilowatt [kW]) generators, for a total of eight per Battery. The generators are mounted to the launcher trailers. The Battery Operation Center is containerized and houses four federated command and control systems: Tactical Tomahawk Weapon Control System, Aegis Weapon System, Advanced Field Artillery Tactical Data System and the Joint Automated Deep Operations Coordination System. The Battery Operations Center is powered by two MEP-1070A (60 kW) generators, mounted to the Battery Operations Center trailer. The Battery Operations Center support vehicle consists of one M1152A1 HMMWV with an M1102 trailer. The field support Platoon contains a supply section and two ammunition sections with eight associated vehicles. The system would be housed in existing infrastructure, or new infrastructure would be provided prior to fielding the MRC. Supplemental NEPA documentation could be required before beginning construction.

Figure 1-8: MRC Weapon System



A. Trailer Mounted BOC with installed C2 systems and generator towed by an M983A4 prime mover
B. Trailer-mounted MRC launchers towed by M983A3 prime movers
C. Reload Trailer with MHE
D. HMMWV Battery Support Vehicle

Legend: BOC=Battery Operation Center; C2=Command and Control; MRC=Mid-Range Capability; MHE=Materials Handling Equipment; HMMWV=High Mobility Multipurpose Wheeled Vehicle

The Army is considering fielding and stationing the MRC Weapon System at Fort Cavazos as part of the 2021 AMS in FY 2025 or later, as analyzed in this PEA. Approximately 70-100 soldiers are required to oversee MRC maintenance, operations, and training. Using the upper limit, the new soldiers would include an estimated 135 family members (including spouses and children).

If fielded as a Battery, the MRC requires one COF, space at a TEMF/motor pool, and barracks and support facilities for the soldiers. If fielded with a Full MDTF the MRC would require facilities within the Long-Range Fires BN. The system would be housed in existing infrastructure or new infrastructure would be provided prior to fielding the MRC.

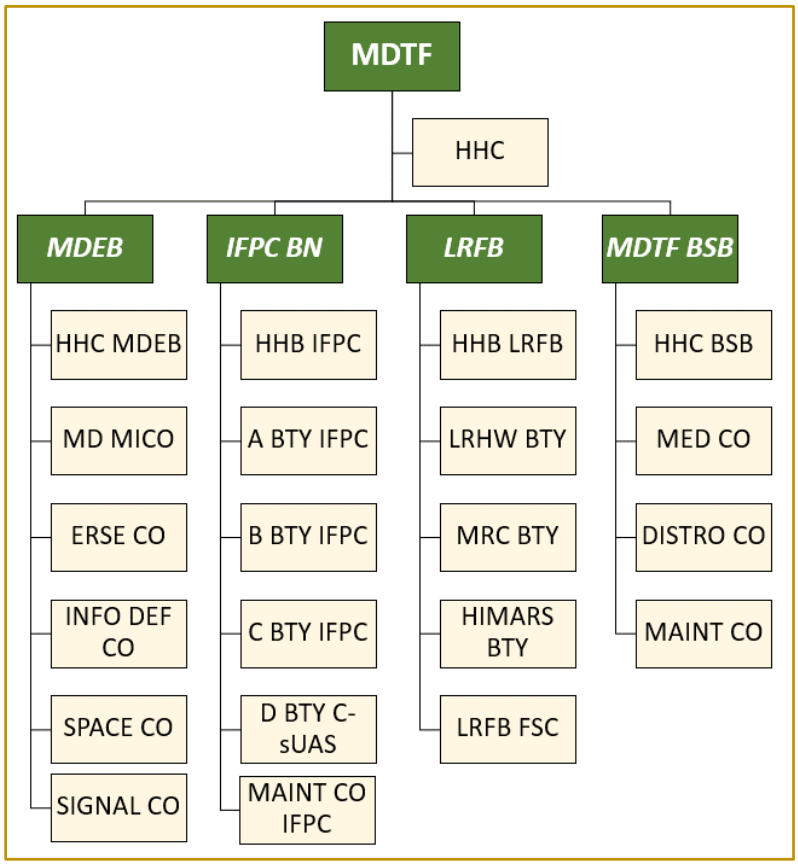
1.1.2.7 Multi-Domain Task Force

The MDTF is built around a Field Artillery Brigade (formerly Fires Brigade) structure, and it strengthens long-range precision fires and air and missile defense capabilities to counter evolving A2/AD threats (e.g., anti-ship missiles to prevent attacks by sea). The MDTF would integrate long-range, land-based missile and rocketry forces in a Long-Range Fires BN; intelligence, cyber, space, electronic warfare, UAS, and high-altitude balloon capabilities in a Multi-Domain Effects BN; air defense capability in an IFPC BN; and support capability into a Brigade Support BN.

The MDTF requires installation facilities including airspace, communication, and cyber capabilities; soldiers; and infrastructure. The MDTF facility requirements include brigade, BN, and company headquarters facilities, TEMFs and vehicle maintenance shops. In addition, the MDTF requires a Sensitive Compartmented Information Facility and an All Domain Operations Center to accommodate the intelligence, cyber, and electronic warfare capabilities.

The MDTF offers two configurations, a Full or Base MDTF. A Full MDTF configuration, shown on Figure 1-9, includes all capabilities and BNs listed above. The Full MDTF requires approximately 93 acres for all facilities and over 2,000 soldiers. For a Full MDTF, the new soldiers would include an estimated 2,700 family members (including spouses and children). The Full MDTF configuration would require 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. The Base MDTF consists of the MDTF Headquarters and Multi-Domain Effects BN with the Sensitive Compartmented Information Facility and All Domain Operations Center and requires approximately 18 acres for all facilities and approximately 400 soldiers. For a Base MDTF the new soldiers would include an estimated 540 family members (including spouses and children). Supplemental NEPA analysis could be required before beginning construction.

Figure 1-9: Full MDTF Configuration



Legend: MDTF=Multi-Domain Task Force; HHC=Headquarters and Headquarters Company; MDEB=Multi-Domain Effects Battalion; IFPC=Indirect Fire Protection Capability; BN=Battalion; LRFB=Long-Range Fires Battalion; BSB=Brigade Support Battalion; HHB=Headquarters and Headquarters Battery; MD MICO=Multi Domain Military Intelligence Company; BTY=Battery; LRHW=Long Range Hypersonic Weapon (also known as "Dark Eagle"); MED=Medical; CO=Company; ERSE=Extended Range Sensing and Effects; MRC=Mid-Range Capability; DISTRO=Distribution; INFO=Information; DEF=Defense; HIMARS=High Mobility Artillery Rocket System; MAINT=Maintenance; FSC=Forward Support Company; C-sUAS=Counter-small unmanned aircraft systems

The Army is considering fielding and stationing a MDTF at Fort Cavazos as part of the 2021 AMS in the 2025-2030 timeframe, as analyzed in this PEA. Note that the Full MDTF includes weapons systems that are addressed separately in this PEA; including the IFPC, Dark Eagle; and MRC. These systems and capabilities are addressed separately to allow for flexibility in fielding and stationing decisions.

1.1.2.8 High-Power Directed Energy

The IFPC-High Energy Laser (IFPC-HEL), IFPC-High Power Microwave (IFPC-HPM), and laser of the M-SHORAD Increment 2 (Inc 2) DE are collectively known as the HP-DE systems. Future weapons of IFPC may include a 300-kW-class laser system (IFPC-HEL) and another with a microwave system (IFPC-HPM), jointly known as DE IFPC. Also, a 20 to 50-kW laser for the M-SHORAD Inc 2 capability may field to the DIVAD BN. .

The approved force design update for the IFPC battalion consists of three kinetic IFPC batteries, with each battery having four kinetic IFPC platoons. The proposed design for the DE IFPC battalion may consist of three IFPC batteries: each consisting of two kinetic IFPC, one IFPC-HEL, and one IFPC-HPM platoon. The approved force design update for the DIVAD BN consists of three M-SHORAD batteries, each having four platoons of SGT STOUT vehicles, and one kinetic IFPC battery having four kinetic IFPC platoons. The proposed DIVAD BN design may consist of three M-SHORAD batteries, each with four platoons that would integrate M-SHORAD Inc 2 DE vehicles and SGT STOUT vehicles into the firing section(s) of one or more platoon(s); and one IFPC battery consisting of two kinetic IFPC platoons, one IFPC-HEL platoon, and one IFPC-HPM platoon.

Each of the battalions fielding the HP-DE weapons would retain the Headquarters and Headquarters Battery, Counter - small UAS Battery, and Field Support Company of the kinetic battalion construct.

The IFPC-HEL, shown on Figure 1-10, is a truck-mounted, 300 kW-class laser that protects against subsonic cruise missile threats, UAS, fixed and rotary winged aircraft, and rocket, artillery, mortar fire. The system will have future interoperability with IBCS. It will be mounted on a Palletized Load System Armored M1075A1 HEMTT using an On-Board Vehicle Power System as its primary power source. Its primary objective is to defend fixed and semi-fixed sites from aerial threats.

Figure 1-10: IFPC-HEL Tactical Vehicle

The IFPC-HPM, shown on Figure 1-11, is a ground-based system that is mounted on an M1061 trailer and towed by a Medium Tactical Vehicle prime mover. It has a primary objective to defend fixed and semi-fixed sites from Groups 1 and 2 UAS (particularly groups and swarms of UAS).

Figure 1-11: IFPC-HPM

The M-SHORAD Inc 2 DE, would integrate a 20 to 50-kW laser, K_u (K- under) band radar, and Forward Area Air Defense Command and Control systems on one or more Army tactical platforms to enable air defense engagements. The system may be modular to allow use of multiple platforms such as palletized, light tactical vehicles, or the Stryker as shown on Figure 1-12. It is designed to maneuver with and provide air defense against rocket, artillery, mortar, UAS, and rotary-wing threats to Division and Brigade Combat Teams supporting Multi-Domain Operations. The M-SHORAD Inc 2 DE would field to the DIVAD BN and provide complementary capability to kinetically armed vehicles.

Figure 1-12: Stryker-based 50kW-class Prototype Laser WeaponSystem

Note: As described in the text, other configurations based on different vehicles may be developed to provide the M-SHORAD Inc 2 (DE) capability.

The Army is considering fielding and stationing the IFPC-DE within the IFPC BN or Battery and the M-SHORAD Inc 2 DE system to the DIVAD BN at Fort Cavazos as part of the 2021 AMS in 2027 or later, as analyzed in this PEA. The IFPC-HEL or IFPC-HPM Platoon soldiers would transition from IFPC kinetic energy systems to the IFPC-DE therefore, no additional personnel would be required above those presented for the IFPC in Section 1.1.2.4. The M-SHORAD Inc 2 DE soldiers would transition from the SGT STOUT, and no personnel growth is expected for the DIVAD BN. The HP-DE weapon systems are expected to be fielded into existing units that already have buildings and maintenance facilities, including a crane of sufficient capacity to enable the removal and installation of HP-DE equipment. If cleanroom facilities are required for laser maintenance, they are planned to be containerized or modular systems that can be housed inside existing buildings and would not require additional construction.

1.1.3 Personnel Required for Weapons Systems

Table 1-3 shows the personnel required for each proposed weapon system and the estimated accompanying family members. Estimations were calculated using 1.35 dependents per soldier ratio[5]. To provide context to the scope of the potential population increase at Fort Cavazos, the

[5] The 1.35 dependents per soldier ratio used in this analysis is a conservative estimate based on active-duty family demographic data. According to Military OneSource (https://demographics.militaryonesource.mil/chapter-5-active-duty-families), the total number of family members divided by the total number of active-duty soldiers yields approximately 1.33 dependents per soldier. The use of 1.35 ensures a cautious and comprehensive approach to account for potential variations in dependent populations.

current (2025) population includes 38,000 assigned military personnel, 14,200 DoD civilians, and 14,000 total military family members (Fort Cavazos, 2025).

Table 1-3: Personnel Required for the Proposed Weapons Systems

Weapon System	*Approximate Required Personnel*	*Approximate Family Members* to Accompany Required Personnel*	*Total Potential Increase to Installation Population**
SGT STOUT	675	911	1,586
LTAMDS	N/A (would field to a PATRIOT unit)	N/A (would field to a PATRIOT unit)	N/A (would field to a PATRIOT unit)
M10 Booker	400	540	940
IFPC BTRY; or IFPC BN	BTRY: 125, BN: 735	BTRY: 169, BN: 992	BTRY: 294, BN: 1,727
Dark Eagle	60-90	122	212
MRC	70-100	135	235
Full MDTF; or Base MDTF	Full: 2,000+; Base: 400	Full: 2,700, Base: 540	Full: 4,700; Base: 940
HP-DE	N/A (part of IFPC BN and/or DIVAD BN)	N/A (part of IFPC BN and/or DIVAD BN)	N/A (part of IFPC BN and/or DIVAD BN)
Total	1,730 – 4,000	2,417 – 5,400	4,207 – 9,400

Legend: SGT STOUT=Maneuver Short Range Air Defense Capability; LTAMDS=Lower Tier Air and Missile Defense Sensor; M10 Booker=M10 Booker Combat Vehicle; IFPC=Indirect Fire Protection Capability; BN=Battalion; BTRY=Battery; MRC=Mid-Range Capability; MDTF=Multi-Domain Task Force; HP-DE=High-Power – Directed Energy DIVAD=Divisional Air Defense

Notes: *Family members include spouses and children. If the personnel increase is a range, the upper value was used to calculate the accompanying family members.

**Personnel for some weapons systems could be drawn from existing personnel. The total potential increase to installation population reflects the potential upper limit for personnel and families.

Soldiers and their families would reside in barracks, on-post housing, or in nearby communities. Soldiers and their families would utilize the facilities, shopping, and support services on post and in the local community in a manner like civilian residents providing economic benefit to the community.

1.2 Purpose and Need

The purpose of the proposed action is to enhance the Army's ability to address evolving and advanced threats from near-peer adversaries by strategically stationing and fielding a suite of advanced weapons systems at Fort Cavazos. This initiative aims to improve the readiness and capabilities of Fort Cavazos and its soldiers, ensuring they have access to state-of-the-art equipment to effectively protect national security interests.

The need for this proposed action arises from a shift in Army doctrine driven by the changing threat landscape posed by near-peer adversaries. To effectively address these challenges, Army forces require access to cutting-edge equipment and weapons systems in order to meet or exceed the advancing capabilities of our nation's adversaries. This action is essential to enhance soldier safety, lethality, and mission success, to maintain global deployability, and to ensure seamless integration with existing and emerging technologies, all of which are crucial for safeguarding the nation and its interests.

1.3 Scope of the Environmental Analysis

This PEA considers the potential impacts of the proposed action and alternatives on the potentially affected environment and the degree of the effects or impacts of the action. Effects or impacts mean changes to the human and natural environment from the proposed action or alternatives that are reasonably foreseeable and include the following:

1. Direct effects, which are caused by the action and occur at the same time and place.
2. Indirect effects, which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.
3. Reasonably Foreseeable effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions.

This Installation-Specific PEA at Fort Cavazos is expected to contain some level of non-location specific analysis of weapons systems. The scope of the environmental review for this PEA is the stationing and fielding of eight weapons systems at the entire Fort Cavazos installation. This PEA analysis serves to facilitate (1) Department of the Army Headquarters fielding decisions, specifically regarding the fielding location (“where”), by taking into account anticipated environmental impacts; and (2) to enable informed decisions regarding the implementation of selected weapons systems – including the methods (“how”) and specific locations (“where”) for fielding – based on anticipated environmental impacts.

In pursuit of the AMS, the Army has completed PEAs that examined the stationing of some of the weapons systems that are analyzed in this PEA. These PEAs analyzed singular weapon systems and evaluated a variety of Army installations with the goal of determining which installations are best suited to receive the weapons systems. Two separate PEAs analyzed stationing the SGT STOUT and MDTF at a variety of Army installations, including Fort Cavazos.

The *Programmatic Environmental Assessment for the Fielding of the Maneuver-Short Range Air Defense Capability* (USAEC, 2021) (henceforth referred to as the 2021 M-SHORAD Capability PEA) analyzed impacts associated with fielding the SGT STOUT at Fort Cavazos and other Army installations. A Finding of No Significant Impact (FONSI) was signed and issued for this action on November 19, 2022.

The *Programmatic Environmental Assessment for Multi-Domain Task Force Stationing* (U.S. Army, 2022a) (henceforth referred to as the 2022 MDTF Stationing PEA) evaluated impacts associated with stationing the MDTF at Fort Cavazos and other Army installations. A FONSI was signed and issued for this action on November 28, 2022.

Although some weapons systems in this PEA were analyzed under previous Army actions, this PEA serves to examine potential environmental impacts associated with the proposed fielding and stationing of various combinations of weapons systems at Fort Cavazos over a short period of a few years.

Specific environmental resource areas analyzed in detail within this PEA include air quality; airspace; biological resources; cultural resources; geological and soil resources; hazardous and

toxic materials and waste; noise; socioeconomics; transportation and traffic; water resources; and reasonably foreseeable effects. The resources that are anticipated to have less than significant or negligible impacts such as electromagnetic spectrum, land use, utilities, and human health and safety are briefly described but dismissed from detailed analysis (see Table 3-1).

As this environmental analysis is programmatic in nature, it uses existing survey data (e.g., existing biological, cultural, noise, and geological surveys).

1.4 Public and Agency Involvement

To facilitate the analysis and the decision-making process, the Army maintains a policy of open communication with interested parties and invites public participation. The Army urges all federal and state agencies, public and private organizations, and members of the public that have a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American Tribes to participate in the Army's NEPA and decision-making processes, as guided by the Army NEPA regulation 32 CFR Part 651.

The PEA and Draft FONSI will be made available to federal, state, and local agencies, Native American Tribes, and the public for review and comment for a 30-day period. Fort Cavazos will publish a Notice of Availability for the PEA and Draft FONSI in the following newspapers:

- Killeen Daily Herald; and
- Cove Leader-Press.

Fort Cavazos will also make the PEA and Draft FONSI available for online viewing at https://home.army.mil/cavazos/units-tenants/Garrison/DPW/ENV/NOA and at the following libraries:

- Killeen: Killeen Main Library, 205 E Church Avenue, Killeen, Texas 76541; and
- Copperas Cove: Copperas Cove Public Library, 501 South Main Street, Copperas Cove, Texas 76522.

Following the 30-day review period, the Army will review and appropriately address all relevant comments received in the Final FONSI.

1.5 Decision(s) to be Made

Prior to making a final decision, the decision maker will consider both the environmental and socioeconomic impacts analyzed in this PEA, along with all other relevant information, such as public issues of concern identified during the public comment period. If the evaluation determines that the proposed action would not result in significant impacts, or if all significant impacts can be mitigated to a less than significant level, the decision maker (the Fort Cavazos Garrison Commander) would sign a FONSI. If potentially significant impacts are identified and the impact cannot be reduced, the Army may initiate a Notice of Intent to prepare an Environmental Impact Statement.

Future NEPA analysis may be conducted as necessary, tiering off this PEA, to examine site-specific actions related to the proposed action and alternatives addressed in this PEA. After

completion of this PEA and Army stationing decisions, installation planners would determine how to best field and station the weapons systems analyzed in this PEA to a specific location on the installation. When multiple locations are available, installation planners would evaluate the locations and then select the final locations and collaborate with installation environmental staff to determine if supplemental NEPA analysis or surveys are required based on this PEA.

In summation, there are three possible results following the conclusion of this programmatic analysis. An issuance of a FONSI for use by Army leadership in deciding specific staging and storage locations for proposed weapons systems, a Notice of Intent for further analysis with an Environmental Impact Statement if necessary, or it is possible that Army command will not move forward, and no new weapons systems would be stationed.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes the proposed action and alternatives. Additionally, this chapter provides the screening criteria used by the Army to develop the range of considered alternatives.

This PEA analyzes four alternatives: the no action alternative (mandated in *Environmental Analysis of Army Actions* 32 CFR Part 651.34) and three action alternatives.

2.1 Proposed Action

The proposed action is to field and station up to eight weapons systems at Fort Cavazos, enabling the Army to function as a multi-domain force.

2.2 Screening Criteria

The following screening criteria have been established to identify alternatives that would meet the purpose and need for the action. To be considered a reasonable alternative, the proposed action must meet the following six screening criteria:

1. **Presence of Supported or Supporting Units or Mission** – Installations must have a supported unit present or provide initial or collective training.
2. **Required Training Lands** – Installations must have adequate space in their training lands to support the minimum requirements for emplacement, operation, and training for SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, MDTF, and HP-DE training, as designated in the Army Training Doctrine.
3. **Live-fire Capability** – Installations must have or have access to adequate live-fire ranges to support the minimum requirements for SGT STOUT, C-sUAS, M10 Booker, IFPC, and HP-DE training as designated in Training Circular 25-8 as a primary or alternate range type and system specific gunnery tables, or the capability to simulate live-fire.
4. **Airspace and Airfield Capacity** – Installations must have adequate restricted airspace, both laterally and vertically that overlies Army training lands to contain activities dangerous to non-participating aircraft and allow realistic target maneuver. Airfield capacity must be sufficient to support aircraft operations for training, logistics, and deployment of systems as required.
5. **Installation Support Infrastructure** – Installations must either (1) have adequate infrastructure and cantonment area facilities for administrative, maintenance, motor pool, housing, and personnel support; (2) the ability to provide interim infrastructure and cantonment area facilities; or (3) have the space, funding, and ability to provide adequate infrastructure and cantonment area facilities by the fielding deadline. Note that facilities with a waiver are considered adequate to meet the requirement.
6. **Local Economy Support Infrastructure** – Local economy and surrounding communities must have adequate infrastructure and area facilities for housing, childcare, and schools to support soldiers and families living off post.

Using the above criteria, the Army determined that three alternatives would meet all six screening criteria.

2.3 No Action Alternative

The no action alternative refers to the continuation of existing conditions without implementation of the proposed action. Implementation of the no action alternative would mean that none of the proposed weapons systems would be fielded or stationed at Fort Cavazos. Under the no action alternative, the Army would not enhance its structural MDO capabilities. 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.

2.4 Alternative 1

Alternative 1 includes the fielding and stationing of the SGT STOUT weapon system and associated soldiers to Fort Cavazos. Alternative 1 meets all six of the screening criteria described in Section 2.2.

The SGT STOUT weapon system would be a new capability for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT weapon system involves the support of approximately 675 soldiers. An estimated 911 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 1,586 to the Fort Cavazos population.

2.5 Alternative 2

Alternative 2 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers to Fort Cavazos. Alternative 2 meets all six of the screening criteria described in Section 2.2.

The LTAMDS is similar to the PATRIOT AN/MPQ-65 radar system and is slated to replace the PATRIOT AN/MPQ-65 radar on a one for one basis. The SGT STOUT, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems would be new capabilities for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE involves the support of approximately 1,330 to 2,000 soldiers. An estimated 1,877 to 2,700 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 3,207 to 4,700 to the Fort Cavazos population.

2.6 Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems to Fort Cavazos. Alternative 3 meets all six of the screening criteria described in Section 2.2.

The LTAMDS is similar to the PATRIOT AN/MPQ-65 radar system and is slated to replace the PATRIOT AN/MPQ-65 radar on a one for one basis. The SGT STOUT, M10 Booker, Full MDTF,

and HP-DE weapons systems would be new capabilities for Fort Cavazos and would not replace any existing systems.

The fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems involves the support of approximately 3,075 soldiers. An estimated 4,151 family members, including spouses and children, might accompany the soldiers. This could result in an overall increase of 7,226 to the Fort Cavazos population.

2.7 Proposed Weapons Systems for Each Alternative

Table 2-1 shows the different combinations of proposed weapons systems for each alternative.

Table 2-1: Proposed Weapons Systems for Each Alternative

Weapon System	*Alternative 1*	*Alternative 2*	*Alternative 3*	*No Action Alternative*
SGT STOUT	X	X	X	
LTAMDS		X	X	
M10 Booker		X	X	
IFPC		X	Could field as part of MDTF	
Dark Eagle		X	Could field as part of MDTF	
MRC		X	Could field as part of MDTF	
MDTF*			X	
HP-DE		X	X	

Legend: SGT STOUT=Maneuver Short Range Air Defense Capability; LTAMDS=Lower Tier Air and Missile Defense Sensor; M10 Booker=M10 Booker Combat Vehicle; IFPC=Indirect Fire Protection Capability; MRC=Mid-Range Capability; MDTF=Multi-Domain Task Force; HP-DE=High Power-Directed Energy
Notes: *Includes Multi-Domain Effects Battalion (MDEB), IFPC BN, Long Range Precision Fire BN (LRFB), and Brigade Support Battalion (BSB)

2.7.1 Planned Fielding Timeframes

Table 2-2 shows tentative fielding dates for the proposed weapons systems at Fort Cavazos.

Table 2-2: Planned Fielding Timeframes for the Proposed Weapons Systems

Weapon System	*Current Planned Fielding Dates**
SGT STOUT	Q2-3 FY25
LTAMDS	Q2 FY26
M10 Booker	2025-2030
IFPC	Q1 FY26
Dark Eagle	2025-2030
MRC	2025-2030
MDTF	2025-2030
HP-DE	2027 or later

Legend: LTAMDS=Lower Tier Air and Missile Defense Sensor; M10 Booker=M10 Booker Combat Vehicle; IFPC=Indirect Fire Protection Capability; MRC=Mid-Range Capability; MDTF=Multi-Domain Task Force; HP-DE=High-Power – Directed Energy; Q1=Quarter One; Q2=Quarter Two; FY=Fiscal Year
Note: *These dates are preliminary and may be subject to change due to unforeseen circumstances and/or budgetary constraints.

2.8 Alternatives Not Carried Forward for Evaluation

In accordance with NEPA, the Army's comprehensive evaluation process involved a preliminary nationwide assessment of Army installations to identify potential sites for basing various weapons systems. This assessment was guided by stringent screening criteria, including the presence of supported units/missions, requisite training lands, live-fire capabilities, airspace and airfield capacity, installation support infrastructure, and the capacity of the local economy to provide support. These criteria were meticulously applied to ensure that only installations capable of meeting the specific and comprehensive needs of the proposed weapons systems were considered further. It is important to note that during this process, certain alternatives proposed for other installations were not carried forward for this specific installation due to their inability to meet the established criteria or because they were deemed more suitable for other locations based on their unique characteristics and strategic requirements.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementation of the alternatives. It also presents an analysis of the potential effects of each alternative to each environmental resource area. The affected environment has been determined using the criteria in the NEPA regulations, and the Army NEPA Guidance Manual.

The action area is defined as the area of analysis that could be affected directly or indirectly by the proposed action, and not merely the immediate impact area involved in the action. The affected environment is defined for each resource area and carried forward for detailed analysis.

3.1 Approach for Analyzing Impacts

The affected environment and the degree of effects of implementing an action are considered when determining the significance of potential effects to resource areas. 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 and/or 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 are characterized as: none, negligible, minor, moderate, significant, significant but mitigable, 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, and 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.

To maintain consistent evaluation of impacts in this PEA, the Army established thresholds of significance for each resource area (see Table 3-1). The Army developed these thresholds to take into account substantive environmental regulations and ensure an objective analysis of anticipated impacts. Although some thresholds have been designated based on legal or regulatory limits or requirements, others reflect some discretionary judgment on the part of the Army. Quantitative and qualitative analyses have been used, as appropriate, in determining whether and the extent to which a threshold is exceeded.

Implementation of the selected alternative may require additional site-specific analyses, including follow-on NEPA analysis, to address actions necessary for the installation to support fielding, stationing, siting considerations, and other environmental issues. Table 3-1 presents each resource area and thresholds of significance. The table also identifies which resource areas are analyzed in this PEA and which resource areas are dismissed from detailed analysis; each includes an accompanying rationale.

Table 3-1: Summary of Resource Areas with Thresholds of Significance and Rationale for Analyzing or Dismissing

Resource Area	***Threshold of Significance***	***Analyzed or Dismissed from Detailed Analysis***	***Rationale for Analyzing or Dismissing***
Air Quality	An impact to ambient air quality would be considered significant if the proposed action were to cause or contribute to a violation of any federal, state, or local air quality standard or regulation.	Analyzed	Implementation of the proposed action would result in increased stationary source and vehicle emissions and potentially increase in fugitive dust emissions. This resource area is further discussed in Chapter 3.
Airspace	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.	Analyzed	The addition of some of the weapons systems included in the proposed action would require use of the restricted airspace. Fort Cavazos has a restricted area complex of exclusive-use airspace and is of adequate lateral and vertical extent for the proposed weapons systems. This resource area is further discussed in Chapter 3.

