Draft
Environmental Assessment
for the Addition of Obscurant Munitions Boxes
Fort Bliss Army Garrison, El Paso, Texas

May 2025

Prepared for:
United States Armed Forces
Fort Bliss Army Garrison El Paso, Texas

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (42 *United States Code* [USC] § 4321 et seq) (NEPA), Army Regulation 200-1, *Environmental Protection and Enhancement*; and 32 *Code of Federal Regulations* Part 651, *Environmental Analysis of Army Actions*.

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 what is being proposed, and solicits comments on the Army's analysis of environmental effects.

Public review and comment allows the Army to make better, informed decisions. Letters or other written or oral comments provided may be published within the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement in the event of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

Information regarding the EA is available online at:

https://home.army.mil/bliss/index.php/about/Garrison/directorate-public-works/environmental

Questions can be addressed to:

NEPA Program Manager, Environmental Division, Directorate of Public Affairs, Fort Bliss
624 Pleasonton Road, USAG Fort Bliss, Texas 79916
Phone: (915) 568-1455
Email: usarmy.bliss.id-readiness.mbx.dpw-nepa-support@mail.mil

This document has been certified that it does not exceed 75 pages, excluding citations and appendices, in accordance with Paragraph (e)(2) of NEPA (42 USC § 4336a). Generally, a "page" means 500 words and does not include maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information.

This document is compliant with Section 508 of the Rehabilitation Act of 1973, 29 USC § 794d. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

COVER SHEET

Draft Environmental Assessment for the Addition of Obscurant Munitions Boxes, Fort Bliss Army Garrison El Paso, Texas

a. *Responsible Agency: United States Army*

b. *Location: Fort Bliss Army Reservation, El Paso, Texas*

c. *Designation: Draft Environmental Assessment*

d. *Point of Contact:* Ms. Constance Parra, Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch, *constance.parra.civ@army.mil*

e. ***Abstract:***

The United States (US) Army has prepared this Environmental Assessment (EA) to disclose the potential environmental impacts associated with the addition of multiple obscurant munitions boxes at Fort Bliss Army Garrison (Fort Bliss), Texas, in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] § 4321 et seq.); regulations of the President's Council on Environmental Quality that implement NEPA procedures (40 Code of Federal Regulations [CFR] Parts 1500–1508); Army Regulation 200-1, Environmental Protection and Enhancement; and 32 CFR Part 651, Environmental Analysis of Army Actions. The Army considered other pertinent environmental statutes, regulations, and compliance requirements during the preparation of this EA, which are addressed in relevant sections.

The purpose of the proposed action is to expand obscurant munitions training capabilities at Fort Bliss by designating more areas within the Fort Bliss Training Complex that are suitable for obscurant munitions impacts and training. The proposed action is needed at Fort Bliss to ensure that the full spectrum of training can be accomplished and to minimize training conflicts with other weapons systems. Additional obscurant munitions box locations would provide varied training opportunities to simulate live combat operations. Because there are distinct missions, such as marking and quick smoke, that are assigned to obscurants, this training cannot be replicated by using other rounds.

The EA assesses the potential environmental consequences associated with the proposed action and alternatives, including the no action alternative. Potential impacts identified during the initial planning stages include effects on land use; air quality; noise; geological and soil resources; water resources; biological resources; cultural resources; transportation and traffic; airspace; utilities; hazardous and toxic materials and waste; and human health and safety. The EA examines the reasonably foreseeable effects of the proposed action in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss.

This page intentionally left blank

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

This page intentionally left blank

ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Concern
AFFF	aqueous file-forming foam
AOPI	area of potential interest
APE	Area of Potential Effect
AQCR	Air Quality Control Region
AR	Army Regulation
AST	aboveground storage tank
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dBP	peak decibel
DES	Directorate of Emergency Services
DIA	Designated Impact Area
DNL	Day-Night Average Sound Level
DoD	United States Department of Defense
EA	Environmental Assessment
EESOH-MIS	Enterprise Environmental Safety and Occupational Health – Management Information System
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ERP	Environmental Restoration Site
ESA	Endangered Species Act of 1973, as amended
FAA	Federal Aviation Administration
FBTC	Fort Bliss Training Complex
FBWSC	Fort Bliss Water Services Company
FEMA	Federal Emergency Management Agency
FES	Fire and Emergency Services
FMU	fire management unit
FONSI	Finding of No Significant Impact
Fort Bliss	Fort Bliss Army Garrison
ft	foot/feet
FTX	field training exercise
H_3PO_4	orthophosphoric acid
HAZMAT	hazardous materials
HC	hexachloroethane
HMMP	Hazardous Material Management Program
HVAC	heating, ventilation, and air conditioning
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
IPaC	Information for Planning and Consultation
IWFMP	Integrated Wildland Fire Management Plan
$\mu g/m^3$	micrograms per cubic meter
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
mg/m^3	milligrams per cubic meter
mm	millimeter

MOA	Military Operations Area
MSL	mean sea level
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act of 1966, as amended
NM 506	New Mexico State Road 506
NMCRIS	New Mexico Cultural Resources Information System
NMED	New Mexico Environment Department
NOA	Notice of Availability
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OLA	Off Limit Area
OSHA	Occupational Health and Safety Administration
P_2O_5	phosphorus pentoxide
PA	Programmatic Agreement
PCBs	polychlorinated biphenyls
PFAS	per-and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
POL	petroleum, oil, and lubricant
ppm	parts per million
PSD	Prevention of Significant Deterioration
R-Area	Restricted Area
RCRA	Resource Conservation and Policy Act
ROI	Region of Influence
SAP	satellite accumulation point
SARA	Superfund Amendments and Reauthorization Act of 1986
SDZ	surface danger zone
SHPO	State Historic Preservation Officer
SUA	special-use airspace
TCEQ	Texas Commission on Environmental Quality
TCP	Traditional Cultural Property
tpy	tons per year
UAS	Unmanned Aerial System
US	United States
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
WSA	Wilderness Study Area
WSMR	White Sands Missile Range

CHAPTER 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States (US) Army has prepared this Environmental Assessment (EA) to disclose the potential environmental impacts associated with the addition of multiple obscurant munitions boxes[1] at Fort Bliss Army Garrison (Fort Bliss), Texas, in compliance with the *National Environmental Policy Act of 1969* (NEPA) (42 *United States Code* [USC] § 4321 et seq.); Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*; and 32 CFR Part 651, *Environmental Analysis of Army Actions*. 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 Bliss is a US Army Command installation, comprising approximately 1.12 million acres of land in Texas and New Mexico. Fort Bliss consists of the Main Cantonment Area (i.e., the Main Post, William Beaumont Army Medical Center, Logan Heights, and Biggs Army Airfield); the Castner Range; and the Fort Bliss Training Complex (FBTC), which comprises three large geographic segments: the South Training Areas, Doña Ana Range-North Training Areas, and McGregor Range (**Figure 1-1**). The proposed action would occur within the Doña Ana Range and the McGregor Range portions of the FBTC, both of which are located in New Mexico. All branches of the military use the Fort Bliss ranges (Fort Bliss, 2021a).

The Doña Ana Range comprises approximately 296,000 acres located across Doña Ana and Otero counties, New Mexico, and is bound to the east by McGregor Range and north by the White Sands Missile Range (WSMR). The WSMR forms the majority of the northern boundary of the Doña Ana Range. The newly created Organ Mountain-Desert Peaks National Monument make up the western and remaining northern boundaries of the Doña Ana Range. This monument is managed by the Bureau of Land Management (BLM) under the *Mimbres Resource Area Resource Management Plan*. The Organ Mountain Range is located northwest of the Doña Ana Range and consists of the Robledo Mountains, Sierra de la Uvas, and Doña Ana Mountains (BLM, 2014). The Texas state border is located to the south of, and adjacent to, the Doña Ana Range.

