

**Final  
Environmental Assessment  
Automated Multi-Purpose Machine Gun (MPMG)  
Range Fort Hood, Texas  
EAXX-007-21-001-1755099739**

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September 2025



Prepared for:  
United States Army  
Fort Hood, Texas



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This Environmental Assessment (EA) is provided for public comment in accordance with the *National Environmental Policy Act* (NEPA); United States Department of Defense NEPA Implementing Procedures issued 30 June 2025; and Army Regulation 200-1, *Environmental Protection and Enhancement*. The environmental analysis of Army actions provides an opportunity for public input on Army decision-making, allows the public to offer inputs on alternative ways for the Army to accomplish the proposed action, and solicits comments on the Army's analysis of environmental effects.

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Information regarding the EA is available online at:

<https://home.army.mil/hood/units-tenants/Garrison/DPW/ENV/NOA>.

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## ACRONYMS AND ABBREVIATIONS

|                 |                                                                       |
|-----------------|-----------------------------------------------------------------------|
| ACAM            | Air Conformity Applicability Model                                    |
| ACM             | asbestos-containing materials                                         |
| ADA             | Americans with Disabilities Act of 1990                               |
| AFFF            | aqueous film forming foam                                             |
| APE             | Area of Potential Effects                                             |
| AR              | Army Regulation                                                       |
| Army            | United States Army                                                    |
| ARRM            | Army Range Requirements Model                                         |
| AWIAQCR         | Austin-Waco Intrastate Air Quality Control Region                     |
| bgs             | below ground surface                                                  |
| BLORA           | Belton Lake Outdoor Recreation Area                                   |
| BMP             | best management practice                                              |
| CAA             | Clean Air Act                                                         |
| CDNL            | C-weighted Day-Night Average Sound Level                              |
| CERCLA          | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR             | Code of Federal Regulation                                            |
| CO              | carbon monoxide                                                       |
| CWA             | Clean Water Act                                                       |
| dB              | decibel                                                               |
| dBA             | A-weighted decibel                                                    |
| dBp             | Peak Sound Pressure Level                                             |
| DFAC            | dining facility                                                       |
| DNL             | Day-Night Average Sound Level                                         |
| DoD             | United States Department of Defense                                   |
| DOT             | United States Department of Transportation                            |
| EA              | Environmental Assessment                                              |
| EIS             | Environmental Impact Statement                                        |
| EO              | Executive Order                                                       |
| ERCIP           | Energy Resilience Conservation Investment Program                     |
| ESA             | Endangered Species Act                                                |
| FEMA            | Federal Emergency Management Agency                                   |
| FONSI           | Finding of No Significant Impact                                      |
| FS              | facility site                                                         |
| ft <sup>2</sup> | square feet                                                           |
| FY              | fiscal year                                                           |
| GCWA            | golden-cheeked warbler                                                |
| HAZMAT          | hazardous materials                                                   |
| HWMP            | Hazardous Waste Management Plan                                       |
| ICRMP           | Integrated Cultural Resource Management Plan                          |
| INRMP           | Integrated Natural Resource Management Plan                           |
| IPaC            | Information for Planning and Consultation                             |
| IPMP            | Integrated Pest Management Plan                                       |
| IRP             | Installation Restoration Program                                      |
| LBP             | lead-based paint                                                      |

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|                   |                                                        |
|-------------------|--------------------------------------------------------|
| LFMU              | Live Fire Management Unit                              |
| MBTA              | Migratory Bird Treaty Act                              |
| MMRP              | Military Munitions Response Program                    |
| MPMG              | Multi-Purpose Machine Gun                              |
| MWD               | military working dog                                   |
| NAA               | nonattainment area                                     |
| NAAQS             | National Ambient Air Quality Standards                 |
| NEPA              | National Environmental Policy Act of 1969, as amended  |
| NHPA              | National Historic Preservation Act of 1966, as amended |
| NO <sub>x</sub>   | nitrogen oxides                                        |
| NPDES             | National Pollutant Discharge Elimination System        |
| NRHP              | National Register of Historic Places                   |
| NWP               | Nationwide Permit                                      |
| O <sub>3</sub>    | ozone                                                  |
| OSHA              | Occupational Safety and Health Administration          |
| PC                | Power Center                                           |
| PCB               | polychlorinated biphenyls                              |
| PFAS              | per- and polyfluoroalkyl substances                    |
| PFOA              | perfluorooctanoic acid                                 |
| PFOS              | perfluorooctane sulfonic acid                          |
| PM <sub>10</sub>  | inhalable particulate matter                           |
| PM <sub>2.5</sub> | fine inhalable particulate matter                      |
| POL               | petroleum, oils, and lubricants                        |
| PSD               | Prevention of Significant Deterioration                |
| RCRA              | Resource Conservation and Recovery Act                 |
| RGAAF             | Robert Gray Army Airfield                              |
| ROCA              | Range Operations Control Area                          |
| ROI               | Region of Influence                                    |
| RV                | recreational vehicle                                   |
| SARA              | Superfund Amendments and Reauthorization Act           |
| SDZ               | surface danger zone                                    |
| sf                | square feet                                            |
| SHPO              | State Historic Preservation Officer (or Office)        |
| SIT               | stationary infantry target                             |
| SO <sub>2</sub>   | sulfur dioxide                                         |
| SPCC              | Spill Prevention, Control, and Countermeasures         |
| SSA               | Special Status Assessment                              |
| SWPPP             | stormwater pollution prevention plan                   |
| TAC               | Texas Administrative Code                              |
| TCEQ              | Texas Commission on Environmental Quality              |
| THC               | Texas Historical Commission                            |
| tpy               | ton per year                                           |
| TPDES             | Texas Pollutant Discharge Elimination System           |
| TSCA              | Toxic Substances Control Act                           |
| TWDB              | Texas Water Development Board                          |
| US                | United States                                          |

|       |                                               |
|-------|-----------------------------------------------|
| USC   | United States Code                            |
| USACE | United States Army Corps of Engineers         |
| USDA  | United States Department of Agriculture       |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service       |
| VMS   | vehicle maintenance shop                      |
| VOC   | volatile organic compound                     |
| WOTUS | Water of the United States                    |
| YDAHP | Yoakum-Defreenn Army Heliport                 |

## **CHAPTER 1            PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.1    INTRODUCTION**

The United States (US) Army has prepared this Environmental Assessment (EA) to address the potential environmental impacts of the construction, operation, and maintenance of a proposed Multi-Purpose Machine Gun (MPMG) Range at Fort Hood, Texas, in compliance with the *National Environmental Policy Act* (Title 42 *United States Code* (USC) § 4321 et seq.) (NEPA); US Department of Defense (DoD) NEPA Implementing Procedures issued 30 June 2025; and Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*. The Army considered other pertinent environmental statutes, regulations, and compliance requirements during the preparation of this EA, which are addressed in relevant sections.

The information presented in this EA will serve as the basis for the Army's determination of whether the proposed action would result in a significant impact to the human or natural environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether the Army may reach a Finding of No Significant Impact (FONSI).

### **1.2    LOCATION AND BACKGROUND**

Fort Hood, formerly known as Fort Cavazos, is a US Armed Forces Command installation spanning approximately 214,968 acres near Killeen, Texas, within Bell and Coryell counties, and 39 miles to the southwest of Waco and 60 miles north of Austin (**Figure 1-1, Appendix A**). Fort Hood is the only post in the US capable of stationing and training two armored divisions. The installation comprises three main areas covering 8,604 acres: the primary cantonment area (also known as South Fort Hood), West Fort Hood, and North Fort Hood. The main cantonment area is near Killeen, West Fort Hood lies close to Copperas Cove, and North Fort Hood is near Gatesville. Additionally, there are two airfields that span 2,915 acres, along with extensive maneuver and live-fire training grounds occupying 197,603 acres. The installation is surrounded by a mix of urban and rural landscapes. The urban areas primarily feature residential, commercial, and industrial zones, while the rural areas are dominated by farming and cattle ranching.

The installation serves a community of 379,232 people, including retirees, family members, and residents both on and off installation. Furthermore, the installation features state-of-the-art ranges and training areas that accommodate mechanized maneuvers, small unit exercises, combined arms training, and live-fire drills. These facilities support 353 Strykers, 423 Bradleys, 261 Abrams tanks, and 179 aircraft. Fort Hood hosts 36,046 soldiers, with an additional 22,000 Reserve Component soldiers training annually. As one of only two active Primary Mobilization Force Generation installations in the Army, Fort Hood is crucial to power projection, combat readiness, post-mobilization training, sustainment, and pre-mobilization training for both Active and Reserve Components (DoD, 2018).

### **1.3    PROPOSED ACTION**

The proposed action is to construct, operate, and maintain a MPMG Range to train individual soldiers at Fort Hood in the live-fire training tasks required to uphold combat ability. Accompanying infrastructure may include electric service, transformers and lighting, surfaced roads and tank trails, parking, and drainage structures.

## **1.4 PURPOSE OF AND NEED FOR THE PROPOSED ACTION**

The purpose of the proposed action is to provide comprehensive, realistic, year-round training and range facilities to enhance soldiers' marksmanship skills. The MPMG Range would be used to train and evaluate individual soldiers on the critical abilities needed to identify, engage, and neutralize infantry targets with live fire. Principal weapons used on the range would include the M249 squad automatic weapon, the M240B machine gun, M110/M2010 rifle, the MK19 automatic grenade launcher, the M24 sniper weapon, and the M2 machine gun. Other next-generation squad weapon systems also would be considered as that technology is implemented.

The proposed action is needed so that the Army can train with equipment and weapons to compete with, and defeat, the power of the Nation's near-peer adversaries. Fort Hood requires sufficient modernized machine gun ranges to perform the marksmanship training and testing required by each soldier. The Standards in Training Commission has established a requirement for each soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM) projects how many ranges by type are needed to meet the training requirements of the soldiers assigned to or habitually training on the installation. The ARRM calculates that Fort Hood requires an additional MPMG Range to maintain the capacity necessary to satisfy this training requirement.

This EA 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.

## **1.5 PUBLIC INVOLVEMENT AND AGENCY AND TRIBAL COORDINATION**

### **1.5.1 Intergovernmental Coordination, Public and Agency Participation**

The environmental analysis process, in compliance with NEPA guidance, includes public and agency review of information pertinent to a proposed action and alternatives. Accordingly, and per Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, the Army will notify Federal, State, and local agencies and tribal governments with jurisdiction that could potentially be affected by the proposed action and alternatives, as appropriate, via written correspondence throughout development of this EA. Fort Hood has existing agreements in place, and all coordination will be in compliance with those agreements. A mailing list of the recipients of this correspondence as well as a sample of the outgoing letters and all responses are included in **Appendix B** of this EA.

### **1.5.2 Government-to-Government Consultation**

*The National Historic Preservation Act of 1966, as amended ([54 USC § 300101](#) et seq.)* (NHPA) and implementing regulations at [36 CFR Part 800](#) direct Federal agencies to consider the impact of their actions by consulting with the State Historic Preservation Office (SHPO) and federally recognized Native American Tribes when a Federal agency undertaking may affect historic properties listed or eligible for listing in the *National Register of Historic Places*. Consistent with the NHPA and [DoD Instruction 4710.02](#), *DoD Interactions with Federally Recognized Tribes*, the Army invited federally recognized Tribes that are historically affiliated with lands in the vicinity of the proposed action to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the Tribes. The tribal consultation process and its associated timelines are distinct from the NEPA process and require separate notification to all potentially affected Tribes. The Fort Hood Cultural Resources Manager is the

designated point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation.

### **1.5.3 Other Agency Consultations**

The proposed action would be implemented in compliance with all existing Fort Hood agency agreements. Applicable agencies will be notified about the opportunity to review the EA during the public comment period. This includes notifications pursuant to Section 7 of the *Endangered Species Act of 1973* (16 USC § 1531 et seq.) and the NHPA and implementing regulations (36 CFR Part 800).

On 13 February 2025, the Army used the US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool to obtain an official species list from the USFWS. The list identifies threatened and endangered species and other protected species (e.g., migratory birds) with potential to be affected by the proposed action. This information is included in **Appendix B** and incorporated into this EA where applicable.

The Federal Aviation Administration, the US Environmental Protection Agency (USEPA) and state and local agencies will be notified and given the opportunity to review the EA during the public review period.

The Army coordinated with the following state government agencies regarding potential effects from the proposed action:

- NHPA Section 106 compliance – Texas SHPO and the Texas Historical Commission;
- Air quality, water quality, hazardous wastes, and human health effects –Texas Commission on Environmental Quality (TCEQ); and
- Habitat and species of concern –Texas Parks and Wildlife Department.

In addition, the Army coordinated with local agencies during the development of this EA regarding potential effects of the proposed action.

### **1.5.4 Public Involvement**

The Army invites the public and other interested stakeholders to review and comment on the EA and Draft FONSI. Accordingly, a Notice of Availability of the EA and Draft FONSI was published in the *Killeen Daily Herald* on 12–13 September 2025 to commence a 30-day public comment period:

During the public comment period, the EA and Draft FONSI are available online for view or download at <https://home.army.mil/hood/units-tenants/Garrison/DPW/ENV/NOA>. Additionally, printed copies of the EA and Draft FONSI are available by request (see **Cover Sheet**) or for review at the following local libraries:

- Casey Memorial Library Building 3202, 72nd Street and 761st Tank Battalion Avenue
- Killeen Main Library, Main Branch, 205 East Church Avenue
- Copperas Cove Public Library, 501 South Main Street

## **1.6 DECISION TO BE MADE**

Based on the analysis in this EA, the Army will make one of three decisions regarding the proposed action:

- 1) choose to implement the proposed action and sign a FONSI, allowing implementation of the proposed action;
- 2) initiate preparation of an EIS if it is determined that implementation of the proposed action would cause significant impacts to the human and natural environment; or
- 3) select the no action alternative, whereby the proposed action would not be implemented.

As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project and be available to inform decision-makers of the potential environmental impacts.

## **CHAPTER 2                    DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

### **2.1    PROPOSED ACTION**

The proposed action is the construction, operation, and maintenance of an MPMG Range to train individual soldiers at Fort Hood in the live-fire training tasks required to uphold combat ability. The MPMG Range would include stationary infantry targets (SITs) and emplacements, stationary armor targets, and multiple firing positions and lanes. The range would contain fully automated targets, with scenarios scored from the Range Operations Center, providing immediate performance feedback to the soldiers using the range. Supporting infrastructure for the new range would include electric service, transformers and lighting, surfaced roads and tank trails, parking, and drainage structures. Additional facilities may include an access control building with laminated and safety glass, vehicle barriers, appropriate vehicle parking setbacks, security lighting and fencing, and/or gates for anti-terrorism/force protection.

### **2.2    SELECTION STANDARDS FOR ALTERNATIVES SCREENING**

Selection standards were developed to establish a means for determining the reasonableness of an alternative and whether an alternative should be carried forward for further analysis in the EA. The following selection standards meet the purpose of and need for the proposed action and were used to identify reasonable alternatives for analysis in the EA. The supporting alternatives must:

- address Fort Hood purpose and need to train individual soldiers at Fort Hood in the live-fire training tasks required to uphold combat ability;
- be located within the existing Fort Hood installation boundary;
- be located such that systems do not interfere with the Fort Hood ongoing mission;
- provide the necessary size and clearance requirements to operate new and existing weapons systems, with the potential for range improvements of approximately 371 acres;
- allow for adequate capacity for scheduling for new and existing systems; and
- be consistent with existing laws, regulations, and policies; in particular, Training Circular (TC) 25-8, *Training Ranges*, which requires a distance of 1,500 meters between the firing lines and the target area.

### **2.3    ALTERNATIVES CARRIED FORWARD**

NEPA regulations mandate the consideration of reasonable alternatives to the proposed action. “Reasonable alternatives” are those that could meet the purpose of and need for the proposed action. Among the alternatives evaluated for each project is a no action alternative, which serves to establish a comparative baseline for analysis. Based on the selection standards outlined in **Section 2.2**, the Army identified only one reasonable alternative that would meet all six screening criteria and satisfy the purpose and need. This alternative, referred to herein as the proposed action, is the Army’s preferred alternative.

#### **2.3.1    Proposed Action**

Under the proposed action, the MPMG Range would be located on Fort Hood, west of Belton Lake, northwest of the main cantonment area, and north of US Highway 190/Interstate 14 (**Figure 2-1, Appendix A**). The proposed action satisfies the selection standards by offering sufficient space and clearance, covering approximately 371 acres (minimum dimensions for the MPMG

Range are 1,000 meters by 1,500 meters, or 371 acres), and accommodating the standard 10 firing lines. Additionally, the proposed action meets the TC 25-8 requirement of having a distance of 1,500 meters between the firing lines and the target area.

The proposed action would be implemented to train and test soldiers on the skills necessary to align weapon sights, and to detect, identify, engage, and defeat infantry and armor targets in a tactical array. The proposed action also would support various training activities for soldier small arms, the MK19 automatic grenade launcher, and light and heavy machine guns in vehicle-mounted and/or ground-based configurations.

Primary features of the proposed action would include:

- **Firing Positions, Power Center, Zero Range, Lanes, and Targets** – The proposed action would include 88 SITs, eight widened SIT emplacements, 20 stationary armor targets, 6 two-man firing positions, 10 vehicle firing positions, six power center emplacements, a zero range, and 10 firing lanes. All targets would be fully automated, and the event-specific target scenario (customized sequence of targets specific to a particular training event) would be computer driven and scored from the Range Operations Center. The MPMG Range would offer immediate performance feedback to the soldiers using the range. **Table 2-1** provides additional details on the firing positions, lanes, and targets within the MPMG Range.
- **Support Buildings** – The proposed action would include two 800-square-foot (ft<sup>2</sup>) buildings, a classroom, one ammunition breakdown building, a latrine pad for portable toilets, and one covered mess facility. These buildings would be located in the southeastern portion of the proposed project area, near the proposed firing positions. Additionally, the range would include one 248 ft<sup>2</sup> Range Operations tower and covered bleachers with enclosure in the Range Operations Control Area. **Table 2-1** provides additional details on the proposed support buildings.
- **Infrastructure and Utilities** – Supporting infrastructure may include electric service, transformers and lighting, surfaced roads and tank trails, parking, and drainage structures to support the use and maintenance of the MPMG Range. Additional facilities may include an access control building with laminated and safety glass, vehicle barriers, appropriate vehicle parking setbacks, security lighting and fencing, and/or gates for anti-terrorism/force protection. **Table 2-1** provides additional details about the proposed infrastructure projects.

**Table 2-1 Range Features**

| Primary Features                            | Description                                                                                                                                                                                                                                                         | Estimated Facility Size (ft <sup>2</sup> unless otherwise noted) |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Firing Positions, Lanes, and Targets</b> |                                                                                                                                                                                                                                                                     |                                                                  |
| Vehicle firing position (FP)                | The vehicle FP would be a standard FP, with the side walls flared out as wings so that vehicles can use the position in addition to soldiers in a standing or prone position. There would be 10 vehicle FP, each at 2,000 ft <sup>2</sup> .                         | 20,000                                                           |
| Power center (PC)                           | There would be six PC emplacements that would serve the down-range targets. Primary power and fiber-optic cable would be routed to each PC, and secondary power and CAT6 cable would be routed from each PC to the target. Each PC would be 3,500 ft <sup>2</sup> . | 21,000                                                           |

| Primary Features                        | Description                                                                                                                                                                                                                                                                                       | Estimated Facility Size<br>(ft <sup>2</sup> unless otherwise noted) |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Zero range                              | A zero range would be constructed, designed specifically for calibrating, or "zeroing," firearms to ensure that the weapon's sights are accurately aligned with the point of impact at a designated distance.                                                                                     | 20,000                                                              |
| Firing lanes                            | This activity involves grading to establish the 10 firing lanes within the proposed range.                                                                                                                                                                                                        | 5,390,000<br>(539,000 per lane)                                     |
| Stationary infantry targets (SIT)       | Eighty-eight targets would be constructed down range. Each target would have a footprint of approximately 500 ft <sup>2</sup> .                                                                                                                                                                   | 44,000                                                              |
| Widened SIT emplacements                | Eight SIT emplacements would be widened. Each emplacement would have a footprint of approximately 600 ft <sup>2</sup> .                                                                                                                                                                           | 4,800                                                               |
| Stationary armor targets                | Twenty targets would be constructed down range. Each target would have a footprint of approximately 3,500 ft <sup>2</sup> .                                                                                                                                                                       | 70,000                                                              |
| <b>Support Buildings</b>                |                                                                                                                                                                                                                                                                                                   |                                                                     |
| Range Operations Tower                  | One tower would be constructed to support range training activities. The tower would have a footprint of approximately 289 ft <sup>2</sup> .                                                                                                                                                      | 289                                                                 |
| Classroom                               | The classroom would provide a specialized learning environment designed to provide a safe and effective space for firearms training.                                                                                                                                                              | 800                                                                 |
| Operations/Storage                      | A designated space is proposed to construct a building for managing range activities and securely storing materials, including weapons, ammunition, and other related equipment.                                                                                                                  | 800                                                                 |
| Bleachers                               | A bleachers enclosure would be constructed to provide an observation area with seating and safety features for personnel, trainees, and visitors. It would be designed to allow safe viewing of firing activities while providing shelter from environmental conditions like wind, sun, and rain. | 765                                                                 |
| Range Operations Control Area (ROCA)    | The ROCA would involve construction of covered bleachers with an enclosure.                                                                                                                                                                                                                       | 26,000                                                              |
| Ammunition breakdown building           | One building would be constructed for the purpose of ammunition breakdown.                                                                                                                                                                                                                        | 185                                                                 |
| ROCA parking                            | An open-air parking structure would be constructed to provide organized and secure parking spaces for vehicles.                                                                                                                                                                                   | 90,000                                                              |
| Support buildings                       | Two support buildings would be constructed. Each building would have a footprint of approximately 800 ft <sup>2</sup> .                                                                                                                                                                           | 1,600                                                               |
| Covered mess facility                   | One covered mess facility would be constructed. The facility would have a footprint of approximately 800 ft <sup>2</sup> .                                                                                                                                                                        | 800                                                                 |
| Latrine pad                             | One concrete latrine pad would be constructed to accommodate four portable toilets.                                                                                                                                                                                                               | 290                                                                 |
| Surfaced roads                          | Roadways would be constructed to support training exercises and maintenance of the MPMG Range. Approximately 32,600 linear feet (lf) of roadway would be cleared, graded, and surfaced.                                                                                                           | 32,600 lf                                                           |
| Electrical and communications utilities | 132,690 lf of electrical and communications lines would be installed to support range operations. There would be 29,890 lf of associated trenching.                                                                                                                                               | 132,690 lf                                                          |

FP = firing position; ft<sup>2</sup> = square feet; lf = linear feet; PC = power center; ROCA = Range Operations Control Area; SIT = stationary infantry target

### **2.3.2 No Action Alternative**

NEPA requires an evaluation of the no action alternative to offer a comparative baseline against which to evaluate the impacts of the proposed action. Under the no action alternative, the MPMG Range at Fort Hood would not be constructed, operated, or maintained. Fort Hood would not have an additional MPMG Range to maintain the capacity necessary to satisfy training requirements. Furthermore, aging infrastructure would hinder the ability of soldiers, equipment, and weapons systems to rapidly deploy to any contingency of operations around the world. Fort Hood would fall short of the necessary training capacity required.