Biological Resources	Impacts to biological resources would be considered significant if Army actions were to result in: • Substantial permanent conversion or loss of net habitat, • Long-term loss or impairment of a substantial portion of local habitat (species dependent), • Loss of populations of species, or • Unpermitted or unlawful take of ESA protected threatened or endangered species or species protected under the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act.	Analyzed	The proposed action could adversely impact natural resources from increased ground disturbance and the potential for related vegetation loss and habitat degradation. This resource area is further discussed in Chapter 3.
Cultural Resources	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 training activities associated with the proposed action could adversely impact cultural resources. This resource area is further discussed in Chapter 3.

Electromagnetic Spectrum	Impacts to electromagnetic spectrum would be considered significant if: • Frequencies exceed Army Spectrum Management Office determined allowable frequencies to avoid electromagnetic interference, or • Radar frequencies pose risk of injury to persons and animals.	Dismissed	Army access to or use of EMS within the United States must comply with the policies and regulations for the use of the spectrum by all federal agencies, as prescribed by the National Telecommunications and Information Administration Manual of Regulations and Procedures for Federal Radio Frequency Management and the provisions of DoD Instruction 4650.01. Organizations, activities, and individuals are assigned responsibility for performing technical research, development engineering, allocation, allotment, and assignment missions that support Army EMS management. EMS management is conducted within the limits of established Army policy. Coordination is conducted, as required, among one or many offices to resolve issues at the lowest possible level. Issues that cannot be resolved within these coordination channels are referred to command and staff channels for action. Noncompliance with these regulations may result in punitive action (AR 5-12). Following the mandated regulations for the EMS would prevent significant impacts on the EMS. The proposed weapons systems would operate within allowable and mandated EMS frequencies. Therefore, no further analysis of EMS is required.
Geologic and Soil Resources	Impacts to geologic and soil resources would be considered significant if: • Impacts would occur to unique soil features, or • Substantial soil losses were to impair plant growth or result in detrimental increases in stream sedimentation.	Analyzed	The majority of land disturbance activities would occur in previously disturbed areas. Implementation of the proposed action could remove vegetation and disturb soils to the extent that would increase soil erosion rates and alter drainage pattern in training areas. This resource area is further discussed in Chapter 3.

Hazardous and Toxic Materials and Waste	Impacts to hazardous and toxic materials and 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.	Analyzed	Hazardous materials and waste used and generated during operation, including during testing and training are generally limited to fuel, vehicle fluids, lubricants, and munitions. Implementation of the proposed action could increase the use and generation of hazardous and toxic materials and waste. This resource area is further discussed in Chapter 3.
Human Health and Safety	Impacts to health and human safety would be considered significant if a substantial additional risk to human health or safety would be attributable to the proposed action, including direct human exposure to hazardous conditions or a substantial increase in conditions that adversely affect public health.	Dismissed	Protection of human health has and continues to be an integral part of the Army's mission at Fort Cavazos. Activities on Fort Cavazos comply with all applicable federal and state, DoD, Army-, and installation-level occupational health, safety, and environmental requirements to ensure that activities are conducted with no or minimal risk to persons or the environment, both on and off Fort Cavazos. The implementation of any of the action alternatives or the no action alternative would comply with these measures and prevent any significant impacts on human health and safety. Therefore, no further analysis of health and human safety is required.
Land Use	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.	Dismissed	The proposed action is entirely on military land under military and federal regulations, all proposed weapons systems would be used on land dedicated previously to military usage. There would be negligible effects on the suitability and condition of the land and would not conflict with current zoning or land usage. This implies that there would be a negligible effect on land use and has been dismissed from further analysis. Therefore, no further analysis is required for land use.
Noise	Impacts to noise 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.	Analyzed	Live-fire and maneuver training associated with the proposed action could lead to an increase in noise levels. This resource area is discussed further in Chapter 3.

Socioeconomics	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). .	Analyzed	The proposed action could potentially affect socioeconomic conditions resulting from the addition of soldiers and families associated with the fielding and stationing of the proposed weapons systems. This resource area is discussed further in Chapter 3.
Transportation and Traffic	Impacts to transportation and traffic would be considered significant if Army actions: • Cause a reduction by more than two LOSs at roads and intersections within the ROI, • Substantially degrades traffic flow during peak hours, or • Substantially exceed road capacity and design.	Analyzed	The potential population increase associated with the fielding and stationing of the proposed weapons systems could increase the potential for traffic congestion at peak hours. This resource area is discussed further in Chapter 3.
Utilities	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.	Dismissed	The proposed action could require the construction of new facilities in the cantonment area and ranges. Fort Cavazos has adequate infrastructure for water, sewer capacity, electricity, natural gas, and communications to sustain fielding and stationing the proposed weapons systems. Utilities systems would only require short, insignificant extensions to connect any new facilities to the existing network. Therefore, no further analysis of utilities is required.
Water Resources	Impacts to water resources would be considered significant if Army actions: • Result in an excess sediment load in installation waters, affecting impaired resources, • Substantially affect surface water drainage or stormwater runoff, including floodwater flows, or • Substantially affect groundwater quantity or quality.	Analyzed	The proposed action could adversely impact surface water, wetlands, and floodplain resources within the installation from training and construction activities. This resource area is further discussed in Chapter 3.

Legend: AR=Army Regulation; DoD=Department of Defense; EMS=electromagnetic spectrum; ESA=Endangered Species Act; FAA=Federal Aviation Administration; LOS=Level of Service; NRHP=National Register of Historic Places; ROI=Region of Influence

3.2 Air Quality

Air quality in a given location is defined by the concentration of pollutants in the atmosphere. It is influenced by factors like the type and amount of pollutants, the size and topography of the air basin, and weather conditions. Most pollutants originate from human-made sources, including mobile sources (e.g., vehicles), stationary sources (e.g., factories, refineries, power plants), and indoor sources (e.g., building materials and cleaning solvents). Air pollutants are also released from natural events like volcanic eruptions and forest fires.

Air quality is regulated by the U.S. Environmental Protection Agency (USEPA) per the Clean Air Act (42 USC § 7401 *et seq.*). The Clean Air Act established National Ambient Air Quality Standards (NAAQS) for the criteria pollutants: particulate matter (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 (NO_2), ozone, and lead. These standards are designed to protect public health and welfare. Individual states or air agencies may establish their own ambient air quality standards. The Texas Commission on Environmental Quality (TCEQ) has adopted the NAAQS for purposes of regulating criteria pollutant levels within Texas (Texas Administrative Code §30(1)(101)(A)101.21).

Geographic areas that are in compliance with the NAAQS are designated as “attainment areas”. Areas that do not meet NAAQS for criteria pollutants are designated “nonattainment areas” for that pollutant. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are also required to adhere to maintenance plans to ensure continued attainment.

Potential impacts to ambient air quality are evaluated with respect to the context and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. This requires the significance of the action to be analyzed with respect to the setting of the proposed action and based relative to the severity of the impact.

3.2.1 Affected Environment

Fort Cavazos is located in Bell and Coryell Counties, which are within the Austin-Waco Intrastate Air Quality Control Region (40 CFR 81.134). These counties are in attainment or unclassifiable for all criteria pollutants (USEPA, 2024). Fort Cavazos is considered a major source for criteria pollutants because of its calculated potential to emit certain criteria pollutants including CO, NO_2, SO_2, volatile organic compounds, and PM_{10}. The installation maintains a Title V permit (permit number O1659). Air quality permits for sources at the installation are issued by TCEQ as delegated by USEPA Region VI.

3.2.2 Environmental Consequences

Impacts to air quality would be considered significant if the proposed action were to cause or contribute to a violation to any federal, state or local air quality standards or regulations.

3.2.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT and associated soldiers at Fort Cavazos. The SGT STOUT would be a new capability for Fort Cavazos. As a result, there would be an increase in fuel use and related air emissions from the operation of the additional weapon system as compared to current conditions. Fugitive dust would also be generated by vehicular and equipment movements, resulting in a net increase of PM_{10} and $PM_{2.5}$ emissions in the training areas. These dust emissions would largely be confined to these military use areas and are unlikely to generate large amounts of emissions offsite of the operational areas. An estimated 675 military personnel would relocate to Fort Cavazos in support of the weapons systems. Furthermore, it is possible that a total of nearly 1,600 individuals would be added to the Fort Cavazos population with the addition of personnel families.

The fielding and stationing of the weapon system and associated personnel increases are likely to require additional infrastructure. The limits, location and design of these infrastructure requirements are currently unknown. It is likely that some of the construction could require permitting and the location of new stationary sources would be required. These could range from emergency generators to boilers to industrial equipment such as spray paint booths. Stationary sources planned as part of new infrastructure would require review and inclusion in the installation's air permit(s). If new construction is required to implement this alternative, supplemental NEPA analysis may be required.

The influx of staff and their families would add to the vehicular traffic on and off-base. While this increase in traffic would result in air emissions, the installation is located within an air basin that is currently in attainment for all NAAQS. Given this, any incremental increase in emissions from traffic and weapons systems operations would not be expected to cause or contribute to a violation of NAAQS. Therefore, no significant adverse impacts on regional air quality are anticipated. If construction is required to support the fielding and operation of the systems and their personnel, then supplemental NEPA analysis may be required and would be determined once requirements are more fully known.

In summary, implementation of alternative 1, which includes weapons systems operations and the associated increase in traffic due to population growth, would lead to a slight increase in regional emissions, but not enough to exceed air quality standards.

3.2.2.2 Proposed Action – Alternative 2

Alternative 2 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers to the installation. As a result, there would be a notable increase in fuel use and resultant increase in air emissions from operation of the additional weapons systems as compared to current conditions. Fugitive dust would also be generated by vehicular and equipment movements which would result in a net increase of PM_{10} and $PM_{2.5}$ emissions in the training areas. These dust emissions would largely be confined to these military use areas and are unlikely to generate large amounts of emissions offsite of the operational areas. Up to 2,000 military personnel would relocate to Fort Cavazos in support of the weapons systems. Furthermore, it is

possible that a total of approximately 4,700 individuals would be added to the Fort Cavazos population with the addition of personnel families.

The fielding and stationing of the weapons systems and associated personnel increases might require additional infrastructure or expanded training areas. The limits, location, and design of this potential construction are currently unknown. It is likely that some of the construction could require permitting, and the location of new stationary sources would be required. These would range from emergency generators to boilers to industrial equipment such as spray paint booths. Stationary sources planned as part of new infrastructure would require review and inclusion in the installation's air permit(s). If new construction is required to implement this alternative, supplemental NEPA analysis would likely be required.

The influx of staff and their families would add to the vehicular traffic on and off-base. The addition of over 2,000 military personnel alone could impact traffic queuing for installation ingress and egress at times of the day when shifts change. The addition of several thousand individuals to the area would also likely impact other roadways and intersections. These impacts may require supplemental analysis once the specific fielding requirements at the installation are known. The fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems would result in an increase in regional air emissions from weapon system operations and traffic associated with the population increase. These emissions would not be large enough to cause a violation of an ambient air quality standard, and so there would be no significant adverse impacts. If construction is required to support the fielding and operation of the systems and their personnel, then supplemental NEPA analysis may be required and would be determined once requirements are more fully known. Potential adverse impacts from fugitive dust generation would require evaluation and possible mitigation to ensure that local dust control regulations are not violated. Traffic impacts may also require supplemental analysis to ensure that excessive queueing and idling are not an impact of the alternative implementation.

In summary, implementation of alternative 2, which includes weapons systems operations, possible construction, and the associated increase in traffic due to population growth, would lead to a slight increase in regional emissions, but not enough to exceed air quality standards.

3.2.2.3 Proposed Action – Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers to the installation. As a result, there would be a large increase in fuel use and related air emissions from operation of the additional weapons systems as compared to current conditions. Fugitive dust would also be generated by vehicular and equipment movements and would result in a substantial net increase of PM_{10} and $PM_{2.5}$ emissions in the training areas. These dust emissions would largely be confined to these military use areas and are unlikely to generate large amounts of emissions offsite of the operational areas. Up to 3,075 military personnel would relocate to Fort Cavazos in support of the weapons systems. Furthermore, it is possible that a total of nearly 7,200 individuals would be added to the Fort Cavazos population with the addition of personnel families.

The fielding and stationing of the weapons systems and associated personnel increases would require additional infrastructure. The limits, location, and design of these infrastructure requirements are currently unknown. Construction could require permitting and the location of new stationary sources would be required. These would range from emergency generators to boilers to industrial equipment such as spray paint booths. Stationary sources planned as part of new infrastructure would require review and inclusion in the installation's air permit(s). If new construction is required to implement this alternative, supplemental NEPA analysis would likely be required. Potential adverse impacts from fugitive dust generation would require evaluation and possible mitigation to ensure that local dust control regulations are not violated.

The influx of staff and their families would add to the vehicular traffic on and off-base. The addition of over 3,000 military personnel alone would impact traffic queuing for installation ingress and egress at times of the day when shifts change. The addition of several thousand individuals to the area would also impact other roadways and intersections. These impacts would likely require supplemental analysis once the specific fielding requirements at the installation are known.

In summary, the addition of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems would result in an increase in regional air emissions from weapon system operations and traffic associated with the population increase. The increase in training, personnel, and related activities would likely have a moderate adverse impact on air quality but would not be large enough to cause a violation of an ambient air quality standard, and so there would be no significant adverse impacts. If construction is required to support the fielding and operation of the systems and their personnel, then supplemental NEPA analysis would likely be required and would be determined once requirements are more fully known. Traffic analysis may also require additional study to ensure that excessive traffic impacts are not a result of the alternative implementation.

In summary, implementation of alternative 3, which includes weapons systems operations, possible construction, and the associated increase in traffic due to population growth, would lead to a moderate adverse impact on air quality, however, emissions would not be large enough to exceed air quality standards.

3.2.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos, and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. As a result, there would be no new sources of air emissions and therefore, no impacts to air quality.

3.3 Airspace

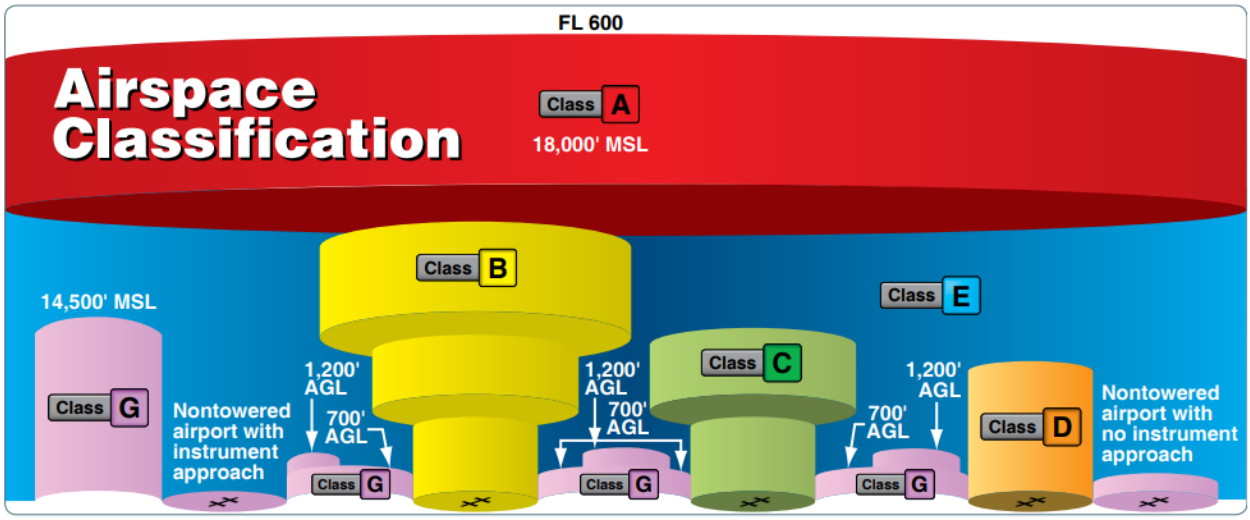
Airspace is a finite resource that is defined vertically, horizontally, and temporally when describing its use for aviation purposes. According to the Federal Aviation Administration (FAA), there are two broad categories of airspace, regulatory and non-regulatory. Within these two categories, there are four types: controlled, uncontrolled, special use, and other airspace. The categories and types of airspace are dictated by the complexity or density of aircraft

movements, the nature of the operations conducted within the airspace, the level of safety required, and national and public interest (FAA, 2023).

Controlled Airspace

Controlled airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control service is provided per the airspace classification. Controlled airspace consists of Class A-E, and Class A-E are all categorized as regulatory airspace areas. Class A is the highest class of airspace in terms of elevation and restriction generally starting at 18,000 feet above mean sea level (MSL) and extending to 60,000 feet above MSL. Class B is next highest followed by descending order to Class D which encompasses the airspace from the surface to 2,500 feet above MSL (See figure 3-1) (FAA, 2023).

Figure 3-1: Airspace Classification Profile at a Glance



Legend: FL=Flight Level; MSL=Mean Sea Level; AGL=Above Ground Level.
Source: FAA, 2023

Uncontrolled Airspace

Uncontrolled airspace or Class G airspace is the portion of the airspace that has not been designated as Class A, B, C, D, or E. It is therefore designated uncontrolled airspace. Class G airspace extends from the surface to the base of the overlying Class E airspace (see figure 3-1). Class G is categorized as a non-regulatory airspace area (FAA, 2023).

Special Use Airspace

Special use airspace is the designation for airspace in which certain activities must be confined, or where limitations may be imposed on aircraft operations that are not part of those activities. The types of Special Use Airspace (SUA) areas are defined in Table 3-2 below (USAEC, 2012).

Table 3-2: Types of Special Use Airspace

Type of SUA	*Description*
Prohibited Areas	Areas where aircraft flight is not allowed.
Restricted Areas	Areas where flight is restricted due to specific activities.
Military Operations Areas	Volumes of airspace with specific vertical and lateral limits, used to separate nonhazardous military activities from IFR traffic and to identify Visual Flight Rules traffic in the area.
Warning Areas	Areas that may contain hazards to nonparticipating aircraft in international airspace.
Alert Areas	Areas where there is a high volume of pilot training or unusual aerial activity.
Controlling Firing Areas	Areas established to contain activities that would be hazardous to nonparticipating aircraft if not in a controlled environment; not depicted on aeronautical charts.
National Security Areas	Areas where aircraft flight is restricted for national security reasons.

Legend: SUA=Special Use Airspace; IFR=Instrument Flight Rules

The primary airspace classification for military installations is military operations areas (MOAs) which fall under the classification of non-regulatory. MOAs consist of airspace of defined vertical and lateral limits established to separate certain military training activities from nonparticipating instrument flight rules traffic (FAA, 2024). The MOAs are supported by equipment and instruments located outside their main bases' borders that alert air traffic control for nonparticipating air traffic. These areas are important because they represent the only airspace where many types of critical military training and testing can be conducted. Specifically, training spaces designated for low-altitude and night flights are essential for providing pilots with real-world environments to enhance skill sets and maintain required flight hours (Texas A&M Natural Resource Institute, 2021).

AR 95-2 governs the operations, safety, maintenance, and training for Army aviation, ensuring compliance with established standards and procedures. It mandates responsibilities for commanders, outlines operational and safety protocols, and sets requirements for training, maintenance, and documentation to maintain the readiness and airworthiness of Army aircraft. According to AR 95-2, activities for which restricted areas are normally designated must be considered non-compatible with or hazardous to nonparticipating aircraft. Those activities include, but are not limited to:

- Firing field artillery, mortars, rockets, lasers or similar weapons or similar activities.
- Drone or Unmanned Aircraft System operations when flights cannot be accomplished with a certificate of authorization from the FAA.
- Some types of laser activity; chemical and nuclear measure (Nuclear measure typically refers to activities involving using, testing, or measuring nuclear materials or radiation).
- Dropping of chaff and some electronic countermeasures (In the context of AR 95-2, "chaff" is a radar countermeasure used by military aircrafts, consisting of small, thin pieces of reflective material that disperse in the air to hide aircrafts from detection).
- Certain ordnance/explosive demolition activities.

Small arms range safety areas are not SUA but are similar to Controlling Firing Areas. Small arms range safety areas are Army-established areas to contain small arms range activities that if not conducted in a controlled environment, could be hazardous to nonparticipating aircraft.

Due to the nature of military training and operations (e.g., firing artillery, mortars, and lasers, and flights of both manned and unmanned aircraft) the airspace above the training areas of installations with these activities is restricted. Small arms ranges are within the training areas that meet the SUA criteria.

3.3.1 Affected Environment

The region of influence (ROI) for airspace is the SUA areas above and near the installation that is controlled by Fort Cavazos. The airspace is defined on aeronautical charts and may be exclusive, limiting nonparticipating (e.g., commercial, and general aviation) users or it may simply be advisory. This would indicate to non-participating users of the airspace that military operations are occurring in certain areas, requiring an extra measure of vigilance.

The SUA consists of a complex set of Restricted Areas designated for exclusive use and includes advisory MOAs. The SUA is designed to ensure the segregation of incompatible, nonparticipating aircraft from potentially hazardous operations occurring either in flight (e.g., munitions releases, UAS operations) or on the ground (e.g., artillery ranges, testing activities). Fort Cavazos' restricted air space reaches a maximum altitude of 45,000 feet and an approximate area of 272 square miles.

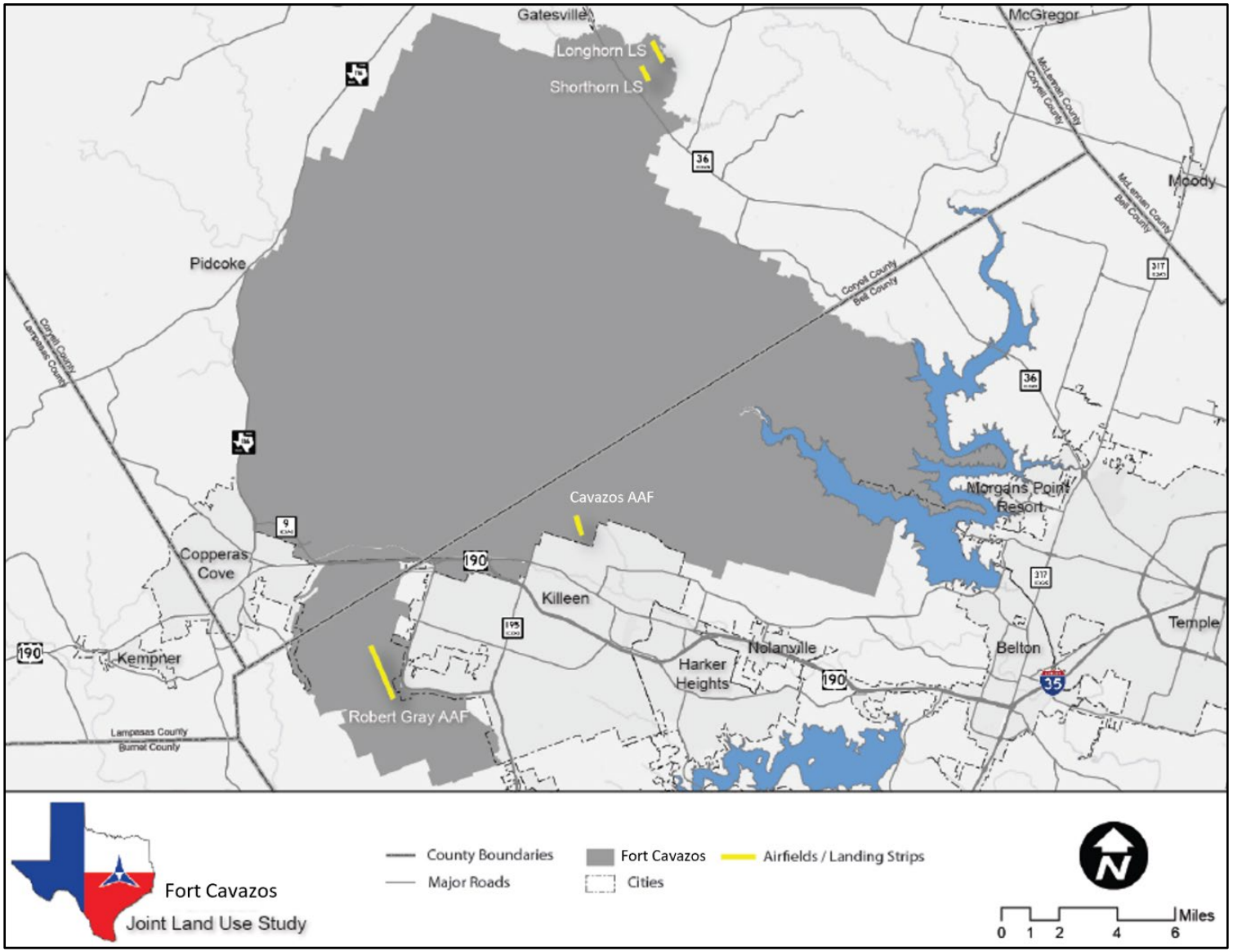
The major airspace units are subdivided vertically and horizontally, enabling airspace managers and schedulers to activate blocks of airspace that are sized appropriately to the activities occurring within them. A wide variety of activities occur within the SUA; however, for the SUA managed by Fort Cavazos, the principal uses and purposes of the SUA are:

- To protect non-participating aircraft from range activities occurring on the ground.
- To promote realistic training, allowing scenarios to unfold without training distracters, such as suspensions required when civilian aircraft penetrate the restricted areas (Fort Hood, 2016).

Aviation operations at Fort Cavazos are conducted primarily from the two airfields and two auxiliary landing strips shown in Figure 3-2. Robert Gray Army Airfield is the primary installation aviation facility and serves as the regional commercial airport for Killeen and the surrounding area. With a 10,000-foot runway, Robert Gray Army Airfield is capable of landing all U.S. Air Force airlift aircraft that could be employed in mobilization from the installation. Cavazos Army Airfield is the primary rotary wing aviation site on Fort Cavazos and hosts most of the active component aviation assets on the installation. The Shorthorn and Longhorn auxiliary landing strips at North Fort Cavazos are primarily utilized for reserve component mobilization training and lack many of the permanent facilities found at the two primary airfields on the post. However, the Shorthorn and Longhorn auxiliary landing strips are considered critical aviation assets increasing the capacity for significant flight operations and the ability to host large numbers of rotary wing aircraft (Fort Hood, 2016).