The McGregor Range Complex comprises approximately 695,000 acres located in Otero County, New Mexico. Geographically, this range is located within the Tularosa Basin to the south and west, Otero Mesa and its escarpment to the east and north, the Sacramento Mountain foothills to the far north, and the Hueco Mountains to the southeast. New Mexico State Road 506 (NM 506) bisects the northern portion of McGregor Range. McGregor Range is located 30 miles north of El Paso, Texas; 60 miles south of Alamogordo, New Mexico; and 50 miles east of Las Cruces, New Mexico. Within McGregor Range is the Orogrande Range Complex. This complex is located in the northwestern portion of the McGregor Range, south of NM 506. The Orogrande Range Complex, along with the Doña Ana and McGregor ranges, were identified through Army planning processes as possible suitable locations for the addition of obscurant munitions boxes.

[1] Obscurant munitions boxes are areas of ground surface that have been approved for training use; the size and location of each box varies.

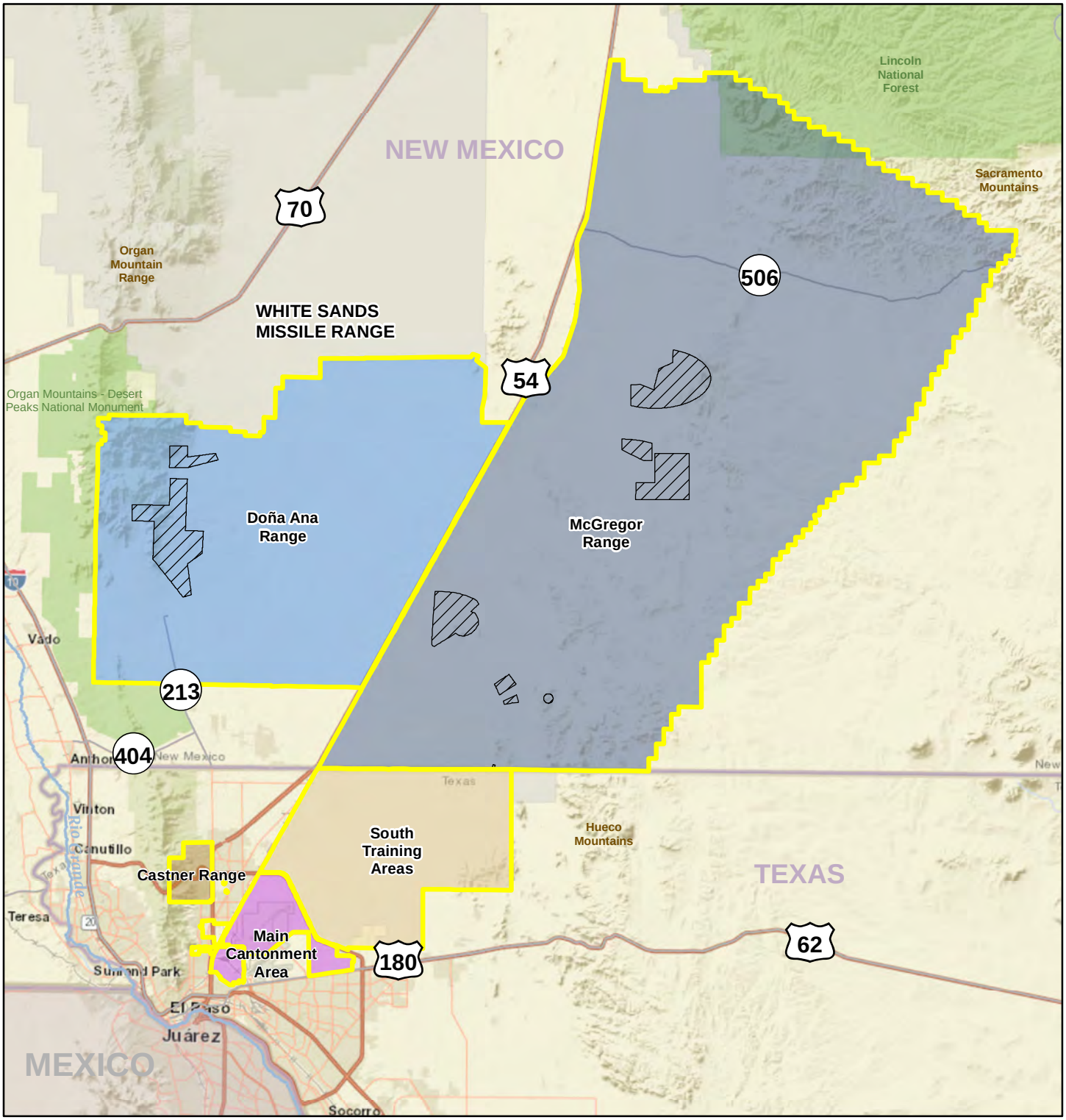


FIGURE 1-1
Fort Bliss Range Locations

Installation Boundary
Designated Impact Area

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to expand obscurant munitions training capabilities at Fort Bliss by designating more areas (i.e., obscurant munitions boxes) within the FBTC that are suitable for obscurant munitions impacts and training. The proposed action is needed at Fort Bliss to ensure that the full spectrum of training can be accomplished and to minimize training conflicts with other weapons systems. Additional obscurant munitions box locations would provide varied training opportunities to simulate live combat operations. Because there are distinct missions, such as marking and quick smoke, that are assigned to obscurants, this training cannot be replicated by using other rounds.

The full spectrum of training for obscurant munitions includes the use of smoke-generating munitions in the form of howitzers and mortars. Obscurant munitions box locations provide designated training for smoke-generating munitions. Training procedures require repetition and simulation of live combat to ensure that the obscurant munitions are working as intended by bursting on, or at the proper height above, the target. During combat operations, soldiers are exposed to a multitude of factors, including variations in range, that are incorporated when utilizing the weapon system.

Currently, the FBTC is limited to four Designated Impact Areas (DIAs), all in the Doña Ana Range, that support the firing of 120 millimeter (mm), 80 mm, and 60 mm mortar ammunition, including obscurants, at the maximum distance of each weapon system. Due to the current configuration of the DIAs and obscurant munitions boxes, small unit-level training or employment (e.g., team, squad, platoon, company) cannot be achieved using the current approved munitions boxes. This limitation creates a conflict of range utilization between larger-caliber weapons systems (30 mm, 105 mm, 120 mm, 155 mm) and artillery firing in adjacent ranges and artillery boxes, which limits proficiency in the utilization/employment of obscurant munitions during combat.

1.4 PROPOSED ACTION

Fort Bliss proposes to establish multiple additional obscurant munitions training locations within the Doña Ana Range and McGregor Range portions of the FBTC (**Figure 1-2**). Current obscurant munitions boxes are located within the Doña Ana Range and pose limitations to training as previously described. The proposed action would provide two to nine new obscurant munitions boxes to accommodate training needs at Fort Bliss as further described in **Section 2.1**.

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. The Army's compliance with the requirements for intergovernmental coordination and agency participation begins with the scoping[2] process, in accordance with 32 CFR Part 651. Per Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, the Army notified Federal, State, and local agencies and Tribal Governments that could potentially be affected by the proposed action and alternatives via written correspondence throughout development of this EA. This correspondence as well as a sample of the outgoing letters and all responses are included in **Appendix A**.

[2] Scoping is a process for determining the extent of issues to be addressed and analyzed in a NEPA document.