## **2.4 ALTERNATIVES NOT CARRIED FORWARD**

The Army considered the following alternatives to the proposed action:

**Utilize Off-Site Resources** – Transit to a nearby DoD installation for training. This alternative does not meet Selection Criteria 1 and 2. Therefore, the Army eliminated this alternative from further evaluation.

**Utilize Current Trapnell Machine Gun Range** – The current Trapnell Machine Gun Range is located on Fort Hood, northwest of the main cantonment area and north of US Highway 190/Interstate 14. The Trapnell Machine Gun Range does not meet Selection Criterion 6 (TC 25-8 distance requirement) and therefore was eliminated from further evaluation.

**Cowhouse Machine Gun Range** – The Cowhouse Machine Gun Range is located on Fort Hood, northwest of the main cantonment area and north of US Highway 190/Interstate 14. The Cowhouse Machine Gun Range does not meet Selection Criterion 6 (TC 25-8 distance requirement) and therefore was eliminated from further evaluation.

**North Site Range** – The North Site Range is located on Fort Hood, north of the Ewing Range complex, just east of the Known Distance Range. This range does not meet Selection Criteria 1 and 4 because the surface danger zone from Dalton Mountain would not allow for the required 10 firing lines or provide the necessary size and clearance requirements to operate new and existing weapons systems.

## **2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

**Table 2-2** summarizes the potential impacts to each resource area from the proposed action and no action alternative. The summaries are based on information discussed in **Chapter 3** of this EA and includes concise definition of the issues addressed and the potential environmental impacts associated with each alternative.

**Table 2-2 Summary of Potential Environmental Consequences**

| <b>Resource</b>                                         | <b>Proposed Action</b>                                                                                                                                                                                                                                                                                  | <b>No Action Alternative</b>                            |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Land Use                                                | No adverse impacts to land use.                                                                                                                                                                                                                                                                         | No changes to land use.                                 |
| Air Quality                                             | Short-term, minor-to-moderate, adverse impacts to air quality.                                                                                                                                                                                                                                          | No changes to air quality.                              |
| Noise                                                   | No observable long-term, adverse impacts or operational increases in noise.                                                                                                                                                                                                                             | No change or impacts to the existing noise environment. |
| Earth Resources                                         | Short-term, minor, adverse impacts to soils and long-term, minor, adverse impacts to topography.                                                                                                                                                                                                        | No changes to earth resources.                          |
| Water Resources                                         | Long-term, minor, adverse impacts to surface water, stormwater, and groundwater resources; no impacts to wetlands and floodplains.                                                                                                                                                                      | No changes to water resource.                           |
| Biological Resources                                    | Long-term, minor, adverse impacts to vegetation, migratory birds, invasive species, and noxious weeds; short-term, minor, adverse impacts to grassland vegetation; short-term, minor, adverse impacts to monarch butterflies; and no adverse impacts to the golden-cheeked warbler and tricolored bats. | No impacts to biological resources.                     |
| Cultural Resources                                      | No adverse impacts to cultural resources.                                                                                                                                                                                                                                                               | No changes to cultural resources.                       |
| Infrastructure (utilities, traffic, and transportation) | Long-term, negligible, adverse impacts to the communications, electrical, and potable water systems; solid waste management; and traffic and transportation. No impacts to the natural gas or sanitary sewage/wastewater systems.                                                                       | No impacts to infrastructure.                           |
| Hazardous and Toxic Materials and Waste                 | Short-term, negligible-to-minor, adverse impacts to hazardous material and petroleum products; short-term, minor, adverse impacts to asbestos-containing material and lead-based paint; and short-term, minor, adverse impacts related to pest management.                                              | No changes to hazardous and toxic materials and waste.  |
| Human Health and Safety                                 | No impacts to human health and safety.                                                                                                                                                                                                                                                                  | No changes to human health and safety.                  |

## CHAPTER 3                    EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

### 3.1    FRAMEWORK FOR ANALYSIS

To provide a framework for the analyses in this EA, the authors defined a study area specific to each resource or sub-resource area. Referred to as a Region of Influence (ROI), these areas delineate a boundary where possible effects from the considered alternatives would have a reasonable likelihood to occur. Beyond these ROIs, potential adverse effects on resources would not be anticipated. For the purposes of analysis, potential effects are described as follows:

- **Beneficial** – positive effects that improve or enhance resource conditions
- **Adverse** – negative or harmful results
- **Negligible** – effects likely to occur but at levels not readily observable by evaluation
- **Minor** – observable, measurable, tangible effects qualified as below one or more significance threshold(s)
- **Moderate** – tangible effects that are readily apparent, qualified as below one or more significance threshold(s)
- **Significant** – obvious, observable, verifiable effects qualified as above one or more significance threshold(s); not mitigable to below significance

When relevant to the analyses in this EA, potential effects are further defined as direct or indirect; short- or long-term; and temporary, intermittent, or permanent.

### 3.2    RESOURCES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Fort Hood considered but eliminated from further analysis the following resource areas:

- Airspace
- The Electromagnetic Spectrum
- Socioeconomics

Airspace and the electromagnetic spectrum were eliminated because the proposed action would not involve any activities with the potential to impact airspace or electromagnetic spectrum. Socioeconomics was eliminated because the proposed action would not involve the addition of soldiers or dependents to Fort Hood and the surrounding area. Increases in local housing demand or strain on local schools and educational resources are not expected.

### 3.3    RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

Based on the results of internal and external scoping (see **Section 1.5**) the following resources were carried forward for analysis: land use, air quality, noise, earth resources, water resources, biological resources, cultural resources, infrastructure (utilities, traffic, and transportation), hazardous and toxic materials and waste, and human health and safety.

### 3.4    LAND USE

#### 3.4.1    Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws; however, no nationally recognized convention or uniform terminology has

been adopted for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions.

The ROI for land use is the project area within the Fort Hood installation boundaries.

### **3.4.2 Existing Conditions**

Fort Hood, formerly known as Fort Cavazos, is a sprawling military installation covering approximately 215,000 acres across Bell and Coryell counties in central Texas. This vast area is strategically organized into seven distinct regions to facilitate diverse military operations and training exercises: the Northwest region, North Fort Hood region, the dedicated Live-Fire Training Area (or live-fire area), the Northeast region, the Southeast region, the Southwest region, and the South region, as detailed in the *2024 Integrated Natural Resources Management Plan* (INRMP) (Fort Cavazos, 2024a). The proposed action is located within the southern portion of the Live-Fire Training Area, indicating its operational focus within a designated zone for live-fire exercises.

### **3.4.3 Environmental Consequences**

#### **3.4.3.1 Evaluation Criteria**

Potential land use impacts are determined by the sensitivity of the affected areas and the compatibility of the proposed action with existing conditions. In general, a land use impact would be adverse if it meets one or more of the following criteria:

- inconsistent or noncompliant with existing land use plans or policies,
- precludes the viability of existing land use,
- precludes continued use or occupation of an area,
- incompatible with adjacent land use to the extent that public health or safety is threatened, and/or
- conflicts with planning criteria established to ensure the safety and protection of human life and property.

#### **3.4.3.2 Proposed Action**

The proposed MPMG Range would be located entirely within the live-fire area, within the LF88 training area (**Figure 3-1, Appendix A**). The MPMG Range is a permitted land use within the live-fire area and is consistent with surrounding land uses, including other ranges such as the Trapnell Machine Gun Range and Sugarloaf Multi-Use Range (Fort Hood, 2017a).

The proposed action aligns with current land use, specifically the Range and Maneuver Training Areas. It was chosen to maximize training value and installation use while avoiding conflicts with local land use. The proposed action also fits well with Fort Hood's Western Training Area, a vast 15,000-square-mile area extending over 150 miles west of the installation, providing essential airspace access through agreements with ranchers and landowners (City of Copperas Cove, 2018).

Implementation of the proposed action would result in short-term, minor, adverse impacts to land use in the ROI during initial grading and clearing activities associated with construction. However, because the proposed action would align with existing land use at the project location, no long-term impacts to land use are anticipated.

### 3.4.3.3 No Action Alternative

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. No project development associated with the MPMG Range would occur. There would be no impacts to land use in the ROI beyond baseline conditions.

## 3.5 AIR QUALITY

### 3.5.1 Definition of the Resource

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. Air pollution is a threat to human health and damages trees, crops, other plants, waterbodies, and animals. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To improve air quality and reduce air pollution, Congress passed the *Clean Air Act* ([42 USC § 7401 et seq.](#)) (CAA), which set regulatory limits on air pollutants and help to ensure basic health and environmental protection from air pollution.

The United States Environmental Protection Agency (USEPA) has divided the country into geographical regions known as air quality control regions to evaluate compliance with the National Ambient Air Quality Standards (NAAQS). Fort Hood is in the Austin-Waco Intrastate Air Quality Control Region (AWIAQCR) ([40 CFR § 81.134](#)), which serves as the ROI for the proposed action.

#### 3.5.1.1 Criteria Pollutants

Air quality is defined by ambient concentrations of specific air pollutants that the USEPA has determined may affect the health or welfare of the public. The CAA requires USEPA to set NAAQS for commonly found air pollutants known as criteria air pollutants. These are pollutants the USEPA determined can affect the health or welfare of the public and include ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (USEPA, 2025a).

Ozone is not usually emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants, or “ozone precursors.” These ozone precursors consist primarily of nitrogen oxides and volatile organic compounds that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies limit atmospheric ozone concentrations by controlling volatile organic compound pollutants (also identified as reactive organic gases) and nitrogen oxides.

**Table 3-1** shows the specific concentration limits (primary and secondary) for each of the criteria pollutants that have been determined to impact human health and the environment. The primary NAAQS provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary NAAQS provides public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (USEPA, 2024a).

**Table 3-1 National Ambient Air Quality Standards**

| Pollutant         | Primary/Secondary <sup>a,b</sup> | Averaging Time          | Level                  |
|-------------------|----------------------------------|-------------------------|------------------------|
| Carbon monoxide   | Primary                          | 8 hours                 | 9 ppm                  |
| Carbon monoxide   | Primary                          | 1 hour                  | 35 ppm                 |
| Nitrogen dioxide  | Primary                          | 1 hour                  | 100 ppb                |
|                   | Primary and Secondary            | Annual                  | 53 ppb                 |
| Ozone             | Primary and Secondary            | 8 hours                 | 0.070 ppm              |
| PM <sub>2.5</sub> | Primary                          | 1 year                  | 9.0 µg/m <sup>3</sup>  |
|                   | Secondary                        | 1 year                  | 15 µg/m <sup>3</sup>   |
|                   | Primary and Secondary            | 24 hours                | 35 µg/m <sup>3</sup>   |
| PM <sub>10</sub>  | Primary and Secondary            | 24 hours                | 150 µg/m <sup>3</sup>  |
| Sulfur dioxide    | Primary                          | 1 hour                  | 75 ppb                 |
|                   | Secondary                        | 1 year                  | 10 ppb                 |
| Lead              | Primary and Secondary            | Rolling 3-month average | 0.15 µg/m <sup>3</sup> |

Source: [USEPA, 2024a](#)

a Primary Standards: the levels of air quality necessary, with an adequate margin of safety, to protect public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

b Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter; PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller; ppm = parts per million; ppb = parts per billion

### 3.5.1.2 General Conformity and Attainment

When a region or area meets NAAQS for a criteria pollutant, that region or area is classified as in “attainment” for that pollutant. Within attainment areas the Prevention of Significant Deterioration (PSD) or “threshold of insignificance” for NEPA air quality impacts is 250 tons per year for all criteria pollutants ([40 CFR 52.21\(b\)\(1\)\(i\)](#)) with the exception of 25 tons per year for lead (USEPA, 2024b).

When a region or area fails to meet NAAQS for a criteria pollutant, that region or area is classified as “nonattainment” for that pollutant. In cases of nonattainment, the affected state, territory, or local agency must develop a state implementation plan for USEPA review and approval. The state implementation plan is an enforceable plan developed at the state level that lays out a pathway for how the state would comply with air quality standards. If air quality improves in a region that is classified as nonattainment, and the improvement results in the region meeting the criteria for classification as attainment, then that region is reclassified as a “maintenance” area.

Under the CAA, the General Conformity Rule requires proposed Federal agency activities in designated nonattainment or maintenance areas (i.e., attainment areas reclassified from a prior nonattainment designation) to demonstrate conformity with the state implementation plan for attainment of NAAQS. Agencies are required to show that the net change in emissions from a Federal proposed action would be below applicable *de minimis* threshold levels (i.e., so minor as to merit disregard). **Table 3-2** shows the *de minimis* threshold levels for nonattainment areas.

**Table 3-2 General Conformity *De Minimis*<sup>a</sup> Values**

| Pollutant                         | Attainment Status                                                  | <i>De minimis</i> Threshold (tons/year) |
|-----------------------------------|--------------------------------------------------------------------|-----------------------------------------|
| Ozone (VOCs or NO <sub>x</sub> ): | Extreme NAAs                                                       | 10                                      |
|                                   | Severe NAAs                                                        | 25                                      |
|                                   | Serious NAAs                                                       | 50                                      |
|                                   | Other ozone NAAs outside an ozone transport region                 | 100                                     |
|                                   | Other ozone NAAs inside an ozone transport region: VOC             | 50                                      |
|                                   | Other ozone NAAs inside an ozone transport region: NO <sub>x</sub> | 100                                     |
| Carbon monoxide                   | All maintenance areas                                              | 100                                     |
| Nitrogen dioxide                  | All NAAs                                                           | 100                                     |
| Sulfur dioxide                    | All NAAs                                                           | 100                                     |
| PM <sub>10</sub>                  | Serious NAAs                                                       | 70                                      |
|                                   | Moderate NAAs                                                      | 100                                     |
| PM <sub>2.5</sub>                 | Serious NAAs                                                       | 70                                      |
|                                   | Moderate NAAs                                                      | 100                                     |
| Lead                              | All NAAs                                                           | 25                                      |

Source: 40 CFR § 93.153(b)(1) and (b)(2)

a *de minimis* threshold = The level of emissions below which a project is considered to have a negligible impact on air quality.NAA = nonattainment area; NO<sub>x</sub> = nitrogen oxides; CO = carbon monoxide; PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller;PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; VOCs = volatile organic compounds

### 3.5.1.3 New Source Review

Per the CAA, the USEPA's PSD New Source Review permit program regulates criteria and certain non-criteria air pollutants for air quality control regions designated as unclassified or in attainment status with respect to the Federal standards. In such areas, a PSD review is required for new "major source" or "major modification of existing source" emissions that exceed 100 or 250 tons per year (tpy) of a regulated CAA pollutant, dependent on the type of major stationary source. For "minor source" emissions, a PSD review is required if a project increases a "major source" threshold (USEPA, 2024b).

### 3.5.1.4 State and Local Permits and Regulations

The State of Texas has adopted the Federal NAAQS. Pursuant to Title 30 of the Texas Administrative Code, Chapter 122.132 ([30 TAC 122.32](#)), TCEQ administers a permit program for stationary source emissions generated at Federal facilities. Permitting requirements for Federal owners and operators are largely based on a "potential to emit," defined as the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design or configuration. Potential to emit calculations determine whether a Federal facility is defined as a "major source" under the CAA requiring a Title V Operating Permit; however, some "non-major" or "minor source" Federal owners or operators are subject to permit-by-rule requirements ([30 TAC 106](#)). Permits by rule authorize stationary source emissions for individual or specific operations.

TCEQ's delegated authority under the CAA extends to mobile emissions generated in the state of Texas. Pursuant to [30 TAC 111.145](#), fugitive dust generated by construction or demolition involving one acre or more of land requires, at a minimum, two dust control measures, including the use of water (or other suitable oil or chemical application) for dust suppression and measures to prevent airborne particulate matter during sandblasting or similar operations.

### 3.5.2 Existing Conditions

#### 3.5.2.1 Air Emission Sources at Fort Hood

The AWIAQCR is in attainment for the NAAQS criteria pollutants (USEPA, 2025b).

As a Federal installation that is considered a “major source” contributor for air pollution, Fort Hood maintains a Title V Operating Permit (Part 70 Operating Permit, Permit Number O1659), which requires monitoring emissions and reporting the findings. Title V is a Federal program designed to standardize air quality permits and the permitting process for major sources of emissions across the country and requires the USEPA to establish a national operating permit program. USEPA defines a major source as a facility that emits or has the potential to emit any criteria pollutant or hazardous air pollutant at levels equal to or greater than the major source thresholds. The major source threshold for criteria pollutants may vary depending on the attainment status (e.g., marginal, serious, extreme) of the geographic area and the criteria or hazardous air pollutant in which the facility is located.

Stationary emissions sources at Fort Hood include abrasive blasting operations, external combustion equipment, engine testing operations, fugitive dust sources, fueling station operations, internal combustion equipment, loading rack operations, surface coating operations, storage tanks, solvent use operations, welding operations, woodworking operations and other minor miscellaneous operations. Internal and external combustion equipment accounts for the bulk of the criteria pollutant emissions. Volatile organic compounds and hazardous air pollutants are primarily emitted from storage tanks and fueling operations, surface coating operations, and solvent use operations (Fort Hood, 2021). The 2020 emissions inventory for Fort Hood is presented in **Table 3-3**.

**Table 3-3 Fort Hood Emission Summary – 2020 (tons per year)**

| VOCs <sup>a</sup> | NO <sub>x</sub> <sup>a</sup> | CO <sup>a</sup> | SO <sub>2</sub> <sup>a</sup> | PM <sub>10</sub> <sup>a</sup> | PM <sub>2.5</sub> <sup>a</sup> | Lead <sup>a</sup> |
|-------------------|------------------------------|-----------------|------------------------------|-------------------------------|--------------------------------|-------------------|
| 11.3196           | 40.3620                      | 117.1639        | 0.7223                       | 19.5601                       | 13.21                          | 0.2133            |

<sup>a</sup> Source: Fort Hood, 2021.

CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller; PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; SO<sub>2</sub> = sulfur dioxide, VOCs = volatile organic compounds

#### 3.5.2.2 Regional Climate

The climate in Killeen, Texas, includes hot and muggy summers and short, cold, and windy winters. Over the course of the year, the temperature typically varies from 40 degrees Fahrenheit (°F) to 96°F and is rarely below 27°F or above 102°F. June, July, and August are the most humid months, during which time it is muggy and oppressive at least 70 percent of the time. Precipitation increases during the wetter season between April and October, followed by a drier winter season. The month with the most rain in Killeen is May, with an average rainfall of 3.8 inches. Wind tends to be greater in the winter and spring, with average wind speeds of more than 9.8 miles per hour. The calmer time of year tends to be from June to October, with average wind speeds of 8.3 miles per hour (Weatherspark, 2025). Wind directions are seasonal in the area, with winds largely blowing from the south-southeast during the warmer months of March through October. From October through February, the winds shift and become more variable, splitting between the south and north. The transition between these wind patterns occurs in March (Iowa State, 2025).

### 3.5.3 Environmental Consequences

#### 3.5.3.1 Evaluation Criteria

The environmental impact methodology for criteria pollutant air quality impacts presented in this EA estimates air emissions for each specific criteria and precursor pollutant, as defined in the NAAQS. The proposed action is broken down into basic units, considering grading (ft<sup>2</sup>), and construction timelines. These data are then input into the Air Conformity Applicability Model (ACAM), which models emissions based on the inputs. The calculated emissions are then compared to the applicable threshold based on the attainment status of the ROI. If the annual net increase in emissions from the project are below the applicable thresholds, then the proposed action is not considered significant and would not be subject to any further conformity determination. Assumptions of the model, methods, and detailed summary results are provided in **Appendix C** of this EA.