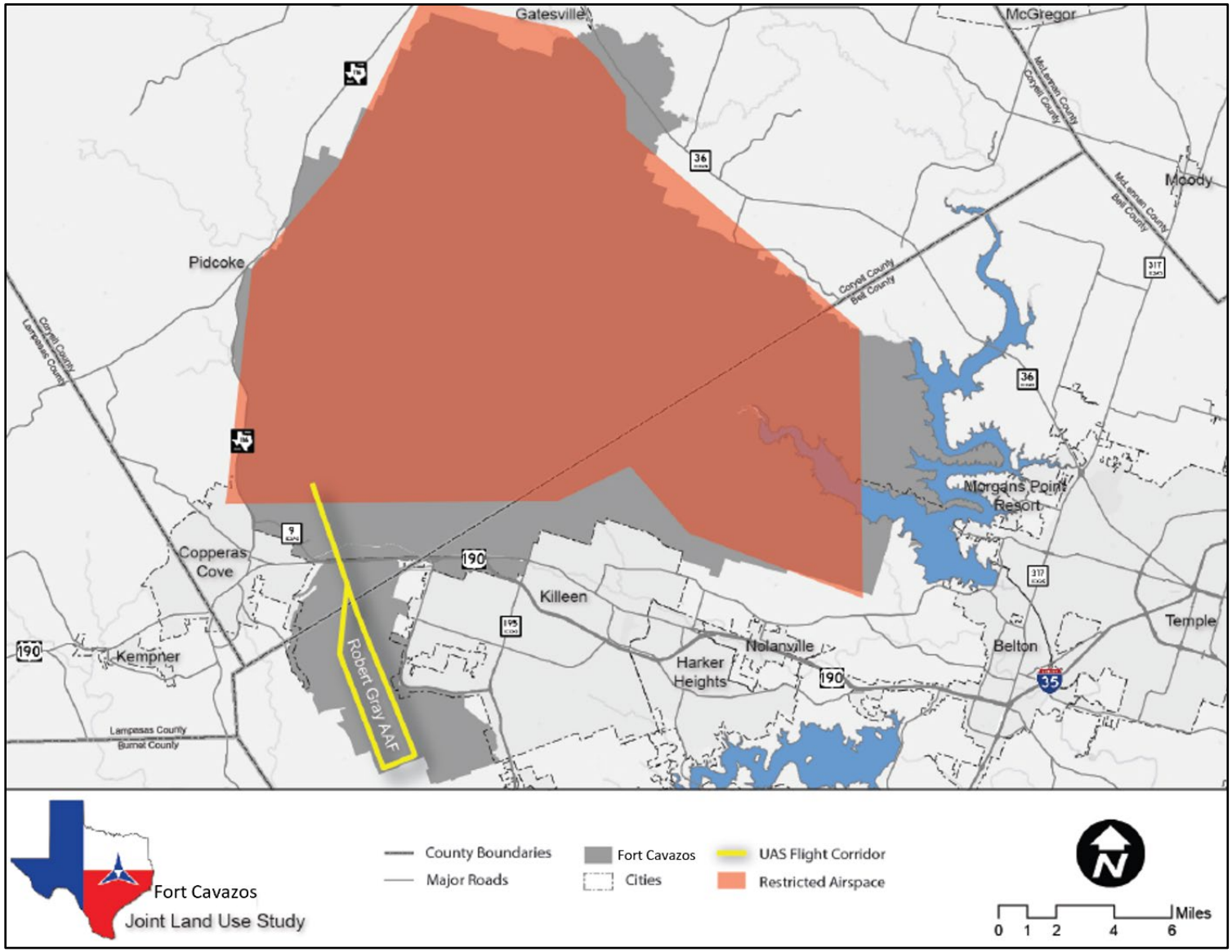
A wide range of units on Fort Cavazos are involved in the operation of unmanned aircraft systems. The larger of these aircraft operate from Robert Gray Army Airfield, and because of their nature, they are subject to more intensive regulation by the Army in terms of where they can fly. Until recently, operations have only been authorized over the airspace above Fort Cavazos. Figure 3-3 demonstrates the narrow path that UAS operators are required to navigate when taking off and landing at Robert Gray Army Airfield due to the requirement that they stay above the installation and not overfly civilian development in the vicinity of the airfield. The greater use of UAS outside of Fort Cavazos' regulated airspaces was imminent, although with significant requirements for maintaining positive control over the aircraft (Fort Hood, 2016).

Figure 3-2: Fort Cavazos Airfields and Auxiliary Landing Strips



Source: Fort Hood, 2016.

Figure 3-3: Fort Cavazos Restricted Airspace and UAS Flight Corridor



Source: Fort Hood, 2016.

3.3.2 Environmental Consequences

An impact on airspace would be considered significant if the action alternative violates FAA safety regulations or causes a substantial infringement on general aviation or commercial flight.

3.3.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT and associated soldiers at Fort Cavazos. As a part of the AMS, the USAEC prepared the 2021 M-SHORAD Capability PEA for the fielding of the SGT STOUT at various facilities including Fort Cavazos. In this PEA it was stated that airspace impacts from SGT STOUT training and the construction of SGT STOUT facilities are expected to be less than significant. The fielding and stationing of the SGT STOUT would not require permanent changes to SUA, require no new aircraft and only require minimal changes to the type of flight operations and schedules. Fielding the SGT STOUT BN at Fort Cavazos may cause a minor, less than significant increase in airspace use that can be accommodated within the current airspace available at Fort Cavazos (USAEC, 2021).

The fielding and stationing of the SGT STOUT would not cause a substantial infringement of general aviation or commercial flight. It is assumed that the SUA airspace above ranges at Fort Cavazos would follow all applicable regulations according to the FAA and ARs. Therefore, implementation of alternative 1 is expected to have less than significant impacts on airspace.

3.3.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. The anticipated effects of the SGT STOUT are described in the paragraphs above under alternative 1.

For the LTAMDS the installation must have adequate protected airspace, both laterally and vertically. Tactics and weapons of the PATRIOT AN/MPQ-65 radar equipped with the LTAMDS require training using aerial targets that would be detected, tracked, and engaged. Targets must be free to maneuver in a manner like an enemy threat. The airspace must overlay the ground footprint of ranges where the training would occur and extend vertically to a minimum of 25,000 to 30,000 feet above ground level. Such activity must be contained within airspace that is monitored by the governing range control or land/airspace governing agency visually or with radar so non-participating aircraft can be detected. The controlling agency must have communications capability to warn and prevent the entry of non-participating aircraft or suspend LTAMDS/PATRIOT AN/MPQ-65 radar operations if a non-participating aircraft is detected within the protected airspace. The possible risks/areas of concern include the possible need to coordinate airspace with the FAA based on firing trajectories and conditions, and consideration of whether existing SUA/restricted airspace needs to be changed to accommodate the systems.

Fort Cavazos meets the minimum lateral and vertical requirements for the LTAMDS and has the required monitoring and communications capabilities. The PATRIOT AN/MPQ-65, which is similar to the LTAMDS is currently used at Fort Cavazos. Existing SUA/restricted airspace

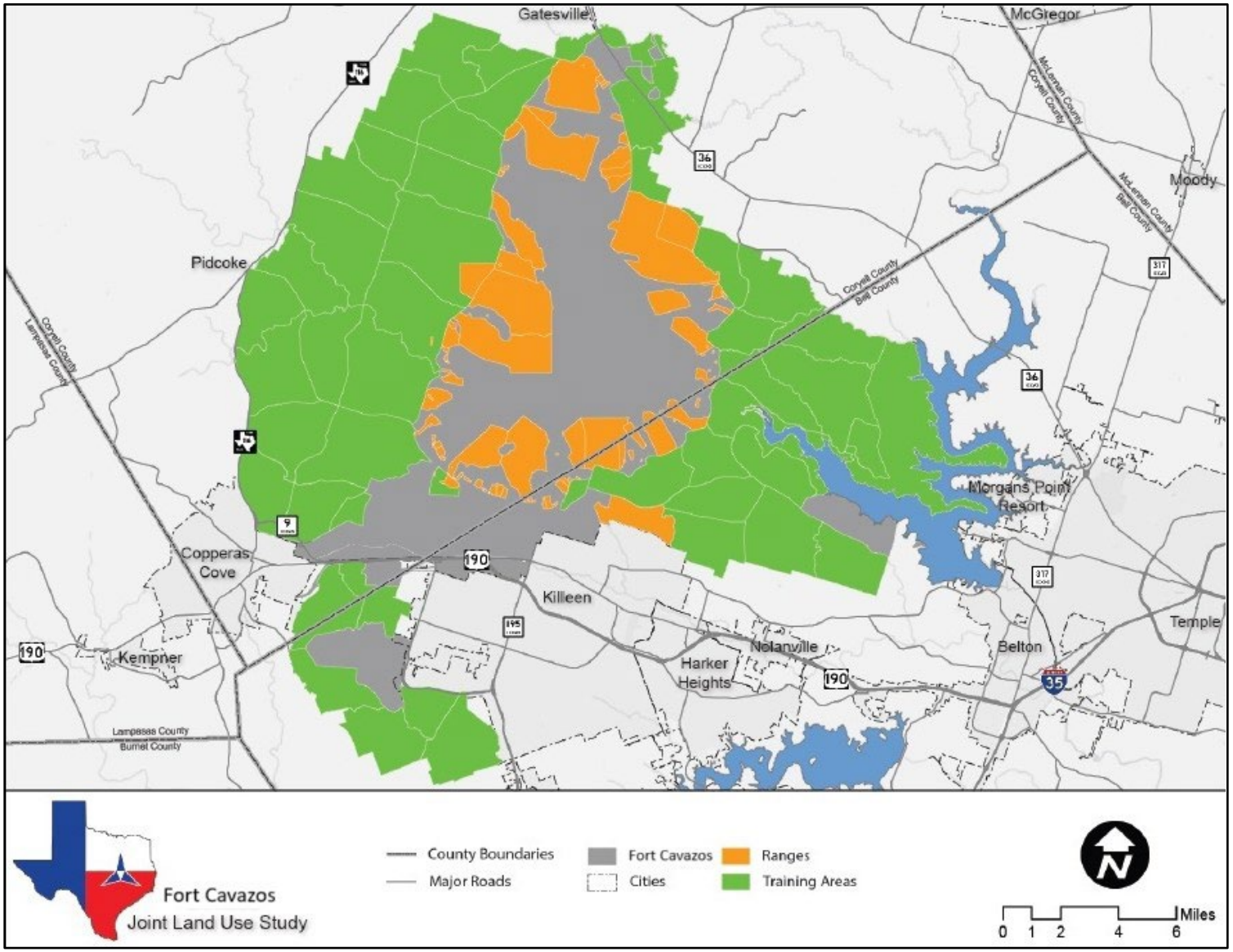
would not require any changes to accommodate the proposed system. Therefore, stationing the LTAMDS would have negligible impacts on airspace.

The M10 Booker is a ground vehicle that would only make use of Fort Cavazos airspace during test firing. There are no expected impacts, issues, or risks regarding airspace. The M10 Booker at Fort Cavazos, following all existing regulations for test-firing, would have negligible impacts on airspace.

Tactics and weapons of the IFPC require training using aerial targets that would be detected, tracked, engaged, and destroyed. Targets must be free to maneuver in a manner similar to an enemy threat. The IFPC must be free to bring sensors and weapons to bear on the target. The airspace must overlay the ground footprint of ranges where the training would occur with lateral dimensions sufficient to allow the free maneuver of targets and containment of any missile trajectories or falling debris from target engagement. The minimum vertical extent of 25,000-30,000 feet above ground level is needed to allow a realistic trajectory for incoming rocket, artillery, and mortar threats. Fort Cavazos meets this minimum requirement. Such activity must be contained within airspace that is monitored by the governing range control or land/airspace governing agency visually or with radar so non-participating aircraft can be detected. The controlling agency must have communications capability to warn and prevent the entry of non-participating aircraft or suspend IFPC operations if a non-participating aircraft is detected within the protected airspace. If a training event involved live-fire of missiles or the flight of UAS, it would require airspace clearance uniquely established by the governing range control or land/airspace governing agency. Fort Cavazos meets these requirements, therefore there would be negligible impacts on airspace.

Dark Eagle training could be accomplished with simulated firing, firing munitions with a shorter range that would not exceed installation range boundaries, or firing at a range on a different installation that can accommodate the munition. As Fort Cavazos has adequate range space (See Figure 3-4) and restricted airspace (see Figure 3-3) that would prevent infringement on general or commercial flights stationing, the Dark Eagle would have negligible impacts on airspace.

Figure 3-4: Fort Cavazos Ranges and Training Areas



Source: Fort Hood, 2016.

The MRC provides mid-range missile capabilities with Tomahawk and/or SM-6 missiles. Due to the SUA that protects non-participating aircraft from range activities occurring on the ground and suspends training when civilian aircraft penetrate restricted areas, test firing and training could occur without significant impacts on airspace.

To accommodate live-fire of the HP-DE systems the restricted airspace must extend vertically to approximately 60,000 feet above mean sea level. At present Fort Cavazos' restricted airspace reaches a maximum altitude of 45,000 feet. Since the HP-DE has the potential to breach the Fort Cavazos restricted airspace, HP-DE training would only consist of simulation firing. Therefore, fielding and stationing of the HP-DE system would have no impacts on airspace.

In summary, the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE would have a less than significant impact on airspace. Since these are ground based systems, their only potential impact on airspace would occur during test-firing. The airspace over Fort Cavazos is sufficient to support training for most of the alternative 2 weapons systems. If live-fire cannot be accommodated in Fort Cavazos airspace, simulation fire would be utilized during training activities. Coordination with the FAA would ensure compliance with FAA safety regulations and prevent interference with general aviation and commercial flights. Through proper coordination, any impacts on airspace would be mitigated to less than significant levels. Therefore, implementation of alternative 2 is expected to have less than significant impacts on airspace.

3.3.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at Fort Cavazos. Many of the impacts from alternatives 1 and 2 remain the same for this alternative. This analysis focuses only on the unique aspects of this alternative while assuming the impacts from alternatives 1 and 2. The MDTF is the only system proposed under alternative 3 that is not analyzed under alternatives 1 and 2.

The Full MDTF includes stationing of weapons systems previously analyzed under alternative 2. These systems include, the IFPC, Dark Eagle and MRC. Fort Cavazos meets the minimum SUA requirements and possesses adequate range space to accommodate the fielding and stationing of the MDTF. If there is coordination with the FAA (and potentially the Laser Clearinghouse) then Fort Cavazos meets the requirements for the IFPC, Dark Eagle, and MRC without impacts to airspace. Similar to alternative 2, the impact on airspace from the Full MDTF is mitigable (through coordination) to a less than significant level. Therefore, implementation of alternative 3 is expected to have less than significant impacts on airspace.

3.3.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to airspace.

3.4 Biological Resources

Biological resources include sensitive and protected plant and animal species and associated habitats that are listed for protection by the U.S. Fish and Wildlife Service (USFWS) or state-listed by the Texas Parks & Wildlife Department. The ROI for biological resources includes the habitats within and immediately surrounding the areas on Fort Cavazos. The action area is defined by federal regulation (50 CFR § 402.02) as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action.

Biological resources are comprised of the collective native or naturalized vegetation, wildlife, and their associated habitats. Existing information on vegetation and wildlife and their associated habitat types in the vicinity of the proposed sites were reviewed, with particular emphasis on the presence of any species listed as threatened or endangered by federal or state agencies to assess their sensitivity to the effects of the proposed action. For this PEA, biological resources are divided into three areas: vegetation communities (flora), wildlife communities (fauna), and protected species under the following regulations:

- Bald and Golden Eagles, as protected under the Bald and Golden Eagle Protection Act (16 USC § 17 668 [1972]);
- Protected species under the Migratory Bird Treaty Act (16 USC §§ 703-712 [2004]);
- Threatened or endangered under the Endangered Species Act of 1973 ([ESA], 16 USC § 1531 et seq.) by USFWS; and
- DoD Instruction 5525.17 establishes policy, assigns responsibilities, and provides direction for the Conservation Law Enforcement Program in accordance with the authority in DoD Directive 5124.02 (Fort Hood, 2019).

The Directorate of Emergency Services is responsible for the enforcement of the laws and regulations pertaining to natural resources, including enforcement of hunting, fishing, area access, archeological, and environmental statutes and regulations at Fort Cavazos. Laws and regulation related to natural resources on Fort Cavazos are enforced by the Conservation Law Enforcement Officers (also known as Game Wardens), and include enforcement related to threatened and endangered (T&E) species, historical and archeological sites, fish and wildlife laws, and established harvest quotas (Fort Hood, 2019). The full complement of enforcement responsibilities and action from Conservation Law Enforcement Officers is outlined within the 2019-2023 *Fort Hood Integrated Natural Resources Management Plan* (INRMP) (Fort Hood, 2019).

3.4.1 Affected Environment

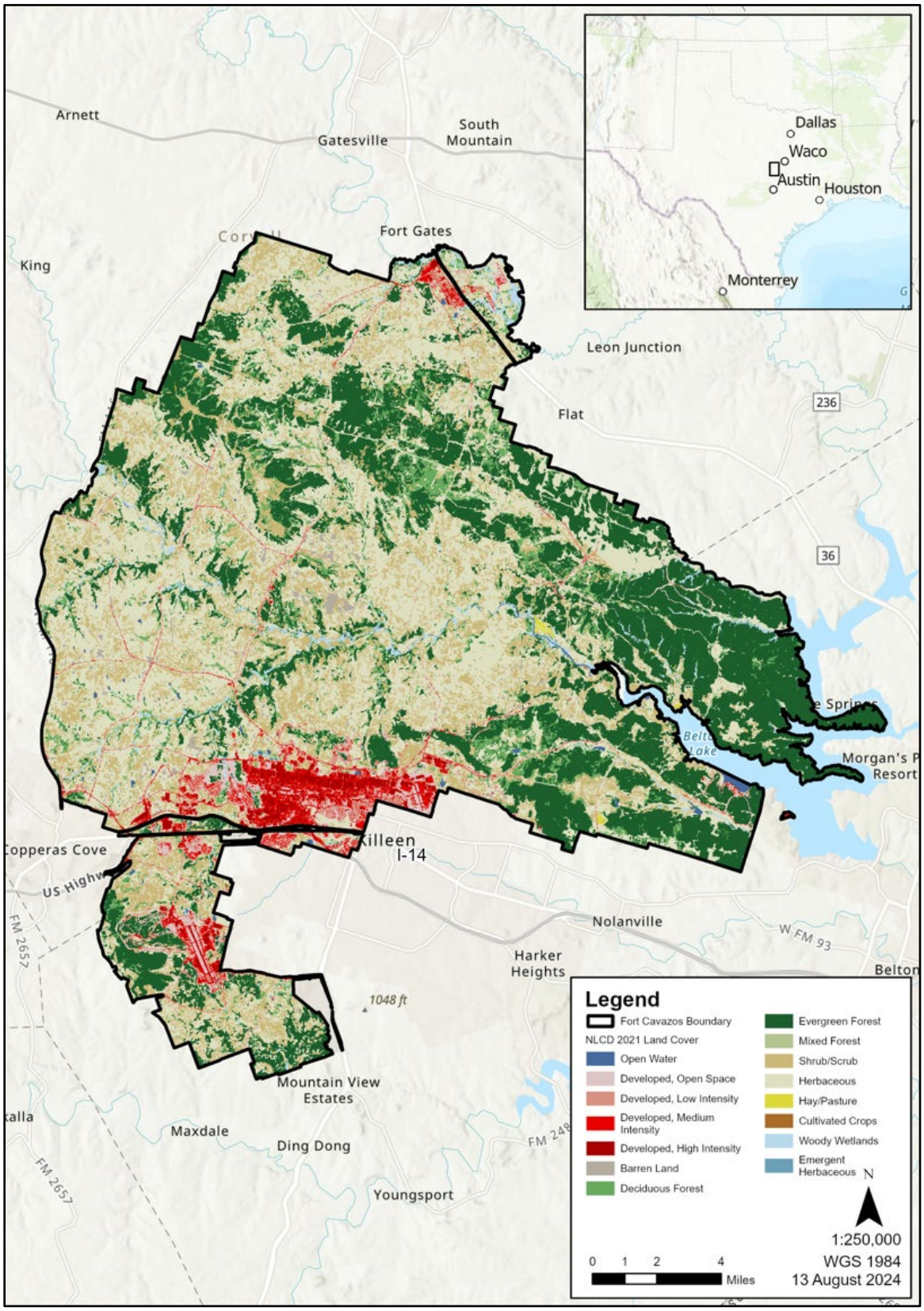
Fort Cavazos supports a diversity of biological resources. Its varied habitats furnish the essential resources for numerous fish, wildlife, and plant species within the ROI, which encompasses the entirety of Fort Cavazos. Both common and protected wildlife species hold significance for current and future military operations at the installation. Conservation initiatives, encompassing the safeguarding of forests and wetlands, contribute to enduring ecosystem resilience. These endeavors are directed by Fort Cavazos' INRMP, which harmonizes natural resource management with military training requirements, prioritizing the restoration and upkeep

of the installation's ecosystem while guaranteeing adherence to all relevant environmental regulations (Fort Hood, 2019).

3.4.1.1 Flora

The dominant types of vegetation at Fort Cavazos are grasslands and forest and shrub communities (Figure 3-5). Grasslands historically appear in valleys and lowlands, as well as in isolated patches on hills where disturbances took place. Wooded mesas, hills, and canyons occupy a large land area of Fort Cavazos. Wildfires, which are a natural component of grasslands, were suppressed to prevent impacts on structures and to minimize the risk to human life. With the suppression of fires and the loss of competitive grasses due to military training and livestock grazing, Ashe juniper and other woody vegetation of the rocky slopes have encroached into the grasslands, forming dense thickets in many areas and reducing forage production (Fort Hood, 2019).

Figure 3-5: Fort Cavazos Land Cover



Grassland communities are found 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 midgrass 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*) (Fort Hood, 2019).

Forest and shrub communities are a major component of the installation. The majority of these habitats are found on the rocky slopes and hillsides or mesas; smaller amounts of woodlands occur in narrow bands along streams. Over time, forest and shrub vegetation have expanded into areas that were once grasslands because of a combination of factors, including fire suppression, training disturbance, and continuous grazing by livestock (Fort Hood, 2019).

Three distinct forest and shrub communities have been classified at Fort Cavazos: 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”, a dominant coniferous species in the area. Another relatively uncommon vegetation association throughout the installation is the deciduous forest and shrub community. This community is composed of broadleaf 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 (Fort Hood, 2019). Lack of fire and overuse by livestock are primary factors leading to increases in Ashe juniper and other woody plants in the Edwards Plateau (Noel and Fowler, 2007).

Ashe juniper is a native plant. However, it was historically confined to steep slopes and ridges where naturally occurring fires did not reach. Following European settlement, fires were slowed or stopped. This plant has since encroached onto prairies and oak savannahs and replaced several woody and grass species. Stands of Ashe junipers may block the line of sight for training aid devices simulator and simulations, the Army’s primary non-live-fire training systems. Despite the encroachment of the Ashe juniper, it is an essential component of the endangered golden-cheeked warbler habitat.

3.4.1.2 Fauna

Fort Cavazos hosts a variety of wildlife, including fish, mammals, herpetofauna, avifauna, and both surface and sub-surface invertebrates typical of central Texas. Some species are widespread across Texas and the southern U.S., while others are endemic to the Edwards

Plateau or Cross Timbers and Prairies ecoregions. This wildlife diversity is due to the installation's location at the boundary of these two ecoregions, which supports a range of habitats—grasslands, wetlands, juniper-oak and deciduous forests, riparian areas, shrublands, and karst features—that provide essential resources for wildlife (Fort Hood, 2019).

There are approximately 196,356 acres of mission land suitable for fish and wildlife management. There are 692 surface acres of lakes and ponds, 816 miles of rivers and permanent streams, and 43 miles of shoreline access to Belton Lake. The wildlife management program at Fort Cavazos is targeted toward restoring the ecological health of the mission lands (Fort Hood, 2019). Fort Cavazos coordinates with the USFWS on issues regarding fish and wildlife management and regulatory issues concerning the ESA or the Migratory Bird Treaty Act.

3.4.1.3 Protected Species

Due to their importance and sensitivity, impacts to T&E habitats are, as much as practicable, avoided and/or minimized. The Army consults with the USFWS on actions that may affect federally listed species or for their assistance in assessing impacts of actions on listed species. Management and conservation of T&E species and their habitat is accomplished through the implementation of the installation's Endangered Species Management Component of the INRMP (AR 200-1). The INRMP supports the Sustainable Range Program and Installation Training Area Management program, which are mandated to sustain Army training and maneuver areas (AR 350-19). These programs implement the conservation measures identified in the Endangered Species Management Component to avoid or minimize impacts on T&E species and their habitat to ensure compliance with the ESA and promote mission sustainability. Installation Endangered Species Management Components are the Army's primary means of ensuring compliance with the ESA and balancing mission requirements (U.S. Army, 2012).

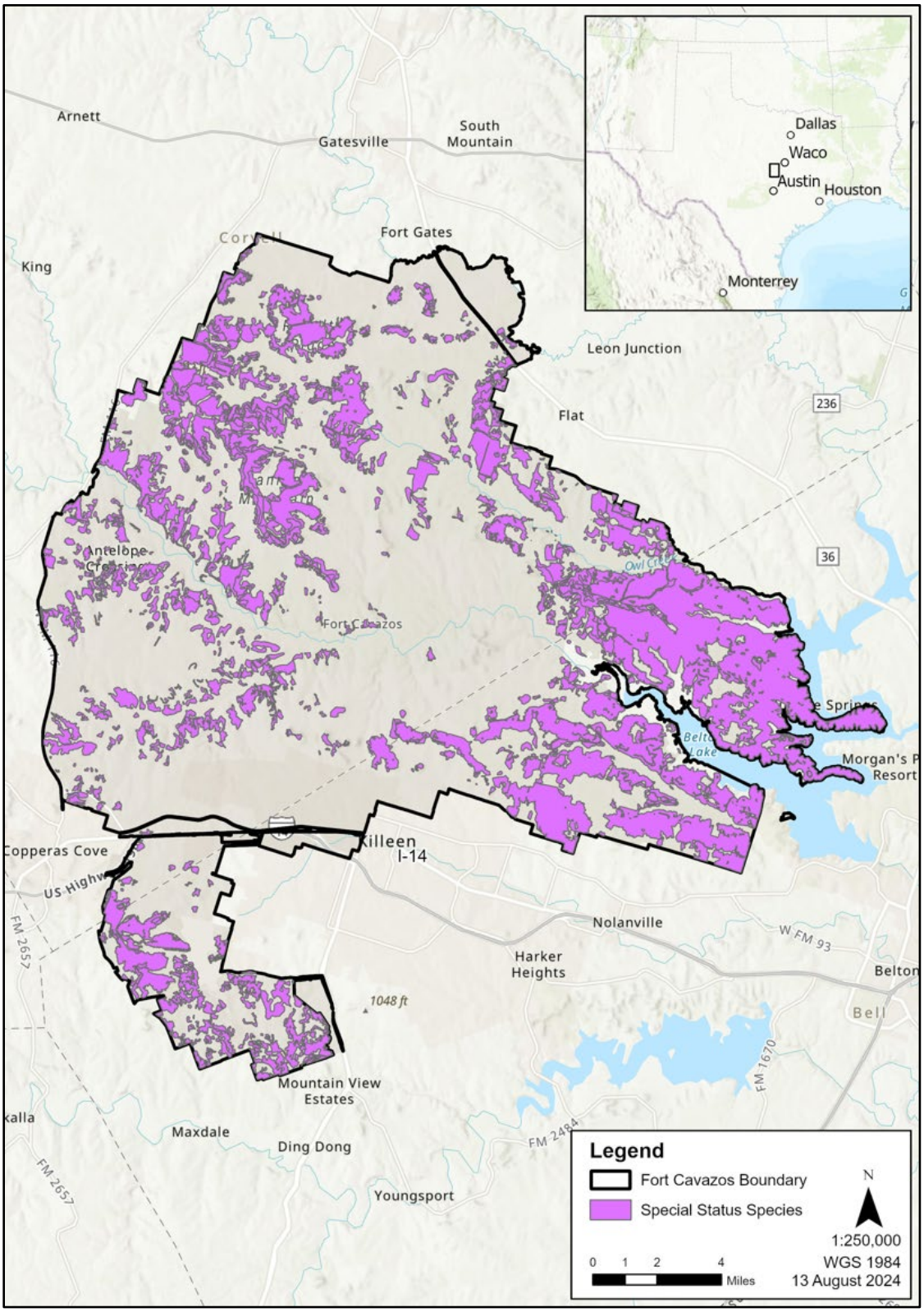
Table 3-3 lists the federally listed T&E species that occur or may occur on Fort Cavazos (Fort Hood, 2019). Figure 3-6 depicts where special status fauna are present on Fort Cavazos.

Table 3-3: Federally Listed Threatened and Endangered Species on Fort Cavazos

Common Name	***Scientific Name***	***Status***
Whooping Crane	*Grus americana*	E
Golden-cheeked warbler	*Setophaga chrysoparia*	E
Salado Salamander	*Eurycea chisholmensis*	T
Smalleye Shiner	*Notropis buccula*	E
Sharpnose Shiner	*Notropis oxyrhynchus*	E
Texas fawnsfoot	*Truncilla macrodon*	C
Smooth pimpleback	*Quadrula houstonensis*	C
Tri-colored bat	*Perimyotis subflavus*	C

Legend: E=Endangered; T=Threatened; C=Candidate for listing as threatened or endangered

Figure 3-6: Special Status Fauna on Fort Cavazos



Whooping Crane

The whooping crane is a rare migrant bird. Three whooping cranes were sighted in 2017, and this species was previously documented on Fort Cavazos. They may fly over or near Fort Cavazos during spring and fall migration. They may stop at Belton Lake during migration and have been observed at other wetland areas on Fort Cavazos.

Golden-cheeked Warbler

The golden-cheeked warbler (*Setophaga chrysoparia*) is a small, migratory songbird that is federally listed as endangered. It is distinguished by its striking black and yellow facial markings, black upperparts, and white underparts. This species is entirely dependent on mature Ashe juniper (*Juniperus ashei*) and oak forests for breeding, as it uses the long, stringy bark of Ashe junipers to build its nests. The warbler's breeding range is limited to the mixed woodland habitats of central Texas, making the region’s intact juniper-oak woodlands essential for its survival.