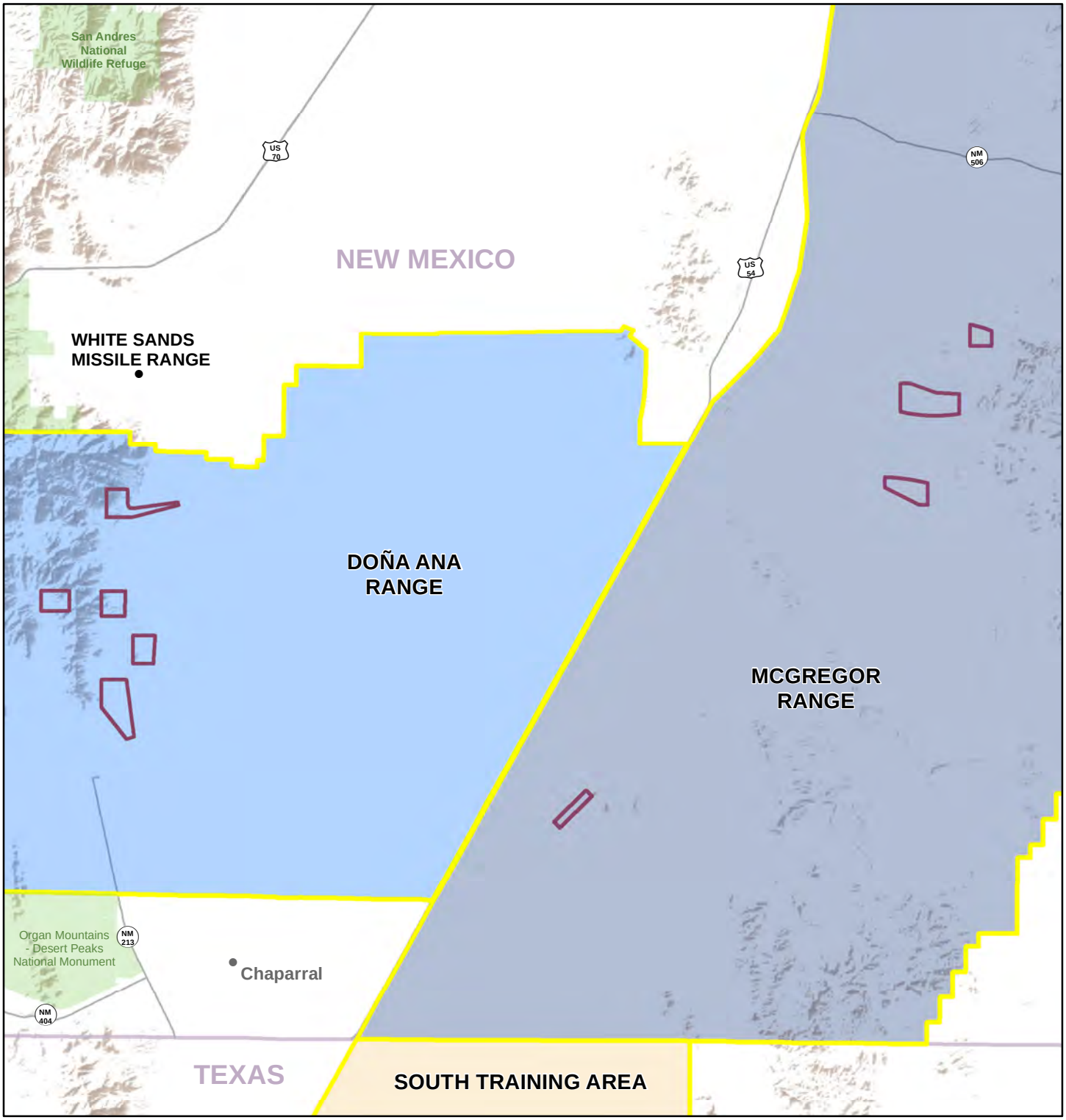


FIGURE 1-2
Obscurant Munitions Box Locations

Installation Boundary

Possible Obscurant Munitions Box Location

N

0 5 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

1.5.2 Government-to-Government Consultation

The *National Historic Preservation Act* (54 USC § 300101 et seq.) (NHPA) and its regulations at 36 CFR Part 800 direct Federal agencies to consult with federally recognized Native American tribes when a Federal agency undertaking may affect tribal lands or properties of religious and cultural significance to a Tribe. Consistent with the NHPA and US Department of Defense Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*, the Army has invited federally recognized tribes that are historically affiliated with lands in the vicinity of the proposed action and alternatives 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 requires separate notification to all potentially affected tribes. A sample of the outgoing correspondence and all responses are included in **Appendix A.**

1.5.3 Other Agency Consultations

During the development of this EA, the Army coordinated with external agencies and organizations to be in compliance with other laws and regulations. Compliance with other laws includes Section 7 of the *Endangered Species Act of 1973*, as amended (16 USC § 1531 et seq.) (ESA), and its implementing regulations (50 CFR Part 402), and the NHPA and its implementing regulations.(36 CFR Part 800). The point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Fort Bliss Cultural Resources Manager.

On 23 May 2024, the Army used the US Fish and Wildlife Service's (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 the potential to be affected by the proposed action. This information is included in **Appendix A** and incorporated into this EA where applicable. On 6 May 2025, the USFWS New Mexico Ecological Services Field Office concurred with the Army's determinations as described in **Section 3.8** of this EA. A copy of the USFWS's concurrence also is provided in **Appendix A**.

Other Federal agencies the Army typically coordinates with include the BLM, US Forest Service, US Air Force, Federal Aviation Administration, US Army Corps of Engineers, and the US Environmental Protection Agency.

The Army coordinated with the following State Government agencies regarding potential effects from the proposed action:

- NHPA Section 106 compliance – State Historic Preservation Officers (SHPOs) at the New Mexico Historic Preservation Division and Texas Historical Commission;
- Air quality, water quality, hazardous wastes, and human health effects – New Mexico Environment Department (NMED) and Texas Commission on Environmental Quality (TCEQ); and
- Habitat and species of concern – The New Mexico Department of Game and Fish and Texas Parks and Wildlife Department.

In addition, the Army coordinated with local agencies, including county commissioners and city planning departments, elected officials at the Federal, State, and local levels, and the offices of the New Mexico and Texas governors, during the development of this EA regarding potential effects from the proposed action. A sample of agency correspondence and all responses are included in **Appendix A**. On 1 May 2025, the New Mexico SHPO concurred with the Army's determination of no adverse effect. On 7 May 2025, the Texas SHPO concurred with the Army's determination of no adverse effect. A copy of the SHPOs' concurrence also is provided in **Appendix A**.

1.5.4 Public Involvement

The Army invites the public and other interested stakeholders to review and comment on the Draft EA and Draft FONSI. Accordingly, a Notice of Availability (NOA) of the Draft EA and Draft FONSI was published in the following newspapers to commence a 30-day public comment period:

- El Paso Times,
- Las Cruces Sun-News, and
- *El Diario*.

During the public comment period, the Draft EA and Draft FONSI are available online for viewing or downloading at https://home.army.mil/bliss/index.php/. Additionally, printed copies of the Draft EA and Draft FONSI are available by request (see **Cover Sheet**) or for review at the following local libraries:

- Alamogordo Public Library – Alamogordo, New Mexico;
- Thomas Branigan Memorial Library – Las Cruces, New Mexico;
- El Paso Public Library, José Cisneros Cielo Vista Branch – El Paso, Texas; and
- El Paso Public Library, Richard Burges Branch – El Paso, Texas.

1.6 Applicable Laws and Environmental Regulations

Implementation of the proposed action and alternatives would involve coordination with several organizations and agencies (see **Section 1.4**). Adherence to the requirements of specific laws, regulations, BMP, and necessary permits are described in detail in each resource section in **Chapter 3**.

Other laws and regulations applicable to the proposed action not previously discussed in **Section 1.5** include, but are not limited to, the following:

- *Clean Water Act* (33 USC § 1251 et seq.) (CWA);
- *Safe Drinking Water Act* (42 USC § 300 et seq.);
- *Resource Conservation and Recovery Act* (42 USC § 6901 et seq.) (RCRA);
- *Energy Independence and Security Act* (Public Law [PL] 110-140) (EISA);
- *Comprehensive Environmental Response, Compensation, and Liability Act* (42 USC § 9601 et seq.) (CERCLA);
- *Clean Air Act* (42 USC § 7401 et seq., as amended) (CAA);
- *Migratory Bird Treaty Act* (16 USC §§ 703–712) (MBTA);
- *Bald and Golden Eagle Protection Act* (16 USC § 668–668d) (BGEPA);
- *Toxic Substances Control Act* (15 USC § 2601 et seq.);
- EO 11988, *Floodplain Management* (1977), as amended by EO 13690, *Establishing a Flood Risk Management Standard and Process for Further Soliciting and Considering Stakeholder Input* (2015); and
- EO 11990, *Protection of Wetlands* (1977).