The AWIAQCR is in attainment for all criteria pollutants ([40 CFR § 81.344](#)) (USEPA, 2025b). Due to the attainment status, the 250 tpy PSD value is used for the criteria pollutant threshold. Additionally, due to the toxicity of lead, the use of the lead PSD threshold as an indicator of potential air quality impact insignificance is not protective of human health or the environment. Therefore, the *de minimis* value of 25 tpy is used for the lead threshold.

#### 3.5.3.2 Proposed Action

All proposed construction would occur within the footprint of the installation. Calculations have been performed to account for construction projects being completed over the course of one year and building heating to commence the year after construction. The following assumptions were used for construction projects:

- For the purposes of calculating emissions based on building volume (cubic feet), buildings are assumed to have an average height of 12 feet to account for some variation in the heights across all proposed projects.
- Range roads are assumed to be 15 feet wide to estimate the extent of grading.
- Covered storage facilities do not require additional heating.

Emissions would be generated primarily by:

- diesel-powered construction equipment operating on site,
- trucks removing or delivering materials,
- trucks operating within the fence line of the proposed development area,
- construction workers commuting to and from work,
- dust created by grading and other bare earth construction activities, and
- application of architectural coatings.

Detailed information on the emissions estimates and assumptions can be found in **Appendix C**.

**Table 3-4** presents the estimated air emissions under the proposed action. **Table 3-5** summarizes the highest estimated annual emissions for each pollutant under the proposed action compared to their respective thresholds within the AWIAQCR. The steady-state air emissions represent the ongoing annual emissions in future years.

**Table 3-4 Estimated Annual Air Emissions of the Proposed Action (tpy)**

| Pollutant                  | 2026   | 2027  | Steady-State |
|----------------------------|--------|-------|--------------|
| Volatile organic compounds | 0.802  | 0.002 | 0.002        |
| Nitrogen oxides            | 1.655  | 0.146 | 0.146        |
| Carbon monoxide            | 1.911  | 0.036 | 0.036        |
| Sulfur dioxide             | 0.004  | 0.315 | 0.315        |
| PM <sub>10</sub>           | 55.991 | 0.009 | 0.009        |
| PM <sub>2.5</sub>          | 0.061  | 0.003 | 0.003        |
| Lead                       | 0.000  | 0.000 | 0.000        |
| Ammonia                    | 0.001  | 0.000 | 0.000        |

PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller; PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; tpy = ton per year

**Table 3-5 Estimated Highest Annual Air Emissions and PSD Thresholds**

| Pollutant                  | Highest Annual Emissions (ton/yr) | GENERAL CONFORMITY |                        |
|----------------------------|-----------------------------------|--------------------|------------------------|
|                            |                                   | Threshold (tpy)    | Exceedance (yes or no) |
| Volatile organic compounds | 0.802                             | 250                | No                     |
| Nitrogen oxides            | 1.655                             | 250                | No                     |
| Carbon monoxide            | 1.911                             | 250                | No                     |
| Sulfur dioxide             | 0.004                             | 250                | No                     |
| PM <sub>10</sub>           | 55.991                            | 250                | No                     |
| PM <sub>2.5</sub>          | 0.061                             | 250                | No                     |
| Lead                       | 0.000                             | 25                 | No                     |
| Ammonia                    | 0.001                             | 250                | No                     |

PM<sub>10</sub> = inhalable particles with diameters of 10 micrometers or smaller; PM<sub>2.5</sub> = fine inhalable particles with diameters of 2.5 micrometers or smaller; tpy = ton per year

Emissions from construction activities would not exceed General Conformity thresholds (**Table 3-5**). Accordingly, implementation of the proposed action would not be anticipated to result in significant adverse impacts to ambient air quality or human health. Short-term, minor-to-moderate adverse impacts to air quality would be anticipated to occur during construction as a result of an increase in emissions from construction equipment.

Construction activities would adhere to all applicable TCEQ dust control measures pursuant to 30 TAC 111.145. The following best management practices (BMPs) would be used to limit fugitive dust:

- Stabilize soil prior to, during, and after cut and fill activities.
- Apply water to stabilize disturbed soil throughout the construction site.
- Limit vehicle traffic and disturbance on soils where possible.
- Limit the size of staging areas.
- Apply water to surface soils where support equipment and vehicles would be operated.

Implementation of the proposed action would result in no impacts to air quality and climate change in the ROI. Accordingly, no mitigation measures are recommended.

### 3.5.3.3 No Action Alternative

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to air quality in the ROI beyond baseline conditions.

## 3.6 NOISE

### 3.6.1 Definition of the Resource

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Noise is generally described as unwanted sound. Unwanted sound can be grounded in objectivity (e.g., hearing loss or damage to structures) or subjectivity (e.g., an individual's level of tolerance or annoyance to different sounds). Noise events elicit varying responses within a population or area based on the activity generating noise and its perceived importance and related factors, such as setting, time of day, exposure period or duration, and receptor sensitivity. In addition to humans, noise may also affect wildlife as indicated by behavioral changes during nesting, foraging, migration, or other life-cycle activities (USEPA, 1978).

#### 3.6.1.1 Noise Metrics

Noise and sound levels are expressed in logarithmic units measured by decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech equates to a sound level of approximately 60 dB; sound levels above 120 dB begin to be felt inside the human ear as discomfort, and sound levels between 130 and 140 dB are felt as pain (Berglund and Lindvall, 1995). To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements typically use an "A-weighted" scale, denoted as dBA. This scale de-emphasizes very low and very high frequencies to better reflect human hearing sensitivity. In contrast, dBP (decibels peak) measures the maximum instantaneous sound pressure level of a sound event. While dBA averages sound levels over time, adjusting for frequency, dBP captures the highest, briefest pressure point, which is particularly important for assessing potential harm from impulsive noises.

In accordance with DoD guidelines and standard practice for environmental impact analysis documents, the noise analysis herein uses the Day-Night Average Sound Level (DNL), and the Onset-Rate Adjusted DNL. DNL is a cumulative measure of multiple flight and engine maintenance activities throughout an average year.

The *Noise Control Act of 1972* ([Public Law 92-574](#)) directs Federal agencies to comply with applicable Federal, State, and local noise control regulations. In 1974, the USEPA provided information suggesting that continuous and long-term noise levels greater than 65 dBA are normally unacceptable for noise-sensitive receptors such as residences, schools, churches, and hospitals (USEPA, 1974).

AR 200-1 employs three noise zones (I, II, and III) to guide land use planning, described below and detailed in **Table 3-6**.

- Zone I: This zone designates noise-sensitive uses, such as homes and schools, as acceptable.

- Zone II: Noise-sensitive uses are generally considered incompatible in this zone without careful planning and mitigation.
- Zone III: Noise-sensitive uses are deemed incompatible in this zone.

**Table 3-6** defines these noise zones using two key metrics:

- C-weighted Day-Night Level (CDNL): This metric is used to evaluate noise impacts from large-caliber weapon systems and demolition activities.
- Peak Sound Pressure Level (dBP): This metric is used to assess the risk of immediate hearing damage.

This comprehensive zoning system aims to minimize noise impacts on surrounding communities.

**Table 3-6 Noise Limits for Noise Zones**

| Noise Zone | Large-Caliber and Demolition (CDNL) | Small Arms (dBP) | Community Compatibility  |
|------------|-------------------------------------|------------------|--------------------------|
| LUPZ       | 57–62                               | -                | Generally compatible     |
| Zone I     | <62                                 | <87              | Generally compatible     |
| Zone II    | 62–70                               | 87–104           | Generally not compatible |
| Zone III   | >70                                 | >104             | Not compatible           |

Source: Army Regulation 200-1

dBP = Peak Sound Pressure Level, CDNL = C-weighted Day-Night Average Sound Level. LUPZ = Land Use Planning Zone

The ROI for noise is Fort Hood and the surrounding community. Population exposure to training noise is greatest to the south of Fort Hood, as the city of Killeen and the smaller municipalities of Copperas Cove, Harker Heights, and Belton are adjacent to the southern boundary of the Base (Fort Hood, 2017a).

### 3.6.2 Existing Conditions

The primary noise sources at Fort Hood are small- and large-caliber weapons firing (including demolition operations) and aircraft operations. Fort Hood has a large number of small arms ranges, which are used frequently throughout the year. Multiple ranges concurrently firing is a common daily occurrence on the installation. Noise models have been used to create noise contours for small arms operations, large-caliber weapons, and demolition operations. Small-caliber weapons noise is addressed utilizing peak sound pressure level dBP and has no assessment period. Large-caliber weapons and demolitions are addressed using the C-CDNL, with an assessment period of 250 days. Fort Hood models its small arms noise exposure using the Small Arms Range Noise Assessment Model and the BNOISE2 modeling program for large arms, demolitions, and other impulsive sounds (Fort Hood, 2017a).

#### 3.6.2.1 Small Arms

The combined noise contours show the noise generated from small arms firing is primarily contained to the live fire area, impact area, and training areas throughout the central portion of Fort Hood (**Figure 3-2, Appendix A**). The existing area for the proposed MPMG Range is currently within a Zone III small arms noise zone.

The peak sound pressure level (dBP) created by small arms firing varies by caliber of ammunition and distance from the firing station (Fort Hood, 2017a). The 0.50 caliber round, one of the largest small arms ammunitions, would create a peak sound of approximately 116–126 dBP at 100 meters, decreasing to approximately 81–91 dBP at 1,600 meters. The existing Small Arms Zone III covers

15,415 acres, including 132 acres on the cantonment, and zero acres off the installation. The existing Small Arms Zone II covers 61,874 acres, including 1,707 acres on the cantonment and 243 acres off the installation. No off-installation nighttime cantonment populations are within Small Arms Zone III. Between 2,000 and 3,300 military and contract personnel within the cantonment area are located within Small Arms Zone II.

### **3.6.2.2 Large Caliber and Demolition**

The sounds from large arms, demolitions, and other impulsive sounds generally create the largest noise complaint issues because the sound can travel far and is difficult to mitigate (Berglund et al, 1995) (**Figure 3-3, Appendix A**). The existing area for the proposed MPMG Range is currently within a Zone III large-caliber and demolition noise zone. The noise level for Large-Caliber Zone III is greater than 70 dB CDNL. The noise level for Large-Caliber Zone II is approximate 62–70 dB CDNL. Peak sound levels for large-caliber ammunition and demolition are approximately 115–130 dBP. The existing large-caliber and demolition Noise Zone III is 42,538 acres, including 111 acres in the cantonment, and zero acres off the installation. The existing large-caliber and demolition Noise Zone II is 42,186 acres, including 1,708 acres of cantonment and 304 acres off installation.

## **3.6.3 Environmental Consequences**

### **3.6.3.1 Evaluation Criteria**

When evaluating noise effects, several aspects are examined:

- the degree to which noise levels generated by construction and operational activities would be higher than the ambient noise levels;
- the degree to which there would be hearing loss and/or annoyance; and
- the proximity of noise-sensitive receptors (e.g., residences, schools, hospitals, parks) to the noise source.

Adverse impacts to the noise environment would occur if the proposed action causes increases in the ambient noise environment within the ROI. To prevent incompatibilities between military operations and civilian land use from reaching a significant level, the Army must take reasonable steps to protect the community from training noise (Fort Hood, 2017a). An environmental analysis of noise includes the potential effects on the local population and estimates the extent and magnitude of the noise generated by the proposed action. The analysis also determines if the proposed action would significantly change the noise zones and increase impacts to the off-site civilian population.

### **3.6.3.2 Proposed Action**

#### **Construction**

Construction of the firing positions, grading of the firing lanes, and construction of the support buildings would require machinery that would temporarily introduce noise to the environment. Noise associated with the operation of construction equipment is generally short term, intermittent, and localized. The analysis of construction noise in this EA uses dBA metrics to provide a weighted scale for judging loudness that corresponds to the hearing threshold of the human ear. The loudest machinery typically produces peak sound pressure levels ranging from 86 to 95 dBA at a 50-foot distance from the source (**Table 3-7**).

**Table 3-7 Peak Sound Pressure Level of Construction Equipment from 50 Feet**

| Equipment    | Sound Pressure Level (dBA) |
|--------------|----------------------------|
| Bulldozer    | 85                         |
| Scraper      | 85                         |
| Front Loader | 80                         |
| Backhoe      | 80                         |
| Grader       | 85                         |
| Crane        | 85                         |

Source: Federal Highway Administration, 2017  
dBA = A-weighted decibel

Under the proposed action, all construction would occur within the installation's boundaries and would be intermixed with other existing noise-compatible activities, such as military training and aircraft operations. As a result of the existing ambient noise environment, construction noise would not be anticipated to be noticeably louder than background noise levels. Additionally, no noise-sensitive areas are located within the ROI.

Adherence to standard Occupational Safety and Health Administration regulations that require hearing protection along with other personal protective equipment and safety training would minimize the risk of hearing loss to construction workers. Activities on military installations are not subject to local noise ordinances. Individuals on the installations, such as military personnel and government contractors living and working near the sites, might notice the noise. In addition, a limited number of delivery trucks and worker vehicles would be audible along nearby roadways as they arrive at and depart from the sites. Given the temporary nature of the proposed construction, its distance from noise-sensitive areas, and the existing noise environment, any effects are anticipated to be negligible. Therefore, implementation of the proposed action would result in short-term, negligible, and adverse impacts in the ROI from noise during construction activities.

#### **Operations – Small Arms**

Operation of the facilities under the proposed action would not result in significant impacts to the existing noise environment. Associated operational activities would result in both small arms intermittent noise and large-caliber and demolition noise, all of which are currently ongoing within the ROI. The main weapons that would be used within the proposed action area are defined as small arms, including the M249 squad automatic weapon, the M240B machine gun, M110/M2010 rifle, the M24 sniper weapon, and the M2 machine gun.

The proposed MPMG Range would be adjacent to other small arms ranges and is already within a Zone III noise environment. Operations under the proposed action would not be anticipated to expand the Zone II noise contours beyond the existing conditions. No noise-sensitive receptors are located within the ROI. The closest civilian areas are to the south and are not within the Zone III or Zone II small arms noise contours (Fort Hood, 2017a). Therefore, implementation of the proposed action would result in long-term, minor and adverse impacts in the ROI from noise during operations of small arms activities.

#### **Operations – Large Caliber and Demolition**

The MK19 automatic grenade launcher would be used under the proposed action and is considered a large-caliber munition. The proposed MPMG Range would be within a Zone III noise environment. As such, the operations under the proposed action would not be anticipated to expand the Zone III noise contours beyond the existing conditions. Additionally, an existing area of

demolition noise is identified to the southeast of the proposed action area, between the installation and the civilian population (Fort Hood, 2017a). The closest civilian areas are to the south, and they are not within the Zone III or Zone II large-caliber and demolition noise contours. Therefore, implementation of the proposed action would result in long-term, negligible, adverse impacts in the ROI from noise during operations of large-caliber and demolition activities.

No observable long-term impacts or operational increases in noise would be expected to occur with implementation of the proposed action, therefore no impacts to noise at Fort Hood would be expected.

### **3.6.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. The existing small arms ranges within the area would continue to be used, and the area would continue to exist within a Zone III small arms and large-caliber and demolition area. There would be no impacts to the noise environment in the ROI beyond baseline conditions.

## **3.7 EARTH RESOURCES**

### **3.7.1 Definition of the Resource**

Earth resources consist of surface and subsurface materials and their properties. Soils are the unconsolidated materials overlying bedrock or other parent material. Soils are typically described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential (the extent certain clay materials will enlarge when wet and shrink when dry), and erosion potential affect their abilities to support certain applications or uses. Soil properties must be examined for their compatibility with particular activities or types of land use. Beneficial use of earth resources can vary widely based on the location and its existing geological features.

Prime farmland, as defined by the US Department of Agriculture (USDA) in the *Farmland Protection Policy Act* ([7 USC §§ 4201–4209](#)), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

The ROI for earth resources is the footprint of the project area as illustrated in **Figure 2-1 (Appendix A)**.

Compliance with the Texas Pollutant Discharge Elimination System Construction General Permit TXR150000 is required for surface disturbances greater than one acre (TCEQ, 2025b). Contractors are required to submit a copy of the Storm Water Pollution Prevention Plan (SWPPP) along with the notice of intent to the Fort Hood Clean Water Team for review at least 14 days prior to the start of construction. Government construction site representatives would ensure that the contractor performs periodic internal site inspections in accordance with the approved project SWPPP to assess the conditions of sediment and/or erosion control measures at the site that could impact stormwater quality (Fort Hood, 2018).

### 3.7.2 Existing Conditions

#### 3.7.2.1 Regional Geology

Geology beneath Fort Hood generally consists of consolidated sedimentary rocks from the Lower Cretaceous Comanche Series, which contains, from oldest to youngest, the Travis Peak, Glen Rose, and Paluxy Sand formations of the Trinity Group; the Walnut Clay, Comanche Peak Limestone, Edwards Limestone, and Kiamichi Clay formations of the Fredericksburg Group; and the Duck Creek Limestone, Fort Worth Limestone, and Denton Clay formations of the Washita Group (Fort Cavazos, 2023).

Groundwater beneath Fort Hood is generally encountered at approximately 30 feet below ground surface (bgs) within the shallow alluvial aquifer. Recharge of the shallow aquifer occurs near the Leon River; its associated tributaries; and through karst features, including caves, sinkholes, and springs formed in the Edwards Limestone. The shallow alluvial aquifer is separated from the deeper Trinity aquifer (primary potable water resource) by the intervening Walnut Clay Formation (approximately 200 feet thick). The presence of the confining unit precludes the migration of groundwater from the overlying Edwards Formation limestone into the deeper Trinity aquifer (Fort Cavazos, 2023).

#### 3.7.2.2 Topography

Fort Hood is situated within the Lampasas Cut Plain, an eroded portion of the Comanche Plateau characterized by valleys, buttes, and plateaus. The terrain at Fort Hood is generally moderately flat to gently rolling, except in the central portion where plateaus trend toward the Cowhouse Creek Valley (Fort Cavazos, 2023). The Lampasas Cut Plain has a mesa-type (isolated, flat-topped hill or mountain with steep, often vertical sides) topography with wide lowlands intervening between the mesa uplands. Hard limestone caps the flat-topped mesas, and their edges are characterized by typical rim-rock vegetation. The lowlands may have somewhat sloping surfaces and are usually erosional, underlain with shallow caliche, a near-surface layer or crust in soils (Johnson, 1995).

#### 3.7.2.3 Soils

Fort Hood soils consist mostly of silty clay and clay loams. These soil types are often severely eroded and have medium to very high erosion potential. The soil types within the ROI are illustrated in **Figure 3-4 (Appendix A)**, and summarized in **Table 3-8**. Soil types within the ROI include Topsey clay loam, which comprises 57.8 percent of the ROI (combined Bell County and Coryell County units), Slidell silty clay (24.8 percent), Real-Rock outcrop complex (13.2 percent), Evant silty clay (2.3 percent), Georgetown clay loam (1.0 percent), and Eckrant very cobbly silty clay (0.9 percent) (USDA, 2025). The soils are characterized by low-to-moderate slopes (0–8 percent) except for the Real-Rock outcrop complex characterized by moderate-to-high slopes (8–40 percent). Soil characteristics discussed in this section were obtained from the [USDA Soil Survey Geographic Database](#).

The Topsey clay loam soil type is found throughout the central portion of the ROI and would be anticipated to be the soil type most impacted by grading and construction activities. This soil type occurs on ridges and footslope landforms and has a soil profile typically consisting of clay loam 0 to 19 inches bgs, followed by silt loam from 19 to 28 inches bgs, underlain by silty clay loam from 28 to at least 80 inches bgs. This soil type is considered to have medium runoff potential and is well drained.

**Table 3-8 Soil Types Within the ROI**

| Map Unit Symbol | Name                                                    | Slope (%) | Acres in ROI | Percent of ROI (%) | Runoff Potential |
|-----------------|---------------------------------------------------------|-----------|--------------|--------------------|------------------|
| ToD3            | Topsey clay loam, severely eroded (Bell County unit)    | 3–8       | 417.1        | 52.9               | Medium           |
| SIB             | Slidell silty clay                                      | 0–2       | 195.6        | 24.8               | Very High        |
| REF             | Real-Rock outcrop complex                               | 8–40      | 104.3        | 13.2               | High             |
| BtC2            | Topsey clay loam, severely eroded (Coryell County unit) | 3–8       | 38.4         | 4.9                | Medium           |
| EvB             | Evant silty clay                                        | 1–3       | 18.4         | 2.3                | High             |
| GeB             | Georgetown clay loam                                    | 0–2       | 7.7          | 1.0                | Very High        |
| EcB             | Eckrant very cobbly silty clay                          | 1–5       | 7.0          | 0.9                | High             |

Source: [USDA Soil Survey Geographic Database](#), 2025

ROI = Region of Influence

The Slidell silty clay soil type is found in the north central portion of the ROI along the unnamed tributary of Oak Branch Creek crossing from southwest to northeast across the ROI. Some grading and construction activities would be anticipated to occur within this soil type. This soil type occurs on ridges and toeslope landforms and has a soil profile typically consisting of silty clay from 0 to 80 inches bgs. This soil type is considered to have very high runoff potential and is moderately well drained.