The golden-cheeked warbler inhabits mature juniper-oak woodlands with dense canopy cover, which provide nesting and foraging habitat. Fort Cavazos supports suitable habitat for the warbler, making it an important location for conservation efforts. However, areas of the installation that lack the necessary mature forest cover or have been impacted by military activities may not support the warbler.

Research and conservation efforts for the golden-cheeked warbler on Fort Cavazos have been numerous. Research projects have included nest survival rates, forest cover and its impacts on density, and nest predation. Current ongoing research includes a breeding range-wide geolocator study to determine migration corridors and overwintering site fidelity; impacts of geolocators on reproductive success, site fidelity, and survival; and source-sink population dynamics. Monitoring and research activities for the warbler at Fort Cavazos began in 1991 and have continued to the present.

Past monitoring (1991–2019) efforts include point count surveys to determine detection rates and trends, while current monitoring efforts employ distance sampling to determine population estimates and trends. Current and past research includes demographic monitoring in selected study sites, research in habitat selection, studies to determine the effects of habitat fragmentation and wildfire on warbler demographics, and population viability analyses.

In August 2020, the Army collaborated with the USFWS to develop and implement a biological opinion (BO) to assess ongoing and proposed military training activities, military training improvement projects, prescribed burning and wildfire events occurring on Fort Cavazos and their effects on the federally listed golden-cheeked warbler and the (previously listed) black-capped vireo. Training activities analyzed under the BO include maneuver exercises for units up to brigade level, live weapons firing, and aviation training. Additionally, land management, range improvements, and other associated activities to support the military mission are included as the actions assessed under the BO. The actions assessed in the BO align with the proposed action described in this PEA, making them a relevant basis for comparison in this analysis (USFWS, 2020b).

The primary threat to the golden-cheeked warbler is habitat destruction and fragmentation. The 2020 BO issued by the USFWS emphasizes the protection and management of the warbler's habitat, particularly late-succession Ashe juniper forests, while introducing additional flexibility through an adaptive management framework. This approach enables the Army to adjust project parameters within the guidelines of the Incidental Take Statement and enhance management and minimization techniques for endangered species (USFWS, 2020b).

Historically, military training activities have resulted in incidental take of the golden-cheek warbler, which has been well documented. It is anticipated that incidental take would continue to occur on Fort Cavazos at slightly elevated levels due to the potential permanent and temporary loss of habitat. Even at this elevated level, the years of monitoring and research conducted at Fort Cavazos indicate that the long-term population viability of the golden-cheek warbler within the action area would be sustained. Most importantly, Fort Cavazos has committed to continue to monitor and manage their endangered species populations for long-term conservation.

Salado Salamander

The natural habitat of the Salado salamander is freshwater springs. They were found only from a few springs that feed Salado Creek in Bell County, Texas. This species is currently not known to occur on Fort Cavazos (Fort Hood, 2019).

Smalleye Shiner

The smalleye shiner (*Notropis buccula*) is a species of ray-finned fish. It is found only in the upper Brazos River basin of Texas, particularly in the upper Brazos basin upstream of Possum Kingdom Lake, where it is native. The smalleye shiner is currently not known to be present at Fort Cavazos (USFWS, 2024).

Sharpnose Shiner

The sharpnose shiner has historically occurred in the Brazos River basin, including tributaries such as the Leon River. Although it could have occurred near what is now Fort Cavazos, its range has contracted over time and is currently limited to the upper Brazos River basin, outside of Fort Cavazos..

Texas Fawnsfoot

The Texas fawnsfoot has a distribution straddling the Brazos River and the Colorado River in the San Saba, Lampasas, and Mills County regions (USFWS, 2016 as cited in USAEC, 2021). This species is currently not known to occur on Fort Cavazos (Fort Hood, 2019).

Smooth Pimpleback

The smooth pimpleback is found along the southern halves of the Colorado and Brazos Rivers in Texas. They may occur on Fort Cavazos in tributaries to the Leon River.

3.4.2 Environmental Consequences

Impacts to biological resources would be considered significant if Army actions result in a substantial permanent conversion or loss of net habitat, long-term loss or impairment of a substantial portion of local habitat (species dependent), loss of populations of species, or

unpermitted or unlawful take of ESA-protected threatened or endangered species, or species protected under the Bald and Golden Eagle Protection Act or the Migratory Bird Treaty Act.

3.4.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT and associated soldiers at Fort Cavazos. Impacts to biological resources resulting from alternative 1 are anticipated to be largely driven by increased training impacts and increased population. These impacts are expected to be less than significant due to the use of existing training areas, the use of existing facilities when possible, and the utilization of existing best management practices (BMPs) and control measures employed by the Army. The analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was used to evaluate potential impacts, and a 2020 USFWS BO was referenced for species-related assessments.

The fielding and stationing of the SGT STOUT and associated personnel might require additional infrastructure or expanded training areas. The limits, location, and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis and/or ESA consultation may be required.

Impacts from Live-Fire Training and Maneuver Training

Under alternative 1, live-fire and maneuver training under would occur within designated land use areas at Fort Cavazos. The range complex includes forests, woodlands, grasslands, and riparian habitats. These activities may result in vegetation loss, soil compaction, rutting, and dust generation, which could lead to habitat degradation and increased sedimentation and erosion. However, Fort Cavazos employs range assessments, land rehabilitation, and maintenance actions to mitigate the deposition and leaching of munitions contaminants, erosion, soil compaction, and the potential for range fires. (USFWS, 2020b).

To limit disturbance to fauna, support vehicles would use existing roads whenever possible, and off-road travel would be restricted to testing/monitoring equipment positioning and recovery activities. These off-road movements would follow single paths to reduce vegetation disturbance. Additionally, activities would avoid removing vegetation during migratory bird nesting season. Wildlife species, including small mammals, rodents, and reptiles, are expected to temporarily vacate training areas when human activity level is high. Given the sparce wildlife distribution over a large region, and the natural tendency of wildlife to flee from perceived threats, direct impacts are expected to be minimal. While individual mortality may occur, population level impacts are not anticipated.

Impacts from an Increase in Personnel

The approximately 2.4 percent increase in Fort Cavazos's population under alternative 1 may lead to more human-wildlife interactions. However, this population growth is not expected to significantly impact biological resources. Any associated effects would be minor and temporary.

Impacts to Protected Species

Alternative 1 could result in minor impacts to species associated with the range complex drainages, which flow into tributaries of the Lampasas, Leon, and Brazos Rivers. These

waterways provide habitats for species such as the Salado Springs salamander, sharpnose shiner, smooth pimpleback mussel, and the Texas fawnfoot mussel. However, the smalleye shiner would not be affected, as it is known to occur in the upper Brazos River basin, which is northwest of Fort Cavazos (Fort Hood, 2019).

Increased erosion and sedimentation from training activities may have minor adverse impacts on aquatic species. However, the 2020 USFWS BO (USFWS, 2020b) that assessed the impacts to species resulting from live-fire and maneuver training at Fort Cavazos, determined that suitable habitat for the Salado Springs salamander is not present within the action area and no adverse effects are anticipated. While the mussels are candidate species, the BO recommended establishing a monitoring program to assess the status and distribution of native mussels on the installation.

The whooping crane, which migrates through the region in the spring and fall, has been known to use Belton Lake and other riparian areas on Fort Cavazos. The 2020 BO concluded that the existing protection and reporting measures are sufficient, and no effects to the whooping crane are anticipated (USFWS, 2020b).

The golden-cheeked warbler and its habitat occur extensively on Fort Cavazos, but there is no designated critical habitat on the ranges. At the installation, the species is managed primarily through habitat management. Incidental take from live-fire and maneuver training is fully addressed in the 2020 BO (USFWS, 2020b). Due to the programmatic nature of this PEA, the exact locations of actions are not yet known, indicating that the degree of impact on the warbler habitat cannot fully be established. However, in 2020, the USFWS issued a Golden-cheeked warbler determination key, a logically structured set of questions designed to assist users in determining whether a proposed project qualifies for a predetermined consultation outcome based on USFWS standing analysis. The key establishes that proposed activities may occur without adverse effects on the warbler if the project area does not contain the species' preferred habitat and is located at least 300 feet from the habitat. Additionally, activities may proceed without adverse effects if suitable habitat occurs within 300 feet of the project, but no suitable habitat would be removed or degraded, and the action would be scheduled outside of the species' breeding season (March 1 through August 31). If activities are anticipated to occur near or within the habitat during the breeding season or are anticipated to remove or degrade the species' habitat, pre-disturbance surveys are recommended to verify the absence of the golden-cheeked warbler. If absence is verified, no further coordination would be necessary, provided construction was implemented and completed before the beginning of the breeding season immediately following the survey year (i.e., an "absence" determination may only be applied to the year of the survey) (USFWS, 2020a).

Bald and golden eagles could occur on Fort Cavazos, but no recent sightings have been reported (Fort Hood, 2019). If either species is detected, the appropriate regulatory agencies would be consulted, off-limit buffers would be established, and an Eagle Restricted Aviation Zone would be implemented during the nesting season if the nest is occupied (Fort Hood, 2019).

Overall, the implementation of the installation INRMP, Sustainable Range Program, and Installation Training Area Management program, along with consultation with the USFWS when necessary, would minimize impacts to listed and protected species and their habitat.

Impacts to Migratory Birds

The incidental take of migratory birds during military readiness activities, including training, is authorized under 50 CFR 21.42(a)(1), which provides that, with certain exceptions, the Armed Forces may take migratory birds incidental to such activities. Therefore, impacts to migratory birds from alternative 1 are expected to be less than significant..

Wildfires

Live-fire and maneuver training-related activities could initiate wildfires, which may remove vegetation, leading to increased soil erosion and unstable slopes (USAEC, 2021). However, Fort Cavazos's Integrated Wildland Fire Management Plan would help reduce and minimize wildfire impacts (USAEC, 2021). Therefore, impacts from wildfires are expected to be less than significant.

In summary, minor adverse impacts could occur at Fort Cavazos under this alternative. Conservation Law Enforcement Program officials brief units prior to each training event regarding sensitive areas on post, such as protected species habitat, and known protocols to limit species impacts. The implementation of management and minimization measures consistent with the Fort Cavazos INRMP, the 2020 BO, as well as the utilization of existing BMPs would mitigate these impacts (Fort Hood, 2019). Vegetation impacts are expected to be long-term due to ongoing live-fire and maneuver training; however, they are anticipated to be minor as they would be similar to the current activities already occurring on Fort Cavazos. Therefore, implementation of alternative 1 is expected to have less than significant impacts to biological resources.

3.4.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. Impacts to biological resources under this alternative would primarily stem from increased population and increased training impacts. These impacts are expected to be moderately significant due to the overall increases in training, but they would be mitigated through the use of existing training areas existing facilities where feasible, and the implementation of existing BMPs and control measures employed by the Army. The analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was used as a baseline and extrapolated to reflect the combined impacts for this alternative.

Many of the biological impacts considered in alternative 1 would also apply to alternative 2. Therefore, this analysis focuses on the unique aspects of alternative 2, while assuming the same baseline impacts and mitigation measures from alternative 1 remain applicable. The implementation of management and minimization measures consistent with the Fort Cavazos INRMP and the utilization of existing BMPs would reduce the described impacts. Vegetation impacts are expected to be long-term due to ongoing live-fire and maneuver training but would

remain minor, as they are consistent with the current training activities already occurring at Fort Cavazos.

The fielding and stationing of the additional weapons systems and associated personnel may require new infrastructure or expanded training areas. However, the specific limits, locations, and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis and/or ESA consultation may be required.

Impacts from an Increase in Personnel

Alternative 2 could increase the total Fort Cavazos population by approximately 4.8 to 7.0 percent, and increase the populations of soldiers by 3.5 to 5.3 percent, based on estimates for this alternative. This population growth may lead to more human-wildlife interactions, increased activity in training areas, and greater wear on vegetation and soil. However, the Army has experience managing similar expansions. The *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment* (U.S. Army, 2013) (henceforth referred to as 2013 Force Structure Realignment PEA) analyzed the addition of 3,000 soldiers, which represented a 10 percent increase at the time. This is approximately five percent higher than the median increase of soldiers anticipated under this PEA, making the potential impacts of alternative 2 comparable (U.S. Army, 2013).

The projected force increase would result in more traffic in training areas and ranges, which could cause minor vegetation degradation and the displacement of some wildlife. However, Fort Cavazos's conservation programs would continue to proactively manage its training areas through access controls, monitoring, and habitat management measures to demonstrate the stability or improvement of T&E species populations.

The implementation of BMPs and minimization measures described in the Fort Cavazos INRMP would mitigate vegetation and grassland degradation. Although some wildlife displacement may occur due to the potential 5.3 percent increase of soldiers, wildlife populations at Fort Cavazos have adapted to live-fire and maneuver training and are not expected to experience population-level impacts from the increased activity(U.S. Army, 2013). Therefore, the implementation of alternative 2 is expected to result in less than significant impacts to biological resources.

3.4.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at the installation. Impacts to biological resources under this alternative are driven by increased population, and increased training impacts. However, these impacts are expected to be less than significant due to the use of existing facilities and the Army's established BMPs and control measures.

Many of the impacts described in alternatives 1 and 2 also apply to this alternative. Therefore, the analysis for alternative 3 focuses on the unique impacts associated with the inclusion of the full MDTF, while assuming the impacts from the previous alternatives remain applicable. To evaluate these impacts, the 2022 MDTF Stationing PEA was used alongside the 2021 M-

SHORAD Capability PEA (USAEC, 2021) to account for the combined effects of the multiple weapons systems included in this alternative.

The fielding and stationing of the weapons systems and associated personnel increases might require additional infrastructure or expanded training areas. The limits, locations, and design of any potential construction are not yet known. Should new construction be necessary, supplemental NEPA analysis and/or ESA consultation may be required.

Impacts from an Increase in Personnel

Alternative 3 would result in an estimated 10.8 percent increase in the current installation population and an approximate 8.1 percent increase in the population of soldiers.. The resulting biological impacts would primarily stem from construction activities and live-fire and maneuver training.

Based on the conclusions from the 2013 Force Structure Realignment PEA (U.S. Army, 2013), the implementation of management measures consistent with the INRMP would effectively minimize training-related impacts. INRMP minimization measures would also reduce vegetation and grassland degradation, ensuring the impacts remain minor.

The larger personnel increase under this alternative could cause greater displacement of some wildlife compared to alternatives 1 and 2.However, wildlife populations at Fort Cavazos have adapted to the ongoing training environment. Therefore, they are not expected to experience significant adverse effects from the additional training activities(U.S. Army, 2013).

Overall, the implementation of alternative 3 is anticipated to result in less than significant impacts to biological resources, with any effects effectively mitigated through existing conservation and management practices.

3.4.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to biological resources.

3.5 Cultural Resources

Cultural resources encompass a wide range of elements that reflect the historical, archaeological, architectural, and cultural heritage of an area. These resources include historic buildings, structures, objects, districts, archaeological sites, and tribal resources. In the context of NEPA, tribal resources refer to sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a Native American Tribe.

Fort Cavazos Cultural Resource Management (FCCRM) has the responsibility to ensure that Fort Cavazos is in compliance with federal laws and regulations governing cultural resources. The laws include Section 106 and 110 of the National Historic Preservation Act (NHPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological

Resource Protection Act, the American Indian Religious Freedom Act (AIRFA), NEPA, the Archaeological and Historic Preservation Act, and Executive Orders (EOs) 13007 and 13175. Cultural resources as defined in these laws are:

- Historic properties, as defined by NHPA;
- Cultural items as defined by NAGPRA;
- Archeological resources as defined by the Archaeological Resource Protection Act;
- Sacred sites as defined in EO 13007, to which access is afforded under AIRFA; and
- Archeological collections as defined in 36 CFR 79.

FCCRM recognizes archeological resources, cultural landscapes, structures, objects, ethnographic resources, historic places, Properties of Traditional Religious and Cultural Importance (PTRCI), artifacts and documents, and anything of cultural character.

To ensure compliance with these laws, the identification and management of cultural resources is guided by AR 200-1 (*Environmental Protection and Enhancement*), and the FCCRM maintains an active cultural resources management program that identifies and assesses cultural resources on the lands they manage. The FCCRM balances the responsibilities of cultural resources stewardship, which has the ultimate goal of preservation and conservation of cultural resources, with military mission requirements. This is accomplished through an active management program that identifies and assesses archaeological sites, historic buildings, early military infrastructure, and other resources like sacred sites. The goal is to minimize training restrictions while preserving significant irreplaceable cultural resources.

Historic properties are a subset of cultural resources that are on or eligible for the National Register of Historic Places (NRHP). To be eligible for the NRHP, properties must be 50 years old (unless they have special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They also must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of four criteria for evaluation (36 CFR § 60.4):

- Criterion A: be associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: be associated with the lives of persons significant in our past.
- Criterion C: have distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: have yielded, or may be likely to yield, information important in prehistory or history.

For this PEA, the impact analysis for cultural resources focuses on assessing whether the implementation of an alternative would have the potential to affect cultural resources that are listed in or eligible for listing in the NRHP, following the guidelines and standards set forth in the implementing regulations (36 CFR Part 800) of NHPA Section 106. Under Section 106 of the NHPA, the funding/permitting/approving federal agency is responsible for determining whether

any historic properties are located in the area, assessing whether the proposed undertaking would adversely affect the resources, and notifying the State Historic Preservation Office of any adverse effects. An adverse effect is any action that may directly or indirectly change the characteristics that make the historic property eligible for listing in the NRHP. If an adverse effect is identified, the federal agency consults with the State Historic Preservation Office, federally recognized tribes, and the public to develop measures to avoid, minimize, or mitigate the adverse effects of the undertaking. Public involvement must occur early in the consultation process and not solely upon identification of an adverse effect, ensuring that the public is informed of any potential impacts to cultural resources and has the opportunity to provide input.

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

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

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

The management of cultural resources and historic properties at Fort Cavazos is guided by Chapter 6 of AR 200-1, which states that the Cultural Resource Manager has responsibility for compliance with Sections 106 and 110 of the NHPA, as well as the Archaeological Resource Protection Act, Archaeological and Historic Preservation Act, NAGPRA, AIRFA, EO 13007, and EO 13175 *Consultation and Coordination with Indian Tribal Governments*. AR 200-1 also requires the development of an Integrated Cultural Resources Management Plan (ICRMP) for use as a planning tool. Fort Cavazos has developed an ICRMP (Fort Hood, 2021) which outlines the responsibilities of the FCCRM and provides a plan for staying in compliance with federal laws. As part of these compliance efforts, Fort Cavazos adopted the Army Alternate Procedures (AAP) through the development of a Historic Properties Component (HPC) of the ICRMP. The HPC is a compliance document that implements the AAP in lieu of regular Section 106 requirements of the NHPA. This HPC was certified by the Advisory Council on Historic Preservation in 2010 and recertified in 2015 and 2021. The HPC is specific to cultural resources that have been determined to be significant and are considered to be historic properties that are eligible for inclusion in the NRHP.

To determine the significance of cultural resources, Section 106 provides a roadmap for identifying and evaluating resources for eligibility for the NRHP. The Fort Cavazos AAP includes the four steps of Section 106 review that are established under 36 CFR Part 800:

- Initiate the process;
- Identify and evaluate historic properties;
- Assess adverse effects; and
- Resolve adverse effects.

The Fort Cavazos HPC provides standard operating procedures (SOPs) that are step-by-step procedures that FCCRM follows when considering the effects of its activities on historic properties for Section 106 compliance in accordance with the AAP. While 36 CFR Part 800 prescribes a project-by-project review, the AAP prescribes a programmatic review process, under which consulting parties can participate in the development of the HPC and are included in an annual review and monitoring process. Any adverse actions on historic properties are recorded through the preparation of NEPA documentation.

3.5.1 Affected Environment

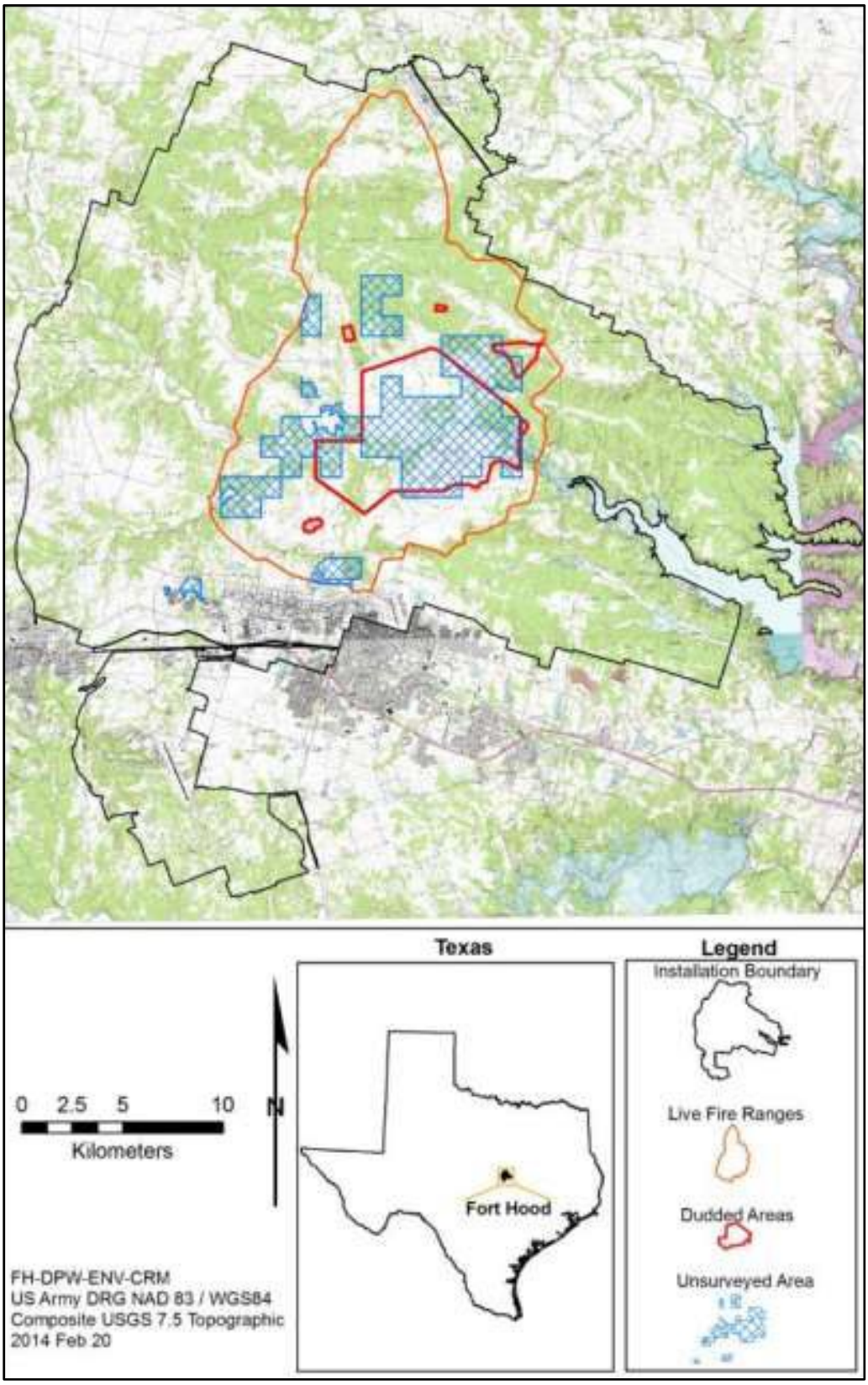
The FCCRM has oversight responsibility for 218,823 acres of land at Fort Cavazos, including 196,882 acres designated range and training lands. Included within these training lands is 5,592 acres of U.S. Army Corps of Engineers (USACE) property around Belton Lake that Fort Cavazos currently manages under a land-use permit with the USACE. Detailed information on the natural environment of Fort Cavazos can be accessed in the INRMP (Fort Hood, 2019).

The land occupied by Fort Cavazos is associated with the history of American Indians, western settlement, and the military history of the U.S. Numerous and varied cultural resources within the boundaries of Fort Cavazos have been documented through extensive and systematic investigations. These investigations have resulted in development of a comprehensive Geographic Information Systems database that houses data including installation boundaries, aerial imagery, archeological site boundaries, and regional geomorphology which is used to provide up-to-date maps on cultural restricted areas on the installation. FCCRM investigations have also been documented in 64 research publications detailing the inventory and assessment of cultural resources identified on Fort Cavazos (Fort Hood, 2021: Appendix J), and identification of areas that have a high potential for intact or buried archeological material. These areas include Karst features (sinkholes, caves and rock-shelters), Holocene alluvium (river terraces and some mid-slopebenches) and locations of extant and relocated cemeteries.

3.5.1.1 Cultural Resources Present

The FCCRM began a comprehensive program to identify cultural resources located on the installation in 1977. As a result of this on-going work 1,103 historic and 1,111 prehistoric cultural sites have been identified. These sites were identified by archaeologists conducting pedestrian surveys (Fort Hood, 2021). All of the training and cantonment areas and the majority of the live-fire area have been systematically surveyed for cultural resources (Figure 3-7). The impact areas or surface danger zones account for the greatest portion of the un-surveyed areas of Fort Cavazos which totals approximately 16,300 acres (Fort Hood, 2021).

Figure 3-7: Map Depicting Surveyed and Un-surveyed Areas



Source: Fort Hood, 2021

Archaeological Resources

The prehistoric archaeological resource sites (Table 3-4) identified on Fort Cavazos span the Holocene with sites dating as early as approximately 10,000 years before present to 200 years before present, all representing remains of hunter/gatherer societies. The archaeological site types are varied and can include concentrations or scatters of specific artifact types, hearths or baking pits, burned rock middens and mounds (earth ovens), post molds, and burial grounds.

Table 3-4: Prehistoric Archaeological Resources by Type

Resource Type	***Definition***
Artifact or Lithic Scatter	Surface concentration of stone artifacts with limited matrix depth.
Cave/Sink hole	Cavity in natural rock formation where the opening is smaller than depth, that contains cultural materials.
Midden	Thick deposit of cultural materials without relief or standard shape.
Mound	Small domed, circular shaped feature comprised mostly burned rock.
Open Camp	A place exhibiting evidence of prehistoric encampment not enclosed by natural rock formation.
Procurement Area	Natural resource (usually lithic or rock) exploitation location.
Rock Shelter	Overhang or cavity formed in natural rock formation, where the opening is greater than depth, that contains cultural materials.

Source: Fort Hood, 2021

Archaeological sites dating to the Historic Period (Table 3-5) are related to European settlement in the 1800s and the development of Fort Cavazos (then Fort Hood) in the mid-1900s. These sites typically have evidence of the ranching and farming that occurred in the region.

Table 3-5: Historic Archaeological Resources by Type

Resource Type	***Definition***
Artifact Scatter	Surface scatter of historic materials, no structural remains present
Bridge	Bridge structure
Community	Group of habitation structures
Culvert	Water diversion structure
Dump	Defined group of garbage
Farm/Ranch	Homestead and/or grouping of related structure
Livestock Feature	Structure used for attending and support of livestock
Quarry	Specific location of material removal
Railroad	Features related to railroad, i.e., right-of-way
Rock Wall	Fences, supporting structures, etc. made of rock
School	Remains of known school building
Water Feature	Employed in irrigation, water containment, etc.

Source: Fort Hood, 2021

Assessment of archaeological resources has been conducted over time and has included both shovel test pits as well as Phase 2 assessments for NRHP eligibility. The sites that have been the focus for NRHP evaluations are based on installation needs and tend to be in the vicinity of training areas. Table 3-6 shows the eligibility status for known prehistoric and historic archaeological sites on Fort Cavazos.

Table 3-6: Number of archaeological sites that are eligible, not eligible, and have not been evaluated for the NRHP

	Eligible	*Not Eligible*	*Not Evaluated*	*TOTALS*
Prehistoric	200	810	101	**1,111**
Historic	11	1,063	29	**1,103**
TOTALS	**211**	**1,873**	**130**	**2,214**

Buildings, Structures, Districts, Landscapes, and Objects

Fort Cavazos 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 may be eligible for listing in the NRHP. FCCRM currently manages four structures as eligible for listing on the NRHP; the original Post Chapel (Building 53), HAAF Flight Control Tower (Building 7001), HAAF Paint Hanger (Building 7013), and the HAAF Hanger (Building 7027).