1.7 Decision to be Made

This NEPA process will end with an Army decision documented in a FONSI or a Notice of Intent (NOI) to prepare an EIS. The Army may initiate a NOI for an EIS if new information warrants the need for additional analysis of potentially significant environmental impacts. Prior to making a final decision, the decision-maker will consider both the environmental and socioeconomic impacts analyzed in this EA, along with all other relevant information, such as public issues of concern identified during the comment period. If the decision-maker determines that there are no significant environmental impacts, that decision will be documented in the Final FONSI, which will be signed no earlier than 30 days from the publication of the NOA for this Draft EA and Draft FONSI.

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Fort Bliss proposes to establish multiple additional obscurant munitions training locations within the Doña Ana Range and McGregor Range portions of the FBTC. Current obscurant munitions boxes are located within the Doña Ana and McGregor ranges and pose limitations to training, as described in **Section 1.3**. The proposed action would provide two to nine new obscurant munitions boxes to accommodate training needs at Fort Bliss.

Obscurant munitions refer to munitions that generate smoke (i.e., to obscure a position). Obscurants conceal material, screen targets, and create a state of confusion among enemy forces. Military obscurants are deployed from generators, smoke pots, field artillery, grenades, and mortars. When deployed from field artillery and mortars, obscurants are generally composed of white and red phosphorus. Obscurant munitions evaluated under the proposed action include ordnance fired from howitzers, mortars, and tactical vehicles with smoke grenade launchers. Obscurant munitions boxes are designated areas, approved by the Range Officer, to support obscurant munitions training. Obscurant munitions boxes are designated as such because they pose a limited fire hazard threat from resulting munitions detonation due to their safety regulations, minimal vegetation cover, and intended use as dudded impact areas. Training would be conducted within designated obscurant munitions boxes within dudded DIAs of the FBTC. During training activities, obscurant munitions would be fired into these boxes from designated locations. Obscurant munitions would be fired from firing points into the DIAs.

2.2 SELECTION STANDARDS FOR ALTERNATIVES SCREENING CRITERIA

In accordance with 32 CFR § 651.34, Fort Bliss established the following screening criteria to identify alternatives that would meet the purpose of and need for the proposed action. To be considered a reasonable alternative, the proposed action and alternatives must

1. have the ability to accommodate multiple obscurant munitions training at various ranges to better simulate combat conditions;
2. not require construction of new DIAs and be located in existing DIAs within permanently dudded areas within Doña Ana Range, Orogrande Range, and/or McGregor Range complexes in order to minimize impacts to other training activities;
3. be able to accommodate both long- and short-range training exercises; and
4. provide at least 1,500 acres of additional obscurant munitions training area.

2.3 ALTERNATIVES

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 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 four reasonable alternatives to the proposed action.

2.3.1 No Action Alternative

Under the no action alternative, no obscurant munitions boxes would be added at Fort Bliss. Training missions would continue to operate under existing conditions. Training conflicts with other weapon systems would not be resolved, obscurant munitions training would be limited to the four training locations currently on the Doña Ana Range, and training would not be expanded to support further training of howitzers and mortars. Under the no action alternative, the FBTC would not be able to expand to a full spectrum of training opportunities for obscurant munitions.

While the no action alternative does not meet the purpose of and need for the proposed action, this alternative is retained to provide a comparative baseline against which to analyze the effects of the proposed action. The no action alternative reflects the existing conditions against which the effects of the proposed action can be evaluated.

2.3.2 Alternatives Carried Forward

Alternatives 1, 2, and 3 all meet the selection standard criteria and are carried forward for detailed analysis in this EA. Further, each alternative would meet the purpose of and need for the proposed action. Of the three alternatives, Alternative 1 would provide the most training opportunities and the most varied terrain to simulate live combat missions while utilizing the majority of FBTC's existing DIAs. Therefore, Alternative 1 is the Army's preferred alternative.

Alternative 2 would not be able to accommodate as many training units and would not include two obscurant munitions boxes in the foothills of the Organ Mountain Range. Under Alternative 3, obscurant munitions training would not utilize all available DIAs, and the number of accommodated training units would be further reduced.

2.3.2.1 Alternative 1 (Preferred Alternative) – Nine Additional Obscurant Munitions

Under Alternative 1, Fort Bliss would establish nine additional obscurant munitions boxes within permanently dudded DIAs within the Doña Ana Range and McGregor Range complexes. Under Alternative 1, five obscurant munitions boxes would be located in the western portion of the Doña Ana Range and four would be located throughout the McGregor Range (**Figure 2-1**). Within the Doña Ana Range, three of the five proposed locations would be within the foothills of the Organ Mountain Range.

Within the McGregor Range, three boxes would be located in the central portion of the range and one would be located in the southeastern portion of the range. Obscurant munitions boxes under Alternative 1 would range in size from approximately 360 acres to 1,500 acres (**Table 2-1**) providing a wide variety of obscurant munitions box sizes and locations to simulate live combat. Alternative 1 would utilize all available DIAs on the Doña Ana Range and expand into McGregor Range for obscurant munitions trainings.

2.3.2.2 Alternative 2 – Seven Obscurant Munitions Boxes

Under Alternative 2, Fort Bliss would establish seven obscurant munitions boxes within permanently dudded DIAs within the Doña Ana Range and McGregor Range complexes (**Figure 2-2**). Under Alternative 2, three obscurant munitions boxes would be located in the Doña Ana Range and the remaining four would be located throughout the McGregor Range. As with Alternative 1, obscurant munitions boxes under Alternative 2 would range in size from approximately 360 acres to 1,500 acres (**Table 2-2**) providing a wide variety of obscurant munitions boxes to simulate live combat. Alternative 2 would eliminate one obscurant munitions box from both the Doña Ana and McGregor ranges, reducing the overall capacity of obscurant munitions training. Under Alternative 2, the northern DIA of the Doña Ana Range would not be utilized, leaving available training areas unused.

2.3.2.3 Alternative 3 – Two Obscurant Munitions Boxes

Under Alternative 3, Fort Bliss would establish two obscurant munitions boxes within permanently dudded DIAs within the Doña Ana Range and McGregor Range complexes (**Figure 2-3**). Under Alternative 3, one obscurant munitions box would be located in each the Doña Ana and McGregor ranges (**Table 2-3**). Alternative 3 would provide limited live combat simulation variety. The obscurant munitions boxes would be located in the western portion of the Doña Ana Range and the southwestern portion of the McGregor Range Under Alternative 3, most DIAs would remain unutilized, leaving available training areas unused.