The Real-Rock outcrop complex is found in the southern portion of the ROI along the eastern and southern edges of construction. Minimal construction activities would be anticipated to occur within this soil type. This soil type occurs on ridge landforms and has a soil profile typically consisting of silty clay from 0 to 80 inches bgs. This soil type is considered to have very high runoff potential and is moderately well drained.

The Evant silty clay soil type is found in the southern and eastern portions of the ROI. No construction activities would be anticipated to occur within this soil type. This soil type occurs on ridges and toeslope landforms and has a soil profile typically consisting of silty clay from 0 to 80 inches bgs. This soil type is considered to have high runoff potential and is well drained.

The Georgetown clay loam soil type is found in the southeastern portion of the ROI. No construction activities would be anticipated to occur within this soil type. This soil type occurs on ridges and has a soil profile typically consisting of silty clay from 0 to 8 inches bgs followed by clay from 8 to 19 inches. This is underlain by cemented material from 19 to 27 inches bgs, followed by bedrock below 27 inches. This soil type is considered to have high runoff potential and is well drained.

The Eckrant very cobbly silty clay soil type is found in the southeastern portion of the ROI. No construction activities would be anticipated to occur within this soil type. This soil type occurs on ridges and has a soil profile typically consisting of very cobbly silty clay from 0 to 15 inches bgs, followed by bedrock below 15 inches bgs. This soil type is considered to have high runoff potential and is well drained.

#### **3.7.2.4 Prime and Unique Farmland and Farmland of Statewide or Local Importance**

As the land on Fort Hood has been and would continue to be used primarily for military activities and operations, the consideration of prime farmlands is not necessary. Additionally, the primary soils found in ROI are not classified as prime farmland; therefore, no adverse effects to prime

farmland would be expected. Therefore, prime farmland is not carried forward for analysis in this EA.

### **3.7.3 Environmental Consequences**

#### **3.7.3.1 Evaluation Criteria**

Potential adverse impacts to earth resources would occur if the proposed action:

- substantially alters the unique or valued geologic or topographic conditions;
- substantially erodes soil, sedimentation, and/or loss of natural function (e.g., compaction); or
- develops on soils with characteristics that do not support the intended land use.

Significant impacts to earth resources would occur if the underlying topography, soil composition, or geology were altered such that the function of these resources would change irreversibly, resulting in impacts to the broader environment.

#### **3.7.3.2 Proposed Action**

##### **Geology**

Under the proposed action, up to 40 acres of the proposed action area would be covered with improved roads and shooting lanes and up to 60 acres would be graded. Adherence to BMPs, such as dust control, erosion control mats, and sediment traps/basins, and to the conditions of the SWPPP would aid in minimizing impacts. Overall, there would be no long-term impacts to underlying aquifer systems from changes to groundwater infiltration or groundwater recharge from changes to the existing geology under the proposed action. Implementation of the proposed action would result in direct, short-term, minor, adverse impacts to the existing geology in the ROI.

##### **Topography**

Under the proposed action, up to 40 acres of proposed action area would be covered with improved roads and shooting lanes and up to 60 acres would be graded. The grading would result in changes in topography to provide level shooting lanes. Such grading would change the site over the long term. Implementation of the proposed action would result in direct, long-term, minor, adverse impacts to the existing topography in the ROI.

##### **Soils**

Under the proposed action, up to 40 acres of the proposed action area would be covered with improved roads and shooting lanes and up to 60 acres would be graded. Soil disturbance increases the potential for soil erosion and sedimentation to occur during a significant rainfall event. Approximately 57.8 percent of soils within the ROI are considered to have medium runoff potential, 16.4 percent have high runoff potential, and 25.8 percent have very high runoff potential. Therefore, disturbance of these soils would have the potential to contribute to increased erosion and sedimentation during rainfall events.

Implementation of the proposed action would result in short-term, minor, adverse impacts to soils in the ROI. These impacts would be minimized through the use of BMPs. The following BMPs could be implemented during site grading activities :

- Use temporary dikes, swales, and/or pipe slope drains to divert or intercept stormwater before it reaches long and/or steep slopes.

- Release captured stormwater at a slow and controlled rate to prevent damage to downstream drainage ways and structures.
- Install check dams in unlined drainage channels to slow runoff velocity and encourage settlement of sediments.
- Direct sediment-laden stormwater to temporary sediment traps and basins via berms or channels.
- Construct temporary sediment traps or basins at the drainage outlet for the site. When more than one basin is required due to the size of the site, construct these basins to operate in parallel.

#### **3.7.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. No project development associated with the MPMG Range would occur. The soil, topography, and geology of the proposed action area would not change. There would be no impacts to earth resources in the ROI beyond baseline conditions.

### **3.8 WATER RESOURCES**

#### **3.8.1 Definition of the Resource**

Water resources include surface water, groundwater, stormwater, floodplains and wetlands. The *Federal Water Pollution Control Act of 1948*, as amended by the *Clean Water Act* ([33 USC § 1251](#) et seq.) (CWA), was enacted to protect water resources vulnerable to contamination and quality degradation. The CWA provides the authority to establish water quality standards, control discharges into surface and subsurface waters (including groundwater), develop waste treatment management plans and practices, and issue permits for discharges. A National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the CWA is required for discharges into navigable waters. The USEPA oversees the issuance of NPDES permits at Federal facilities as well as water quality regulations ([CWA, Section 401](#)) for both surface water and groundwater.

The ROI for water resources is the project area footprint located within the live-fire area that is within Cowhouse Creek watershed at Fort Hood (**Figure 3-5, Appendix A**).

##### **3.8.1.1 Surface Water**

The USEPA defines surface waters as waters of the United States (WOTUS), which are primarily lakes, rivers, estuaries, coastal waters, and wetlands. Jurisdictional waters, including surface water resources, as defined in [33 CFR § 328.3](#), are regulated under Sections 401 and 404 of the CWA and Section 10 of the Rivers and Harbors Act. While man-made features not directly associated with a natural drainage, such as upland stock ponds and irrigation canals, are generally not considered jurisdictional waters, the determination of jurisdictional waters can be complex and subject to interpretation, especially regarding man-made features.

##### **3.8.1.2 Stormwater**

Stormwater is surface water runoff generated from precipitation and has the potential to introduce sediments and other pollutants into surface waters. Stormwater is regulated under the CWA Section 402 NPDES program. Impervious surfaces such as buildings, roads, parking lots, and even some natural soils increase surface runoff. Stormwater management systems are designed to

contain runoff on site during construction and to maintain predevelopment stormwater flow characteristics following development through either the application of infiltration or retention practices. Energy Independence and Security Act ([Public Law 110-140](#)) establishes stormwater design requirements for development and redevelopment projects. Under these requirements, Federal facility projects larger than 5,000 ft<sup>2</sup> must maintain or restore, to the maximum extent feasible, the predevelopment hydrology of the property with respect to the water temperature, rate, volume, and duration of flow.

#### **3.8.1.3 Groundwater**

Groundwater is water that exists in the saturated zone beneath the earth's surface in pore spaces and fractures and includes aquifers. Groundwater is recharged through percolation of water on the ground's surface (e.g., precipitation and surface water bodies) and upward movement of water in lower aquifers through capillary movement. Groundwater is an essential resource that can be used for drinking, irrigation, and industrial processes, and can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations. Groundwater quality and quantity are regulated under several different programs. The Federal underground injection control regulations, authorized under the *Safe Drinking Water Act of 1974* ([Public Law 93-523](#); [42 USC 300f–300j](#)) require a permit for the discharge or disposal of fluids into a well. The Federal sole source aquifer regulations, also authorized under the *Safe Drinking Water Act*, protect aquifers that are critical to water supply.

#### **3.8.1.4 Floodplains**

Floodplains are areas of low-level ground along rivers, stream channels, or coastal waters that provide a broad area to inundate and temporarily store floodwater. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. The risk of flooding is influenced by local topography, the frequency of precipitation events, and the size and characteristics of the watershed upslope of the floodplain.

The Federal Emergency Management Agency (FEMA) evaluates and maps flood potential, which defines the 100-year (regulatory) floodplain. The 100-year floodplain is the area that has a one-percent annual chance of inundation by floodwater. FEMA uses letter designations for flood zone classification. Zone A designates 100-year floodplains where flood depths (base flood elevations) have not been calculated and further studies are needed. Zone AE floodplains include calculated base flood elevations. Base flood elevations are minimum elevation standards for buildings. Zone X indicates areas outside of the FEMA 100-year regulatory floodplain and indicates a low risk of flooding hazards (FEMA, 2020). Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to property and human health and safety.

EO 11988, *Floodplain Management*, provides guidelines that agencies should carry out as part of their decision-making process on projects that have potential impacts to or within the floodplain. This EO requires that Federal agencies avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and avoid direct and indirect support of floodplain development wherever there is a practicable alternative. EO 13690, *Establishing a Flood Risk Management Standard and Process for Further Soliciting and Considering Stakeholder Input*, established a Federal Flood Risk Management Standard and a process for further soliciting and considering stakeholder input; however, this EO was later

revoked by Section 6 of EO 13807, *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure*. EO 13807 did not revoke or otherwise alter EO 11988.

### **3.8.1.5 Wetlands**

The CWA regulates discharges of pollutants in surface WOTUS. Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into WOTUS, including wetlands. The US Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions” (Environmental Laboratory, 1987). Wetlands generally include swamps, marshes, bogs, and similar areas ([33 CFR Part 328](#)). Federal protection of wetlands is also promulgated under EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. This EO directs Federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands.

## **3.8.2 Existing Conditions**

### **3.8.2.1 Surface Water**

Fort Hood is located within the Brazos River Basin, which spans the entirety of Texas from the northwest border of the state to the Gulf of America in the southeast (Texas Water Development Board [TWDB], 2024). Surface water within Fort Hood consists of small- to moderate-sized streams and water impoundments that are used for flood control, sediment retention, wildlife and livestock water, and fish habitat (Fort Cavazos, 2024). The ROI is located solely within the Cowhouse Creek watershed portion of the live-fire area (**Figure 3-6, Appendix A**).

Cowhouse Creek, which is approximately two miles north of the ROI, empties into Belton Lake, which is the drinking water supply for Fort Hood. Both Cowhouse Creek and the Lampasas River are tributaries to the Leon River, which is an impaired waterway due to bacteria in the water (Fort Cavazos, 2024). Owl Creek and other tributaries of the Leon River, including Shoal Creek and Henson Creek, drain portions of the live-fire area.

Bull Run, Riggs Run, and an unnamed tributary are located within two miles of the ROI and drain the western portion of the live-fire area (see **Figure 3-5, Appendix A**). Oak Branch, a tributary of Cowhouse Creek, is located in the northeast corner of the ROI. Smaller, unnamed tributaries of Oak Branch cross the ROI. A 2024 wetland delineation determined that each of these unnamed tributaries is either ephemeral or intermittent, with all streams in the ROI containing a surface connection to the Leon River. The Leon River, which is located approximately 14 miles north of the ROI, is considered a navigable WOTUS. Fort Hood uses a variety of nationwide permits (NWP) to conduct activities around water resources. These permits allow for traversing and construction as long as a single project does not result in the loss of more than 0.5 acre of WOTUS (USACE, 2025).

### **3.8.2.2 Stormwater**

Fort Hood is located in the Southern Great Plains, an area characterized by thunderstorms, some of which are severe, that cause flash flooding. Stormwater runoff from flash flooding is managed through surface water impoundments and two man-made reservoirs: Belton Lake and Stillhouse Hollow Lake. Belton Lake is located approximately five miles east of the project area and is the outfall location for surface and stormwater runoff within the ROI (Fort Cavazos, 2024).

Stormwater at Fort Hood is monitored through the Fort Hood Industrial SWPPP in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Multi-Sector General Permit TXR050000. Through the Multi-Sector General Permit, stormwater is monitored annually or semi-annually with samples tested for heavy metals, total suspended solids, and chemical oxygen demand. No sites located within the ROI have a history of exceeding the permit benchmark parameters (Fort Cavazos, 2024). Fort Hood has received permission to discharge stormwater to surface waters within the state of Texas under TPDES Multi-Sector General Permit TX050000 for facilities with industrial activities and TPDES General Permit TX040000 for small municipal separate storm sewer systems (TCEQ, 2019, 2021).

### **3.8.2.3 Groundwater**

Fort Hood overlies the Trinity aquifer, with parts of both the outcrop and downdip located deep below the ground surface. The Trinity aquifer is expansive, extending through 61 counties in central and northeastern Texas and consists of limestones, sands, clays, gravels, and conglomerates. The Trinity aquifer is used primarily for municipalities but is also used for irrigation, livestock, and domestic purposes (TWDB, 2025). Groundwater recharge is isolated within Fort Hood due to recharge occurring within small, shallow groundwater supplies. Outside of the installation, no major groundwater resources are impacted by recharge from within Fort Hood (Fort Cavazos, 2024).

### **3.8.2.4 Floodplains**

Floodplains are prominent throughout Fort Hood. The frequency of flooding events at Fort Hood has increased over the last 50 years and the area is known to experience regular flooding events. While April through September is known in the region as the “flash flood” season, most flooding events at Fort Hood occur from May through June and in October (Fort Cavazos, 2024).

Within the live-fire area, Cowhouse Creek and its tributaries contain floodplains. These rivers and tributaries empty into Belton Lake, is a man-made reservoir that provides flood risk management. Throughout the western portion of the installation, stream and depth gauges have been installed to support the monitoring and prediction of flash flooding events. The more than 200 surface water impoundments located throughout Fort Hood are used in part for flood control. Approximately 30 acres of Zone A floodplain (per FEMA’s Flood Insurance Rate Map number 48027C0120E effective 26 September 2008) are located in the northeast corner of the ROI. This floodplain is associated with the Oak Branch tributary of Cowhouse Creek. There are no floodplains located in the portion of the ROI that is planned for range development.

### **3.8.2.5 Wetlands**

Within Fort Hood, wetlands are most commonly associated with stream channels and are frequently found adjacent to lakes and ponds. There are many natural springs within Fort Hood that may create wetlands areas, but not all have been formally mapped.

In 2024, a wetland delineation was conducted in the Trapnell Machine Gun Range. The study area for the Trapnell Machine Gun Range wetland delineation overlaps the ROI (USACE, 2025a). During the delineation, four areas were delineated, with three areas resulting in the presence of all three required wetland indicators (vegetation, hydric soils, and hydrology) and therefore meeting the definition of a wetland. The fourth area did not meet the vegetation indicator and therefore did not meet the criteria of a wetland and was excluded from further consideration. The three wetlands located in the ROI total approximately three acres (see **Figure 3-6, Appendix A**). One wetland is located on an intermittent stream in an area of low topographic relief and is considered

jurisdictional; another wetland is a stock pond with no connection to WOTUS and is considered isolated and non-jurisdictional; the third wetland, located in the project area, is considered jurisdictional due to an intermittent stream that bisects it. Based on the determinations made by the delineation, approximately 2.3 acres of wetlands within the ROI are jurisdictional (USACE, 2025).

### **3.8.3 Environmental Consequences**

#### **3.8.3.1 Evaluation Criteria**

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A significant impact to water resources would occur if the proposed action:

- reduces water availability or supply to existing users;
- overdrafts groundwater basins;
- exceeds safe annual yield of water supply sources;
- adversely affects water quality;
- endangers public health by creating or worsening health hazard conditions; and/or
- violates established laws or regulations adopted to protect sensitive water resources.

#### **3.8.3.2 Proposed Action**

##### **Surface Water**

Several named and unnamed streams bisect the ROI, as shown on **Figure 3-6 (Appendix A)**. Under the proposed action, development and operation of the MPMG Range would include the establishment of surfaced roads and tank trails, parking, drainage structures, and potential facilities such as access control buildings, fencing, and vehicle barriers. Construction associated with this infrastructure would result in an increase of new surfaced roads and impervious surfaces. Increases in the overall impervious surface within the ROI would lead to increased surface water runoff into the streams that bisect the ROI. Further, many of the streams are connected to other stream systems within Fort Hood that drain into the area's impoundments and reservoirs.

Under the proposed action, portions of the intermittent and/or ephemeral streams located at the proposed MPMG Range may be crossed. Fort Hood would utilize NWP 14 (Linear Transportation Projects), NWP 57 (Electric Utility Line and Telecommunications Activities), and/or NWP 58 (Utility Line Activities for Water and Other Substances) for development that is required to cross these stream locations. Under these NWPs, construction across the WOTUS is permitted as long as the loss of WOTUS is not greater than 0.5 acre. Under the proposed action, Fort Hood would adhere to all requirements and regulations within NWPs 14, 57, and 58.

The ROI is located within the live-fire area, which is regularly utilized for live-fire training; training under proposed action would be in-kind. The proposed action would increase live-fire training with MK19 automatic grenade and light and heavy machine gun munitions. This would increase the potential for residual munitions fragments and chemical elements to enter surface water through stormwater runoff. However, Fort Hood has committed to using lead-free munitions to eliminate the risk of lead entering the surface water. To maintain localized impacts from munitions, BMPs, such as avoiding live-fire training missions during heavy precipitation and/or flash flooding events, would be implemented. Fort Hood implements early detection systems for flash flooding and monitors stream flow throughout the installation.

Therefore, with the use of BMPs, implementation of the proposed action would result in long-term, minor, adverse impacts to surface water in the ROI.

### **Stormwater**

The increase in overall impervious surface would lead to increased runoff into intermittent and ephemeral streams within the ROI. The proposed MPMG Range would be located within the live-fire area, which is used for live-fire training missions. The establishment of 10 new firing lanes would result in the increased use of MK19 automatic grenades and light and heavy machine gun munitions for training activities within the ROI. As noted in **Surface Water** above, Fort Hood has committed to using lead-free munitions.

Also discussed under surface water, stormwater runoff is a potential pathway for live-fire munitions fragments or chemical elements of residual munitions to enter surface waters. Based on the 35-percent design plans for the proposed MPMG Range, approximately 32,600 linear feet of new roadway, 132,690 linear feet of electrical and communications lines, and 29,890 linear feet of trenching would cross portions of one intermittent and two ephemeral streams (see **Figure 3-6, Appendix A**). It is possible that development activities from other projects would cross portions of intermittent and/or ephemeral streams, increasing the potential for contaminated stormwater runoff. Fort Hood employs quarterly stormwater monitoring through the SWPPP; should stormwater monitoring indicate contaminants beyond acceptable thresholds, Fort Hood would implement further testing and analysis. Because the MPMG Range would be located in an area bisected by intermittent and ephemeral streams, BMPs, such as avoiding live-fire training missions during heavy precipitation events and flash flooding, would be implemented.

Therefore, with use of these BMPs and Fort Hood's stormwater monitoring program under the SWP3, implementation of the proposed action would result in long-term, minor, adverse impacts to stormwater in the ROI.

### **Groundwater**

The Trinity aquifer groundwater system is expansive (61 counties) and much of the ROI would remain undeveloped and retain the ability to absorb and recharge groundwater. Additional impervious surfaces resulting from development of the proposed action would slightly reduce the amount of area available for groundwater recharge in the ROI. However, the amount of impervious surface that would be created is insignificant in comparison to the groundwater system, and the effect would be undiscernible. In addition, runoff from impervious surfaces would be at least partially absorbed by surrounding undeveloped areas.

Due to the depth of groundwater and the vastness of the Trinity aquifer, no major groundwater resources outside of Fort Hood are anticipated to be impacted by the recharge from within the installation. All recharge that occurs would be anticipated to be confined to small, shallow groundwater supplies as is common in the ROI. Further, groundwater quality at Fort Hood is monitored through sedimentation and erosion studies; stormwater collection; TPDES permit (TXR05P855) monitoring; and studies of metals, explosives, and perchlorates in groundwater in the Cowhouse Creek drainage basin. Discharge is mitigated through the use of wastewater and stormwater detention ponds, which ensures that pollutants entering the groundwater are limited. Therefore, implementation of the proposed action would result in long-term, minor, adverse impacts to groundwater resources in the ROI.

### **Wetlands**

Three wetlands are located in the ROI. Only one jurisdictional wetland would be in the development area of the ROI. Under the proposed action, Fort Hood has committed to 100-percent avoidance of all wetlands; therefore, no change to the existing conditions would occur and implementation of the proposed action would not result in impacts to wetlands within the ROI. Therefore, implementation of the proposed action would result in no impacts to wetlands in the ROI.

### **Floodplains**

A floodplain is situated within the ROI; however, it is not within the proposed area for range development. This floodplain is located approximately 400 feet northeast of the planned MPMG Range development. Flash flooding from severe storm events is likely to occur in the area. Fort Hood implements the use of stream and depth gauges as well as surface water impoundments to support the mitigation of flood risk and control. Further, water quality is routinely monitored for contamination from surface and stormwater runoff. With these measures in place, implementation of the proposed action would result in no impacts to floodplains in the ROI.

#### **3.8.3.3 No Action Alternative**

Under the no action alternative, the proposed MGMP Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to water resources in the ROI beyond baseline conditions.

## **3.9 BIOLOGICAL RESOURCES**

### **3.9.1 Definition of Resource**

Biological resources include native and nonnative plants and animals, protected and sensitive flora and fauna species and their associated habitats. Habitat is the resources and conditions in an area that supports a defined suite of organisms. Protected species include those species that are federally listed as threatened or endangered under the ESA, migratory birds protected under the *Migratory Bird Treaty Act of 1918* ([16 USC §§ 703–712](#)), and eagles protected under the *Bald and Golden Eagle Protection Act of 1940* ([16 USC §§ 668–668d](#)). Sensitive species or species of conservation concern do not have a legal definition or protection but may include those species that are recognized by state wildlife agencies as threatened or endangered within the state or identified by natural resource management agencies (e.g., Bureau of Land Management and US Forest Service) as requiring special management attention to prevent further declines in populations and potential listing as federally threatened or endangered in the future.