Fort Cavazos has identified seven historic landscapes within the cantonment areas: (1) the Capehart-Wherry Family Housing, (2) the Headquarters/Ceremonial Landscape, (3) the Yoakum DeFrenn Army Heliport, (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 Headquarters/Ceremonial Landscape.

Per the 2021 HPC (Fort Hood, 2021) several classes of built environment resources are the subject of PAs or program alternatives executed in accordance with 36 CFR § 800.14. These agreements are as follows:

- A nationwide Programmatic Memorandum of Agreement executed in 1986 allows the demolition of World War II temporary buildings and structures as an undertaking exempted from further review under the Fort Cavazos HPC;
- Undertakings affecting Capehart and Wherry era housing are exempted from further review as the result of the Program Comment for Capehart and Wherry Era Army Family Housing and Associated Structures and Landscape Features (1949-1962);
- Undertakings affecting Cold War era unaccompanied personnel housing Program are exempted from further review as the result of the Comment for Cold War era Unaccompanied Personnel Housing;
- Undertakings affecting Program Comment for World War II and Cold War Army Ammunition Storage Facilities;
- Undertakings affecting Program Comment for World War II and Cold War Army Ammunition Production Facilities and Plants; and/or
- Any other historic properties covered by future nation-wide programmatic compliance actions.

Properties of Traditional Religious and Cultural Importance

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). Fort Cavazos recognizes these Tribes as sovereign nations and conducts formal government-to-government consultations during decision-making for PTRCIs and other resources important to Native American communities.

Fort Cavazos has conducted an inventory of PTRCIs in collaboration with Native American Tribes. The Comanche Nation has identified three sites as being significant to the Comanche people: Sugarloaf Mountain (NRHP eligible), Comanche Trail, and 41BL0146 (NRHP eligible). In addition, multiple Native American Tribes consider the Leon River Medicine Wheel of religious importance. This site has been used continuously for ceremonial purposes since it was discovered in 1990. Access to the Medicine Wheel is restricted to Native Americans for ceremonial purposes and to FCCRM for condition assessments.

Cemeteries

At least 19 cemeteries have been documented within installation boundaries at Fort Cavazos. In 1943 and 1953, several large cemeteries were disinterred, and the human remains were relocated to previously established cemeteries in local communities. Smaller cemeteries with less than 50 interments were allowed to remain (Fort Hood, 2019). Fort Cavazos Regulation 210-190 describes the Army's role in the upkeep and conditions for the interment of these remaining cemeteries.

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

3.5.2 Environmental Consequences

Fort Cavazos operates under a HPC that lays out SOPs for identification of historic properties and BMPs to avoid adverse effects to historic properties. These SOPs and BMPs include:

SOP 4.1.1 Archeological Sites and PTRCI

- Maintain sites and PTRCI that are affected by the undertaking in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the Standards and Guidelines or Archeology and Historic Preservation.
- Avoid NRHP eligible sites or PTRCIs in the execution of an undertaking if possible by (1) not proceeding with the undertaking, (2) eliminating that part of the undertaking that would have an adverse effect, (3) redesigning the undertaking to avoid an adverse effect, or (4) use of barricades and site capping.
- Avoid altering and/or disturbing archeological sites and PTRCI in the execution of an undertaking.
- Implement treatment plans.

SOP 4.1.2 Buildings, Structures, Districts and Objects

- Maintain buildings, structures, districts, and objects that are affected by the undertaking in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and the Standards and Guidelines for Archeology and Historic Preservation.
- Avoid NRHP eligible buildings, structures, districts, and objects in the execution of an undertaking if possible by (1) not proceeding with the undertaking, (2) eliminating that part of the undertaking that would have an adverse effect, or (3) redesigning the undertaking to avoid an adverse effect on buildings, structures, districts and objects.
- Implement treatment plans.

If BMPs cannot be applied, the HPC provides alternative mitigation measures for undertakings that would have an adverse effect on historic properties.

- Adaptive Reuse (Conversion) of Adversely Affected Historic Properties
- Disposal of Adversely Affected Historic Properties
    - Deconstruction
    - Salvage
    - Transfer
- Relocation
- Mothballing

If adverse effects cannot be avoided, the HRC provides SOPs for treatment of adverse effects.

- Comply with NAGPRA for PTRCI
- Prepare data recovery plan for archaeological sites
- Comply with the requirements of EO 13007 and AIRFA for PTRCI that are sacred but are not archeological in nature
- Develop Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscape Survey or similar alternative documentation
- Disposal

Impacts to cultural resources would be considered significant if they cause alteration or 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.

3.5.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT weapon system and approximately 675 associated soldiers to Fort Cavazos. The introduction of this system would increase vehicles, training activities, and personnel required for its operation and maintenance.

Impacts from Construction/Conversion/Repurposing

The fielding and stationing of the SGT STOUT and associated personnel may require new infrastructure or expanded training areas. The limits, location, and design of any potential construction are not yet known. If new construction is necessary, supplemental NEPA analysis may be required.

Construction activities have the potential to impact cultural resources by disturbing the ground or blocking access to sacred sites. Additionally, conversion or repurposing of existing buildings and structures may adversely affect historic properties by diminishing their architectural or historical integrity.

Before any ground-disturbing activities or structural alterations (e.g., renovation, conversion, repurposing, or demolition), the presence of cultural resources within the area of potential effect (APE) must be determined. Applying BMPs and mitigation measures would minimize adverse effects.

The Fort Cavazos HPC (Fort Hood, 2021) provides SOPs and BMPs to identify, assess, and protect historic properties during activities such as construction, training, and infrastructure development. These procedures include measures for conducting cultural resource surveys, monitoring areas of concern, and establishing protocols for reporting and handling any discoveries. Despite these measures, there remains a potential for construction to impact previously unidentified cultural resources. However, with the application of appropriate treatment plans (such as avoidance, mitigation, or data recovery), these impacts would be minimized, ensuring that any adverse effects on historic properties would be less than significant.

Impacts from Live-Fire Training and Maneuver Training

Under alternative 1, increased live-fire and maneuver training is expected to have less than significant impacts on cultural resources when conducted in range areas where cultural resources have been identified and marked. These areas have been designated as off-limits to training activities, minimizing the potential for adverse effects on cultural resources.

The FCCRM regularly monitors known sites, and military personnel are trained to identify and report any cultural materials encountered during training. This allows the FCCRM to assess new findings and apply BMPs and mitigation measures as needed.

If new training areas are developed, they would involve ground-disturbing activities that could impact cultural resources. Before any construction, the presence of cultural resources within the APE would need to be evaluated. With the application of BMPs and mitigation measures, potential impacts to cultural resources would remain less than significant.

Impacts from an Increase in Vehicular Traffic

Under alternative 1, a minor increase in vehicular traffic would have less than significant impacts on cultural resources. Routine maintenance and repairs on existing roads, trails, fire lanes, mowed areas, and parking lots would occur in previously disturbed areas, representing continuing use.

If new roads, trails, or parking areas are constructed, this could involve ground-disturbing activities with the potential to impact cultural resources. Prior to any such activities, cultural resource surveys within the APE would be necessary. With the application of BMPs and mitigation measures, adverse effects to cultural resources would be less than significant.

Impacts from an Increase in Personnel

The minor increase in personnel under alternative 1 slightly raises the likelihood of encountering or disturbing previously unidentified cultural resources. However, the FCCRM's SOPs and BMPs for cultural resource training, identification, and protection would minimize these risks.

Military personnel are trained to recognize and report cultural materials, and areas with known cultural resources are clearly marked and protected. As a result, the implementation of alternative 1 is expected to have less than significant impacts on cultural resources.

In summary, while the fielding and stationing of the SGT STOUT weapon system and associated personnel under alternative 1 could result in impacts to cultural resources through construction, training, increased vehicular traffic, and personnel activities, these impacts are expected to be less significant with the application of BMPs, SOPs, and mitigation measures.

3.5.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and approximately 1,877 to 2,700 associated soldiers to Fort Cavazos. The introduction of these additional weapons systems would result in an increase in vehicles, training activities, and personnel required for their operation and maintenance.

The fielding and stationing of the weapons systems and associated personnel may require new infrastructure or expanded training areas. The exact limits, location, and design of any potential construction are not yet known. If new construction is necessary to implement this alternative, a supplemental NEPA analysis might be required.

To minimize adverse effects, resources within the APE would be identified before any activity, and BMPs and mitigation measures would be applied. While increased training activities are expected to have minimal impacts on cultural resources due to monitoring, personnel training, and the application of BMPs, the increase in personnel could raise the likelihood of encountering and disturbing previously unidentified cultural resources. However, the SOPs and BMPs in place for training, identification, and protection of cultural resources would mitigate these potential impacts. Therefore, implementation of alternative 2 is expected to have a less than significant impact on cultural resources.

3.5.2.3 Proposed Action – Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and approximately 3,075 associated soldiers to Fort Cavazos. This increase in weapons systems would lead to more vehicles, training activities, and personnel required for their operation and maintenance. Additionally, most of the systems would also require support infrastructure, and the increase in support personnel would require

associated infrastructure to house the military personnel and their families. Both of these infrastructure requirements would likely require new construction and/or conversion and repurposing of existing structures and buildings. The limits, location, and design of any potential construction are not yet determined. If new construction is required to implement this alternative, a supplemental NEPA analysis may be necessary.

To minimize adverse effects, cultural resources within the APE would be identified before any activity, and BMPs and mitigation measures would be applied. Increased training activities are expected to have minimal impacts on cultural resources due to monitoring, personnel training, and the application of BMPs. However, the increase in personnel could raise the likelihood of encountering and disturbing previously unidentified cultural resources. Nonetheless, SOPs and BMPs for training, identification, and protection of cultural resources would mitigate these potential impacts.

Therefore, the implementation of alternative 3 is expected to have less than significant impacts on cultural resources.

3.5.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos, and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to cultural resources.

3.6 Geological and Soil Resources

Geologic resources are features produced from the physical history of the earth, including rocks and formations of rocks that occur in the form of outcrops or under soil. Geologic resources are evaluated to identify areas of geologic hazards that may exist relative to the proposed action. The term soils refers to unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a critical role in both the natural and human environment.

Prime farmland is protected under the Farmland Protection Policy Act of 1981 (7 CFR 658). This act was developed to minimize federal program contributions to the unnecessary or irreversible conversion of farmland soils to nonagricultural uses. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The land could be cropland, pasture, rangeland, or other land, but not urban built-up land (defined by the U.S. Census Bureau or by U.S. Geological Survey topographic maps) or water. The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) is responsible for overseeing compliance with the Farmland Protection Policy Act.

Soil erosion effects are generally dependent upon a variety of factors, including geologic formations, soil structure and composition, climate, topography, and vegetative cover. The structure and composition refer to the physical features of soil, such as compaction, moisture, and composition, based on the bedrock material and mineral deposits. Climactic soil erosion

effects primarily revolve around the abundance and intensity of precipitation in each environment. Topographic descriptions are typically in respect to the elevation, slope, aspect, and surface features (e.g., surface roughness) found within a given area. Vegetative cover is an interface between the atmosphere and soil surface, influencing the overall permeability and potential runoff.

This analysis focuses primarily on the geology, soils, and soil erodibility of Fort Cavazos. Given this PEA covers the entirety of Fort Cavazos this analysis focused on how the increases of soldiers impacts geological and soil resources. Detailed and full descriptions of the Fort Cavazos geology, soils, topography, and soil erodibility can be found in the INRMP (Fort Hood, 2019) and will be analyzed in detail when specific actions occur.

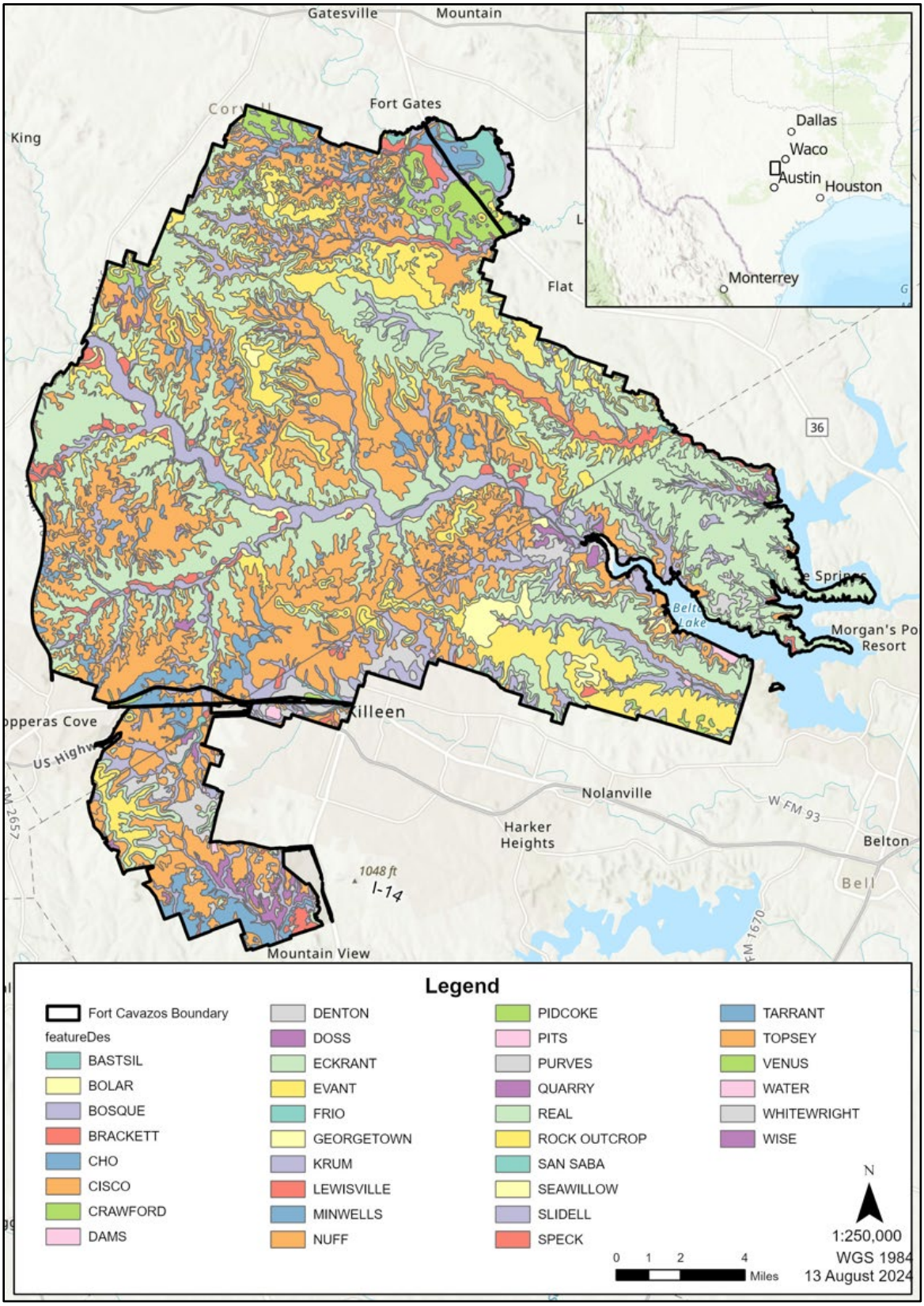
3.6.1 Affected Environment

Fort Cavazos is located on a deeply dissected limestone plateau underlain by erosion-resistant limestone on higher ridges with less resistant limestone on rolling hills and mesa. Several deep valleys are present through which streams generally flow southeast in narrow strips of alluvial bottomland. Many steep slopes have little topsoil remaining.

Complete surface series descriptions and locations are available in NRCS-published soil surveys of Bell and Coryell Counties and the 2019 INRMP. There are over 30 unique soil series on Fort Cavazos (Figure 3-8). In general, these soil series are well-drained and moderately permeable, but they can vary widely in other characteristics such as depth, parent material, and slope. Five soils that occur on Fort Cavazos are partially hydric soils, covering approximately 2.5 percent of the installation and are generally located along the stream banks of Cowhouse, Nolan, and Leon Creeks and their tributaries. However, other soils can become hydric, exhibiting anaerobic conditions, as a result of periodic or permanent saturation or inundation. Seventeen soils that occur on Fort Cavazos are prime farmland soils, covering approximately 19 percent of the installation and are generally located near the main cantonment area, West Fort Cavazos, North Fort Cavazos, and on floodplains (NCRS, 2022a; NRCS, 2022b).

Many of the soils on Fort Cavazos are naturally susceptible to water erosion. Five soils are categorized as having very high-water erosion potential, covering approximately 68,128 acres, or 31 percent of the installation. Nine soils are categorized as having a high to moderate water erosion potential, covering approximately 82,504 acres, or 38 percent of the installation. The remainder of the installation has a low to very low-water erosion potential (NRCS, 2022a).

Figure 3-8: Soil Types Found on Fort Cavazos, Texas



Severe erosion areas are defined as areas with erosion rates exceeding tolerance limits established by the NRCS for each soil type according to its capability to maintain vegetative cover. Soil tolerance levels on Fort Cavazos range from one to five tons per acre (Fort Hood, 2019). Soils with higher tolerance values can hold soil or withstand erosion better than those with lower values. Soil loss exceeding the tolerance levels results in sheet, rill, and gully erosion, potentially limiting land availability for military training maneuvers. Erosion in areas already bare from previous activities, lack of ground cover, lack of woody vegetation, or overgrazing is exacerbated by continued effects from military vehicle tracks or wheels. Several areas of the installation, particularly training areas, have extremely high soil erosion rates due to high use by tracked vehicles and cattle grazing, resulting in high sheet, rill, and gully erosion. Loss of perennial vegetative cover (herbaceous and woody vegetation) has resulted in these high erosion rates and increased bare soil and annual plants in some areas.

Sedimentation is the most prevalent water quality threat at Fort Cavazos. Training exercises and land practices (e.g., cattle grazing) have resulted in erosion and sediment deposition in water bodies across the installation. To combat this erosion, Fort Cavazos 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.

Rock formations on Fort Cavazos are varied and include 14 unique geologic map units. Four map units are present off the main installation boundary and would not be impacted by the proposed action. Therefore, they are not included further within the analysis. Table 3-7 provides the map unit code, map unit description, map unit era, and the area for each formation considered on Fort Cavazos in acres.

Table 3-7: U.S. Geological Survey Map Units Considered on Fort Cavazos

Map Unit Code	*Map Unit Name*	*Map Unit Description*	*Map Unit Era*	*Area (Acres)*
Kwa	Walnut Formation	Clay, limestone, and shale; clay, calcareous; limestone, chalky marly, nodular, thick bedded, a few hard beds with sparry calcite, massive beds of Texigryphaea common in lower part; shale as thick beds most common in upper part; thickness 125-175 feet.	Cretaceous	88,148
Kdfdce	Denton Clay, Fort Worth Limestone, Duck Creek Limestone, and Edwards Limestone undivided	Denton Clay, calcareous, argillaceous limestone in upper part with, abundant Gryphaea, brownish grayish yellow; thickness 3-11 feet. Fort Worth Limestone, limestone and snarl; limestone, chalky, medium grained, fairly hard, nodular, bluish white to bluish gray, interbedded with light gray marl; thickness 25-35 feet. Duck Creek Limestone, limestone and marl; limestone, medium bedded, nodular to wavy bedded, gray, interbedded with marly clay; harder and more resistant than Fort Worth Limestone; thickness 25-30 feet. Edwards Limestone, massive, rudist limestone, pure except for abundant chert nodules, forms upper scarp slope of high areas; thickness 16-60 feet, thins locally.	Cretaceous	32,838
Kgr	Glen Rose Formation	Lower part does not crop out within Waco Sheet. Limestone, clay, marl, and sand; limestone, fine grained, in part arenaceous, chalky to hard, marine megafossils, interbedded with units composed of variable amounts of clay, marl, and sand, laminated, dark gray; thickness 200-375 feet, thins northwestward.	Cretaceous	38,341
Kc	Comanche Peak Limestone	Limestone, fairly hard, numerous shale partings and filled burrows, nodular, gray to white, marine megafossils, forms mid-slope beneath scarp slope of Edwards Limestone; thickness 50-100 feet.	Cretaceous	29,196
Kked	Kiamichi Clay and Edwards Limestone	Kiamichi Clay, clay, shale, and limestone; clay and shale, calcareous, silty, yellowish-brown limestone, marly, thin nodular to wavy beds; thickness up to 17 feet at north edge of sheet, outcrop discontinuous south of Galesville. Edwards Limestone, massive, rudist limestone, pure except for abundant chert nodules, forms upper scarp slope of high areas; thickness 16-60 feet, thins locally.	Cretaceous	16,215

Qal	Alluvium	Floodplain deposits includes low terrace deposits near floodplain level and bedrock locally in stream channels; gravel, sand, silt, clay, and organic matter; thickness up to 35 feet.	Holocene	10,286
Qt	Fluvial terrace deposits	Gravel, sand, silt, and clay.	Quaternary	1,818
Kdfdc	Denton Clay, Fort Worth Limestone, and Duck Creek Limestone	Denton Clay, calcareous, argillaceous limestone in upper part with, abundant Gryphaea, brownish grayish yellow; thickness 3-11 feet. Fort Worth Limestone, limestone and snarl; limestone, chalky, medium grained, fairly hard, nodular, bluish white to bluish gray, interbedded with light gray marl; thickness 25-35 feet. Duck Creek Limestone, limestone and marl; limestone, medium bedded, nodular to wavy bedded, gray, interbedded with marly clay; harder and more resistant than Fort Worth Limestone; thickness 25-30 feet.	Cretaceous	1,417
Kpa	Paluxy Formation	Quartz sand fine to very fine grained, friable, in part calcite cemented and hard, some thin interbeds of gray shale and limestone, pyrite nodules and concretions, coal smuts locally, commonly cross-bedded and/or laminated, silty limestone beds become more numerous southward, light gray to red; thickness up to 70 feet, thins southward.	Cretaceous	568
Wa	Water	Body of water.	Water	92

3.6.2 Environmental Consequences

Impacts to geologic and soil resources would be considered significant if impacts would occur to unique soil features, or if substantial soil losses were to impair plant growth or result in detrimental increases in stream sedimentation. A significant impact to geologic resources or soils would occur if one or more of the following occurs:

- A geologic hazard is identified at a particular location or results from an action.
- Substantial soil loss or compaction precluding the reestablishment of vegetation.
- Erosion causing detrimental effects to aquatic life in adjacent waters.
- A violation of applicable federal or state law, regulation, or permit.

Minor, adverse impacts to prime farmland would occur only if the proposed action would irreversibly convert prime farmland (directly or indirectly) to nonagricultural use.

3.6.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding of the SGT STOUT weapon system and associated soldiers at Fort Cavazos. Impacts from alternative 1 are anticipated to be largely driven by increased training impacts, and increased population. These impacts are expected to be less than

significant due to the use of existing training area, use of existing facilities, and the existing BMPs and control measures employed by the Army. The analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was largely used to analyze potential impacts for this alternative.

The fielding and stationing of the SGT STOUT and associated personnel increase might require additional infrastructure or expanded training areas. The limits, location and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis might be required.

Impacts from Live-Fire Training and Maneuver Training

Weapons training would increase under the implementation of the proposed action, although it is unknown at this time to what extent. It is anticipated that weapons training events would be periodic and that minor long-term impacts are expected due to the deposition of munitions constituents (MC) resulting in soil contamination.

Maneuver training would increase across the existing training areas. This is expected to damage or remove vegetation and disturb soils to the extent that would increase soil erosion rates and alter drainage patterns in the training areas, which could lead to gullying, and indirectly to downstream sedimentation, particularly when the vehicles travel off-road. While most of the off-road maneuvering would occur on existing maneuver areas, there may be areas used for maneuvering that have not been previously used. The SGT STOUT vehicles are expected to be predominantly used on existing trails rather than off-road, as their wheeled chassis is better suited for maneuvering on roads and trails. The overall weight, size, and types of training activities would be consistent with existing live-fire and maneuver training, and therefore, impacts are anticipated to be less than significant.

Prime farmland soils are not anticipated to be impacted as they are largely near the main cantonment area, West Fort Cavazos, North Fort Cavazos and on floodplains (Fort Hood, 2019).

Impacts from an Increase in Personnel

There would be an approximate increase of 2.4 percent of the current installation population for this alternative. This increase is not expected to impact geologic or soil resources.

In summary, increased maneuver training may damage vegetation and disturb soils, leading to erosion and altered drainage patterns, but BMPs would reduce these impacts. Construction activities may cause soil compaction, erosion, and increased stormwater runoff, potentially affecting groundwater recharge. Adhering to stormwater management plans and BMPs would minimize these impacts. Therefore, implementation of alternative 1 is expected to have less than significant impacts on geological and soil resources.

3.6.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. Impacts to geologic and soil resources resulting from alternative 2 are driven by

increased population, associated construction activities, and increased training impacts. These impacts are expected to be moderately significant due to the overall increases in training, use of existing facilities, and the existing BMPs and control measures employed by the Army. Given the BN size for each weapons system, the analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was largely used to analyze potential impacts for this alternative.

Given the overall programmatic nature of this PEA, many of the impacts to geologic and soil resources considered in alternative 1 remain the same for each alternative. This analysis will focus only on the unique aspects of this alternative while assuming the impacts from alternative 1 remain.

The fielding and stationing of the weapons systems and associated personnel increases might require additional infrastructure or expanded training areas. The limits, location, and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis might be required.

Impacts from Live-Fire Training and Maneuver Training

There would be minor impacts to soil resources at Fort Cavazos resulting from the associated increase in the frequency of unit maneuver and live-fire training events. Exposed soils would become more susceptible to erosion, and soil productivity may decline in training and disturbed areas. With the potential addition of up to seven percent more soldiers, more vehicles would be expected on training areas. As vegetation is disturbed on training areas, more bare soils would be exposed to water and wind erosion, resulting in a greater amount of sedimentation in the regional surface waters. Fort Cavazos would continue to use the Integrated Training Area Management workplan to continue monitoring training lands for disturbance and would plan and implement rehabilitation and erosion control measures in areas of high use. Management procedures outlined in the installation's INRMP would also assist with soil conservation.

Impacts from an Increase in Personnel

There would be an approximate increase of 4.8 to 7.0 percent of the current installation population and an approximate increase of 3.5 to 5.3 percent of soldiers for this alternative. The 2013 Force Structure Realignment PEA analyzed the gaining of 3,000 soldiers (10 percent of soldiers present at the time of publication), which is approximately five percent greater than the median increase of the three alternatives considered in this PEA and similar to this alternative (U.S. Army, 2013). The increase of 4.8 to 7.0 percent is not expected to impact geological and soil resources.

In summary, increased maneuver training may damage vegetation and disturb soils, leading to erosion and altered drainage patterns, but BMPs would reduce these impacts. Fort Cavazos would mitigate these impacts using the Integrated Training Area Management workplan and the installation's INRMP. Therefore, implementation of alternative 2 is expected to have less than significant impacts on geological and soil resources.

3.6.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at Fort Cavazos. Impacts to geologic and soil resources resulting from alternative 3 are driven by increased population, associated construction activities, and increased training impacts. These impacts are expected to be less than significant due to the use of existing facilities and the existing BMPs and control measures employed by the Army. The primary difference for this alternative revolves around the inclusion of the MDTF. Therefore, the 2022 MDTF Stationing PEA (U.S. Army, 2022a) was largely used to analyze potential impacts for this alternative in conjunction with the general analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) combined impacts from the various weapons systems of this alternative.

Given the overall programmatic nature of this PEA, many of the impacts to geologic and soil resources considered in alternatives 1 and 2 remain the same for this alternative. Alternative 3 assumed many of the impacts from alternative 1 and 2 remain.

The fielding and stationing of the weapons systems and associated personnel increases might require additional infrastructure or expanded training areas. The limits, location, and design of this potential construction are not yet known. If new construction is required to implement this alternative, a supplemental NEPA analysis might be required.

Impacts from an Increase in Personnel

There would be an approximate increase of 10.8 percent of the current installation population and an approximate increase of 8.1 percent of the population of soldiers based on estimates for this alternative. All soil impacts would be related to construction and training activities. Given the analysis and conclusion from the 2013 Force Structure Realignment PEA, it would be anticipated that the implementation of management measures consistent with the INRMP would minimize any such impacts. Implementation of minimization measures detailed in the INRMP would also minimize degradation of vegetation, minimizing the impacts to soil erosion.