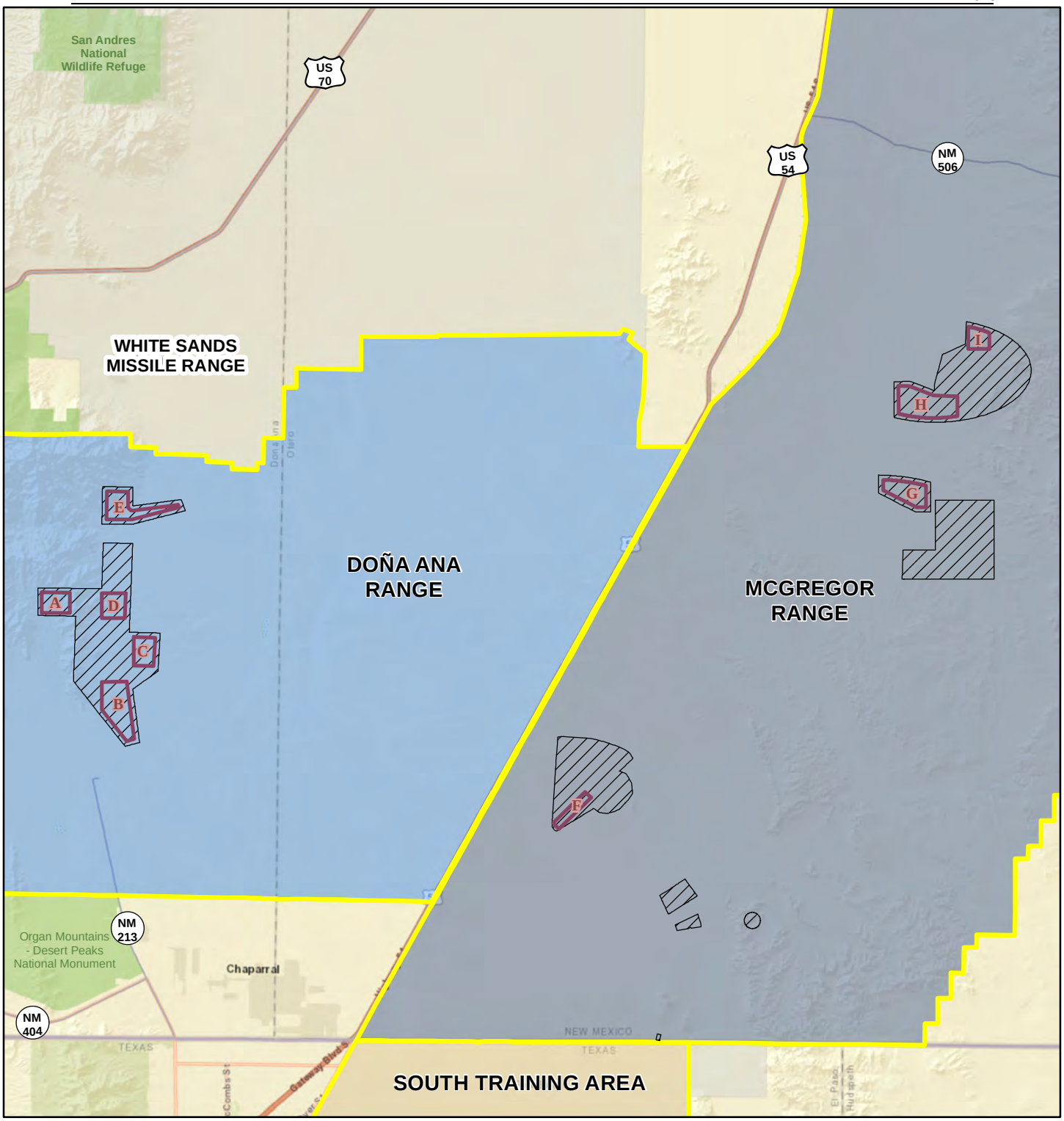


FIGURE 2-1
Obscurant Munitions Box Locations - Alternative 1

Installation Boundary

Designated Impact Area

Obscurant Munitions Box

N

0 5 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

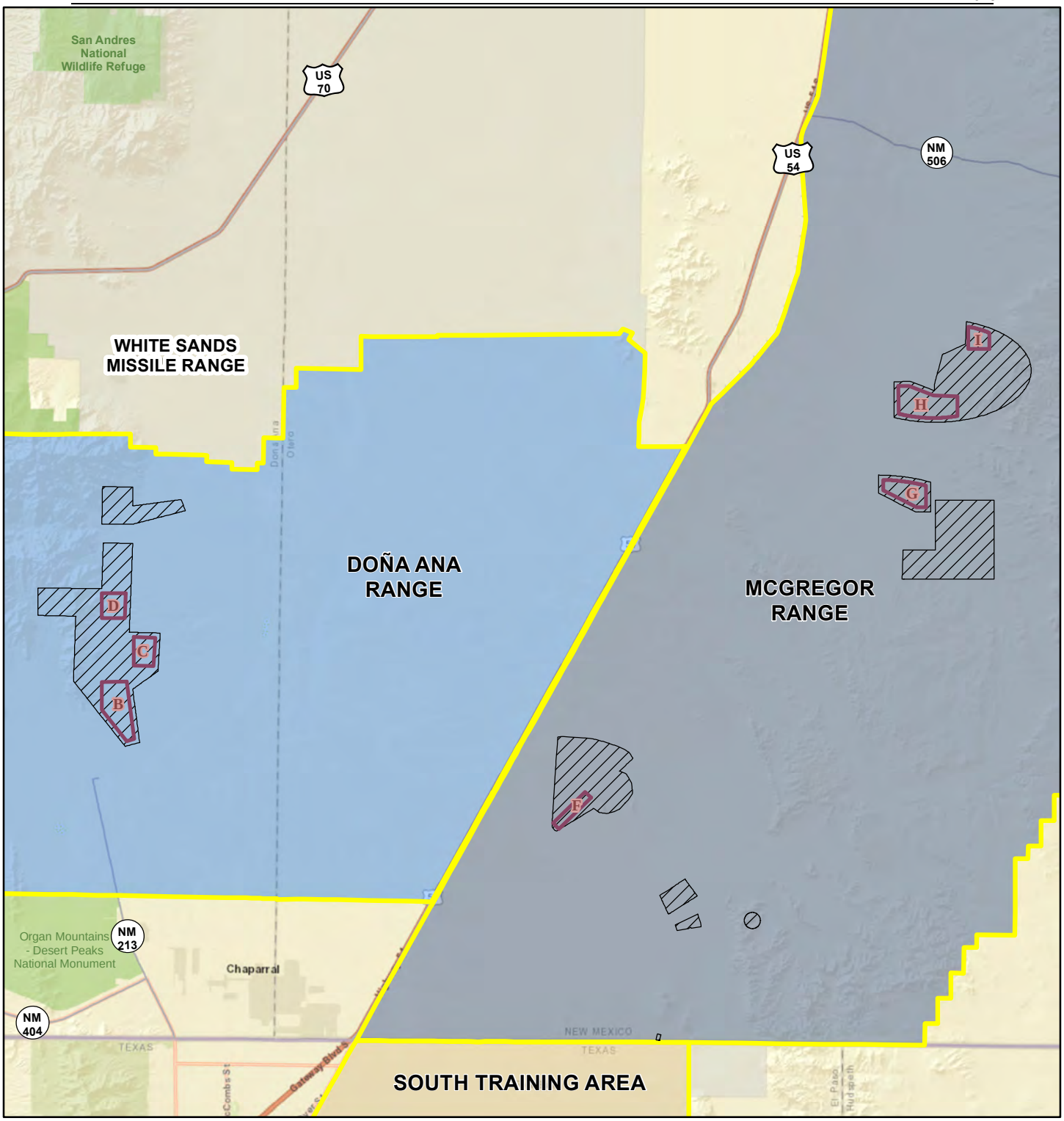


FIGURE 2-2
Obscurant Munitions Box Locations - Alternative 2

Installation Boundary

Designated Impact Area

Obscurant Munitions Box

N

0 5 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

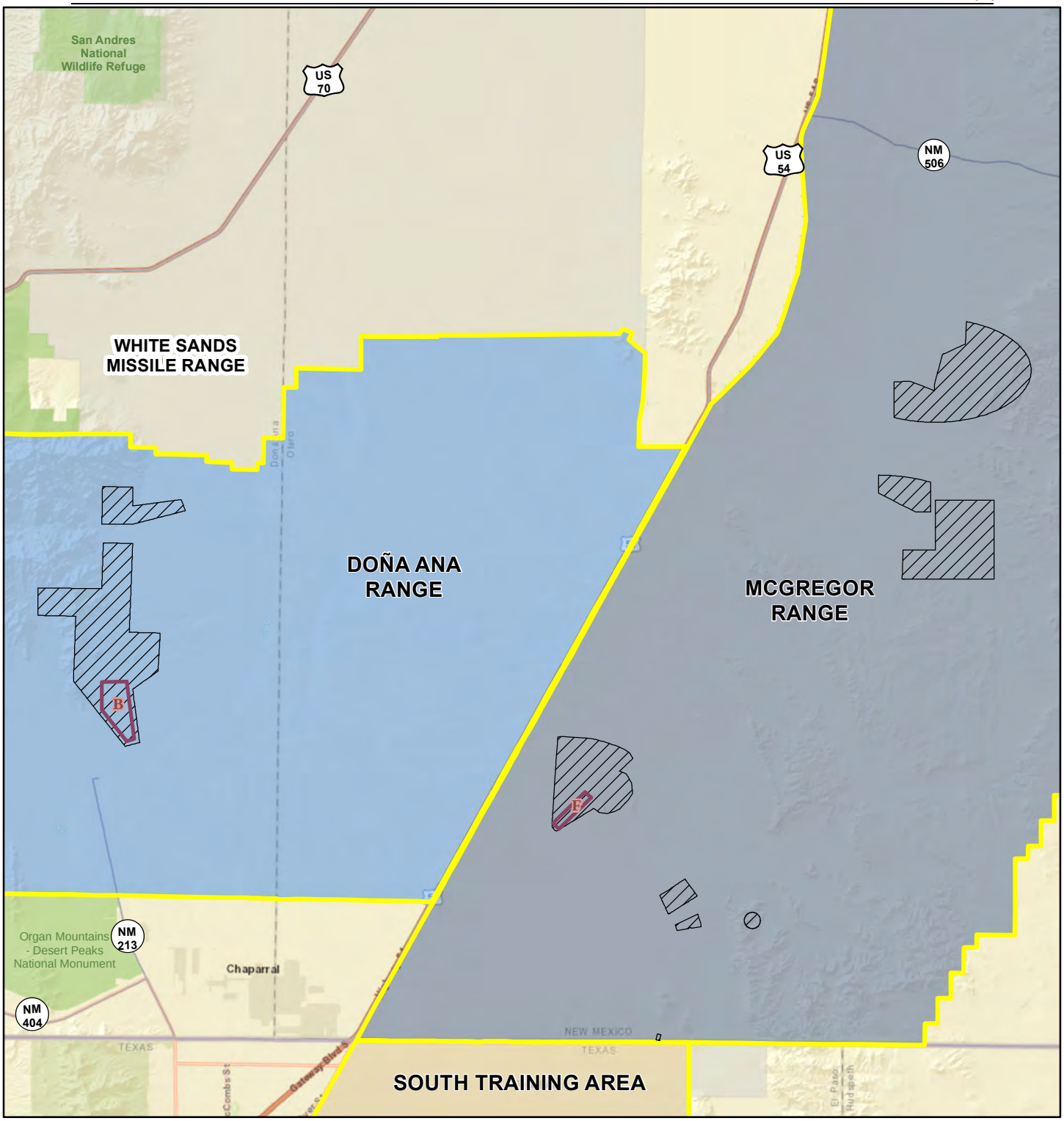


FIGURE 2-3
Obscurant Munitions Box Locations - Alternative 3

Installation Boundary

Designated Impact Area

Obscurant Munitions Box

N

0 5 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

Table 2-1
Obscurant Munitions Boxes – Alternative 1

Obscurant Munitions Box	Range	Range Location (designated impact area/range)	Estimated Acreage of the Proposed Obscurant Munitions Box
A	Doña Ana	1/50	560
B	Doña Ana	1/59	1,285
C	Doña Ana	1/62	582
D	Doña Ana	1/63	579
E	Doña Ana	2/66, 68, 70	882
F	McGregor	7/39	362
G	McGregor	8C/83	779
H	McGregor	9B/Malakan	1,447
I	McGregor	9B/88	405

Table 2-2
Obscurant Munitions Boxes – Alternative 2

Obscurant Munitions Box	Range	Range Location (designated impact area/range)	Estimated Acreage of the Proposed Obscurant Munitions Box
B	Doña Ana	1/59	1,285
C	Doña Ana	1/62	582
D	Doña Ana	1/63	579
F	McGregor	7/39	362
G	McGregor	8C/83	779
H	McGregor	9B/Malakan	1,447
I	McGregor	9B/88	405

Table 2-3
Obscurant Munitions Boxes – Alternative 3

Obscurant Munitions Box	Range	Range Location (designated impact area/range)	Estimated Acreage of the Proposed Obscurant Munitions Box
B	Doña Ana	1 / 59	1,285
F	McGregor	7 / 39	362

2.3.3 Alternatives Not Carried Forward

Obscurant munitions explosions are required to take place within DIAs (Selection Standard 2). The Army considered the establishment of new DIAs to support other alternative obscurant munitions box locations. However, the creation of another impact area would detract from already limited, available heavy and light training maneuver areas at Fort Bliss. This alternative would not meet the purpose and need as defined in **Section 1.3** and was therefore dismissed from further analysis.

2.4 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Resource-specific impacts generally would be the same across the action alternatives, with the exception of water resources. Alternatives 1, 2, and 3 would result in:

- no impacts to existing land use;
- no adverse impacts to air quality;
- long-term, negligible, adverse impacts to noise;
- no impacts to bedrock properties, seismology, and economically viable minerals; long-term, minor adverse impacts to soil series and properties; and long-term, negligible adverse impacts to soil erosion potential;
- long-term, minor, adverse impacts to vegetation, wildlife, migratory birds, invasive and exotic species, and wildland fires; and no impacts to threatened and endangered species;
- no adverse impacts to archaeological resources, historic architectural properties, or Traditional Cultural Properties (TCPs);
- no impacts to transportation and traffic; no impacts to airspace; no impacts to the potable water supply, energy, and communications systems;