The ROI for biological resources is the entire MPMG Range in Fort Hood.

### **3.9.2 Existing Conditions**

#### **3.9.2.1 Vegetation**

Fort Hood is in the northeastern part of the Edwards Plateau, the southernmost extension of the Cross Timbers Ecoregion of Texas, and just west of the Blackland Prairie Ecoregion. The vegetation of Fort Hood reflects the vegetation of both the Edwards Plateau and Cross Timbers ecoregions. The proposed action would occur in approximately 371 acres northeast of the main Fort Hood cantonment area in the Live-Fire Training Area. The proposed action area contains five vegetation associations as well as developed areas and bare ground (**Table 3-9**). Grassland vegetation communities comprise 82.9 percent of the proposed MPMG Range.

**Table 3-9 Vegetation Associations in the Proposed MPMG Range (by coverage)**

| <b>Vegetation Association</b>                    | <b>Acres</b> | <b>Percent</b> |
|--------------------------------------------------|--------------|----------------|
| Edwards Plateau: Savanna Grassland               | 259.5        | 69.9%          |
| Grand Prairie: Tallgrass Prairie                 | 50.7         | 13.6%          |
| Native Invasive: Mesquite Shrubland              | 28.9         | 7.8%           |
| Barren                                           | 17.6         | 4.75%          |
| Edwards Plateau: Oak/Hardwood Motte and Woodland | 11.0         | 3.0%           |
| Edwards Plateau: Ashe Juniper/Live Oak Shrubland | 2.3          | 0.62%          |
| Urban Low Intensity                              | 0.3          | 0.21%          |
| <b>Total</b>                                     | <b>370.3</b> | <b>100.0%</b>  |

Source: <https://tpwd.texas.gov/gis/programs/landscape-ecology/by-ecoregion-vector>

### **Edwards Plateau: Savanna Grassland**

Savanna grassland covers 69.9 percent of the proposed MPMG Range. Although savanna grasslands resemble prairies, these grass-dominated areas are more appropriately considered savannas because they occur in a larger landscape matrix of woodlands, shrublands, and grasslands and may contain some trees and shrubs (Elliott, 2014). Little bluestem (*Schizachyrium scoparium*), purple threeawn (*Aristida purpurea*), Texas wintergrass (*Nassella leucotricha*), and sideoats grama (*Bouteloua curtipendula*) are common grasses on these sites. Numerous forb species also are present in the herbaceous layer. Woody species usually comprise less than 25 percent of the vegetation cover and include mesquite (*Prosopis glandulosa*), Ashe juniper (*Juniperus ashei*), agarito (*Mahonia trifoliolata*), white shin oak (*Quercus sinuata* var. *breviloba*), plateau live oak (*Quercus fusiformis*), and Texas persimmon (*Diospyros texana*). Savanna grassland occurs on the upland areas within the proposed MPMG Range (**Figure 3-7, Appendix A**).

### **Grand Prairie: Tallgrass Prairie**

Tallgrass prairie covers 13.6 percent of the proposed MPMG Range. Little bluestem is often a dominant species with sideoats grama as another common species. Other grasses that are frequently present include Texas wintergrass, silver bluestem (*Bothriochloa laguroides* spp. *torreyana*), threeawn (*Aristida* spp.), big bluestem (*Andropogon gerardii*), buffalograss (*Bouteloua dactyloides*), tall dropseed (*Sporobolus compositus*), hairy grama (*Bouteloua hirsuta*), and Indiangrass (*Sorghastrum nutans*). Tallgrass prairie occurs along either side of an ephemeral stream channel that crosses the north half of the MPMG Range.

### **Native Invasive: Mesquite Shrubland**

Mesquite shrubland includes areas where mesquite (*Prosopis glandulosa*) shrubs have invaded and are the dominant species. Mesquite shrublands covers approximately 7.8 percent of the proposed MPMG Range. Other species that may be present include huisache (*Acacia farnesiana*), sugar hackberry (*Celtis laevigata*), Ashe juniper, elm (*Ulmus crassifolia* and *U. alata*), lotebush (*Ziziphus obtusifolia*), agarito, and sumacs (*Rhus* spp.).

### **Barren**

Areas classified as barren contain little to no vegetation cover. Barren areas comprise about 4.8 percent of the proposed MPMG Range. Barren areas may include disturbed areas, roads, bedrock, or ephemeral stream beds with exposed gravel.

### **Edwards Plateau: Oak/Hardwood Motte and Woodland**

This woodland vegetation association occupies about 3.0 percent of the proposed MPMG Range. Common species include Texas oak (*Quercus buckleyi*), white shin oak, hackberries (*Celtis* spp.), cedar elm (*Ulmus crassifolia*), mesquite, and several other species of oak (*Quercus* spp.). Ashe juniper also may be present.

### **Others**

The other two mapped cover types, Edwards Plateau: Ashe juniper/Live Oak Shrubland (0.6 percent) and Urban Low Intensity (0.21 percent), comprise less than one percent of the proposed action area. The distribution of vegetation within the proposed MPMG Range is shown in **Figure 3-7 (Appendix A)**.

### **3.9.2.2 Invasive Species and Noxious Weeds**

Fort Hood manages invasive species and noxious weeds through prevention, control, and restoration. Controls for invasive or noxious weed plants includes mechanical and chemical methods. Prescribed fire is used on areas where Ashe juniper and mesquite shrubs have invaded. The list of potential noxious weeds and invasive plants are provided respectively in the INRMP(Fort Cavazos, 2024a) and *Fort Hood Integrated Pest Management Plan* (IPMP) (Fort Hood, 2022b).

Two invasive animals that may occur in the ROI are feral pigs (*Sus scrofa*) and red fire ants (*Solenopsis invicta*). Feral pigs are present in most of the training areas (Fort Cavazos, 2024a). Feral pigs cause significant environmental damage, including harming vegetation, disturbing soil through rooting, and degrading aquatic habitats by wallowing. To mitigate these impacts, Fort Hood implemented a comprehensive feral pig control program in 2003. Although feral pigs are included in the Fort Hood recreational hunting program, recreational hunting typically is ineffective in controlling pigs and preventing ecosystem damage. The goal of Fort Hood is to eradicate and prevent re-establishment of feral pig populations. Feral pigs are removed using traps and targeted hunting by trained personnel.

Red fire ants are prevalent throughout the installation (Fort Hood, 2022b). Red fire ants are actively controlled using physical and chemical methods that target buildings, lawns, golf course, parade and athletic fields, playgrounds, other maintained turf areas, as well as training areas that receive frequent use such as firing ranges where soldiers are regularly required to lie or sit on the ground. Fire ant control is also performed around cave sites.

### **3.9.2.3 Wildlife**

Wildlife species in the proposed MPMG Range are those that are adapted to grassland areas or temporarily use grassland areas for foraging. Forty species of mammals are known to occur on Fort Hood (Fort Cavazos, 2024a, Appendix C4). A few of the common large mammal species likely to occupy or use the proposed action area include the coyote (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), American badger (*Taxidea taxus*), white-tailed deer (*Odocoileus virginianus*), bobcat (*Lynx rufus*), wild pig (*Sus scrofa*), raccoon (*Procyon lotor*), ringtail (*Bassariscus astutus*), and black-tailed jackrabbit (*Lepus californicus*).

Fort Hood contains at least 56 species of amphibians and reptiles (Fort Cavazos, 2024a, Appendix C3). Based on the habitat, some of the more likely reptile species that may occur in the proposed action area include Texas horned lizard (*Phrynosoma cornutum*), Texas spiny lizard (*Sceloporus olivaceus*), Texas spotted whiptail lizard (*Aspidoscelis gularis*), prairie or six-lined racerunner

(*Aspidoscelis sexlineatus*), prairie kingsnake (*Lampropeltis calligaster calligaster*), great plains rat snake (*Pantherophis emoryi*), bullsnake (*Pituophis catenifer sayi*), and western diamond-backed rattlesnake (*Crotalus atrox*). The Texas horned lizard is listed as a state threatened species. Webb and Henke (2008) investigated the presence of the Texas horned lizard on Fort Hood, and discovered that the horned lizard was found, although in low numbers, only within the Live Fire Management Unit (LFMU). The primary reasons are the more open habitat conditions created by more frequent fires in the LFMU, which the horned lizard prefers, and the greater abundance of harvester ants in the LFMU. Harvester ants are the preferred food of the horned lizards (Webb and Henke, 2009).

Fort Hood contains multiple game species. These include white-tailed deer, turkey (*Meleagris gallopavo*), northern bobwhite quail (*Colinus virginianus*), small game (e.g., squirrel and rabbit), waterfowl, mourning dove (*Zenaida macroura*), and wild pig (*Sus scrofa*). Hunting is a common outdoor activity at Fort Hood. However, the LFMU is closed to all public recreational activity.

**3.9.2.4 Federally Listed Species, Species of Concern, and Other Protected Species**

Through informal consultation with the USFWS, Fort Hood used the USFWS IPaC tool to obtain a list of potentially threatened or endangered species in the ROI (**Appendix B**). Three species that are federally listed or proposed for listing may occur in the vicinity of the proposed MPMG Range: the golden-cheeked warbler (*Setophaga chrysoparia*), tricolored bat (*Perimyotis subflavus*), and monarch butterfly (*Danaus Plexippus*) (**Table 3-10**). A fourth species, the whooping crane (*Grus americana*), is a rare migrant bird that recently has been sighted on Fort Hood (Fort Cavazos, 2024b). Whooping cranes may fly over Fort Hood during spring and fall migration but have only been observed on the installation in bodies of water in the southeast areas and in Belton Lake.

**Table 3-10 Species that are Federally Listed or Proposed for Listing and May Occur in the Vicinity of the Proposed MPMG Range**

| Common Name            | Scientific Name              | Federal Status      | State Status                          | Installation Status    |
|------------------------|------------------------------|---------------------|---------------------------------------|------------------------|
| Golden-cheeked warbler | <i>Setophaga chrysoparia</i> | Endangered          | Endangered                            | Established population |
| Tricolored bat         | <i>Perimyotis subflavus</i>  | Proposed Endangered | Species of Greatest Conservation Need | Established population |
| Monarch butterfly      | <i>Danaus plexippus</i>      | Proposed Threatened | Species of Greatest Conservation Need | Established population |

Source: Fort Cavazos 2024a; **Appendix B**

**Golden-Cheeked Warbler**

The golden-cheeked warbler (GCWA) is an endangered songbird that breeds and nests only in the Texas Hill Country, a geographic region of Central and South Texas. The GCWA requires mature juniper-oak woodlands for foraging and nesting (USFWS, 2025). Mature Ashe juniper with peeling bark and a variety of oak species are important habitat components. Other species include cedar elm, hackberry, and Texas ash (*Fraxinus albicans*). Optimal habitat for the GCWA is old-growth woodlands with a closed canopy cover. The GCWA arrives from wintering areas in southern Mexico and Central America in March and April. Nesting is generally completed by July into early August, at which time GCWAs begin migrating south to their wintering areas.

Populations of GCWA are established on Fort Hood (Fort Cavazos, 2024a, 2024b). An estimated 45,524 acres of suitable GCWA habitat occurs on Fort Hood (Fort Cavazos, 2024b). Most of the GCWA habitat on Fort Hood is on the east side of the installation (Northeast and Southeast regions) (**Figure 3-8, Appendix A**). GCWA habitat also occurs in distributed areas throughout the west side of the installation (Northwest, Southwest, and South regions). The LFMU is in the central part of Fort Hood. Some GCWA habitat occurs in the LFMU, but primarily around the unit's perimeter (Fort Cavazos, 2024a).

The proposed MPMG Range contains mostly open grassland habitat and does not contain mature juniper-oak woodland, the preferred habitat of the GCWA. The proposed action would not be adjacent to mapped GCWA habitat on the southeast side of the LFMU.

#### **Tricolored Bat**

The tricolored bat was proposed as endangered in September 2022 primarily because of increased mortality from white-nose syndrome, mortality at wind energy projects, loss of roosting and foraging habitat, and disturbance of winter hibernacula (e.g., caves). Tricolored bats are small insectivorous bats of eastern North America, but their current range extends west to the Rocky Mountains. Tricolored bats primarily roost in foliage of live and dead trees in the spring, summer, and fall, and hibernate in caves and other subterranean habitats (e.g., mines) during the winter (USFWS, 2021). Evidence also indicates that tricolored bats use man-made structures for roosting and hibernation if available. Fort Hood contains karst topography and does have suitable subterranean habitat for bat hibernation. The tricolored bat has been observed year round on Fort Hood, both hibernating and foraging. The ROI contains mostly open grassland habitat with only a few small areas with trees, but it is possible that the tricolored bat may forage in the riparian stream corridors on this range.

#### **Monarch Butterfly**

The monarch butterfly was proposed for Federal listing as a threatened species in December 2024 (89 FR 100662). This butterfly is best known for its long-distance, multi-generational migration during the spring and summer. During the breeding season, monarch butterflies lay their eggs on their obligate milkweed host plant (*Asclepias* spp.) with the emerging larvae feeding on milkweeds before pupating into chrysalis and then emerging as an adult that continues the migration. Adults typically live 2–5 weeks during the spring and summer and feed on nectar from flowers, unlike the larvae that feed exclusively on milkweeds. Milkweed habitat includes dry plains, prairies, riverbanks, and rocky canyons. The open savanna and tallgrass prairie areas observed within the proposed MPMG Range are potential habitat for milkweeds and therefore monarch butterflies. Fort Hood has developed a monarch butterfly program as part of their INRMP (Fort Cavazos, 2024a).

In the fall in North America, monarch butterflies undergo a long-distance migration. The migratory generation of adults migrate to winter areas in California and Mexico, where the adults enter a period of reproductive diapause (a period of suspended development) and live for an extended time until the following spring. One major migratory route traverses Texas in an approximately 300-mile-wide path from Wichita Falls to Eagle Pass (TWDB, 2024). Fort Hood is considered to be in the southern core conservation unit for monarch butterflies. Monarchs enter Texas along this path in late September and have typically entered Mexico by early November.

Fort Hood initiated monarch butterfly and milkweed surveys in 2016 to gather baseline data (Fort Cavazos, 2024a). In 2017, the installation developed an annual monarch tagging project. The

highest density of monarchs occurs during the fall migration, with peak numbers in October. Between 2017 and 2024, 11,597 monarch butterflies were captured, tagged, and released during the fall migration. However, monarch numbers have decreased dramatically in recent years since the tagging project was first implemented. Less than 1,000 monarch butterflies were tagged between 2022 and 2024, a significant decrease from 2018–2021 ( $n > 1,000$ ). Blazing star (*Liatris* spp.), also known as gayfeather, was observed to be a preferred nectar source for migrating monarchs. In 2025, habitat mapping and grassland functional assessment surveys were implemented to determine priority monarch butterfly habitat based on nectar source availability, potential roosting locations, milkweed presence, and physical evidence of monarchs using the habitat. These areas will be revisited annually to capture habitat-level changes.

### **Bald and Golden Eagles**

Both eagle species are federally protected under the *Bald and Golden Eagle Protection Act of 1940* ([16 USC §§ 668–668d](#)). The bald eagle also is listed as threatened by the State of Texas. The bald eagle has been observed year-round near Belton Lake on the east side of Fort Hood (Fort Cavazos, 2024a). The bald eagle is also known to nest in Fort Hood live fire training areas, along Cowhouse Creek, which is approximately two miles north of the proposed MPMG Range and in maneuver training areas along Owl Creek. Owl Creek is approximately five miles north of the proposed MPMG Range. The bald eagle prefers areas near rivers, lakes, and wetlands, where trees provide both nesting and perching locations. Although fish are a preferred food, the bald eagle is opportunistic and will hunt waterfowl, other birds, small mammals, and carrion. The proposed MPMG Range contains neither large trees nor preferred aquatic habitat nearby for the bald eagle.

Golden eagles are rare migrants at Fort Hood with only several sightings recorded each year (Fort Cavazos 2024a).

Because the project site does not contain habitat for bald eagles, and golden eagles are migrants, this resource is not carried forward for analysis in this EA.

### **Migratory Birds**

Migratory birds are federally protected under the *Migratory Bird Treaty Act of 1918* ([16 USC §§ 703–712](#)) (MBTA). Because of the diversity of habitats that occur on Fort Hood and its location along migration routes, several hundred species of non-game birds have been observed on Fort Hood. A full list of bird species is in the Fort Hood INRMP (Fort Cavazos, 2024a). Because the proposed action area is dominated by grassland vegetation, the following discussion of migratory birds is focused on grassland bird species. The migratory bird nesting season at Fort Hood is from 15 March to 15 August.

One species of special interest on Fort Hood is the black-capped vireo (*Vireo atricapilla*). Formerly federally listed as threatened, the black-capped vireo was delisted in 2018 due to conservation efforts and recovery of the species. Breeding populations of the black-capped vireo are established on Fort Hood. The species' preferred habitat is shrublands and open woodland habitat. The black-capped vireo has been extensively studied on Fort Hood (Fort Cavazos, 2024a).

Recent and future bird monitoring efforts by Fort Hood has and will be focused on grassland habitat because grassland birds across the US have been declining faster than other bird groups (Fort Hood, 2017b). Grassland birds have been monitored from 2008 to 2010 and from 2016 to 2018, using point count methods, which provide a three-dimensional representation of data. **Table 3-11** lists the birds that occur in Fort Hood grassland/ savanna habitat that the installation has identified as a priority for future monitoring.

### ***Northern Bobwhite***

Northern bobwhite populations have been declining throughout their range, which spans the US (Midwest, East Coast, and Southeast), Mexico, and Cuba (Fort Hood, 2017b). The bobwhite occupies native grassland areas with interspersed shrub cover, habitat that is present in the proposed action area.

**Table 3-11 Priority Grassland/Savanna Birds Identified for Future Research.**

| Common Name                | Scientific Name              |
|----------------------------|------------------------------|
| Northern bobwhite          | <i>Colinus virginianus</i>   |
| Sprague's pipit            | <i>Anthus spragueii</i>      |
| Burrowing owl              | <i>Athene cunicularia</i>    |
| Grasshopper sparrow        | <i>Ammodramus savannarum</i> |
| Loggerhead shrike          | <i>Lanius ludocivianus</i>   |
| Chestnut-collared longspur | <i>Calcarius ornatus</i>     |

Source: Fort Cavazos 2024a

### ***Burrowing Owls***

Burrowing owls prefer open habitats, using burrows created by other animals. Burrowing owls often perch on mounded areas to observe predators and locate potential prey. Surveys conducted in 2022 did not detect any burrowing owls in Fort Hood (Fort Cavazos, 2024a).

### ***Sprague's Pipit***

Sprague's pipit is a bird of northern short- and mixed-grass prairies that winters in the southern US, including central Texas. Surveys for Sprague's pipits conducted on Fort Hood during the winter seasons in 2021 and 2022 documented 1.7 birds per plot in grassland areas. The Sprague's pipit was petitioned for listing under the ESA, but was determined by the USFWS in 2016 that listing was not warranted (81 FR 19527).

### ***Grasshopper Sparrow***

The grasshopper sparrow is a year-round resident on Fort Hood and occupies open grassland areas. The grasshopper sparrow nests on the ground, typically near the base of grass clumps in tall grasses. The primary foods include grasshoppers, other insects, and seeds.

### ***Loggerhead Shrike***

The loggerhead shrike is a year-round resident on Fort Hood. The loggerhead shrike is a bird of open habitat with short vegetation and well-spaced shrubs and trees. These habitats range from grasslands to shrub-steppe in the US. Shrikes consume insects and small vertebrates such as amphibians, reptiles, rodents, and other birds. On Fort Hood, grasslands and savannas are potential loggerhead shrike habitat.

### ***Chestnut-Collared Longspur***

The chestnut-collared longspur is a winter migrant resident on Fort Hood. The species is a breeding resident of northern grasslands in the US and Canada. The chestnut-collared longspur occupies similar habitats during the winter. The longspur prefers areas with short and sparse grass, particularly areas that have recently burned. The chestnut-collared longspur eats mostly insects but also seeds. Grasslands with open, bare areas on Fort Hood represent potential winter habitat for this species.

### **3.9.3 Environmental Consequences**

#### **3.9.3.1 Evaluation Criteria**

The significance of potential impacts to biological resources is based on

- the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- the proportion of the resource that would be affected relative to its occurrence in the region;
- the sensitivity of the resource to proposed activities; and
- the duration or ecological ramifications of the impact(s).

A biological resources impact would be adverse if

- species or habitats of concern were affected over relatively large areas, or
- disturbances caused reductions in population size or distribution of a federally listed species.

#### **3.9.3.2 Proposed Action**

##### **Vegetation**

Under the proposed action, impacts to vegetation would occur during the vegetation clearing for construction activities. Based on the 35-percent design plans for the proposed MPMG Range, the installation of firing positions, targets, and grading of lanes would disturb approximately 128 acres. Most of this acreage (124 acres) would be from grading to establish the 10 firing lanes. Most of the grading would be conducted in savanna vegetation with small areas of mesquite shrubland. Much of the graded area would be restored with grassland species. The firing positions and target positions would cover 4 acres distributed among approximately 132 individual sights throughout the MPMG Range. Individual sites would range from about 600 ft<sup>2</sup> to 3,500 ft<sup>2</sup>. These sites would be permanent developed areas. Most of these sites would be located in grassland vegetation (mostly savanna and some tallgrass prairie). A small number of firing positions and target sites would occur in mesquite shrubland and oak/hardwood motte and woodland.