In summary, increased live-fire and maneuver training may impact vegetation and disturb soils, causing erosion and drainage patterns, but BMPs would mitigate these impacts. Construction activities may lead to soil compaction, erosion, and stormwater runoff, affecting groundwater recharge, but BMPs and stormwater management plans would minimize these effects. The population increase is not expected to impact soil beyond construction and training activities, causing only minor soil impacts. Fort Cavazos would mitigate these effects using the Integrated Training Area Management workplan, the installation's INRMP, and other BMPs. Therefore, implementation of alternative 3 is expected to have less than significant impacts on geological and soil resources.

3.6.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos, and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions.

Therefore, implementation of the no action alternative would not result in significant impacts to geological and soil resources.

3.7 Hazardous and Toxic Materials and Waste

Hazardous waste (HW) is defined as liquid, solid, contained gas, or sludge wastes that contain properties that are dangerous or potentially harmful to human health or the environment. The USEPA has identified many wastes as hazardous. These wastes fall into three categories (F) from nonspecific sources, (K) from specific industrial processes in industries, and (P+U) discarded commercial products that have not been used in any other process (40 CFR 261). Additionally, HWs are characterized by their ignitability, corrosivity, reactivity, and toxicity.

HWs that have been determined to be extremely toxic (fatal in low doses) are designated by the USEPA as acute HWs. Due to their toxicity, small amounts of these wastes are regulated in the same manner as large amounts of HW. Examples include warfarin and phenol swabs. Management of HWs at Fort Cavazos is governed by federal, state, local, and ARs.

Hazardous materials (HM) are primarily products, which are items that are still intended to be used for their original purpose. Handling HM is regulated by the Occupational Safety and Health Administration and Department of Transportation (DOT) regulations. HM are not regulated by the Resource Conservation Recovery Act (RCRA) if they are used as intended. Once a HM is discarded, it becomes a waste that may be subject to RCRA regulations.

If not controlled, hazardous and toxic materials and wastes may either (1) cause or significantly contribute to an increase in mortality, serious irreversible illness, or incapacitating reversible illness; or (2) pose a substantial threat to human health or the environment. HM may be classified into several categories based on laws and regulations defining their characteristics and use.

Fort Cavazos' Environmental Division, in the Directorate of Public Works, has developed a Hazardous Waste Management Plan (HWMP) to support compliance with RCRA Subtitle C-related regulations and ensure other waste management requirements at Fort Cavazos facilities are identified and applied to the Fort Cavazos community. The Fort Cavazos Environmental Division would use the compliance elements described in this document to continuously improve and maintain plans and procedures for compliance with federal, state, local, and Army waste management regulations.

The HWMP is intended to provide a basic understanding of the hazards and techniques associated with the handling of HM and HW so that personnel can protect their health and prevent damage to the environment. This promotes the management of HWs in a compliant, safe, and environmentally sound manner. This plan incorporates regulatory HW requirements by the USEPA, DOT, TCEQ, DoD, Army, and local regulations.

3.7.1 Affected Environment

Fort Cavazos is classified by the USEPA as a non-industrial/municipal, Large Quantity Generator (TCEQ Reg # 66005, USEPA ID TX8214020424). Wastes are generated as a result of operation and maintenance of equipment and assets, training activities, and uncontrolled

spillage of petroleum, oil, and lubricants (POL) and occasional small quantities of HMs. None of the waste generated at Fort Cavazos falls under K-listed wastes and very little acute HW is used or generated at Fort Cavazos.

HW is generated at various locations on Fort Cavazos and stored at specified sites before its transfer to the Classification Unit. These storage sites are Satellite Accumulation Areas (SAAs) or a 90-day Central Accumulation Area. The SAAs are temporary storage locations, at or near the point of generation. SAAs are allowed to store up to 55 gallons of HW or one quart of acute HW. There is one <90-day Storage Area on Fort Cavazos, which is the Department of Public Works (DPW) Classification Unit that is managed in compliance with 40 CFR 262.17. HWs can be stored at the facility for no more than 90 days.

Non-motor pool areas of waste generation are summarized in Table 3-8. Units that generate HW or HM are discussed further in the paragraphs below.

Table 3-8: Activities and Waste Management at Fort Cavazos

Unit	***Waste Classification***	***Activities and Waste Managed or Generated***
DPW-CU < 90-day storage facility	Hazardous, Non-hazardous, Universal waste accumulation and storage	Metal and plastic empty container shredding. Used aerosol can crushing/recycling. Used filter crushing/recycling. Household HW Collection.
Logistics Readiness Center (SAA)	Hazardous, Non-hazardous, Universal	Hazardous, Non-hazardous, Universal Ground vehicle maintenance.
AMCOM – YDAH (SAA)	Hazardous, Non-hazardous, Universal	Aviation Maintenance.
MATES	Non-hazardous, Universal	Tactical vehicle and equipment maintenance.
DPW-P2 Solvent Distillation	Non-Hazardous	Parts washer bottoms, still bottoms, and spent solvent. Distillation of used solvent for continued use in parts washers.
CRDAMC (Hospital) (SAA)	Hazardous, Non-hazardous, Universal	Laboratory Operations.
AMCOM - RGAAF (SAA)	Hazardous, Non-hazardous, Universal	Aviation Maintenance.

Legend: DPW=Department of Public Works; CU=Classification Unit; HW=Hazardous Waste; SAA=Satellite Accumulation Area; AMCOM=Aviation and Missile Command; YDAH=Yoakum-Defrenn Army Heliport; MATES=Mobilization and Training Equipment Site; CRDAMC=Carl R Darnall Army Medical Center; RGAAF=Robert Grey Army Airfield

The Logistics Readiness Center Ground Maintenance Branch Facility is comprised of numerous work centers that perform maintenance functions above the user level on ground vehicles and associated components. The facility consists of multiple point-of-generation sites that utilize an accumulation area for non-hazardous and universal wastes. Currently, one HW (ephos weapons cleaning liquid) is generated by this activity that is regulated by the satellite accumulation rule.

The Aviation and Missile Command Aviation Maintenance Facility at Yoakum-Defrenn Army Heliport is comprised of numerous shops that perform maintenance functions above the user level. Some activities at this facility generate small quantities of slowly accumulating HW. There are SAAs where hazardous chromium/water mix and hazardous rags are generated and accumulated from a small plating operation, and accumulation of HW “Pro Seal“ (sealants). Other HW generated include vacuum bags and Alodine that are turned into the Classification Unit upon generation.

Wastes generated at Carl R Darnall Army Medical Center managed as hazardous or universal waste typically consist of:

- Used laboratory chemicals and solvents (spent solvent, spent methanol vials, microscan reagent, silver nitrate sticks, phenol swabs)
- Used pharmaceutical formulations not destined for a return to the manufacturer ([P+U listed; warfarin, reserpine, melphalan, chemo drugs] [Toxic: insulin due to m-Cresol])
- Universal waste from maintenance
- Non-hazardous spent formalin

HWs generated at the hospital are managed as satellite accumulation at various locations, except for phenol swabs. Phenol swabs are turned into the Classification Unit upon generation due to the strong pungent odor and their status as an acute HW.

3.7.2 Environmental Consequences

Impacts would be considered significant if the alternative results in increased and long-term exposure of human and environmental receptors to hazardous or toxic materials and wastes.

3.7.2.1 Proposed Action – Alternative 1

Alternative 1 includes the fielding and stationing of the SGT STOUT, as well as the accompanying 675 soldiers and an estimated 911 family members. This alternative includes the least amount of weapons systems and, therefore, the least amount of soldiers/family members.

The SGT STOUT adds HM and HW, including explosives, propellants, unexploded ordinances, electronic components containing hazardous substances like lead, cadmium, and mercury, as well as POLs. POL usage and spills would be managed following the established SOPs. Fort Cavazos, by following the provisions outlined in their HWMP and SOPs would mitigate the fielding of the SGT STOUT to a low level of impact.

All HM, HW, and toxic materials are managed under strict requirements of federal, state, local, and Army installation regulations. Proper transport, storage, use, and disposal are mandated within the regulations. Fort Cavazos manages all HM, HW, and toxic materials in compliance with these regulations. Also, construction-related debris associated with facility construction or improvements would be reused or recycled per applicable BMPs or disposed of per applicable regulations in approved landfills (USAEC, 2021).

Relative to the current generation/storage of HW and HM, in addition to the strict federal, state, army, and installation requirements this alternative would not substantially increase the amount

of or introduce new streams of HM, HW, and toxic materials at Fort Cavazos. All HM and HW associated with alternative 1 would be managed in accordance with the HWMP. Therefore, implementation of alternative 1 is expected to have negligible impacts on hazardous and toxic materials and waste.

3.7.2.2 Proposed Action – Alternative 2

Alternative 2 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and accompanying approximately 1,330 to 2,000 soldiers and an estimated 3,207 to 4,700 family members. The SGT STOUT is analyzed above under alternative 1.

The LTAMDS is an advanced radar sensor array about the same size as the PATRIOT AN/MPQ-65 radar that would be transported mounted on a trailer or a truck. As the LTAMDS would be replacing the PATRIOT AN/MPQ-65 radar on a one-for-one basis, fielding of LTAMDS is expected to be to existing units and no change in manning levels or number of vehicles is expected. Therefore, hazardous and toxic materials and waste would have a negligible impact.

The HM required for M10 Booker vehicle maintenance would include paints, adhesives, solvents, solder, sealants, batteries, refrigerants, fire suppressants, coolants, various POLs, and metal plating materials. The amount and type of HM used for the M10 Booker are consistent with the current type and volume of HM used on other ground vehicle systems. Therefore, the environmental impact of HM and resulting HWs is anticipated to be minimal (U.S. Army, 2021b).

The stationing and fielding of the IFPC and MRC would involve HM and HW including explosives, propellants, unexploded ordinances, electronic components containing hazardous substances like lead, cadmium, and mercury, as well as POLs. The HP-DE would involve the same HM with the addition of lithium-ion batteries. However, there is no anticipated impact as Fort Cavazos would follow the provisions outlined in the HWMP. POL usage and spills would be handled per the SOP of the installation. Handling and disposal of large lithium-ion batteries would also be in accordance with the installations HWMP.

The increase in HM and hazardous and solid waste resulting from fielding a Dark Eagle at the installation would not be appreciable. All HW and HM are managed under strict requirements of federal, state, local, and Army, and installation regulations. Proper transport, storage, use, and disposal are mandated within regulations. Construction-related debris associated with facility construction, if undertaken, or improvements would be re-used or recycled per applicable BMPs or disposed of per applicable regulations in approved landfills. Therefore, there would be negligible impact on hazardous and toxic materials and waste.

In summary, HM used/generated during operation, including during testing and training, are generally limited to fuel, vehicle fluids, lubricants, and munitions. Environmental impacts resulting from these products are expected to be minimal. The vehicle-like weapons systems would require routine refueling. Grease or other lubricants may be applied on an as-needed basis. Technical manuals would outline procedures to minimize the likelihood of a spill during refueling and topping off fluids. In the event of a spill, personnel would follow Spill Prevention, Control, and Countermeasure Plans, Installation Spill Contingency Plans, and other SOPs that

address clean-up and disposal. Munitions that contain hazardous components are required for effective crew training. Soldiers would receive training on the safe handling of munitions. Spent casings would be disposed of under installation procedures and environmental laws and regulations. All HM and HW associated with alternative 2 would be managed in accordance with the HWMP. Therefore, implementation of alternative 2 is expected to have less than significant impacts on hazardous and toxic materials and waste.

3.7.2.3 Proposed Action – Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and accompanying 3,075 soldiers, as well as an estimated 4,151 family members to Fort Cavazos. This alternative has the largest addition of personnel and therefore, has the largest potential impact to HM and HW. The SGT STOUT, LTAMDS, M10 Booker, and HP-DE are analyzed above in alternatives 1 and 2. The Full MDTF and the reasonably foreseeable impacts of all the systems are analyzed below.

The Army prepared the 2022 MDTF Stationing PEA to analyze the potential environmental consequences that would result from the implementation of the Full or Base configurations of the MDTF stationing action at 13 Army Garrisons and joint base installations, including Fort Cavazos. In this PEA, hazardous and toxic materials and waste were dismissed from detailed analysis as the increase in HM and HW resulting from stationing the Full or Base MDTF would be negligible. All these materials are managed under strict requirements of federal, state, local, Army, and installation regulations. Proper transport, storage, use, and disposal are mandated relative to the regulations.

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 the protection of human health and the environment. Construction-related debris associated with facility construction or improvements would be re-used or recycled per applicable BMPs or disposed of per applicable regulations in approved landfills. No significant impacts relating to HM and solid waste are anticipated.

The Full MDTF in conjunction with the other weapons systems proposed in this alternative would increase the use of HM and generation of HW. The addition of soldiers and associated family members could also increase HM use and HW generation, but the increase in overall volume would be minor. All HM and HW associated with alternative 3 would be managed in accordance with applicable federal, state, local, ARs, and the HWMP. Therefore, implementation of alternative 3 is expected to have less than significant impacts on hazardous and toxic materials and waste.

3.7.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to hazardous and toxic materials and waste.

3.8 Noise

Noise is considered unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. Sound levels in this document are stated in decibels (dB), a logarithmic scale used to simplify communication of a very wide range of audible sound pressure levels. At distances of about three feet, normal human speech ranges from 63 to 65 dB, loud kitchen appliances (e.g., blender) range from about 83 to 88 dB, and rock bands can approach 110 dB. Since dB are logarithmic values, they do not sum like whole numbers. Combining two noise sources with the same dB noise level will increase the overall noise level by three dB. In cases in which one noise source is much louder than another added noise source, the louder noise source dominates the noise environment, and the other source plays a minor role in determining overall noise level. To state this observation in mathematical terms, the addition of a noise that is 10 dB less than another noise will have no noticeable affect (approximately 0.1 dB increase) on the overall noise level.

The frequency (i.e., pitch) of a sound is also important in determining how the sound will be perceived. Unless otherwise noted, noise levels in this document have been adjusted to emphasize frequencies heard best by the human ear, a process known as “A-weighting” which are represented in A-weighted decibels (dBA).

Firing of large-arm munitions generates sounds that are felt as well as heard. With this type of noise, energy in frequency bands not heard well by the human ear could have substantial impacts. Large-arm munition noise levels are often C-weighted, an adjustment that de-emphasizes extremely low- and high-frequency sounds to a lesser extent than A-weighting. Small- and large-arm single firing event noise levels are sometimes described using peak sound levels that are “flat-weighted” (i.e., no adjustment for frequency sensitivity). Since C-weighted and flat-weighted dB values quantify noise differently, dB values with different weighting types cannot be summed.

The DoD’s environmental planning program promotes the development and implementation of noise programs on military installations. The noise programs strive to guide compatibility between the activities and operations of the installation and neighboring civilian communities. Chapter 14 of AR 200-1, *Environmental Protection and Enhancement,* outlines the noise management policy for the Army. This policy includes:

- Evaluation and documentation of noise impacts resulting from ongoing and proposed actions/activities and minimization of annoyance to humans to the extent practicable.
- Development of an Installation Compatible Use Zone study. The study is the tool used by the Army and local planning committees to facilitate compatible development.

AR 200-1 identifies housing, schools, and medical facilities as examples of noise-sensitive land uses. AR 200-1 offers land use recommendations (four zones) that facilitate future development to mitigate the potential relationship between noise resulting from Army training activities and citizen concerns. Table 14-1 of AR 200-1 classifies noise levels resulting from various Army activities into four different zones (Table 3-9). The four zones are:

- **Land Use Planning Zone (LUPZ):** Zone used to better predict noise impacts associated with increased levels of operations at airfields or with large-caliber weapon ranges. This zone is used to provide communities with additional information regarding land use decisions.
- **Zone 1:** Typically compatible with most noise-sensitive (housing, schools, medical facilities) land uses.
- **Zone 2:** Normally incompatible with most noise-sensitive land uses. Exposure to noise in this zone could be considered significant. Without additional mitigation, land uses are normally limited to less sensitive (e.g., industrial) activities.
- **Zone 3:** Incompatible with noise-sensitive land uses. Exposure to noise in this zone is generally considered severe, thus noise-sensitive land uses should not be considered in this zone.

Table 3-9: Land Use Guidelines Noise Limits

Noise Zone	*Aviation ADNL (dB)*	*Impulsive CDNL (dB)*	*Small Arms (PK 15$_{(met)}$)*
LUPZ	60-65	57-62	N/A
Zone I	<65	<62	<87
Zone II	65-75	62-70	87-104
Zone III	>75	>70	>104

Legend: <=less than; >=greater than; ADNL=A-weighted day-night-level; CDNL=C-weighted day-night level; LUPZ=Land Use Planning Zone; N/A=not applicable; PK 15$_{(met)}$=single event peak level exceeded by 15 percent of events

3.8.1 Affected Environment

The primary noise sources at Fort Cavazos are small and large caliber weapons firing (including demolition operations), rotary-wing aircraft training, and other aircraft operations. The Noise Zones for all operations show annual impacts outside the installation boundary are distributed to the south, east and to a lesser degree north. The City of Killeen adjacent to the southern boundary, including Copperas Cove, Harker Heights, and Belton combine to create a large metropolitan area along the southern boundary. Population exposure to training noise is greatest in this area due to the amount and type of development. Bell and Coryell County lands to the east, west, and just north of Fort Cavazos are rural in nature, with little development and low-density population. It is in these areas, particularly east where range and firing points are in close proximity to the installation boundary, which hold the greatest potential for future incompatibilities with noise. While the noise contours for large-caliber weapons extend off the installation boundary, the majority of noise associated with small-arms fire only impacts areas within the installation boundary.

Under current conditions, 6,707 acres off-post acreage are within the LUPZ noise contours, 304 acres are within Zone II, and 111 acres in Zone III. Approximately 14,500 people would be affected in the LUPZ and Zone II noise contour areas, while no population falls within Zone III. Most of the population affected is south of the base in Killeen.

3.8.2 Environmental Consequences

Impacts to noise would be considered significant if the proposed action were to cause harm or injury to off post communities or exceed applicable environmental noise limit guidelines.

Fort Cavazos currently trains with heavy equipment and ordnance delivery systems identical or very similar to those described in the proposed action. Although live-fire and maneuver training associated with the proposed action would occur on range and training lands already used for similar activities, peak noise levels would not change.

3.8.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT weapon system and associated soldiers to Fort Cavazos. The addition of a SGT STOUT BN would introduce the firing of 30mm small arms rounds and the ground-based launch of the Stinger missile at approved targets. The Stinger missiles have been in the Army inventory for many years and are accounted for in installation noise profiles. However, the majority of missile training would not result in an actual missile launch and detonation but would be accomplished through captive carry of inert warheads.

Most of the small caliber rounds fired are expected to be 9mm, 5.56mm, 7.62mm, and .50 caliber which are much quieter than 30mm rounds. These actions would distribute the noise impacts over a large area and minimize the impacts at any one location. The small increases in use at most ranges and the distributed impacts on larger ranges are expected to result in negligible impacts from firing the new weapons.

Therefore, peak noise levels would be the same as currently generated on Fort Cavazos. If the operations tempo increases, then day-night noise levels would also increase, and a quantitative noise analysis should be completed to determine whether noise contours that extend off-installation in populated areas. The approved noise models for small arms 50 caliber and below is Small Arms Range Noise Assessment Model (SARNAM) and Blast Noise Version 2 (BNoise2) for large caliber weapons greater than 50 caliber and includes artillery rounds. Should modeling be necessary for a supplemental NEPA analysis, SARNAM and BNoise2 would be used to assess noise impacts. Therefore, implementation of alternative 1 is expected to have less than significant impacts to noise.

3.8.2.2 Proposed Action – Alternative 2

Alternative 2 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers to Fort Cavazos. The fielding and stationing of the ERCA and SGT STOUT are analyzed under alternative 1. The remaining weapons systems are analyzed below.

The M-10 Booker would fire 105mm projectiles at existing approved ranges already using these items. Large caliber weapons noise would be distributed over a large area at target already using the 105mm rounds proposed for the M-10 Booker. Therefore, peak noise levels would be the same as currently generated on Fort Cavazos. If the operations tempo increases, then day-night noise levels would also increase, a quantitative noise analysis should be completed to determine whether noise contours that extend off-installation in populated areas. The approved noise models for small arms 50 caliber and below is SARNAM and BNoise2 for large caliber weapons greater than 50 caliber and includes artillery rounds. Should modeling be necessary

for a supplemental NEPA analysis, SARNAM and BNoise2 would be used to assess noise impacts.

The other new weapons systems for DE and Dark Eagle would not generate appreciably loud noise levels, and any noise would be localized near the systems and would likely be electronic and/or mechanical noise. Noise levels from these systems would be negligible and less than significant. Therefore, implementation of alternative 2 is expected to have less than significant impacts to noise.

3.8.2.3 Proposed Action – Alternative 3

Alternative 3 includes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers to Fort Cavazos. The noise impacts for alternative 3 would be the same as those described in alternatives 1 and 2. The addition of the MDTF would not introduce new noise sources that are not already in use at Fort Cavazos. Therefore, implementation of alternative 3 is expected to have less than significant impacts to noise.

3.8.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos, and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Noise levels at Killeen would continue to be elevated in the LUPZ and Zone II areas. Therefore, implementation of the no action alternative would not result in significant impacts to noise.

3.9 Socioeconomics

Socioeconomics describes the local economic and social conditions in an area. Socioeconomic indicators, such as population, housing, and regional economic activity inform the assessment of socioeconomics and are used to understand the community potentially affected by the proposed action.

EO 13045, *Protection of Children for Environmental Health Risks and Safety Risks*, requires federal agencies to identify and assess health risks and safety risks that may disproportionately affect children. Agencies must ensure that their policies, programs, activities, and standards address disproportionate risks to children that results from environmental health or safety risks.

3.9.1 Affected Environment

The ROI includes Bell and Coryell Counties. The ROI includes counties that are generally considered the geographic extent to which the majority of the installation's soldiers, Army civilians, and contractor personnel and their families reside. The population and workforce at Fort Cavazos have long been an essential element of the regional economy.

The estimated population total for the ROI in 2023 was 478,071, including 84,878 for Coryell County and 393,193 for Bell County. The ROI experienced a cumulative population increase of 8.3 percent between 2020 and 2023, including Coryell County's population increase of 2.2 percent and Bell County increase of 6.1 percent (U.S. Census Bureau, 2023).

The total on-post population for Fort Cavazos is 66,800, this includes 38,000 active military, 14,000 on-post family members, 14,200 civilian employees, and, commissaries, and staff of on-post schools. The supported population of Fort Cavazos is 572,834. This includes military retirees and survivors, on-post population (excluding deployed soldiers), and off-post family members (Fort Cavazos, 2025).

This PEA gives particular attention to the distribution of race and poverty in areas potentially impacted by the implementation of the proposed action. The minority population (excluding two or more races) make up 56.8 percent of the percent of the population in Bell County and 42.7 percent in Coryell County (see Table 3-10) in 2023. In comparison, the non-White population in Texas was approximately 60.6 percent for the same period. (U.S. Census Bureau, 2023b) There are pockets of low-income and minority populations within areas adjacent to Fort Cavazos.

Table 3-10: Demographic Statistics for Coryell and Bell Counties, Texas 2023

Race/Origin	***Percent of the Population in Bell County***	***Percent of the Population in Coryell County***
White Only	65	73
Black or African American Only	24.8	17.7
Native American and Alaskan Only	1.1	1.3
Asian Only	3.2	2.4
Native Hawaiian or Other Pacific Islander	0.9	1
Hispanic or Latino*	26.8	20.3
Two or more races	5	4.5

Note: *Hispanic or Latino is not a race but an origin.
Source: U.S. Census Bureau, 2023

Fort Cavazos provides a substantial contribution to the ROI economy as the largest single local-location employer in the state of Texas as of 2021, with an estimated 38,000 military personnel assigned to the post, and 14,200 civilian personnel working on the installation. Fort Cavazos' economic impact in 2023 was estimated at $39.09 billion across the state of Texas.

The ROI 2022 annual average civilian labor force aged 16 plus was 41 and 58.8 percent for Coryell and Bell County, respectively (U.S. Census Bureau, 2023). Health care and social assistance, retail trade, and educational services were the most common employment sectors for Bell County in 2021 (Data USA, 2024a). Public administration, retail trade, and health care and social assistance were the most common employment sectors for Coryell County in 2021 (Data USA, 2024b). Bell and Coryell Counties' unemployment rate was 4.5 percent as of 2023, a 1.3 percent decrease since 2021. However, the ROI unemployment rate was still higher than the overall state of Texas 2023 rate of 3.9 percent (U.S. Bureau of Labor Statistics, 2024).

The average per capita income of the ROI was $29,260.5 in 2022. For comparison, the per capita income of Texas was $37,514. The total income estimated for the ROI between 2018-2022 was $14,013,228,841 (U.S. Census Bureau, 2023).

3.9.2 Environmental Consequences

Impacts on socioeconomics would be considered significant if the proposed action were to cause substantial changes to sales volume, income, employment, or population (including housing and schools).

3.9.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT and associated soldiers at Fort Cavazos and involves the support of approximately 675 soldiers and approximately 911 family members. The population increase would be approximately 2.4 percent of the current installation population. The total population increase of 1,586, including soldiers and accompanying family members, would result in increases to the ROI population only by approximately 0.33 percent. The new soldiers and their families would likely reside on and off base and shop, dine, and utilize facilities throughout the surrounding communities, contributing to the economic prosperity of the region. Within the ROI, where some of the soldiers and their families would reside, the population changes are expected to result in a less than significant beneficial impact on employment, sales volume, income, and population numbers.

If the installation requires new or refurbished facilities in the cantonment area or within the training areas to accommodate the new systems or soldiers and accompanying family members, construction would be required. Such construction would normally be contracted to private firms and provide a positive economic impact within the ROI. A direct benefit would be increased employment related to construction, and indirect benefits, including increased sales volume and income. There would also be increases in the population if workers, solo or with families, move into the ROI for construction jobs. These impacts would initially be temporary but could lead to permanent increases if workers and families remain in the ROI long term.

Although minority and low-income populations are present within the ROI, implementation of alternative 1 would not result in disproportionately high or adverse human health or environmental effects on these populations. Increases in employment, sales volume, income, and population would all be beneficial but less than significant compared to the ROI. Therefore, implementation of alternative 1 is expected to have less than significant impacts on socioeconomics.

3.9.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. Alternative 2 involves the support of approximately 1,330 to 2,000 soldiers and approximately 1,877 to 2,700 family members. The increase of soldiers and their associated families would result in an approximate 4.8 to 7.0 percent population increase to the current installation population. The total population increase of 3,207 to 4,700, including soldiers and accompanying family members would result in increases to the ROI population by less than one percent. The new soldiers and their families would likely reside on and off base and shop, dine, and utilize facilities throughout the surrounding communities, contributing to the region's economic prosperity. Within the ROI, where the soldiers and their families would reside, the

population changes are expected to result in a minor beneficial impact on employment, sales volume, income, and population numbers.

If the installation requires new or refurbished facilities in the cantonment area or within the training areas to accommodate the new systems or soldiers and accompanying family members, construction would be required. Such construction would normally be contracted to private firms and provide a positive economic impact within the ROI. A direct benefit would be increased employment related to construction and indirect benefits, including increased sales volume and income. There would also be increases in the population if workers, solo or with families, move into the ROI for construction jobs. These impacts would initially be temporary but could lead to permanent increases if workers and families remain in the ROI long term.

Although minority and low-income populations are present within the ROI, implementation of alternative 2 would not result in disproportionately high or adverse human health or environmental effects on these populations. Increases in employment, sales volume, income, and population would all be beneficial but less than significant compared to the ROI. Therefore, implementation of alternative 2 is expected to have less than significant impacts on socioeconomics.

3.9.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at Fort Cavazos. Alternative 3 involves the support of approximately 3,075 soldiers and approximately 4,151 accompanying family members. This could result in an overall increase of 7,226 to the Fort Cavazos population. This would result in an approximate 10.8 percent increase to the installation population. If all new soldiers and families live off post, then the ROI would experience an approximately 1.5 percent increase. The new soldiers and their families would likely reside on and off base and shop, dine, and utilize facilities throughout the surrounding communities, contributing to the economic prosperity of the region. Alternative 3 would provide a minor beneficial impact on employment, sales volume, income, and population numbers.