- no impacts to existing airspace;
- long-term, negligible, adverse impacts to wastewater and solid waste; and long-term, moderate adverse impacts to stormwater;
- long-term, negligible, adverse impacts to petroleum, oil, and lubricants (POLs) and the *Emergency Planning and Community Right-to-Know Act* (42 USC §§ 11001–11050) (EPCRA); long-term, minor, adverse impacts to hazardous materials (HAZMAT), hazardous wastes, and unexploded ordnance (UXO); no impacts to underground/aboveground storage tanks (USTs/ASTs) and polychlorinated biphenyls (PCBs); and long-term, minor, adverse impacts to health and safety.

Alternative 1 would result in long-term, **moderate**, adverse impacts to surface water and stormwater; and no impacts to groundwater, wetlands, or floodplains. Alternatives 2 and 3 would result in long-term, **minor**, adverse impacts to surface water and stormwater; and no impacts to groundwater, wetlands, or floodplains.

Chapter 3 provides a detailed discussion of all potential impacts from the proposed action alternatives and the no action alternative.

This page intentionally left blank

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 ANALYSIS APPROACH

To provide a framework for the analyses in this Draft EA, the Army 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); and
- **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. Based upon the nature of the proposed action and the affected environment, both qualitative and quantitative thresholds were used as benchmarks to qualify effects. Further, reasonably foreseeable effects analysis considering the proposed action in combination with other past, present, and reasonably foreseeable future actions are described in **Section 4**.

3.2 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

The Army considered but eliminated from further analysis the socioeconomics resource area. The proposed action would occur entirely within the FBTC with no changes to socioeconomics beyond baseline conditions.

3.3 LAND USE

The ROI for land use is the Doña Ana and McGregor ranges within the FBTC.

3.3.1 Existing Conditions

3.3.1.1 Land Use

Most of the land in the Doña Ana and McGregor ranges is undeveloped with 100 percent of Doña Ana Range owned by the DoD and approximately 87 percent of McGregor Range reserved as public land administered by the BLM (**Figure 3-1**). Land within McGregor Range is used for a variety of military and non-military purposes while land in Doña Ana Range is used for military purposes. Military purposes for the Doña Ana and McGregor ranges include a variety of missile testing and training programs, individual and collective training ranges, and unit field maneuver. Non-military uses are allowed on the McGregor Range provided they do not conflict with military uses or pose safety risks to the public. These uses include public road access, land designated as utility right-of-way, public recreation, and livestock grazing. A small portion of McGregor Range (approximately 18,000 acres) is part of the Lincoln National Forest, which is located outside of the proposed obscurant munitions boxes and is used as public land and managed by the US Forest Service.