Based on the 35-percent range plans for the proposed MPMG Range, support buildings would cover approximately 2.8 acres. All of the support buildings would be constructed on previously disturbed area (barren) that may disturb a small area (less than 0.3 acre) of savanna vegetation around the perimeter of the existing disturbed area. To support the construction and operation of the MPMG Range, a series of roads (32,600 linear feet) would be constructed throughout the proposed range. Assuming a road width of 12 feet, road construction would permanently disturb approximately 9 acres of land. Most of the roads (6 acres) would occur in grassland areas (savanna and tallgrass prairie), with smaller areas impacting mesquite shrubland (0.5 acre), Ashe juniper/live oak shrubland (less than 0.1 acre), oak/hardwood motte and woodland (0.5 acre), and existing road and disturbed area (1.9 acres).

Electrical and communication lines (132,690 linear feet) would be installed along the roads below the surface. There would be 29,890 feet of trenching associated with the electrical and communication lines. The installation of the electrical and communication lines may disturb an additional six acres among the vegetation associations in the same proportion as the road disturbances. For any utility lines installed underground, the disturbance would be temporary until grassland vegetation recovers.

Restoring the 124 acres disturbed during establishment of the 10 firing lanes to native grassland vegetation would permanently disturb between approximately 12 and 20 acres of native vegetation. Therefore, implementation of the proposed action would result in long-term, minor, adverse impacts to vegetation in the ROI.

#### **Invasive Species and Noxious Weeds**

The graded areas for the firing lanes have the greatest potential for the establishment of invasive plant species and noxious weeds. The permanently disturbed areas (firing stations, roads, and target areas) would be developed, which would minimize or prevent the establishment of invasive species and noxious weeds. The graded areas would be restored with native species, and any invasive species or noxious weeds would be controlled via mechanical or chemical methods, in accordance with the IPMP, until native species are reestablished. Considering ongoing management efforts, implementation of the proposed action would result in long-term, minor, adverse impacts to invasive species in the ROI.

#### **Wildlife**

Construction of the MPMG Range would result in the temporary loss of 124 acres of wildlife habitat (mostly grassland) and the permanent loss of 12 to 20 acres of habitat. These acres are distributed throughout the approximately 371-acre footprint of the proposed MPMG Range. Many species would move to adjacent, undisturbed areas. One species with the potential to be adversely affected is the Texas horned lizard. Potential impacts would be minimized by conducting preconstruction surveys for the horned lizard prior to land disturbance and relocating any individuals found. With the implementation of preconstruction surveys and the restoration of the graded areas to grassland vegetation, implementation of the proposed action would result in short-term, minor, adverse impacts to common wildlife in the ROI.

#### **Federally Listed Species**

##### ***Golden-Cheeked Warbler***

The proposed MPMG Range does not contain the mature juniper-oak woodland that is GCWA habitat. GCWA habitat has been identified and mapped south of the proposed support buildings and east of the south half of the proposed range area. An existing road parallels the GCWA habitat on the east side and would be used as part of the proposed range. Therefore, implementation of the proposed action would result in no adverse impacts to the GCWA in the ROI.

##### ***Tricolored Bat***

Except for a narrow strip of oak/hardwood motte and woodland in the central part of the MPMG Range, forest and shrubland, tricolored bat habit, are absent from the ROI. The narrow strip of woodland would be largely undisturbed except for several road and electrical/communication line crossings that would disturb about 0.5 acre. A preconstruction survey or evaluation of this isolated woodland as potential tricolored bat roosting habitat would be conducted before the commencement of construction activities. Further, vegetation clearing for roads and utility lines during the fall and winter would avoid any potential impacts to the tricolored bat. Therefore, implementation of the proposed action would result in no adverse impacts to the tricolored bat in the ROI.

##### ***Monarch Butterfly***

During construction of the MPMG Range, approximately 140 acres of land may be disturbed, much of it contains savanna and prairie habitat. However, most of the disturbed area would be created during grading to create line-of-sight for the 10 firing lanes. Flexibility in location of

graded areas is limited. Following construction, most of the disturbed acreage would be restored to grassland habitat. During operations, most of the range area would be undisturbed with activity confined to roads, firing stations, and target areas. By conducting preconstruction evaluations of the proposed disturbed areas for the presence of milkweed, avoiding any milkweed populations to the extent practicable, performing post-construction restoration of disturbed areas not needed for operations, and the continuing the monarch butterfly program on Fort Hood, implementation of the proposed action would result in short-term, minor, adverse impacts to monarch butterflies in the ROI.

### ***Migratory Birds***

The MBTA protects migratory birds, nests, or eggs against pursuit, hunting, take, capture, killing, or any attempt to take, capture, or kill. The proposed action would disturb approximately 140 acres of migratory bird habitat, especially for birds that prefer savanna and prairie habitat. Following construction, most of the disturbed area would be restored to grassland habitat with approximately 12–20 acres remaining permanently disturbed for operation and maintenance of firing stations, target positions, and roads. The greatest potential impact to migratory birds would occur during the nesting season, which is from 15 March to 15 August. To minimize impacts, Fort Hood would adhere to BMPs for migratory birds (Fort Cavazos, 2024a). These BMPs are summarized here and provided in more detail in the INRMP.

- Follow specific procedures developed regarding disturbance of bird nests that are found and coordinated through Fort Hood environmental staff.
- Review contract documents for training, construction, and security activities that contain BMPs and measures for protection of migratory birds.
- Prior to commencement of work activities at a project site, provide briefings regarding the MBTA, BMPs, and methods to minimize impacts to migratory birds.
- When feasible, schedule particular works activities (e.g., land clearing) outside the nesting season.
- In coordination with Fort Hood environmental staff, qualified biologist should survey and assess vegetation within the project areas for nests prior to land disturbance.
- Mark found active nests and establish an appropriate buffer distance based on criteria in the INRMP.
- Review and approve vegetation removal methods through Fort Hood project management and environmental staff to select methods that are least impactful to the environment.

With adherence to existing procedures and BMPs for the protection of migratory birds, implementation of the proposed action would result in short-term, minor, adverse impacts to migratory birds during construction and long-term, minor, adverse impacts during operations and maintenance.

### **3.9.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to biological resources in the ROI beyond baseline conditions.

### 3.10 CULTURAL RESOURCES

#### 3.10.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources are protected and identified under several Federal laws and EOs including the *Archaeological and Historic Preservation Act of 1960*, as amended ([54 USC § 300101](#) et seq.), the *American Indian Religious Freedom Act of 1978* ([42 USC § 1996](#)), the *Archaeological Resources Protection Act of 1979*, as amended ([16 USC §§ 470aa–470mm](#)), the *Native American Graves Protection and Repatriation Act of 1990* ([25 USC §§ 3001–3013](#)), the NHPA, as amended through 2016, and associated regulations ([36 CFR Part 800](#)). The NHPA requires Federal agencies to consider effects of Federal undertakings on historic properties prior to deciding or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the NHPA Section 106 consultation process, as set forth in 36 CFR Part 800. NHPA Section 106 also requires agencies to consult with federally recognized American Indian tribes with a vested interest in the undertaking. NHPA Section 106 requires all Federal agencies to seek to avoid, minimize, or mitigate adverse effects to historic properties ([36 CFR § 800.1\(a\)](#)).

Cultural resources include the following subcategories:

- Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Architectural (i.e., buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- Traditional Cultural Properties (resources of traditional, religious, or cultural significance to American Indian tribes).

Significant cultural resources are those listed on the National Register of Historic Places (NRHP) or determined to be eligible for listing. To be eligible for the NRHP, properties must be 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance and meet at least one of four criteria for evaluation:

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

Properties that are less than 50 years old can be considered eligible for the NRHP under criteria consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP criteria (Criteria A, B, C, or D).

The term “historic property” refers to National Historic Landmarks, NRHP-listed, and NRHP-eligible cultural resources.

For cultural resources analyses, the ROI is defined by the Area of Potential Effect (APE). The APE is defined as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist,” (36 CFR § 800.16(d)) and thereby diminish their historic integrity. The APE for direct physical effects is the footprint of the proposed action, encompassing minimum dimensions of 1,000 meters by 1,500 meters, or 371 acres. The APE for direct and indirect visual, auditory, and atmospheric effects includes a half-mile radius around the physical APE. Both APEs are identified in **Figure 3-9 (Appendix A)**.

### **3.10.2 Existing Conditions**

The *Fort Hood Integrated Cultural Resources Management Plan* (ICRMP) provides direction for the protection and management of cultural resources on the installation in compliance with the NHPA and other legal requirements. The ICRMP describes cultural surveys undertaken by Fort Hood to identify historic properties (Fort Hood, 2021). In addition to the review of the ICRMP, information on cultural resources and surveys within the APE was acquired by Fort Hood and obtained by searching the Texas Historical Commission (THC) [Historic Sites Atlas](#).

#### **3.10.2.1 Architectural Properties**

There are no historic architectural resources within the APE; therefore, this resource is not carried forward for analysis in this EA.

#### **3.10.2.2 Archaeological Properties**

Nine archaeological sites have been identified and evaluated within the APE through surveys conducted in 1979 and follow-up site observations in 1986 and 1987. According to the THC Historic Sites Atlas, these surveys covered the entirety of the APE. Types of archaeological resources within the APE include two prehistoric lithic scatter sites and seven historic domestic sites. The Texas SHPO has determined all archaeological sites within the APE ineligible for listing in the NRHP. The THC Historic Sites Atlas records also depict a former cemetery location just beyond the northwestern boundary of the proposed MPMG Range, known as Sugar Loaf Cemetery. When Fort Hood was established and built in 1942, 464 human remains were reinterred at the Killeen Cemetery, unless families of the deceased requested otherwise (Bell County, 2025). There are no NRHP-eligible archaeological resources within the APE, and this resource is not carried forward for analysis in this EA.

#### **3.10.2.3 Traditional Cultural Properties**

Seven federally recognized Native American tribes have historical ties to Fort Hood and the surrounding area. The following tribes will continue to be notified regarding the proposed action:

- Apache Tribe of Oklahoma
- Caddo Nation
- Comanche Nation
- Kiowa Tribe of Oklahoma
- Mescalero Apache Tribe
- Tonkawa Tribe
- Wichita and Affiliated Tribes (Keechi, Waco & Tawakonie)

No Traditional Cultural Properties have been identified within the APE; therefore, this resource is not carried forward for analysis in this EA.

### **3.10.3 Environmental Consequences**

#### **3.10.3.1 Evaluation Criteria**

Adverse impacts to cultural resources would occur if the proposed action or alternatives results in 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; or
- the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance.

For the purposes of this EA, an impact is considered significant if it alters the integrity of a NRHP-listed, eligible, or potentially eligible resource or potentially impacts Traditional Cultural Properties.

#### **3.10.3.2 Proposed Action**

Implementation of the proposed action would result in no impacts to cultural resources in the ROI because there are no architectural, archaeological, or Traditional Cultural Properties located in the APE.

#### **3.10.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to cultural resources in the ROI beyond baseline conditions.

### **3.11 INFRASTRUCTURE (UTILITIES, TRAFFIC, AND TRANSPORTATION)**

#### **3.11.1 Definition of the Resource**

Utilities encompass the essential systems and infrastructure that enable a population within a specified area to function. These systems are entirely human-created, and their level of development serves as a strong indicator of a region's overall development status. Key components of utilities include communications, electricity and natural gas, potable water supply, sanitary sewage/wastewater, solid waste management, and stormwater systems. The availability and capacity of these utilities to support existing and future users, including future area development, are widely considered essential for sustained economic growth. All utility systems must be designed, constructed, and operated in strict accordance with applicable Federal, State, local laws, and regulations.

AR 420-1, *Army Facilities Management, Part Five, Utilities and Energy Management*, provides comprehensive guidance for utilities and energy management, ensuring compliance with other

relevant regulations. Waste management, also addressed in AR 200-1 is one such environmentally related component. These regulations incorporate numerous conservation measures, such as the AR 420-1 requirement that all military construction, renovation, and demolition projects divert a minimum of 50 percent of construction and demolition waste by weight from landfill disposal.

Transportation is defined as the network of roadways, highways, and transit services that facilitate ingress and egress to a specific location, as well as access to regional goods and services. Traffic is the movement, volume, and congestion of vehicles, pedestrians, and goods within this network. Transportation infrastructure must also be designed, built, and operated in accordance with applicable Federal, State, and local laws, and regulations. AR 420-1 implements these laws by outlining policies and procedures for on-installation transportation infrastructure, including paved roads, airfields, other surfaced areas, railroads, and bridges.

The ROI for infrastructure is Fort Hood and the external infrastructure components and services upon which the installation relies for its operation.

### **3.11.2 Existing Conditions**

#### **3.11.2.1 Utilities**

##### **Communications**

Communications services and infrastructure are available to support a range of requirements including voice, data, video, wireless, land mobile radio, aircraft, and security systems. The communications system comprises fiber-optic cables connecting buildings and twisted-pair copper cabling for in-building connectivity. Manhole and conduit systems further support communications through buried infrastructure. The installation's communications systems are in good condition and possess the capacity to meet the future demands of the MPMG Range (Army, 2020).

##### **Electricity and Natural Gas**

Electricity is supplied to Fort Hood by Texas Utilities Corporation via four substations. In 2020, electricity use operated at 60 percent capacity, utilizing three of the four available substations. The energy systems at Fort Hood are capable of supporting current and future mission demands through 2045. Natural gas is provided by a private company through privately owned distribution lines (Army, 2020).

##### **Potable Water Supply**

American Water Military Services (American Water) owns and operates the potable water utilities at Fort Hood under the Utilities Privatization Program. Water for the installation is sourced from Belton Lake and supplied by Belton County and the City of Gatesville. The water is treated by Bell County Water Control and Improvement District No. 1 using such techniques as coagulation, filtration, and disinfection. Fort Hood's water system includes 300 miles of pipe supporting 11 pump stations and 18 surface tanks (American Water, 2024).

##### **Sanitary Sewage/Wastewater**

Wastewater from Fort Hood flows through a sanitary sewer system owned and operated by American Water under the Utilities Privatization Program. Wastewater is treated by Bell County for the southern cantonments and by the City of Gatesville for the northern cantonments (Army, 2020). All wastewater is treated to regulatory standards before discharge (American Water, 2024). Fort Hood operates one small sewage treatment plant that processes wastewater from restrooms and camping areas at the Belton Lake Outdoor Recreation Area (Army, 2020).

### **Solid Waste Management**

Fort Hood manages its comprehensive waste, prioritizing a “Net Zero Waste” approach. This includes recycling; handling diverse waste streams from construction, operations, and gun ranges; and operating an on-installation landfill exclusively for residents (Fort Hood, 2017b).

Construction and gun range activities generate various wastes, including munitions-related materials. While military munitions can be conditionally exempt from RCRA hazardous waste regulations (40 CFR Part 266 Subpart M), this waste is still classified as solid waste once discarded. This means even RCRA-exempt munitions waste requires proper handling and disposal, typically at the Fort Hood landfill or an approved off-installation solid waste facility, in accordance with all applicable solid waste regulations (Fort Hood, 2017b).

#### ***3.11.2.2 Traffic and Transportation***

Fort Hood is situated in central Texas, within Bell and Coryell counties. The installation is accessible by airplane, personal vehicle, and public transportation. The Killeen-Fort Hood Regional Airport is approximately five miles south of Fort Hood. The installation is bordered by US Route 84 to the north, State Highway 36 and State Highway 317 to the east, State Highway 14 to the south, and US Route 281 to the west. The local public transportation system serves nine counties in central Texas, including Bell and Coryell (The HOP, 2025). Fort Hood provides an application-based, free-fare transit system called the Hood Connector, utilizing buses and ride-sharing services available to service members on the installation (Cavazos Connector, 2025). The proposed MPMG Range is accessible via a network of unnamed paved roadways connected to East Range Road. The proposed action includes improvements to these roadways within the project site.

#### **3.11.3 Environmental Consequences**

##### ***3.11.3.1 Evaluation Criteria***

The Army defines a significant effect on or from infrastructure, transportation, and utilities within the ROI as one or more of the following:

- a measurable change or service reduction within the regional transportation network, or
- prolonged or repeated interruption of public transportation services regionally.

##### ***3.11.3.2 Proposed Action***

###### **Utilities**

###### ***Communications***

Consistent with the entirety of Fort Hood, the communications system under the proposed action would be underground, bored directly beneath roadways. There would be increased demand of the communications systems to accommodate the new facilities, but the current installation communications system has sufficient capacity. Therefore, implementation of the proposed action would result in long-term, negligible, adverse impacts to the installation’s communications system.

###### ***Electricity and Natural Gas***

Under the proposed action, a new electrical line would be connected to the existing electrical system south of the proposed MPMG Range (**Figure 3-10, Appendix A**). Because electrical systems are designed with redundancy and capacity to handle additional loads, there would be minimal adverse effects to electricity from this action. Therefore, implementing the proposed action would result in long-term, negligible, adverse impacts to the installation’s electrical system. Additionally, no projects in the ROI would require connections to the installation’s natural gas

systems; therefore, implementation of the proposed action would result in no impacts to the installation's natural gas system.

#### ***Potable Water Supply***

Under the proposed action, there would be a minimal increase in demand of the potable water system, but the current supply has sufficient capacity. Therefore, implementation of the proposed action would result in long-term, minimal, adverse impacts to the installation's potable water system.

#### ***Sanitary Sewage/Wastewater***

The proposed action would not require connections to the sanitary sewer or wastewater systems. The proposed latrine pad would accommodate four portable toilets and would not be connected to the sanitary sewer system. Therefore, implementation of the proposed action would result in no impacts to the installation's sanitary sewage/wastewater system.

#### ***Solid Waste Management***

Under the proposed action, there would be a minimal increase in demand of the solid waste system due to trash collection at new facilities. Therefore, implementation of the proposed action would result in long-term, minimal, adverse impacts to the installation's solid waste management.

#### **Traffic and Transportation**

Under the proposed action, traffic to the proposed MPMG Range would minimally increase demand on East Range Road and the unfinished roadways connecting to it. This demand would be minor and occur primarily during scheduled training activities. Therefore, implementation of the proposed action would result in long-term, minimal, adverse impacts to traffic and transportation at Fort Hood.

#### **3.11.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to infrastructure in the ROI beyond baseline conditions.

### **3.12 HAZARDOUS AND TOXIC MATERIALS AND WASTE**

#### **3.12.1 Definition of the Resource**

Hazardous materials (HAZMAT) are primarily unused products still intended for their original purpose, such as degreasers, paint thinners, adhesives, acids, and antifreeze. The handling of HAZMAT is regulated by the Occupational Safety and Health Administration (OSHA) and the US Department of Transportation (DOT). The *Comprehensive Environmental Response, Compensation, and Liability Act* ([42 USC § 9601](#) et seq., (CERCLA), as amended by the *Superfund Amendments and Reauthorization Act* ([Public Law 99-499](#)) (SARA), and the *Toxic Substances Control Act*, [15 USC § 2601](#) et seq. (TSCA), as implemented by [40 CFR Part 761](#), define HAZMAT as any substance exhibiting ignitability, corrosivity, reactivity, or toxicity, and which may cause increased mortality, serious irreversible or incapacitating reversible illness, or pose a substantial threat to human health or the environment.

Hazardous waste is any waste that the USEPA defines as solid waste ([40 CFR § 261.20](#)) and is further classified as either "listed" or "characteristic." Listed hazardous wastes are those the

USEPA has specifically identified (e.g., spent solvents, acetone). Characteristic hazardous wastes exhibit ignitability, corrosivity, reactivity, and/or toxicity.

The Resource Conservation and Recovery Act (42 USC § 6901 et seq.) (RCRA) establishes the mandatory procedures and requirements for Federal facilities that use, accumulate, transport, treat, store, or dispose of HAZMAT and hazardous wastes. Under RCRA, the USEPA can grant authority to the state to establish and enforce its own hazardous waste management program, provided the state's requirements are no less stringent than the USEPA's (USEPA, 2022). TCEQ implements the RCRA program for the state of Texas (TCEQ, 2025a).

The TSCA addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyl (PCBs), asbestos-containing materials (ACMs), and lead-based paint (LBP). Asbestos is also considered a hazardous air pollutant and, as such, is regulated under the CAA National Emission Standards for Hazardous Air Pollutants. A proposed activity may affect and be affected by the presence of these substances or controls over them. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of such activity.

OSHA is responsible for the enforcement and implementation of Federal laws and regulations pertaining to worker health and safety under [29 CFR Part 1910](#). OSHA also includes the regulation of HAZMAT in the workplace and ensures appropriate training in their handling. More specific rules and regulations applicable at Fort Hood are laid out in the installation *Hazardous Waste Management Plan* (HWMP) (Fort Hood, 2022a).