If the installation requires new or refurbished facilities in the cantonment area or within the training areas to accommodate the new systems or soldiers and accompanying family members, construction would be required. Such construction would normally be contracted to private firms and provide a positive economic impact within the ROI. A direct benefit would be increased employment related to construction, and indirect benefits, including increased sales volume and income. There would also be increases in the population if workers, solo or with families, move into the ROI for construction jobs. These impacts would initially be temporary but could lead to permanent increases if workers and families remain in the ROI long term.

Although minority and low-income populations are present within the ROI, implementation of alternative 3 would not result in disproportionately high or adverse human health or environmental effects on these populations. Increases in employment, sales volume, income, and population would all be beneficial but less than significant compared to the ROI. Therefore, implementation of alternative 3 is expected to have less than significant impacts on socioeconomics.

3.9.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos, and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to socioeconomics.

3.10 Transportation and Traffic

Transportation includes air, land, and sea routes with the means of moving passengers and goods. A transportation system can consist of any or all of the following: roadways, bus routes, railways, subways, bikeways, trails, waterways, airports, and taxis, and can be looked at on a local or regional scale.

Traffic is commonly measured through average daily traffic and design capacity. These two measures are used to assign a roadway with a corresponding level of service (LOS) qualitive measurement. The LOS designation is a professional industry standard used to analyze and categorize traffic flow and the operating conditions of a roadway segment or intersection. The LOS is defined on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility. LOS A through LOS B indicates free flow travel. LOS C indicates stable traffic flow. LOS D indicates the beginning of traffic congestion. LOS E indicates the nearing of traffic breakdown conditions. LOS F indicates stop-and-go traffic conditions and represents unacceptable congestion and delay.

3.10.1 Affected Environment

Transportation in and around Fort Cavazos is achieved via road networks, rail routes, and air systems. Pedestrian walks, bike paths, and trails are also used to a limited extent for travel within the cantonment area. Fort Cavazos and the surrounding community experiences typical traffic patterns associated with both residential and commercial activities. Peak traffic periods generally correspond to the morning and evening commutes. This section describes the installation's transportation resources, their relative use, and their importance to the surrounding communities.

Major transportation routes near Fort Cavazos includes I-35, I-14, U.S. Highway 190, and State Highway 36. I-35 is a north-south interstate highway located approximately 20 miles east of Fort Cavazos I-14, redesignated from U.S. 190 in January 2017 by the Texas Transportation Commission, includes a 25-mile section of highway from the east side of Copperas Cove to I-35. State Highway 36 is located on the northeast side of Fort Cavazos and connects Gatesville to Temple, Texas (U.S. Army, 2022a).

The Central Texas Regional Transportation Advisory Group oversees the optimization of transportation resources across a nine-county area, encompassing Fort Cavazos. In addition, the Killeen-Temple Metropolitan Planning Organization is responsible for establishing comprehensive transportation plans for the broader Killeen-Temple region, including Fort Cavazos. In 2020, the Killeen-Temple Metropolitan Planning Organization published the *Future Growth Scenario Report* (KTMPO, 2020), which explores various transportation system options

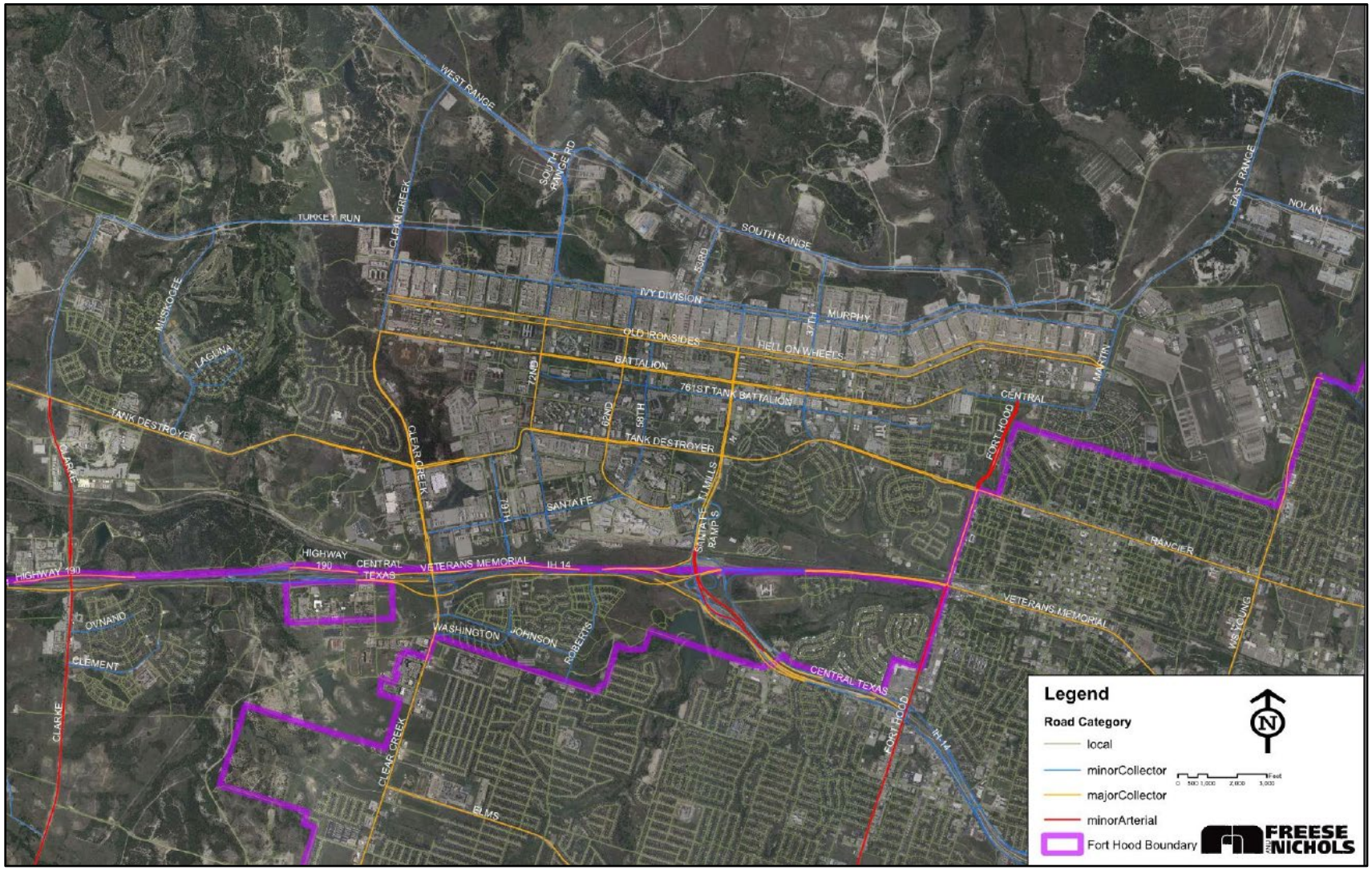
to support future growth, with a planning horizon extending to 2045. The report identifies that emerging trends in transportation demand and shifts in projected growth patterns would have a notable effect on transportation systems (U.S. Army, 2022a).

On-Post Highways and Roads

The evaluation of the existing roadway segments focuses on capacity, which reflects the ability of the network to serve the traffic demand and volume. All roadways throughout Fort Cavazos are classified as primary, secondary, or tertiary according to their relative importance and function as part of the roadway network. Primary roadways include all installation roads and streets that serve as the main distribution arteries for all traffic originating outside and within the installation and that provide access to, through, and between various functional areas. Secondary roadways include all installation roads and streets that supplement the primary roadways by providing access to, between, and within the various functional areas (USAEC, 2021). These roads accommodate the daily commuting needs of military personnel, military families, and civilian employees. Fort Cavazos also has internal transportation systems including shuttle services, pedestrian pathways, and bike lanes to support on-installation mobility.

There are 413 miles of paved roads and 449 miles of unpaved roads on Fort Cavazos (Fleming 2008 as cited in USAEC, 2021). Many primary streets are routed continuously through the southern part of the main cantonment area and function primarily to collect and distribute traffic within Fort Cavazos. As shown on Figure 3-11 major collector roads that run in the north-south direction through the main cantonment include Clear Creek Road, T.J. Mills Boulevard, and Fort Hood Street. These roadways connect the main cantonment to I-14, which is included in the Central Texas Corridor and is designed to carry significant traffic volumes (Texas DOT [TxDOT], 2024). Major collector roads that run through the main cantonment in the east-west direction include Tank Destroyer Boulevard, Battalion Avenue. In addition, one-way roads include Old Ironsides Avenue (eastbound) and Hell on Wheels (westbound) (USACE, 2020).

Figure 3-9: On-Post Highways and Roads



Source: USACE, 2020

A 2020 Basewide Traffic Study (USACE, 2020) indicated a variety of traffic infrastructure improvements that would improve the traffic flow on post as Fort Cavazos' population increases over the next few years. Potential improvements to Fort Cavazos roadways identified in the study which would minimize impacts include:

- Development of additional lanes,
- Development of new access roads,
- Development of new crosswalks,
- Development of new signage,
- Widening of roadways,
- Optimization of signal timings and signal timing coordination, and
- Development of protected left turn lanes.

Common actions to minimize impacts may involve a plan to minimize a project's concentration of traffic in the peak hour and/or peak direction of travel. Additional mitigation measures include implementing various traffic control features, such as lane separation, and physical and timing improvements to increase capacity traffic (for example, adding lanes).

The traffic study indicates several proposed improvements aimed at reducing delays and improving LOS at key intersections. At Santa Fe Avenue and Wratten Drive, a planned widening of the exit to two lanes is expected to significantly reduce delays and improve LOS, with interim signal timing optimization reducing peak evening delays from 60 to 38 seconds. The Santa Fe Avenue and Wratten Drive widening project has been fully implemented. At Tank Destroyer Boulevard and Clear Creek Road, adding an established right turn lane is projected to reduce morning peak delay form 40.9 seconds to 27.9 seconds per vehicle, improving LOS from E to D. This project is currently in the planning stage. Other recommendations include the addition of exclusive left turn lanes at intersections with high left turn volumes and improving signal timing coordination along T.J. Mills Boulevard and Clear Creek Road to enhance traffic flow.

Additional modes of transportation and supporting facilities within the main cantonment areas include designated bike lanes and shuttle routes. The Cavazos Connector is Fort Cavazos' shuttle service that serves as a bus transit system operating throughout the main cantonment area. The Cavazos connector consists of two systems working in tandem: the Circulator Route, and the MicroTransit System. The Circulator Route includes 28 high use stops throughout the heart of Fort Cavazos. These stops include the hospital, commissary, gyms and other shops. The MicroTransit system was launched in March 2024. This system provides efficient and convenient transportation options for the Fort Cavazos soldiers, families, and civilians. The micro-transit system links five zones from barracks, family housing areas, and the Circulator Route (Fort Cavazos, 2024b).

Off-Post Highways and Roads

I-35, I-14, U.S. Highway 190, and State Highways 195, and 36 serve Fort Cavazos (see Figure 3-12), and makeup part of the Central Texas Corridor in Texas which is projected to be over 1,000 miles long (TxDOT, 2024). These arteries provide excellent means to get to and from the Waco and Dallas/Fort Worth area in the north, the Austin/San Antonio region to the south, western Texas, and other nearby communities and cities, including those in the southeast.

Traffic

There are 63 signalized intersections in the main cantonment area of Fort Cavazos. LOS in the signalized intersections is a qualitative measure of operational conditions. It is measured and reported in seconds (time) and represents the average stopped-time delays for all vehicles approaching during a period of time. Six categories, letters A through F, are used to describe LOS (see Table 3-11). LOS A represents a very short delay (less than or equal to 10 seconds), and LOS F represents a very long delay (greater than 80 seconds). For peak hour traffic operations, it is desired that the intersection should operate at no worse than LOS C, which represents an average delay of 20 to 35 seconds. Each directional movement should operate at no worse than LOS D, which represents an average delay of 35 to 55 seconds. If intersections or approach roads on Fort Cavazos are operating at LOS E or F, this results in unstable and congested traffic operations. Capacity analyses of the critical intersections located on-post indicate that of the intersections evaluated, most have acceptable levels of service, but several intersections are below the acceptable level.

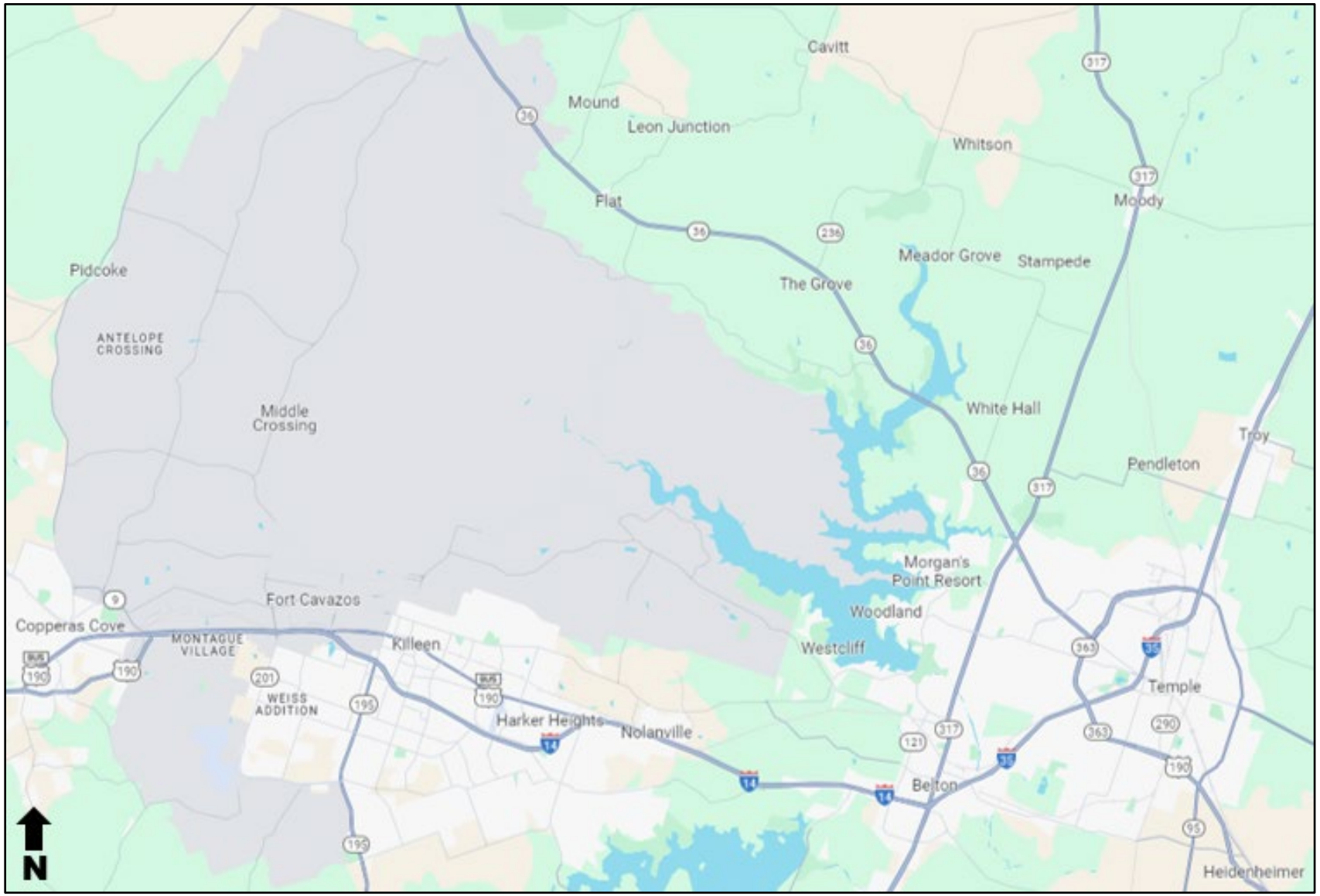
Table 3-11: Level of Service Criteria for Signalized Intersections (Fort Cavazos)

Control Delay (Second/Vehicle)	***LOS***
≤10	A
>10-20	B
>20-35	C
>35-55	D
>55-80	E
>80	F

Legend: LOS=level of service; ≤=less than or equal too; >=greater than; <=less than
Source: USACE, 2020

Four intersections on Fort Cavazos currently operate at levels at or below LOS criterion D, with congestion reaching critical points during peak traffic hours. Specifically, the intersection of Santa Fe Avenue and Wratten Drive experiences heavy eastbound traffic demand during the evening peak hour, resulting in a LOS E rating. Similarly, the Tank Destroyer Boulevard and T.J. Mills Boulevard intersection operates at LOS E during the morning peak hours and worsens to LOS F during the evening peak hours. The Tank Destroyer Boulevard and Clear Creek Road intersection operates at LOS D during evening peak hours. Lastly, during the morning peak hours, the intersection of Warrior Way and Martin Drive operates at LOS E (USACE, 2020).

Figure 3-10: Off-Post Highways and Roads



Source: Google Maps, 2024

3.10.2 Environmental Consequences

Impacts to transportation and traffic would be considered significant if the proposed action causes a reduction in more than two LOS at roads and intersections within the ROI, substantially degrade traffic flow during peak hours, or significantly exceed road capacity and design.

3.10.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT weapon system and associated 675 soldiers at Fort Cavazos. The soldiers would be accompanied by an estimated 911 family members, including spouses and children, which would result in a total population increase of 1,586 to Fort Cavazos. This represents an approximate 2.4 percent rise in the overall base population.

The additional soldiers and their families would generate more vehicle trips within the base. However, this increase is expected to have only a minor impact on the existing road infrastructure. These impacts would be further minimized once the road improvements outlined in the 2020 Traffic Study are fully implemented. While some of the new personnel and their families may reside off-base and could potentially increase commuter traffic during peak hours, this too is anticipated to place a modest additional demand on the current road infrastructure.

Additionally, fully implementing the road improvements as outlined in the 2020 Traffic Study would aid in alleviating potential traffic increases associated with alternative 1. Therefore, implementation of alternative 1 is expected to have less than significant impacts on transportation and traffic. Once the exact weapon system configurations and fielding decisions are made, supplemental NEPA analysis may be necessary to assess the specific impacts on traffic and transportation infrastructure.

3.10.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. The integration of the weapons systems and associated 1,330 to 2,000 soldiers, accompanied by an estimated 1,877 to 2,700 family members, would result in a total population increase of 3,207 to 4,700 to Fort Cavazos. This represents an approximate 4.8 to 7.0 percent rise in the overall base population.

The additional soldiers and their families would generate more vehicle trips within the base. However, this increase is expected to have only a minor impact on the existing road infrastructure if the road improvements outlined in the 2020 Traffic Study are implemented. While some of the new personnel and their families may reside off-base and could potentially increase commuter traffic during peak hours, this too is anticipated to place a modest additional demand on the current road infrastructure.

Additionally, fully implementing the road improvements as outlined in the 2020 Traffic Study would aid in alleviating potential traffic increases associated with alternative 2. Due to the

potential increase in population to Fort Cavazos and the surrounding community, and the potential traffic increase during peak hours, implementation of alternative 2 would result in minor adverse impacts to transportation and traffic. However, these impacts are considered less than significant. Once the exact weapon system configurations and fielding decisions are made, supplemental NEPA analysis may be necessary to assess the specific impacts on traffic and transportation infrastructure.

3.10.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at Fort Cavazos. The integration of the weapons systems and associated 3,075 soldiers, accompanied by an estimated 4,151 family members, would result in a total population increase of 7,226 to Fort Cavazos. This represents an approximate 10.8 percent rise in the overall base population.

The additional soldiers and their families would generate more vehicle trips within the base. However, this increase is expected to have only a minor impact on the existing road infrastructure. These impacts would be further minimized once the road improvements outlined in the 2020 Traffic Study are fully implemented. While some of the new personnel and their families may reside off-base and could potentially increase commuter traffic during peak hours, this too is anticipated to place a modest additional demand on the current road infrastructure.

Additionally, fully implementing the road improvements as outlined in the 2020 Traffic Study would aid in alleviating potential traffic increases associated with alternative 3. Due to the potential increase in population to Fort Cavazos and the surrounding community, and potential traffic increase during peak hours, implementation of alternative 3 would result in minor adverse impacts to transportation and traffic. However, these impacts are considered less than significant. Once the exact weapon system configurations and fielding decisions are made, supplemental NEPA analysis may be necessary to assess the specific impacts on traffic and transportation infrastructure.

3.10.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to transportation and traffic.

3.11 Water Resources

Water resources include surface water, groundwater, wetlands, and floodplains. Surface water resources include lakes, ponds, rivers, and creeks. The major uses of water resources primarily involve surface water and include municipal water supply, training, recreation, vehicle maintenance, and aquatic habitat. These resources are important for a variety of reasons, including economic, ecological, recreational, and human health factors. Groundwater includes the subsurface hydrologic resources of the physical environment; its properties are often

described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition. Wetlands are areas of transition between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Floodplain refers to the lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

For the purposes of this water resources analysis, the ROI consists of the water resources that are within and downstream or downgradient of the footprint of operations related to the stationing of the various weapons systems at Fort Cavazos. Each has its own physical and chemical characteristics, uses, and potential issues (Fort Hood, 2019).

3.11.1 Affected Environment

3.11.1.1 Surface Water

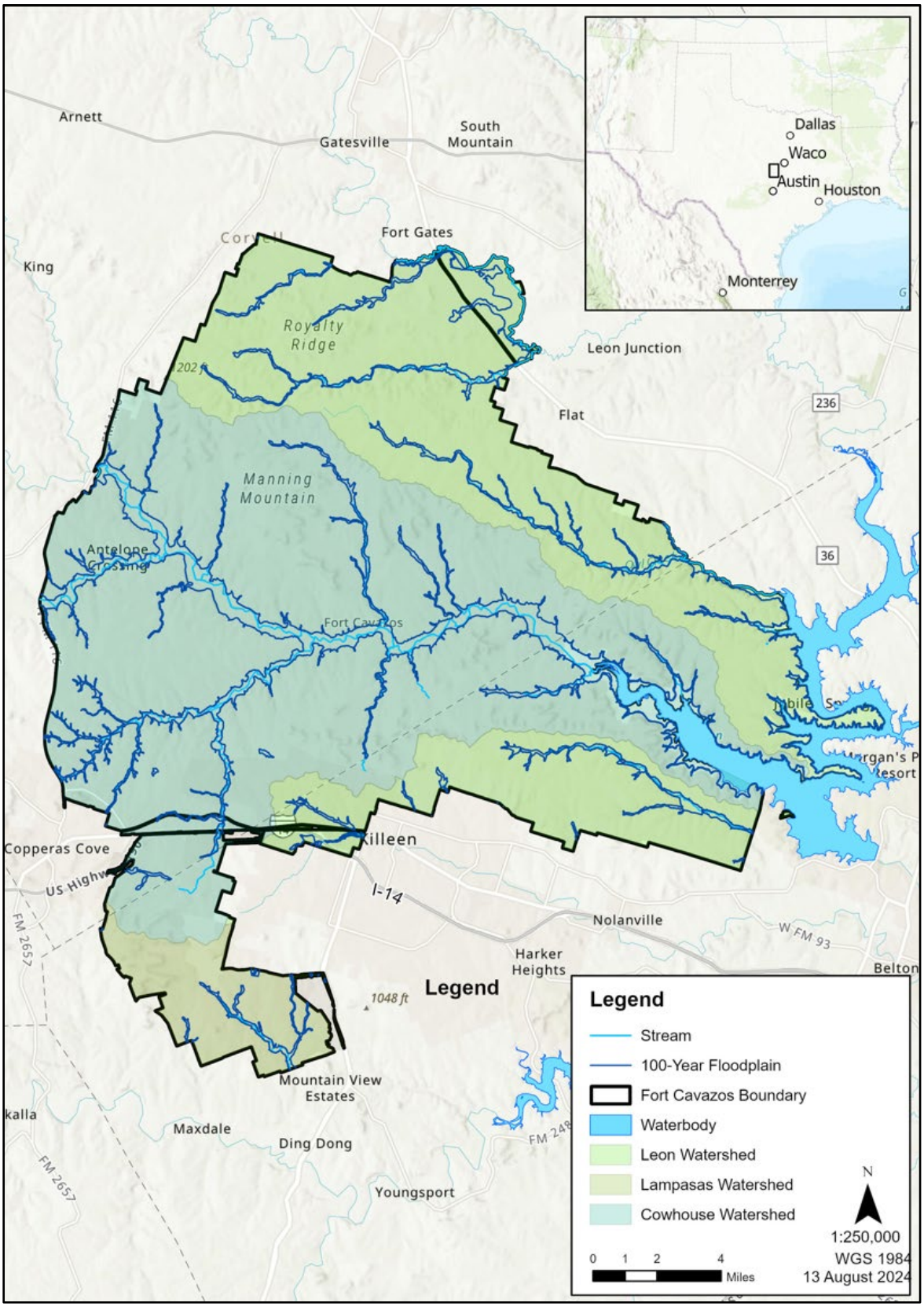
There are 692 acres of lakes and ponds, 55 miles of rivers and permanent streams, and 43 miles of shoreline access to Belton Lake on Fort Cavazos. All water impoundments are manmade for purposes such as flood control, sediment retention, recreation, water supply, wildlife and livestock water, and fish habitat. Additional impoundments are being constructed for the primary purpose of storing sediment from the training areas, as shown in Figure 3-13 (Fort Hood, 2019).

Fort Cavazos 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.

Water quality is a concern due to the sediment loads carried by these streams. 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).

A small portion of the southern end of Fort Cavazos, 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).

Figure 3-11: Fort Cavazos Watersheds



The combination of soils, vegetation, and climate affects the current watershed characteristics. There are numerous natural springs within the Fort Cavazos Military Reservation boundaries, but not all of their locations have been mapped. Several well-known springs from the area are Ransomer Springs, approximately five miles north-northwest of Nolanville; Mountain Springs, in the Owl Creek Mountains, approximately 12.4 miles north-northwest of Belton; and Taylor Springs, 1.2 miles south of Mountain Springs (Brune, 1981). The soils are high in clay so the percolation rate within them is quite low. Vegetation provides little ground cover over most of the installation, so the watersheds have only a small portion of moderate to heavy rainfall soak into the soil. The net effect is that Fort Cavazos 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.

3.11.1.2 Groundwater

The major aquifer that underlies Fort Cavazos is the Trinity Aquifer. Parts of both the outcrop and the depression are deeply buried below Fort Cavazos. The Trinity Aquifer extends through parts of 55 counties of central Texas (Fort Hood, 2019).

The Travis Peak formation is the deepest and hydrologically most important geologic unit in the Fort Cavazos region. This formation does not outcrop at the surface in Fort Cavazos. No major groundwater resources outside the installation are affected by recharge from within Fort Cavazos, and recharge that occurs within the installation affects only the small, shallow groundwater supplies that remain on the installation (Fort Hood, 2019). Potentially sensitive groundwater areas of the Fort Cavazos region are the outcrop areas of the Paluxy formation and recent alluvial materials within and adjacent to Cowhouse Creek, Henson Creek, and the Leon River, as well as the karst or cave systems found throughout the installation. The aquifers recharged by these areas are relatively shallow, and therefore they could be affected by HM spills and seepage. However, these waters are rarely used. Surface water, not groundwater, is the primary water supply for Fort Cavazos (Fort Hood, 2019).

Currently, there is no known usage of groundwater at Fort Cavazos. Groundwater studies have been conducted at Fort Cavazos, and the results do not show any critical issues directly attributed to the installation. A detailed discussion of these studies is provided in Section 4.6 of the INRMP (Fort Hood, 2019).

3.11.1.3 Water Quality

Water quality studies at Fort Cavazos include sedimentation and erosion studies, stormwater data collection, Texas Pollutant Discharge Elimination System (TPDES) permit monitoring, and studies of sediment, groundwater, and surface water in the Cowhouse Creek drainage basin. The U.S. Army Center for Health Promotion and Preventive Medicine, now the U.S. Army Public Health Center, examined MC on Fort Cavazos range sites and evaluated the effects and risks associated with water quality and other means of MC environmental movement. (Fort Hood, 2019) The environmental fate of MC indicates a very low risk to humans and sensitive species. Fort Cavazos ranges were assessed for MC transport off range in 2012 and 2018 and the risk continues to be low (USAEC, 2012). The effects of organic chemical and metal contamination are minimal.