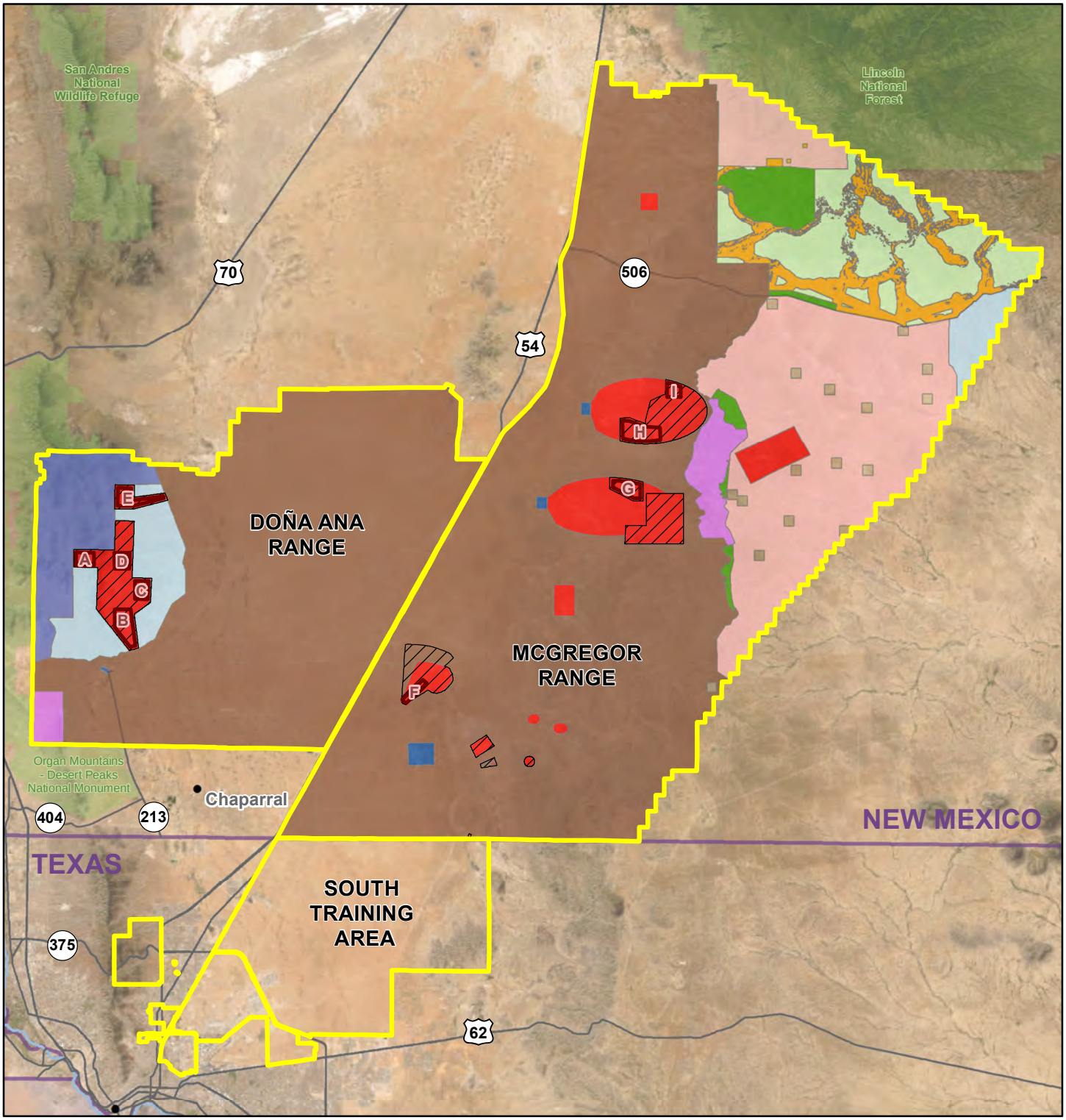


FIGURE 3-1
Land Use

The Doña Ana and McGregor ranges make up approximately 83 percent of Fort Bliss' overall land area. McGregor Range consists of approximately 696,000 acres and Doña Ana Range consists of approximately 296,000 acres (Fort Bliss, 2021a). Land use is categorized as A, B, C, D, E, F, G, Range Camps, Impact Areas, and Wilderness Study Area/Area of Critical Concern. There is a variety of uses within those categories, as summarized in **Table 3-1**. Land designated "Impact Area" consists of aircraft operations, surface impact, and safety danger zones (SDZ)/safety footprints that can be utilized for obscurant munitions training (US Army, 2010). There are 10 previously established DIAs located on previously established, dudded ranges categorized as impact areas.

Table 3-1
FBTC Land Use Categories

Land Use Category	Military Use											
	Off-Road Vehicle Maneuver: Heavy	Off-Road Vehicle Maneuver: Light	On-Road Vehicle Maneuver	Dismounted Maneuver	Aircraft Operations	Controlled-Access FTX	Mission Support Facilities	Live-Fire	SDZ/Safety Footprint	Surface Impact	Range Camps	Environmental Management
A	X	X	X	X	X	X	X	X	X			X
B		X	X	X	X	X	X	X				X
C			X	X	X	X	X	X	X			X
D			X	X	X		X	X	X			X
F			X	X	X	X			X			X
G			X	X	X				X			X
Range Camps					X		X		X		X	X
Surface Impact Areas					X				X	X		
WSA/ACEC				X	X				X			X

ACEC = Area of Critical Concern; FTX = field training exercise; SDZ = surface danger zone; WSA = Wilderness Study Area

3.3.2 Environmental Consequences

3.3.2.1 Evaluation Criteria

A significant impact on or from land use within the ROI would include the following:

- land use that would discontinue or substantially change existing or adjacent land use; and/or
- land use that would be inconsistent with applicable management plans, policies, regulations, and ordinances.

3.3.2.2 Alternatives 1, 2, and 3

Under Alternative 1, there are nine proposed obscurant munitions boxes, under Alternative 2, there are seven proposed obscurant munitions boxes, and under Alternative 3, there are two proposed obscurant munitions boxes. Although the number of obscurant munitions boxes differs, under all three alternatives, the boxes would be located within land currently designated as Impact Areas. The obscurant munitions boxes would be located within existing, dudded DIAs. The use of obscurant munitions for training operations

is compatible within this land category and would not change the previously established land use (see **Figure 3-1**). Alternatives 1, 2, and 3 are compatible with and would not change the existing land use and there would be no adverse impacts to land use.

3.3.2.3 No Action Alternative

The no action alternative would result in no impacts to land use. Under the no action alternative, new obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing land use beyond baseline conditions.

3.4 AIR QUALITY

3.4.1 Definition of the Resource

Air pollution is a threat to human health and can damage trees, crops, other plants, waterbodies, and animals. Air pollution can create 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 CAA and its amendments in 1970 and 1990, which set regulatory limits on air pollutants and help to ensure basic health and environmental protection from air pollution.

Congress passed the *Superfund Amendments and Reauthorization Act of 1986* (PL 99-499) (SARA), which authorized EPCRA that same year. In accordance with EPCRA, the USEPA regulates 188 hazardous air pollutants that are known or suspected to cause cancer or other serious health effects or have adverse environmental effects.

The 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). In accordance with CAA requirements, the air quality in each region is measured by the concentration of various pollutants in the atmosphere. Measurements of these “criteria pollutants” in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter. The ROI for air quality is the El Paso-Las Cruces-Alamogordo Intrastate Air Quality Control Region (AQCR) (40 CFR § 81.82).

3.4.2 Criteria Pollutants

The CAA directed the USEPA to develop, implement, and enforce environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, the USEPA developed numerical concentration-based standards (i.e., NAAQS) for pollutants that have been determined to impact human health and the environment and established both primary and secondary NAAQS under the provisions of the CAA (**Table 3-2**). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration allowable for the protection of vegetation, crops, and other public resources in addition to maintaining visibility standards.