SARA established cleanup mandates for the DoD and established the Defense Environmental Restoration Program, which comprises the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). Through the IRP, each DoD installation is required to identify, investigate, and clean up hazardous waste disposal or release sites. Remedial activities for IRP sites follow the Hazardous and Solid Waste Amendments under the RCRA Corrective Action Program. The IRP aims to reduce risk to human health and the environment by identifying, evaluating, and responding to a release or threat of a release into the environment from DoD activities or DoD facilities. IRP sites involve releases of hazardous substances, pollutants or contaminants, hazardous waste, and petroleum products. In accordance with DoDI 4715.07, *Defense Environmental Restoration Program*, the IRP goals are to facilitate compliance with applicable statutes, regulations, and other legal requirements and conduct environmental restoration activities.

The MMRP identifies and addresses military munitions and explosives of concern at military installations. The MMRP is part of the Defense Environmental Restoration Program (Army Environmental Command, 2025). Federal regulations make a key distinction regarding waste classification: munitions used as intended for training, research, development, testing, or evaluation on a DoD-managed operational range are excluded from RCRA's definition of solid waste. This exclusion applies specifically to munitions fired on these ranges while under DoD control.

Fort Hood, like many other sites, faces the risk of per- and polyfluoroalkyl substance (PFAS) contamination, particularly from perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). These man-made chemicals have been widely used since the 1940s in numerous industrial and consumer products due to their heat, stain, water, and grease-resistant properties. PFAS are key components of firefighting foams, such as aqueous film forming foam (AFFF),

where they are highly effective at extinguishing fuel fires. This widespread use, combined with the persistence of PFAS in the environment, raises concerns about contamination, especially at locations like military bases where these products, particularly firefighting foams, have been used extensively.

The ROI for hazardous and toxic materials and waste is the footprint of the proposed action.

### **3.12.2 Existing Conditions**

#### **3.12.2.1 Hazardous Materials and Wastes**

While HAZMAT is regulated by OSHA and DOT when used for their intended purpose, they are not subject to RCRA regulations until the HAZMAT is discarded. Only when a HAZMAT is discarded and becomes a waste does it fall under RCRA.

Fort Hood manages hazardous waste according to USEPA regulations. Hazardous waste is identified at its source and categorized (ignitable, corrosive, or toxic) with corresponding waste codes (D001, D002, D006, etc.). Examples include acetone (ignitable), spent Alodine (corrosive), and cadmium-contaminated high efficiency particulate air filters (toxic).

Proper labeling of hazardous waste containers is mandatory at Fort Hood, which uses satellite accumulation areas. Waste must be transferred to a central accumulation area within three days. As a large-quantity generator, Fort Hood is limited to 90 days of storage for hazardous waste. The Fort Hood HWMP ensures compliance with RCRA Subtitle C regulations. Hazardous waste is identified according to RCRA regulations outlined in [40 CFR Part 261](#).

Hazardous waste management at Fort Hood relies on the Centralized Accumulation Area as the primary turn-in point, requiring appointments and cost responsibility from originating organizations. Specific procedures exist for various waste types: compressed gas cylinders are returned to vendors, small lecture bottles go to the Centralized Accumulation Area, refrigerants are accepted only from military (not contractors), antifreeze is handled by Pollution Prevention Services, batteries require sorting and proper labeling, oil/fuel filters must be drained and sealed, and solvent wipes are accepted within 90 days of use. Radioactive waste is not accepted.

#### **3.12.2.2 Toxic Materials**

##### **Fuel Storage**

Fort Hood manages bulk fuel storage and transfer for military equipment, including aircraft, ground vehicles, and generators. Stored fuel includes petroleum, oils, and lubricants (POL), reclaimed fuels, and used cooking oil.

Fuel is distributed across the installation via various methods to locations, including North Fort Hood, maintenance points, and retail service stations. Fort Hood also uses buried tanks for spill collection and oil/water separators.

The Spill Prevention, Control, and Countermeasures (SPCC) Plan excludes several entities responsible for their own plans (e.g., Texas Army National Guard, American Water, Dominion Electric), along with specific container types and sizes. Contractors on Fort Hood must develop site-specific SPCC plans as needed.

Fort Hood's total oil storage capacity is approximately 3.8 million gallons in aboveground storage tanks and 187,000 gallons in underground storage tanks, plus varying amounts in mobile fuel tankers and 55-gallon drums. No fuel storage tanks are within the ROI, and the closest F-24 tanks are 1.68 miles southeast. Therefore, this resource is not carried forward for analysis in this EA.

### **Environmental Restoration Program Sites**

The proposed action at Fort Hood would be located entirely within the installation's boundaries. Fort Hood has no Environmental Restoration Program sites on or immediately adjacent to the ROI. Therefore, this resource is not carried forward for analysis in this EA.

### **Perfluoroalkyl Substances and Aqueous Film Forming Foam**

The Army is assessing potential PFAS and AFFF contamination at installations nationwide through preliminary assessments and site inspections, focusing on specific PFAS compounds. At Fort Hood, site investigations identified 27 areas of potential interest. A 2023 *Final Preliminary Assessment and Site Inspection of Per-And Polyfluoroalkyl Substances* identified PFOS, PFOA, perfluorobutanesulfonic acid, perfluorononanoic acid, and perfluorohexanesulfonic acid at 24 areas of potential interest at Fort Hood; 14 of which exceeded risk-based screening levels. Further study in remedial investigation was recommended at several sites before any cleanup actions can be made. However, there is no history of PFAS contamination or AFFF use or contamination within the ROI. Therefore, this resource is not carried forward for analysis in this EA.

### **Asbestos and Lead-Based Paint**

Asbestos, a mineral fiber historically used in building materials for strength, heat insulation, and fire resistance, poses a potential hazard in older structures. Because many buildings at Fort Hood were constructed before the 1970s, when asbestos use was common, ACMs likely are present. AR 200-1, *Environmental Protection and Enhancement*, mandates asbestos management plans for installations, including maintaining records of ACM status and documenting management efforts.

In Texas, ACMs are classified as “special waste,” a category that exists in Texas regulations but not at the Federal level. This classification, defined in [30 TAC 330.3](#), means that ACMs require special handling and disposal due to their potential danger to human health and the environment. Because they are designated as special waste, ACMs in Texas are subject to specific regulations regarding their handling, transport, storage, processing, and disposal, beyond what might be required by Federal law alone. This includes stricter recordkeeping requirements, specific packaging and labeling rules, and disposal at designated facilities licensed to accept special waste. Essentially, the special waste designation emphasizes the particular hazards associated with asbestos and mandates a higher level of control over its management in Texas (Fort Hood, 2017b).

LBP is another material of concern. Although no longer used, it may still be present in buildings constructed before 1978. Fort Hood manages LBP removal and disposal in compliance with Federal, State, and local regulations. All paint waste generated during removal operations is containerized, sampled, and analyzed to determine if it meets the criteria for hazardous waste.

The Fort Hood landfill, operating under TCEQ permit 1866, accepts municipal solid waste and construction & demolition debris, but its tonnage is well below permitted limits. It also accepts special wastes, including regulated and non-regulated ACM, LBP, and bio-remediated soils. These special wastes are handled with proper manifest procedures and disposed of in a designated trench designed specifically for such materials, in accordance with the landfill's waste acceptance plan. The Fort Hood landfill also manages methane gas through a recovery/removal system and monitors groundwater quality and leachate levels to prevent contamination (Fort Hood, 2017b).

### **Radiation (Depleted Uranium)**

The M101 depleted uranium spotting round was used at Fort Hood training sites between 1960 and 1968. Depleted uranium contamination has been confirmed at the installation's Trapnell Machine Gun Range, approximately five miles northeast and downgradient of the proposed action

area. Ten contaminated locations within the Trapnell Machine Gun Range, designated as a Radiation Control Area in 2007, are now managed under a 2016 Radiation Monitoring Plan (Fort Hood, 2016). The Radiation Control Area is fenced, marked, and restricted, with no contamination detected outside its boundaries. Therefore, this resource is not carried forward for analysis in this EA.

### **Radon**

Radon, an odorless, colorless, radioactive gas, is a byproduct of natural uranium decay in soil and rock. It can migrate through permeable geological formations and seep into buildings, posing a health risk. The USEPA's recommended action level for indoor radon is four picocuries per liter of air. The USEPA and the US Surgeon General have mapped radon potential across the US to guide building codes regarding radon-resistant construction.

Radon zones range from 1 (high potential) to 3 (low potential). Coryell and Bell counties are designated as Zone 3, indicating low potential, with average indoor radon levels likely below two picocuries per liter (USEPA, 2024). Due to the low probability of radon levels exceeding the USEPA's action level, radon is not carried forward for analysis in this EA.

### **Pesticides**

The installation's IPMP (Fort Hood, 2022b) guides pesticide use, prioritizing disease vectors and public health pests, such as mosquitoes, rodents, ticks, spiders, red fire ants, and venomous animals. The plan outlines responsibilities for various personnel, including the integrated pest management coordinator, who oversees the program, creates and updates the plan, provides training, monitors pesticide use and compliance, analyzes pest control records, manages contracts, and maintains resource materials.

Trained pest management personnel are responsible for following the plan, recording their activities, using pesticides safely, and reporting changes in requirements. Pest Management Quality Assurance Evaluators review contractor performance, while Contracting Officer's Representatives oversee contracts and maintaining records. Building occupants contribute through sanitation and self-help pest control (Fort Hood, 2022b).

The Department of Public Works oversees installation pest management, provides services, manages pesticide supplies and storage, and ensures personnel are trained and certified. All personnel involved in pest management must adhere to hazard communication and labeling requirements. Quarantine pests (e.g., red fire ants, tawny crazy ants, zebra mussels) and pests damaging real property (e.g., termites, carpenter ants, birds, rodents) are also managed. The IPMP also addresses noxious and invasive plants. The pest coordinator reports any suspected new quarantine pests to the Army Environmental Command (Fort Hood, 2022b).

### **Polychlorinated Biphenyls**

The proposed action would not include the removal of fluorescent light fixtures or PCB-containing equipment. If materials suspected of containing PCBs are encountered during construction, a certified contractor would conduct a survey prior to further work, and any PCB-containing materials would be properly stored and disposed of according to regulations. Since the proposed action would not involve removal actions that would expose PCBs, this resource is not carried forward for analysis in this EA.

### **3.12.3 Environmental Consequences**

#### **3.12.3.1 Evaluation Criteria**

Impacts from HAZMAT or hazardous wastes would be significant if the proposed action:

- generates, uses, or stores HAZMAT or hazardous wastes in violation of Federal or State regulations; or
- exposes construction workers to increased health risks from working in existing contamination without proper training and equipment.

#### **3.12.3.2 Proposed Action**

##### **Hazardous Materials and Wastes**

Under the proposed action, there would be limited HAZMAT use (e.g., paints, solvents, pesticides) during construction. Hydraulic fluids and petroleum products would also be present, creating the potential for accidental releases. Any encountered hazardous wastes would be handled, stored, and disposed of according to regulations, with all necessary permits obtained. Construction activities would adhere to the Fort Hood HWMP and other relevant guidelines to minimize contaminant release.

Common potentially hazardous wastes within the ROI include used oil, battery acid, paint thinners, pesticides, and lead/chromium-containing paints, often found in pre-1978 buildings. Long-term bullet deposition on the range is unavoidable but would be mitigated by the Army's transition to non-lead rounds, which has eliminated thousands of tons of lead since 2010 (American Bird Conservancy, 2013).

While no hazardous waste effects requiring mitigation are anticipated, spills or leaks remain possible during construction. Adherence to the Fort Hood HWMP (2022) and SPCC Plan (2023) would minimize impacts and ensure regulatory compliance. Therefore, implementation of the proposed action would result in short-term, negligible-to-minor, adverse impacts from HAZMAT and hazardous waste, including POLs, in the ROI.

##### **Asbestos and Lead-Based Paint**

Under the proposed action, ACMs and LBP may be encountered in areas of past use as insulation for pipes, electrical wiring, gaskets, valves, and other materials. When these materials are disturbed, such as during renovations or repairs, asbestos fibers or lead dust can be released into the air, posing a health risk to workers and others in the vicinity (Secretariat of the Pacific Regional Environment Programme, 2022).

With adherence to installation management practices for ACM and LBP waste handling and disposal and compliance with USEPA regulations, implementation of the proposed action would result in short-term, minor, adverse impacts related to ACM and LBP in the ROI.

##### **Pesticides**

Construction activities under the proposed action likely would require a temporary increase in targeted pesticide applications during ground-disturbing activities (e.g., clearing, grading). This limited increase could pose minor, short-term impacts to non-target species or cause runoff contamination. The installation's Integrated Pest Management Program prioritizes mechanical and biological controls over chemical methods and addresses a wide range of pest concerns. With adherence to the IPMP, implementation of the proposed action would result in short-term, minor, adverse impacts during construction activities.

### **3.12.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to hazardous and toxic materials and wastes in the ROI beyond baseline conditions.

## **3.13 HUMAN HEALTH AND SAFETY**

### **3.13.1 Definition of the Resource**

This section details the health and safety protocols for activities stemming from the proposed action at Fort Hood, addressing potential impacts on contractors, site workers, the public, soldiers, and installation personnel. Protecting human health and the environment is a fundamental Army mission at Fort Hood. All activities comply with relevant Federal, State, DoD, Army, and installation regulations, minimizing risks to individuals and the environment, both on and off installation.

The Army Safety Program, detailed in AR 385-10 *Army Safety Program*, encompasses the policies, responsibilities, and procedures for safeguarding Army personnel and property. This regulation addresses operational safety and the creation of safe and healthy workplaces, while also ensuring compliance with pertinent laws and regulations, including the *Occupational Safety and Health Act of 1970* as implemented through EO 12196 and the DoDI 6055 Series. Other Army regulations address human health and safety to reduce, to the greatest extent practicable, the potential for death, serious bodily injury, illness, or property damage. These include Department of the Army Pamphlet (DA PAM) 385-63, *Range Safety*, and DoD Manual 6055.09 Volume 7, *DoD Ammunition and Explosives Safety Standards: Criteria for Unexploded Ordnance, Munitions Response, Waste Military Munitions, and Material Potentially Presenting an Explosive Hazard*.

The proposed action would be constructed within the Fort Hood live-fire area, which is specifically designed for exercises involving live ammunition. These areas prioritize safety with controlled ranges, protective barriers, and strict protocols for weapons handling. They facilitate various live-fire activities, from individual weapon qualification to complex combined arms exercises, ensuring soldiers are proficient in using their weapons systems in realistic, yet controlled, environments.

The ROI for human health and safety is the Fort Hood Live-Fire Training Area.

### **3.13.2 Existing Conditions**

Fort Hood utilizes approximately 64,272 acres for diverse live-fire training exercises across multiple ranges. While controlled public recreation is generally permitted in training areas, activities within the live-fire area are strictly prohibited. This area experiences minimal traffic, primarily vehicles accessing the ranges. Furthermore, access to the impact area is prohibited due to the dangers of live fire and unexploded ordnance. Safety is crucial during live-fire operations (Fort Hood, 2024a).

Unit commanders (battalion or squadron) ensure that Officers-In-Charge and Range Safety Officers receive installation or community safety instruction before obtaining battalion or squadron commander safety certification. The safety certification programs train and qualify personnel for firing exercises or maneuver operations. The regulations and guidance governing the safe operation of ranges on Army installations are outlined in AR 385-63 *Range Safety*. This regulation covers range usage from live-firing small arms to rockets, guided missiles, and lasers

and provides guidance for minimizing the risk of using these weapons. DA PAM 385-63 details procedures and standards for safely operating military firing ranges. It supports the overarching policies found in AR 385-63 to ensure safe training environments during live-fire exercises. Fort Hood facilities and operations involving ammunition and explosives must comply with the requirements of all applicable Federal, DoD, and Army regulations. Training activities are performed in accordance with Army safety regulations and OSHA standards.

The land in the ROI previously was used for training; therefore, it is already equipped with several designated surface danger zones (SDZs). However, new SDZs would have to be established for the proposed MPMG Range (**Figure 3-11, Appendix A**). An SDZ is an area extending from a firing point to a distance down range based on the projectile fired and outlines mathematically predicted areas where projectiles will return to earth either by direct fire or by ricochet. SDZs are the primary determinant of potential safety conflicts between ranges. The installation's SDZs are three-dimensional areas that represent minimum safety requirements. The size and shape of SDZs are based on several factors, including weapons system performance, ammunition, training requirements, geographical location, and environmental conditions (USACE, 2015).

Wildfire prevention and suppression is a safety concern for military training at Fort Hood. In addition to being detrimental to natural resources and the military mission, wildfires can threaten areas outside the installation. Most wildfires at Fort Hood begin in the live-fire area due to the use of pyrotechnics and incendiary munitions. To mitigate the risks of wildfires, Fort Hood uses a fire danger rating system to alert trainers when pyrotechnic operations should be halted or limited. The system is based on daily weather and estimated moisture content of vegetation and soil. The system's ratings are from Condition Green to Condition Red to specify the restriction, or lack thereof, on the use of pyrotechnics and incendiary munitions. Details of this rating can be found in OPLAN 8-93, *Operation Brush Fire*, and Fort Hood Regulation 350-40. If fires are within ranges where live-fire training is taking place, units must cease firing until a fire risk assessment is conducted or control measures are implemented. Fort Hood employs preventative prescribed burns to manage wildfire risk and firebreaks as a protective measure to reduce fire risk to cultural and natural resources (Fort Cavazos, 2024).

There is no flight activity associated with the proposed action; therefore, flight safety is not carried forward for analysis in this EA.

### **3.13.3 Environmental Consequences**

#### **3.13.3.1 Evaluation Criteria**

Safety-related impacts from a proposed activity are assessed according to the potential to increase or decrease safety risks to personnel, the public, property, or the environment. For the purposes of this EA, an impact is considered significant if Army or OSHA criteria are exceeded or if established safety measures are not being properly implemented, resulting in unacceptable safety risk to personnel.

Additionally, adverse impacts to safety would occur if the proposed action:

- substantially increases risks associated with the safety of military personnel or the local community;
- substantially hinders the ability to respond to an emergency; and/or
- introduces a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

#### **3.13.3.2 Proposed Action**

To minimize health and safety risks, the proposed action would adhere to standard operating procedures and established safety practices. Training on the proposed MPMG Range would comply with all applicable DoD and Army regulations regarding ranges, munitions, and explosives. SDZs would be established and enforced during live-fire exercises, with personnel utilizing appropriate safety equipment and an emergency response plan in place.

Training involving pyrotechnics or incendiary munitions would mirror existing Fort Hood operations, ensuring no increased fire risk. Following standard procedures would mitigate wildfire risks, preventing adverse health and safety impacts.

The proposed action includes construction of support structures, infrastructure, firing positions, lanes, and targets. The Army would manage construction safety risks using standard industry practices and in accordance with AR 385-10 and all applicable Federal, State, and local regulations. Given that construction would occur within a live-fire area, an unexploded ordnance clearance team would be on standby to address any discovered unexploded ordnance (Bodkin, 2025). These risks would be mitigated through adherence with comprehensive safety plans and OSHA regulations. Therefore, implementation of the proposed action would result in long-term, minimal, adverse impacts to human health and safety in the ROI.

#### **3.13.3.3 No Action Alternative**

Under the no action alternative, the proposed MPMG Range at Fort Hood would not be constructed, operated, or maintained. The capacity to meet ARRM requirements would not be satisfied, and the installation would fall short of the necessary training capacity required. There would be no impacts to human health and safety in the ROI beyond baseline conditions.

## CHAPTER 4 REASONABLY FORESEEABLE EFFECTS

### 4.1 REASONABLY FORESEEABLE EFFECTS

This assessment evaluates reasonably foreseeable effects that could affect the environment and human health when combined with the effects of the proposed action. Per DoD NEPA Implementing Procedures issued 30 June 2025, “reasonably foreseeable” means “sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision.”

**Table 4-1** briefly describes the proposed or planned projects identified for consideration of potential impacts when combined with the effects of the proposed action at the MPMG Range and on a regional scale. Projects approved by the City of Killeen did/would occur primarily within the city boundaries. With the exception of one, all military projects in **Table 4-1** are located within the cantonment area. The closest cantonment area is two miles distant and does not share a watershed with the proposed MPMG Range.

Due to the limited scope and distance of these projects, they do not meet the criterion for “reasonably foreseeable”; therefore, no reasonably foreseeable effects in conjunction with the proposed MPMG Range are anticipated.