Stormwater Management

Currently, Fort Cavazos operates under an industrial stormwater permit (TPDES Permit No. TXR05DL84) that comes from the general permit, TXR050000. The USEPA has published Phase II Storm Water permitting requirements that include Fort Cavazos as the owner and operator of a municipal separate storm sewer system. Therefore, upon adoption of Final TPDES Permit TXR040000, the Fort Cavazos DPW would be required to file its permit application, which must include a stormwater management program. The management program would direct Fort Cavazos' compliance efforts for a period of up to five years following issuance and would include the following five minimum control measures:

- Public education and outreach on stormwater impacts;
- Public involvement/participation;
- Illicit discharge detection and elimination;
- Pollution prevention/good housekeeping for municipal efforts;
- Construction site stormwater runoff control; and
- Post-construction stormwater management in new development and redevelopment.

DPW has been implementing stormwater management programs under a general industrial permit, and a general construction permit since 1995 and has anticipated the Phase II Storm Water permitting requirements. Therefore, many necessary program management actions are already in place or planned for implementation. Although the program is now in draft format, once implemented, it would ensure that controls that would prevent or minimize water quality impacts are in place (Fort Hood DPW, 2005 as cited in Fort Hood, 2019).

Sediment and Erosion

Sedimentation is the most prevalent water quality threat at Fort Cavazos. 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. Total suspended solids (TSS) data for streams have been collected at several stations during stormwater events as an indicator of sediment input to streams. The physicochemical properties of water bodies, such as turbidity and TSS, can be affected by sedimentation. Across the installation, measurements of sedimentation have been collected in terms of TSS measurements and erosion inventories that were conducted in 1998 and 1999 indicate severe erosion. Most of the TSS values tend to increase with increasing stream level, indicating that high values might be due to storm runoff associated with precipitation. The Blackland Research and Extension Center Water Science Laboratory has been monitoring sediment losses at 13 sites on Fort Cavazos. To monitor restoration and sediment reduction efforts, monitoring included sites in the Shoal Creek watershed. The NRCS installed BMPs in the Shoal Creek watershed, which is in the Leon River drainage, to reduce erosion in this training area to acceptable levels and keep it open for training activities (Fort Hood, 2019).

The increases in TSS that correlate with higher streamflow levels have several elements: First, the surface and stream channel erosion increase from raindrop impact and subsequent runoff.

Second, the increase of streamflow concentrates and creates gullies. This is supported when the gullies are associated with tank trails and other impacts such as cross-country driving. Increased runoff also comes from urbanized lands that have parking lots, roads, and building roofs. These runoff increases may not have initial high TSS concentrations, but they add to channel erosion as storm runoff rates increase and the streamflow impacts channel banks or creates other forces on the banks that detach soil.

3.11.1.4 Wetlands and Floodplains

The Clean Water Act protects water bodies and stream channels that are under its jurisdiction. Waters of the U.S., including wetlands, exist across the installation. These range from small emergent wetlands associated with ephemeral streams to large, forested wetland complexes adjacent to perennial channels. In addition to the Clean Water Act, Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid, to the extent possible, adverse impacts to wetlands. Currently, efforts are underway to delineate (map and describe) and determine jurisdiction for all water features within potential project areas on the installation in compliance with both regulatory and executive guidance.

Potential jurisdictional wetlands in central Texas and at Fort Cavazos are most common on floodplains along rivers and streams (riparian wetlands), along the margins of lakes and ponds, and in other low-lying areas where the groundwater intercepts the soil (springs). A current analysis conducted by the project team using GIS data from the National Wetlands Inventory, National Hydrography Dataset, and NRCS soils data was conducted to evaluate existing hydrology, hydric soils, vegetation, and floodplains to determine the locations of wetlands and waters of the U.S. The results of this analysis indicated that potential jurisdictional wetlands within the boundaries of Fort Cavazos occur along the 692 surface acres of lakes and ponds, as well as tributaries of the Waters of the U.S., including all streams.

It has been the practice of Fort Cavazos to minimize impacts to potential jurisdictional areas. These areas might be indirectly affected by ongoing installation activities such as military training activities, livestock grazing, hydrologic alterations, and urban and training area stormwater runoff.

Floodplains

The floodplains present within Fort Cavazos have been identified using Flood Insurance Rate Maps for Bell and Coryell Counties, specifically Community Panel Numbers 4807060125 B, 4807680370 B, 4807060080 B, 4807680215 B, and 4807680325 B. These floodplains may be affected by the proposed action due to potential construction, increased personnel, and expanded maneuvering activities. In accordance with EO 11988, *Floodplain Management* (May 24, 1977), which aims to minimize adverse impacts associated with floodplain occupancy and modification, potential effects on these areas will be analyzed in the Environmental Consequences section.

3.11.2 Environmental Consequences

Impacts would be considered significant if the proposed action results in the introduction of pollutants that directly degrade water quality standards of a surface water body, or that alter

patterns of or increase the intensity of flood water movement or violate federal or state discharge permits.

3.11.2.1 Proposed Action – Alternative 1

Alternative 1 proposes the fielding and stationing of the SGT STOUT and associated soldiers at Fort Cavazos. Impacts to water resources resulting from alternative 1 are anticipated to be largely driven by increased training impacts and increased population. These impacts are expected to be less than significant due to the small increases in the training area, use of existing facilities, and the existing BMPs and control measures employed by the Army. The analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was largely used to analyze potential impacts for this alternative.

The fielding and stationing of the weapons systems and associated personnel might require additional infrastructure or expanded training areas. The limits, location, and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis might be required.

Impacts from an Increase in Personnel

There would be an approximate increase of 2.4 percent of the current installation population based on estimates for this alternative. The fielding and stationing of a SGT STOUT BN could require additional facilities such as headquarters buildings or vehicle maintenance shops, and increases in the routine use of potential contaminants. These facilities would be provided with storm drainage systems. At vehicle maintenance shops, the drainage system would incorporate modern oil-water separators; repair activities would be performed indoors to avoid stormwater exposure; POL and hazardous waste storage facilities would be designed to preclude pollutant runoff. Increased industrial activity under the proposed action would result in a greater probability of accidental spills. Increases in personnel would result in increases in trash and debris that could wind up in local waterways. These impacts are expected to be less than significant because the proper design of drainage control measures would minimize the accumulation of pollutants and debris in nearby waterways.

Overall, the stationing and fielding of the weapons systems under alternative 1 are expected to have minimal impact on water resources. Increased training activities and population have the potential to impact water resources at Fort Cavazos, but due to existing BMPs and control measures, the impacts are anticipated to be minor. Therefore, implementation of alternative 1 is expected to have less than significant impacts on water resources.

Impacts to Floodplains

Activities related to construction, increased personnel, and increased maneuvering could take place within a floodplain. Building within a floodplain could exacerbate flooding, pose greater risks to soldier safety, increase the chance of inundation and facility damage, and introduce contaminants into floodwaters. The Army aims to avoid activities and construction within floodplains. If avoidance is not feasible, a Finding of No Practicable Alternative would be required in accordance with EO 11988.

Additionally, the Army adheres to Section 438 of the Energy Independence and Security Act of 2007, which mandates that projects involving federal facilities with footprints exceeding 5,000 square feet incorporate site planning, design, construction, operation, and maintenance strategies to maintain or restore, to the extent technically feasible, the predevelopment hydrology of the site concerning temperature, rate, volume, and duration of flow. During the design phase for each action, more detailed studies would be conducted to assess the capacity of existing conditions and identify any additional measures needed due to new construction (U.S. Congress, 2007).

In summary, the Army would strive to avoid constructing on floodplains, if avoidance isn't feasible, then site design, construction standards, and BMPs described in the installation INRMP would be followed. Additionally, adherence to the requirements outlined in EO 11988 reduce potential impacts on floodplains to less than significant.

3.11.2.2 Proposed Action – Alternative 2

Alternative 2 proposes the stationing and fielding of the SGT STOUT, LTAMDS, M10 Booker, IFPC, Dark Eagle, MRC, and HP-DE weapons systems and associated soldiers at the installation. Impacts to water resources resulting from alternative 2 are driven by increased population, associated construction activities, and increased training impacts. These impacts are expected to be less than significant due to the overall increases in training, use of existing facilities, and the existing BMPs and control measures employed by the Army. Given the BN size for each weapons system, the analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021) was largely used to analyze potential impacts for this alternative.

Many of the impacts to water resources considered in alternative 1 remain the same for each alternative. This analysis will focus only on the unique aspects of this alternative while assuming the impacts from alternative 1 remain.

Impacts from an Increase in Personnel

There would be an approximate increase of 4.8 to 7.0 percent of the current installation population based on estimates for this alternative.

The 2013 Force Structure Realignment PEA analyzed the gaining of 3,000 soldiers (10 percent of soldiers present at the time of publication), which is five percent greater than the median increase of soldiers for the three alternatives considered in this PEA, and is similar to this alternative (U.S. Army, 2013). There would be minor impacts to soil resources at Fort Cavazos resulting from the associated increase in the frequency of unit maneuver and live-fire training events. The addition of up to 7.0 percent of the current installation population would be anticipated to have a minor impact on the installation's watershed, water demand, and associated treatment systems. The addition in personnel would only slightly increase water demand for consumption. Vehicle washing associated with the increased training is accomplished by using several closed-loop wash racks. This increase is not expected to impact water resources (U.S. Army, 2013).

Overall, the stationing and fielding of the weapons systems under alternative 2 would have minimal impact on water resources. Although increased training activities and population have

the potential to impact water resources on Fort Cavazos, the implementation of BMPs and control measures will ensure that these impacts remain minor and less than significant.

3.11.2.3 Proposed Action – Alternative 3

Alternative 3 proposes the fielding and stationing of the SGT STOUT, LTAMDS, M10 Booker, Full MDTF, and HP-DE weapons systems and associated soldiers at Fort Cavazos. Impacts to water resources resulting from alternative 3 are driven by increased population, and increased training impacts. These impacts are expected to be less than significant due to the use of existing facilities and the existing BMPs and control measures employed by the Army. The primary difference for this alternative revolves around the inclusion of the MDTF. Therefore, the 2022 MDTF Stationing PEA (U.S. Army, 2022a) was largely used to analyze potential impacts for this alternative in conjunction with the general analysis from the 2021 M-SHORAD Capability PEA (USAEC, 2021).

Many of the impacts to water resources considered in alternatives 1 and 2 remain the same for this alternative. Alternative 3 assumed many of the impacts from alternative 1 and 2 remain.

The fielding and stationing of the weapons systems and associated personnel increases might require additional infrastructure or expanded training areas. The limits, location and design of this potential construction are not yet known. If new construction is required to implement this alternative, supplemental NEPA analysis might be required.

Impacts from an Increase in Personnel

There would be an approximate increase of 10.8 percent of the current installation population for this alternative. All water resources impacts would be related to training activities. Given the analysis and conclusion from the 2013 Force Structure Realignment PEA, it would be anticipated that the implementation of management measures consistent with the INRMP would minimize any such impacts. Implementation of minimization measures detailed in the INRMP would also minimize potential impacts to water resources.

Overall, the stationing and fielding of the weapons systems under alternative 3 would have minimal impact on water resources. Although increased training activities and population have the potential to impact water resources on Fort Cavazos, the implementation of BMPs and control measures would ensure that these impacts remain less than significant.

3.11.2.4 No Action Alternative

Under the no action alternative, none of the proposed weapons systems would be stationed or fielded at Fort Cavazos and the Army would not enhance its structural MDO capabilities. Training activities and staffing conditions would remain consistent with current conditions. Therefore, implementation of the no action alternative would not result in significant impacts to water resources.

4 REASONABLY FORESEEABLE EFFECTS

Reasonably foreseeable effects analysis assesses the combined effects of the proposed action and those of other past, present, and reasonably foreseeable future projects that would reasonably be expected to affect the same resource areas, regardless of what entity is implementing the other projects.

In this chapter, the Army has identified past, present, and reasonably foreseeable future actions in the region of Fort Cavazos. This analysis also evaluates reasonably foreseeable future actions that are in the planning phase in this region.

4.1 Projects Contributing to Reasonably Foreseeable Effects

This section provides decision makers with the reasonably foreseeable effects of the proposed action at Fort Cavazos, as well as the incremental contribution of past, present, and reasonably foreseeable actions.

Table 4-1 summarizes past, present, and reasonably foreseeable future actions within the region that could interact with implementation of the proposed action at Fort Cavazos. Table 4-1 briefly describes each identified action, presents the proponent or jurisdiction of the action and the timeframe (e.g., past, present/ongoing, future).

Past activities are those actions that occurred within the geographic scope of reasonably foreseeable effects that have shaped the current environmental conditions of the project area. For resources, the impacts of past actions are now part of the existing environment and are incorporated into the description of the affected environment in Chapter 3. Present/ongoing activities encompass all projects currently under construction or development within the geographic region of Fort Cavazos at the time of this PEA's publication. Reasonably foreseeable future actions include those actions that are likely (or probable) to occur or be implemented within the region surrounding the proposed action.

Table 4-1: Past, Present, and Reasonably Foreseeable Actions at Fort Cavazos and Associated Region

Action	*Proponent/Location*	*Timeframe**	*Description*
Military Actions			
Fuels Facility Replacement	Fort Cavazos	Past (FY24)	Completed Summer 2024. Replacement fuel facility at RGAAF.
Various Building Repair and Renovation Projects	Fort Cavazos	Past, Present (FY20-FY26)	Renovations/repairs to 15 Barracks buildings, the Ammunition Holding Area, DFAC Building (Building 56425), Vehicle Maintenance Facility (Building 9112), BLORA Admin Building and Cabins, Freeman DFAC Building (Building 39041), YDAH's parking apron, and two Vehicle Maintenance Shop buildings.
Barrack 101	Fort Cavazos	Present (FY25)	Construct a 250-bed barrack at 69th ADA Campus.
Barrack 102	Fort Cavazos	Present (FY26)	Construct a 250-bed barrack in 1/1 CD footprint.

Phantom Warrior Microgrid	Fort Cavazos	Future (FY27)	Construct a 2.9MW microgrid to provide resiliency for multiple critical missions for a minimum of 14 days through backup power generators, battery storage and new power generation.
MWD Kennel	Fort Cavazos	Present (FY26)	Construct a new MWD Kennel Facility.
NEC Microgrid	Fort Cavazos	Present (FY26)	Construct a microgrid consisting of a natural gas generating plant, a 1MW/4MWh Energy Storage System, and 150kW photovoltaic array.
Central Energy Plant	Fort Cavazos	Future (FY26)	Construct a Central Energy Plant in the 1400 block.
RV and Secure Storage Facility	Fort Cavazos	Future (FY26)	Expand the existing RV and Secure Storage Facility.
Motor Pool 70	Fort Cavazos	Future (FY27)	Construct a standard design Vehicle Maintenance Shop (also known as motor pool) to replace building 19027.
Motor Pool 71	Fort Cavazos	Future (FY27)	Construct a standard design Vehicle Maintenance Shop (also known as motor pool) to replace building 25039.
Multipurpose Machine Gun Range	Fort Cavazos	Future (FY29)	Construct a Multipurpose Machine Gun Range.
Barrack 104	Fort Cavazos	Future (FY29)	Construct a 250-bed barrack.
Barrack 105	Fort Cavazos	Future (FY29)	Construct a 250-bed barrack.
Barrack 106	Fort Cavazos	Future (FY30)	Construct a 500-bed barrack.
NFC Microgrid	Fort Cavazos	Future (FY30)	Construct a natural gas distributed generation microgrid capable of powering al current mission critical and essential facilities on North Fort Cavazos at a minimum of 14 days.
ERCIP – Clarke Road Substation Microgrid/BESS	Fort Cavazos	Future (FY30)	Construct a natural gas distributed generation microgrid capable of powering 32 mission critical and essential facilities from Clarke Road substation for a minimum of 14 days.
ERCIP – YDAH Microgrid	Fort Cavazos	Future (FY30)	Construct a black-start capable microgrid to provide resiliency for powering all mission critical and essential facilities at YDAH for a minimum of 14 days.
Standard Design Automated Infantry Squad Battle Course	Fort Cavazos	Future (FY31)	Construct a Standard Design Automated Infantry Squad Battle Course.

Local Actions			
Various Single Family/Multi-Family Residential Projects	Private Development/City of Killeen	Past, Present (FY24)	Construction of single family/multi-family residential units in various locations throughout the City of Killeen. Sixteen of these various projects were completed in 2023. Four of these various projects were completed by quarter two of 2024. Seven of these various residential projects are anticipated to be completed in 2024.
Various Commercial Development Projects	Commercial Development/City of Killeen	Present	Various commercial projects (e.g., gas station construction, car dealership construction, convenience stores, chemical plant construction, office and retail plazas) are currently under construction.
Heritage Oaks Phase Seven	Private Development/City of Killeen	Present (FY24)	Construction of single family/multi-family residential units. Construction anticipated to be completed in December 2024.
Bunny Trail Reconstruction	City of Killeen	Present	Reconstruction of Bunny Trail from the intersection of West Stan Schlueter Loop to Canadian River Loop. The project consists of drainage improvements to the intersection of Stan Schluter Loop and Bunny Trail.
Gilmer Street Reconstruction	City of Killeen	Present (FY24)	Rebuilding roadway and sidewalks. Construction began in January 2024 and is anticipated to be completed in December 2024.
Chaparral Pump Station	City of Killeen	Present (FY24-26)	Project includes construction of a new eight MGD pump station. Construction began in March 2024 and is anticipated to be completed in May 2026.
Emergency Operation Center/Fire Station #4	City of Killeen	Present (FY24-25)	Construction of an Emergency Operations Center. Construction began in April 2024 and is anticipated to be complete in July 2025.
Transfer Waste Station Pushwall and Tunnel Modification	City of Killeen	Present, Future	Repair facilities pushwall. As of quarter two of 2024 this project is in the construction bidding phase.
Watercrest Reconstruction	City of Killeen	Present, Future	Total road and pedestrian walkway reconstruction, street lighting, and traffic signal installation at Robinett road. As of quarter two of 2024 this project is in the construction bidding phase.

Various Transportation Projects	City of Killeen	Future	The City of Killeen has a variety of transportation projects on the horizon. Including Willow Springs reconstruction, Stagecoach Road Reconstruction, Chaparral Road widening, and Rancier Avenue improvements. As of quarter two of 2024, these projects are in the planning phase.
Various Water and Sewer Projects	City of Killeen	Future	These projects include various waterline improvements, a new lift station, lift station upgrades and rehab, sewer line rehab, and water reuse.
Various Drainage Projects	City of Killeen	Future	These projects include various drainage improvements at a variety of locations throughout the City of Killeen.
Gap Sidewalks	City of Killeen	Future	Construction of new sidewalks and Americans with Disabilities Act ramp rehabilitation at various locations throughout the City of Killeen.

Source: City of Killeen, 2024
Notes: *Timeframe FY represents actual or anticipated completion date
Legend: FY=Fiscal Year; RGAAF=Robert Gray Army Airfield; DFAC=Dining Facility; BLORA=Belton Lake Outdoor Recreation Area; YDAH=Yoakum-Defrenn Army Heliport; ADA=Air Defense Artillery; CD=Calvary Division; MW=megawatt; MWD=Military Working Dog; NEC=North Energy Command; MWh=megawatt hour; kW=kilowatt; RV=Recreational Vehicle; ERCIP=Energy Resilience Conservation Investment Program; MGD= million gallons per day

4.2 Reasonably Foreseeable Effects Analysis

This section evaluates the reasonably foreseeable effects that have a reasonably close causal relationship to the proposed action and alternatives, including those that may result from relevant ongoing or future activities (see Table 4-1).

4.2.1 Air Quality

Reasonably foreseeable effects to air quality would occur if the proposed action, in conjunction with other ongoing or future actions contribute to or cause a violation of any federal, state, or local air quality standard or regulation. Long-term increases in air emissions are a reasonably foreseeable effect of implementing any of the action alternatives except the no action alternative. Several of the ongoing or future activities listed in Table 4-1—primarily construction projects—may contribute similar emissions and have a reasonably close causal relationship to the proposed action. Since construction activities are temporary, the combined emissions would have a temporary impact on air quality, and once construction is complete, the emissions would likely return to the more static levels, which would vary depending on the alternative selected, as described in Section 3.2.

Significant effects would occur if implementation of any of the alternatives of the proposed action, when combined with other actions would result in the violation of a local, state, or federal regulation or law. The most likely violation that could occur would be related to fugitive dust,

potentially leading to a local regulation violation. The construction activities on Fort Cavazos would be temporary. Impacts to regional air quality would be reduced by employing BMPs, including dust suppression management controls, use of electric and propane-fueled construction equipment, requiring restrictions such as reduced idling of fossil-fueled construction vehicles, and implementing sustainable design criteria for infrastructure, as required by the Army's Climate Action Plan (U.S. Army, 2022b). As a result, the impacts from reasonably foreseeable actions, when considered alongside other ongoing or future activities, are not expected to cause regulatory violations and would, therefore, not be considered significant.

Construction activities would result in temporary emission increases that would not continue once the projects are completed. Some ongoing and reasonably foreseeable projects may result in continued long-term increases, as is likely for the increased population using the potential newly constructed housing. Fort Cavazos could help reduce impacts within their own borders through the use of electric and/or propane equipment in construction and continuing to increase the use of renewable energy. As with the analysis of the proposed action, air emission increases would be the least under alternative 1, higher under alternative 2, and greatest under alternative 3.

4.2.2 Airspace

Reasonably foreseeable effects to the airspace at Fort Cavazos would occur if the proposed action, in conjunction with other ongoing or future actions, violate the FAA safety regulations or cause a substantial infringement on general aviation or commercial flight. A large number of the reasonably foreseeable actions at Fort Cavazos and in the surrounding area listed in Table 4-1 are construction-related, which would have no impact on airspace. Construction of the Multipurpose Machine Gun range could potentially affect airspace; however, installation regulations would mitigate any possible effect to less than significant levels.

The HP-DE weapon system proposed in action alternatives 2 and 3 requires restricted airspace that extends 60,000 feet above MSL to accommodate live-fire. At present, Fort Cavazos' restricted airspace has a maximum extent of 45,000 feet above MSL. Due to this, the HP-DE weapon system training could only consist of simulation firing. If live-fire training is required, consultation with the FAA and a vertical extension of the installation airspace would be needed.

Impacts to airspace resulting from implementation of the proposed action in conjunction with reasonably foreseeable actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.3 Biological Resources

Reasonably foreseeable effects to biological resources would occur if the proposed action, in conjunction with other ongoing or future actions, result in substantial permanent loss of habitat, loss of populations of species, or unpermitted/unlawful take of threatened or endangered species. Implementation of the proposed action would have small-scale impacts on vegetation communities but would not impact the ability to maintain existing vegetation communities. There are chances of individual mortalities during training activities; however, no population-level impacts are anticipated. The action area contains no designated critical habitat. In addition, Fort

Cavazos implements various management strategies to conserve and protect biological resources on Fort Cavazos (Fort Hood, 2019). When combined with other ongoing or foreseeable project activities as described in Table 4-1, the proposed action is unlikely to have any additional effect on regional plant and animal populations, including T&E species. The impacts from reasonably foreseeable actions, when considered alongside other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.4 Cultural Resources

Reasonably foreseeable effects to cultural resources would occur if the proposed action, in conjunction with other ongoing or future actions, result in significant alteration of NHRP listed and eligible properties or by altering, inhibiting access to properties of religious or cultural significance to Tribes. Reasonably foreseeable effects resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos have the potential to impact cultural resources and adversely affect historic properties due to ground disturbing activities, blocking access to sacred sites, and increasing the likelihood of unintentional impacts to previously unidentified cultural resources. Effects would be less than significant with the implementation of BMPs and mitigation measures as needed. The SOPs detailed in the Fort Cavazos HPC (Fort Hood, 2021) provide guidance for determining the presence of historic properties and BMPs for avoiding or reducing effects on historic properties. Reasonably foreseeable effects to cultural resources resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.5 Geologic and Soil Resources

Reasonably foreseeable effects to geologic and soil resources would occur if the proposed action, in conjunction with other ongoing or future actions, result in significant impacts to unique soil features or cause substantial soil loss. The proposed action would have localized, short-term effects on soil erosion. Effects would primarily be limited to unpaved roads during training operations with impacts including rutting and erosional issues. BMPs and mitigation measures would limit the overall scope of potential impacts associated with training and construction activities. Due to the limited scope of new potential impacts associated with the proposed action of this PEA, the action would have minor effects and would not measurably add to any reasonably foreseeable effects. Impacts to geologic and soil resources resulting from implementation of the proposed action in conjunction with ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.6 Hazardous and Toxic Materials and Waste

Reasonably foreseeable effects to hazardous and toxic materials and waste would occur if the proposed action, in conjunction with ongoing or future actions, significantly increased long-term exposure of human and environmental receptors to hazardous or toxic materials and wastes. A large amount of the reasonably foreseeable future actions at Fort Cavazos listed in Table 4-1 are construction-related; these would temporarily increase the use and generation of HM, HW, and solid waste. However, any installation construction-related debris associated with

installation facility construction and improvements would be re-used or disposed of in accordance with best management and disposal practices and Army guidance or procedures.

The increase in HM and hazardous and solid waste resulting from the foreseeable actions at the installation would not be appreciable. All HW and HM are managed under strict requirements of federal, state, local, Army, and installation regulations, where appropriate. Proper transport, storage, use, and disposal are mandated within regulations. Reasonably foreseeable effects to hazardous and toxic materials and waste resulting from implementation of the proposed action in conjunction with ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.7 Noise

Reasonably foreseeable effects to noise would occur if the proposed action, in conjunction with ongoing or future actions, cause harm or injury to on or off post communities or exceed applicable environmental noise limits. All construction activities identified in Table 4-1 would be temporary and would not present reasonably foreseeable effects. Future actions such as the Standard Design Automated Infantry Squad Battle Course and the Multipurpose Machine Gun Range have the potential to have noise-related impacts similar to noise impacts associated with the proposed action but would be consistent with activities currently occurring at Fort Cavazos. Furthermore, because this proposed action is programmatic and potential future construction details are not yet known, exact noise levels cannot be determined. As a result, a quantitative reasonably foreseeable noise impact assessment cannot be completed at this time. All of the other reasonably foreseeable future projects would not have overlapping noise impacts. Reasonably foreseeable effects to noise resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.8 Socioeconomics

Reasonably foreseeable effects to socioeconomics would occur if the proposed action, in conjunction with other ongoing or future actions would cause substantial changes to sales volume, income, employment, or population levels. The proposed action may affect socioeconomic resources such as labor force, housing, the economy. Impacts are expected to be largely beneficial at local and regional levels and to be short term. The actions listed in Table 4-1 would have nominal effects on socioeconomics ,and the overall impacts to the local communities, on and off base, would be positive, although the level of impact would vary by area and project size. Reasonably foreseeable effects to socioeconomics resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.9 Transportation and Traffic

Reasonably foreseeable effects to transportation and traffic would occur if the proposed action, in conjunction with other ongoing or future actions, resulted in a significant increase in traffic volume, substantially degrades traffic flow during peak hours, or exceeds road capacity and design. Reasonably foreseeable effects to transportation and traffic would result due to the

increase in traffic volume from implementing any of the alternatives other than the no action alternative. Table 4-1 lists various ongoing or future projects, which consist of mostly residential, commercial, and roadwork projects, which could lead to more vehicles on the roads in the communities surrounding Fort Cavazos. When combined with the implementation of the proposed action, these projects could moderately increase traffic both on the installation and in nearby communities. Conversely, road improvement projects in the surrounding communities may provide a positive impact on traffic congestion. Reasonably foreseeable effects to transportation and traffic resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

4.2.10 Water Resources

Reasonably foreseeable effects to water resources would occur if the proposed action, in conjunction with other ongoing or future actions, cause an increase in sedimentation, substantially affect surface water drainage or stormwater runoff, or substantially affect groundwater. Fielding of the new weapons systems is expected to have less than significant effects to all water resources. The projects listed in Table 4-1 are not expected to have significant impacts to water resources. Reasonably foreseeable effects to water resources resulting from implementation of the proposed action in conjunction with other ongoing or future actions at Fort Cavazos and in the surrounding region would be less than significant.

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[6] Effective May 9, 2023, the installation was renamed from Fort Hood to Fort Cavazos, following the Army Naming Commission's recommendations. This PEA references documents and materials that may still use the former name. Efforts are underway to update these references, but some may still mention Fort Hood. Regardless, the content of these materials remains relevant to Fort Cavazos at the time of this publication.

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