**Table 4-1 Reasonably Foreseeable Actions**

| Action                                          | Proponent/<br>Location | Timeframe                         | Description                                                                                                                                                                                                                                                                     |
|-------------------------------------------------|------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Military Actions</b>                         |                        |                                   |                                                                                                                                                                                                                                                                                 |
| Central Energy Plant                            | Fort Hood              | Future (FY 2026)                  | Construct a Central Energy Plant in the 14000 block.                                                                                                                                                                                                                            |
| Barrack 101                                     | Fort Hood              | Present (FY 2025)                 | Construct a 250-bed barrack at 69th ADA Campus.                                                                                                                                                                                                                                 |
| Barrack 102                                     | Fort Hood              | Present (FY 2026)                 | Construct a 250-bed barrack in 1/1 CD footprint.                                                                                                                                                                                                                                |
| Phantom Warrior Microgrid                       | Fort Hood              | Future (FY 2027)                  | 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.                                                                                            |
| Various Building Repair and Renovation Projects | Fort Hood              | Present, Future (FY 2025–FY 2026) | 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), YDAHP’s parking apron, and two VMS buildings. |
| MWD Kennel                                      | Fort Hood              | Present (FY 2026)                 | Construct a new MWD Kennel Facility.                                                                                                                                                                                                                                            |
| Microgrid                                       | Fort Hood              | Present (FY 2026)                 | Construct a microgrid consisting of a natural gas generating plant, a 1MW/4MWh Energy Storage System, and 150kW photovoltaic array.                                                                                                                                             |
| RV and Secure Storage Facility                  | Fort Hood              | Future (FY 2026)                  | Expand the existing RV and Secure Storage Facility.                                                                                                                                                                                                                             |
| Motorpool 70                                    | Fort Hood              | Future (FY 2027)                  | Construct a standard design Vehicle Maintenance Shop (Motorpool) to replace Building 19027.                                                                                                                                                                                     |

| Action                                                  | Proponent/<br>Location                 | Timeframe        | Description                                                                                                                                                                                                                                       |
|---------------------------------------------------------|----------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Motorpool 71                                            | Fort Hood                              | Future (FY 2027) | Construct a standard design Vehicle Maintenance Shop (Motorpool) to replace Building 25039.                                                                                                                                                       |
| ERCIP – Clarke Road Substation Microgrid                | Fort Hood                              | Future (FY 2030) | Construct a natural gas distributed generation microgrid capable of powering 32 mission critical and essential facilities from the Clarke Road substation for a minimum of 14 days.                                                               |
| ERCIP – YDAHP Microgrid                                 | Fort Hood                              | Future (FY 2030) | Construct a black-start capable microgrid to provide resiliency for powering all mission critical and essential facilities at YDAHP for a minimum of 14 days.                                                                                     |
| Barrack 104                                             | Fort Hood                              | Future (FY 2029) | Construct a 250-bed barrack.                                                                                                                                                                                                                      |
| NFC Microgrid                                           | Fort Hood                              | Future (FY 2030) | Construct a natural gas distributed generation microgrid capable of powering all current mission critical and essential facilities on North Fort Hood at a minimum of 14 days.                                                                    |
| Barrack 105                                             | Fort Hood                              | Future (FY 2029) | Construct a 250-bed barrack.                                                                                                                                                                                                                      |
| Barrack 106                                             | Fort Hood                              | Future (FY 2030) | Construct a 500-bed barrack.                                                                                                                                                                                                                      |
| <b>Local Actions<sup>a</sup></b>                        |                                        |                  |                                                                                                                                                                                                                                                   |
| Various Single Family/Multi-Family Residential Projects | Private Development/City of Killeen    | Past             | 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. |
| 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.                                            |
| Bunny Trail Reconstruction                              | City of Killeen                        | Present          | Reconstruction of Bunny Trail from the intersection of West Stan Schluter 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          | Rebuilding roadway and sidewalks.                                                                                                                                                                                                                 |
| Chaparral Pump Station                                  | City of Killeen                        | Present          | Construction of a new pump station with capacity of eight million gallons per day. Construction began in March 2024 and is anticipated to be completed in May 2026.                                                                               |
| Emergency Operation Center/FS #4                        | City of Killeen                        | Present          | Construction of an Emergency Operations Center.                                                                                                                                                                                                   |
| Transfer Waste Station Pushwall and Tunnel Modification | City of Killeen                        | Present, Future  | Repair facilities pushwall.                                                                                                                                                                                                                       |
| Watercrest Reconstruction                               | City of Killeen                        | Present, Future  | Total road and pedestrian walkway reconstruction, street lighting, and traffic signal installation at Robinett Road.                                                                                                                              |

| Action                           | Proponent/<br>Location | Timeframe | Description                                                                                                                                                                                                     |
|----------------------------------|------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |
| 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 ADA ramp rehabilitation at various locations throughout the city of Killeen.                                                                                                  |

a Source: City of Killeen, 2024

ADA = Americans with Disabilities Act of 1990; BLORA = Belton Lake Outdoor Recreation Area; DFAC = dining facility; ERCIP = Energy Resilience Conservation Investment Program; FS = facility site, FY= fiscal year; MWD = military working dog; RV = recreational vehicle; VMS = vehicle maintenance shops; YDAHP = Yoakum-Defreenn Army Heliport

## 4.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

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

The proposed action would not substantially increase the irreversible or irretrievable commitment of resources. Training operations within the proposed MPMG Range would consume nonrenewable resources, such as fuel for vehicles; however, the demand for such resources would represent a negligible decrease to the overall supply of regional petroleum resources and the frequency in which these resources are used would not change.

## 4.3 RELATIONSHIPS BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

This section evaluates the short-term benefits of the proposed action compared to the long-term productivity derived from not pursuing the proposed action.

Short-term effects to the environment are generally defined as a direct consequence of a project in its immediate vicinity. Since the MPMG Range would be located within a live-fire training area, the proposed action would not create any new short-term, adverse environmental effects or impacts to productivity. Additionally, the proposed action is not expected to significantly increase the irreversible or irretrievable commitment of resources. While training operations would continue to consume nonrenewable resources like vehicle fuel, the demand represents a negligible decrease to the overall supply of regional petroleum resources. The frequency of using these resources also would stay the same.

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## CHAPTER 6 REFERENCES

- American Bird Conservancy, 2013. *Military Move to More Lead-Free Ammunition Could Save Millions of Birds*. <https://abcbirds.org/news/military-move-to-more-lead-free-ammunition-could-save-millions-of-birds/>.
- American Water, 2024. *2024 Annual Water Quality Report*. <https://www.amwater.com/ccr/fortcavazos.pdf> (accessed 13 February 2025).
- Army, 2020. *Programmatic Environmental Assessment for Army 2020 Force Structure Realignment*. <https://aec.army.mil/Portals/115/NEPA/Army,2020?ver=CST9J0hoioctjpVr7f9EnA%3D%3D> (accessed on 19 June 2025).
- Army, 2025. Fort Cavazos Recycle. <https://home.army.mil/hood/units-tenants/Garrison/DPW/ENV/fort-hood-recycle> (accessed 13 February 2025).
- Army Environmental Command, 2025. Military Munitions Response Program. Retrieved from: <https://aec.army.mil/Cleanup/Military-Munitions-Response-Program/>.
- Bell County, 2025. Cemeteries of Bell County. [https://www.bellcountytexas.com/about\\_us/county\\_historical\\_commission/bell\\_county\\_historical\\_information/cemeteries\\_of\\_bell\\_county.php](https://www.bellcountytexas.com/about_us/county_historical_commission/bell_county_historical_information/cemeteries_of_bell_county.php), accessed February 2025.
- Berglund, B. and T. Lindvall, (Eds.), 1995. "Community noise." Archives of the Center for Sensory Research, 2(1), 1-195. <https://www.nonoise.org/library/whonoise/whonoise.htm> (accessed 7 May 2025).
- Bodkin, S., 2025. "Plans for Handling Unexploded Ordnance (UXO)." Personal Communication from S. Bodkin, US Army Garrison Safety Office Fort Cavazos, on 19 February.
- Cavazos Connector, 2025. Fort Cavazos Connector. Retrieved from: <https://takethehop.com/cavazos-connector> (accessed 14 February 2025).
- City of Copperas Cove, 2018. Appendix A. Fort Hood Joint Land Use Study. Retrieved from: <https://online.encodeplus.com/regs/copperascove-tx-cp/doc-viewer.aspx?secid=108#secid=108> (19 Feb. 2025).
- Elliott, L. 2014. *Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Texas*. Texas Parks and Wildlife Department. [https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/emst/texasecologicalsystemsdescriptions\\_2016.pdf](https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/emst/texasecologicalsystemsdescriptions_2016.pdf).
- Federal Highway Administration, 2017. *Construction Noise Handbook*. Chapter 9, "Construction Equipment Noise Levels and Ranges." [https://www.fhwa.dot.gov/environment/noise/construction\\_noise/handbook/handbook09.cfm](https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm) (accessed 7 March 2025). 24 August.
- Fort Cavazos, 2023. *Site-Specific Environmental Radiation Monitoring Plan Fort Cavazos, Texas Annex 7*. U.S. Army Installation Management Command. <https://www.nrc.gov/docs/ML2335/ML23355A114.pdf>.
- Fort Cavazos, 2023. *Spill Prevention, Control, and Countermeasures (SPCC) Plan*. United States Armed Forces.

- Fort Cavazos, 2024a. *Fort Cavazos Integrated Natural Resources Management Plan*. United States Armed Forces. August.
- Fort Cavazos, 2024b. *Endangered Species Management Component for Fort Cavazos, Texas*. United States Armed Forces. July.
- Fort Hood, 2016. *Site Specific Environmental Radiation Monitoring Plan for Fort Hood, Texas*. United States Armed Forces. September.
- Fort Hood, 2017a. *Fort Hood Installation Compatible Use Zone Study*. Environmental Noise Branch Army Public Health Center. United States Armed Forces. June.
- Fort Hood, 2017b. *Integrated Solid Waste Management Plan*. United States Armed Forces. June.
- Fort Hood, 2018. “Memorandum of Instruction (MOI) for Construction Site Stormwater Compliance Program.” United States Armed Forces. November.
- Fort Hood, 2021. *Integrated Cultural Resource Management Plan (ICRMP) and Historic Properties Component (HPC) for US Army Garrison Fort Hood*. United States Armed Forces.
- Fort Hood, 2022a. *Hazardous Waste Management Plan*. United States Armed Forces.
- Fort Hood, 2022b. *Integrated Pest Management Plan III Corps and Fort Hood 2022-2027*. United States Armed Forces.
- Johnson, E.H. 1995. *Grand Prairies and the Lampasas Cut Plain*. Texas State Historical Association. <https://www.tshaonline.org/handbook/entries/grand-prairies-and-the-lampasas-cut-plain>. (accessed 7 March, 2025). 1 September.
- Secretariat of the Pacific Regional Environment Programme, 2022. *Model Asbestos Management Policy*. Appendix B Asbestos-Containing Materials found in Domestic Settings.
- Texas Commission on Environmental Quality (TCEQ), 2019. “General Permit to Discharge under the Texas Pollutant Discharge Elimination System.” January.
- TCEQ, 2021. General Permit to Discharge under the Texas Pollutant Discharge Elimination System. Texas Commission on Environmental Quality. July.
- TCEQ, 2025a. Resource Conservation and Recovery Act (RCRA). <https://www.tceq.texas.gov/assistance/waste/waste-matrix/matrixrcra.html>.
- TCEQ, 2025b. Stormwater General Permit for Construction Activities. retrieved from: <https://www.tceq.texas.gov/permitting/stormwater/construction> (accessed 14 August, 2025). 9 May.
- The HOP, 2025. “The HOP – Hill Country Transit.” <https://texvet.org/resources/hop-hill-country-transit> (accessed 13 February 2025).
- Temple Daily Telegram, 2024. “Bell’s Bald Eagle Numbers Are Soaring.” [https://www.tdtnews.com/news/central\\_texas\\_news/article\\_ec271fb2-e995-11ee-b4a4-efae59054850.html](https://www.tdtnews.com/news/central_texas_news/article_ec271fb2-e995-11ee-b4a4-efae59054850.html)
- Texas Water Development Board (TWDB), 2024. [https://www.twdb.texas.gov/surfacewater/rivers/river\\_basins/brazos/index.asp](https://www.twdb.texas.gov/surfacewater/rivers/river_basins/brazos/index.asp) (accessed 28 January 2025).

- TWDB, 2025. “Trinity Aquifer.”  
<https://www.twdb.texas.gov/groundwater/aquifer/majors/trinity.asp> (accessed February 2025).
- US Army Corps of Engineers (USACE), 2015. Surface Danger Zone (SDZ). Retrieved from  
<https://www.hnc.usace.army.mil/>. (accessed 16 February 2025).
- USACE, 2025a. *Trapnell MPMG Range Project: Wetland Delineation Update*. Fort Cavazos, Texas. January.
- United States Department of Agriculture, 2025. “Web Soil Survey.”  
<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx> (accessed 7 March, 2025).
- United State Environmental Protection Agency (USEPA), 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA550/9-74-004. March.
- USEPA, 1978. *Protective Noise Levels: Condensed Version of EPA Levels Document*. EPA550/9-79-100. November.
- USEPA, 2024. “USEPA Radon Zones Map.” <https://www.epa.gov/radon/epa-map-radon-zones> (accessed 9 January 2025).
- USEPA, 2024a. “NAAQS Table.” <https://www.epa.gov/criteria-air-pollutants/naaqs-table> (accessed 7 March 2025).
- USEPA, 2024b. “Prevention of Significant Deterioration Basic Information.”  
<https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information> (accessed 7 March 2025).
- USEPA, 2025a. “Criteria Air Pollutants.” <https://www.epa.gov/criteria-air-pollutants> (accessed 7 March 2025).
- USEPA, 2025b. “Texas Nonattainment/Maintenance Status for Each County by Year of All Criteria Pollutants.” [https://www3.epa.gov/airquality/greenbook/anayo\\_tx.html](https://www3.epa.gov/airquality/greenbook/anayo_tx.html) (accessed 7 March 2025).
- United States Fish and Wildlife Service (USFWS), 2021. *Species Status Assessment (SSA) Report for the Tricolored Bat (Perimyotis subflavus)*. Version 1.1. December. <https://iris.fws.gov/APPS/ServCat/DownloadFile/221212>.
- USFWS, 2025. *Golden-Cheeked Warbler (Setophagia chrysoparia) 5-Year Status Review: Summary and Evaluation*. Austin Texas Ecological Field Office. January.
- Webb S.L. and S.E. Henke, 2009. “Effects of Military Training Exercises on Texas Horned Lizard, *Phrynosoma cornutum*, Occurrence on Fort Hood, Texas.” *The Texas Journal of Agriculture and Natural Resource* 21:43-49.
- Weatherspark, 2025. “Climate and Average Weather Year Round in Killeen, Texas.”  
<https://weatherspark.com/y/8065/Average-Weather-in-Killeen-Texas-United-States-Year-Round>.

**DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)  
PROPOSED AUTOMATED MULTI-PURPOSE MACHINE GUN (MPMG) RANGE  
UNITED STATES ARMY GARRISON FORT HOOD, TEXAS  
EAXX-007-21-001-1755099739**

**Introduction**

The United States (US) Army has prepared the attached Environmental Assessment (EA) to address the potential environmental impacts of the construction, operation, and maintenance of a proposed Multi-Purpose Machine Gun (MPMG) Range at Fort Hood, Texas. This EA complies with the *National Environmental Policy Act of 1969* (42 *United States Code* § 4321 et seq.) (NEPA); US Department of Defense (DoD) NEPA Implementing Procedures issued 30 June 2025; and Army Regulation 200-1, *Environmental Protection and Enhancement*. The Army considered other pertinent environmental statutes, regulations, and compliance requirements during the preparation of this EA, which are addressed in relevant sections of the EA. The attached EA is incorporated herein by reference.

**Purpose and Need**

The purpose of the proposed action is to provide comprehensive, realistic, year-round training and Range facilities to enhance soldiers' marksmanship skills. The MPMG Range would be used to train and evaluate individual soldiers on the critical abilities needed to identify, engage, and neutralize infantry targets with live fire. Principal weapons used on the Range would include the M249 squad automatic weapon, the M240B machine gun, M110/M2010 rifle, the MK19 automatic grenade launcher, the M24 sniper weapon, and the M2 machine gun. Other next-generation squad weapon systems also would be considered as that technology is implemented.

The proposed action is needed so that the Army can train with equipment and weapons to compete with, and defeat, the power of the Nation's near-peer adversaries. Fort Hood requires sufficient modernized machine gun ranges to perform the marksmanship training and testing required by each soldier. The Standards in Training Commission has established a requirement for each soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM) projects how many ranges by type are needed to meet the training requirements of the soldiers assigned to or habitually training on the Installation. The ARRM calculates that Fort Hood requires an additional MPMG Range to maintain the capacity necessary to satisfy this training requirement.

**Description of the Proposed Action and Alternatives**

**Proposed Action**

The proposed action would establish vehicle firing positions, power centers, a zero range, firing lanes, stationary infantry targets, widened stationary infantry targets emplacements, and stationary armor targets; support buildings; and infrastructure and utilities to support the use and maintenance of the MPMG Range.

Fort Hood established the following selection standards to identify alternatives that would meet the purpose of and need for the action. To be considered a reasonable alternative, the alternatives must

- address Fort Hood purpose and need to train individual soldiers at Fort Hood in the live-fire training tasks required to uphold combat ability;

- be located within the existing Fort Hood Installation boundary;
- be located such that systems do not interfere with the Fort Hood ongoing mission;
- provide the necessary size and clearance requirements to operate new and existing weapons systems, with the potential for range improvements of approximately 371 acres;
- allow for adequate capacity for scheduling for new and existing systems; and
- be consistent with existing laws, regulations, and policies; in particular, Training Circular (TC) 25-8, *Training Ranges*, which requires a distance of 1,500 meters between the firing lines and the target area.

Under the proposed action, the MPMG Range would be located on Fort Hood, west of Belton Lake, northwest of the main cantonment area, and north of US Highway 190/Interstate 14. The proposed action satisfies the selection standards by offering sufficient space and clearance, covering approximately 371 acres (minimum dimensions for the range are 1,000 meters by 1,500 meters) and accommodating the standard 10 firing lines. Additionally, the proposed action meets the TC 25-8 requirement of having a distance of 1,500 meters between the firing lines and the target area. The EA evaluates environmental impacts that would arise from the development of the MPMG Range and considers aspects of the training that may contribute to such impacts.

#### **No Action Alternative**

Under the no action alternative, the MPMG Range at Fort Hood would not be constructed, operated, or maintained. Fort Hood would not have an additional MPMG Range to maintain the capacity necessary to satisfy training requirements. Furthermore, aging infrastructure would hinder the ability of soldiers, equipment, and weapons systems to rapidly deploy to any contingency of operations around the world. Fort Hood would fall short of the necessary training capacity required.

#### **Summary of Findings**

Potentially affected environmental resources were identified through communications with State and Federal agencies and review of environmental documentation. The attached EA analyzes potential environmental consequences of the following resource areas: land use, air quality, noise, earth resources, water resources, biological resources, cultural resources, infrastructure (utilities, traffic, transportation), hazardous and toxic materials and waste, and human health and safety.

#### **Land Use**

Under the proposed action, no effects to land use are anticipated because the proposed action aligns with existing land use at the project location.

#### **Air Quality**

Under the proposed action, there would be short-term, minor-to-moderate, adverse impacts to air quality due to an increase in emissions from construction equipment used during development; no long-term impacts are anticipated.

#### **Noise**

Under the proposed action, no observable long-term impacts or operational increases to the noise environment are anticipated.

### ***Earth Resources***

Under the proposed action, short-term, minor, adverse impacts to geology and soil and long-term, minor, adverse impacts to topography are anticipated as a result of grading and land coverage from improved roads and shooting lanes.

### ***Water Resources***

Under the proposed action, long-term, minor, adverse impacts to surface water, stormwater, and groundwater are anticipated from increasing erosion and runoff potential during grading activities. No impacts to wetlands or floodplains are anticipated.

### ***Biological Resources***

Under the proposed action, long-term, minor, adverse impacts to vegetation and invasive species and noxious weeds would be anticipated as a result of land disturbances that would occur from grading. Short-term, minor, adverse impacts to wildlife would be anticipated due to a temporary loss of habitat, implementation of preconstruction surveys, and the restoration of the graded areas to grassland vegetation. Short-term, minor, adverse impacts to monarch butterflies (proposed for Federal listing as threatened) may occur under development activities that would disturb milkweed populations. Long-term, minor, adverse impacts to migratory birds would be anticipated to occur due to a permanent loss of habitat. There would be no impacts to bald and golden eagles or the federally listed golden-cheeked warbler and tricolored bat.

### ***Cultural Resources***

Under the proposed action, no effects to cultural resources are anticipated because the Area of Potential Effects does not contain architectural, archaeological, or traditional cultural properties.

### ***Infrastructure (Utilities, Traffic, and Transportation)***

Under the proposed action, long-term, negligible, adverse impacts to the communications, electrical, and potable water systems; solid waste management; and traffic and transportation as a result of an increase in demand would be expected to occur. No impacts to the Installation's natural gas or sanitary sewage/wastewater systems are anticipated.

### ***Hazardous and Toxic Materials and Waste***

Under the proposed action, short-term, negligible-to-minor, adverse impacts from the use of hazardous material and petroleum products during construction activities would be anticipated to occur. Waste handling and disposal of asbestos-containing materials and lead-based paint during construction activities would be anticipated to result in short-term, minor, adverse impacts. Pest management during ground-disturbing activities would be expected to result in short-term, minor, adverse impacts.

### ***Human Health and Safety***

Under the proposed action, construction would occur within a live-fire area. An unexploded ordnance clearance team would be on standby during construction activities; therefore, no impacts to human health and safety are anticipated.

### **Reasonably Foreseeable Effects**

The EA considered reasonably foreseeable actions that could affect the environment and human health when combined with the effects of the proposed action. The analysis concluded that no reasonably foreseeable effects in conjunction with the proposed action are anticipated.

**Conclusion**

***Finding of No Significant Impact.*** After review of the attached EA prepared in accordance with the requirements of NEPA, DoD NEPA Implementing Procedures, and Army Regulation 200-1, which is hereby incorporated by reference, I have determined that the proposed action would not have a significant impact on the quality of the human environment, including the natural environment. Accordingly, an Environmental Impact Statement will not be prepared.

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Mark R. McClellan  
Colonel, US Army  
Commanding

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Date