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 3-2
National Ambient Air Quality Standards

Pollutant		Primary/ Secondary[a,b]	Averaging Time	Level[c]	Form
Carbon monoxide		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead		Primary and Secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen dioxide		Primary	1 hour	100 ppb	98th percentile of 1-hour dailymaximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb	Annual mean
Ozone		Primary and Secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3years
		Primary and Secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and Secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year onaverage over 3 years
Sulfur dioxide		Primary	1 hour	75 ppb	99th percentile of 1-hour dailymaximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: NAAQS table
µg/m^3 = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ppb = parts per billion; ppm = parts per million; USEPA = US Environmental Protection Agency
Notes:
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.
c. Concentrations are expressed first in units in which they were promulgated.
   (1) In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.
   (2) The level of the annual nitrogen dioxide standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
   (3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) ozone standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) ozone standards.
   (4) The previous sulfur dioxide standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous sulfur dioxide standards or is not meeting the requirements of a state implementation plan call under the previous sulfur dioxide standards (40 CFR § 50.4(3)). A state implementation plan call is a USEPA action requiring a state to resubmit all or part of its state implementation plan to demonstrate attainment of the required NAAQS.

3.4.3 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. 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 will 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). Fort Bliss is located in the El Paso-Las Cruces-Alamogordo Intrastate AQCR.

3.4.4 New Source Review

Per the CAA, the USEPA's Prevention of Significant Deterioration (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.

3.4.5 Operating Permits

The State of Texas has adopted the Federal NAAQS. Pursuant to Title 30 of the *Texas Administrative Code*, Chapter 116, the 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. Calculations are used to 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. Permits-by-rule authorize stationary source emissions for individual or specific operations.

Fort Bliss is considered a "major source" contributor for air pollution and maintains a Title V Operating Permit in Texas, which requires monitoring emissions and reporting the findings. Fort Bliss does not hold a Title V Operating Permit in New Mexico. Emissions from the training ranges located in New Mexico are not included in the TCEQ Title V permit and are not reported on annual emissions inventory reports.

3.4.6 Existing Conditions

The El Paso-Las Cruces-Alamogordo Intrastate AQCR, which serves as the ROI for the analysis in this EA, maintains the following designations for the NAAQS:

- marginal nonattainment for the 2015 8-hour ozone NAAQS.

3.4.6.1 Regional Climate

The regional climate of Fort Bliss is a semiarid-to-arid subtropical desert climate. The region generally has low rainfall, relatively low humidity, with hot summers and moderate winters. The average July high temperature is 93.1 degrees Fahrenheit (°F) while the average low temperature is 64.7°F. Average temperatures in spring, summer, and fall are 60.9°F (April), 79.0°F (July), and 62.7°F (October), respectively. Winter temperatures tend to be mild; December and January are the coolest months of the year, with an average daily high temperature of 53.9°F and an average minimum temperature of 32°F (National Oceanic and Atmospheric Administration [NOAA], 2024).

Chaparral, New Mexico, normally receives about 11 inches of precipitation annually (NOAA, 2025). Precipitation follows a bimodal pattern with seasonal peaks in winter and summer. Winter rains originate from frontal systems that begin in the Pacific Ocean and move eastward across Arizona and into New Mexico. Summer rains result from moisture moving into New Mexico and Texas from Mexico, the Gulf of Mexico, and/or the Gulf of California. Summer rains or monsoons tend to be highly localized and result in brief, torrential downpours often accompanied by high winds and lightning, causing flooding and flows in otherwise dry stream channels. Monsoon season typically occurs from June through September. July is normally the wettest month of the year with an average of 1.70 inches of rain.

The regional climate is gradually changing, most of New Mexico's climate has warmed at least 1 degree Fahrenheit (°F) in the last century. Throughout the southwestern US, heat waves are becoming more

common, and snow is melting earlier in spring. Future forecasts for the climate suggest an increase of 5–7°F over the next 50 years (Dunbar, 2022). Increasing temperatures are likely to decrease the flow of water in the Colorado, Rio Grande, and other rivers. These impacts will convert some rangelands to desert, limiting livestock production and increasing the frequency and intensity of wildfires (USEPA, 2016a). The increased average temperatures are not anticipated to significantly impact the ongoing operations at the Doña Ana Range and McGregor Range complexes over the course of the proposed action.

3.4.6.2 Emission Sources

Stationary air emission sources identified within the emissions inventory for Fort Bliss include (Fort Bliss, 2022a):

- internal combustion engines,
- fossil-fuel-fired boilers and heaters,
- surface coating operations,
- processes using organic solvents,
- liquid fuel storage tanks,
- abrasive blasting operations,
- unpaved roads,
- and other miscellaneous activities.

Obscurant munitions currently used on Fort Bliss include both red and white phosphorus. White phosphorus rounds largely consist of the XM929 120-mm white phosphorus smoke cartridge and minor amounts of the M722 60-mm white phosphorus smoke cartridge. Approximately 660 rounds per year of white phosphorus obscurant munitions rounds have been used on Fort Bliss over the last 5 years. Red phosphorus obscurant munitions rounds largely consist of the M819 81-mm red phosphorus smoke cartridge. These were used in 2023, but not in the previous years of the five-year analytical period (Fort Bliss, 2024).

The XM929 120-mm white phosphorus smoke cartridge is fired from the M120 and M121 120-mm mortar systems. The projectile body contains 144 felt wedges impregnated with white phosphorus, a fuse, and a burster charge. The fuse functions upon impact with the target and initiates the burster charge, which ruptures the projectile body and disperses the felt wedges. When air contacts the felt cartridges, they burn for approximately 2 minutes, creating a dense, white smoke (USEPA, 2009). **Table 3-3** summarizes the current annualized air emissions from the white phosphorus obscurant munitions.

Table 3-3
Baseline White Phosphorus Obscurant Munitions Annual Air Emissions

Pollutant	Emission Factor (lb/round)	2019 (lb/yr)	2020 (lb/yr)	2021 (lb/yr)	2022 (lb/yr)	2023 (lb/yr)	Average (lb/yr)	Average (ton/yr)
Volatile organic compound	NA	0	0	0	0	0	0	0
Nitrogen oxides	0.018	7.29	16.47	13.626	9.936	11.7	11.8044	0.0059
Carbon monoxide	0.012	4.86	10.98	9.084	6.624	7.8	7.8696	0.0039
Sulfur oxides	0.00084	0.3402	0.7686	0.63588	0.46368	0.546	0.550872	0.0003
PM_{10}	12.3	4981.5	11254.5	9311.1	6789.6	7995	8066.34	4.0332
$PM_{2.5}$	12.9	5224.5	11803.5	9765.3	7120.8	8385	8459.82	4.2299
Lead	0.0006	0.243	0.549	0.4542	0.3312	0.39	0.39348	0.0002
Ammonia	NA	0	0	0	0	0	0	0
Carbon dioxide-equivalent	0.64	259.2	585.6	484.48	353.28	416	419.712	0.2099

lb = pound; NA = not available; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; yr = year

The M819 81-mm red phosphorus smoke cartridge is a mortar that is used to develop a smoke screen. This ammunition is used during combat and on firing ranges during training. It is fired from the M252 improved 81-mm mortar system. The projectile body contains red phosphorus smoke pellets. The ignition cartridge contains propellant, a primer mix, and black powder (USEPA, 2009). **Table 3-4** summarizes the current annualized air emissions from the red phosphorus obscurant munitions.

Table 3-4
Baseline Red Phosphorus Obscurant Munitions Annual Air Emissions

Pollutant	Emission Factor (lb/round)	2023 (lb/yr)	ton/yr
Volatile organic compound	0.00013	0.02769	1.38E-05
Nitrogen oxides	0.015	3.195	0.001598
Carbon monoxide	0.0032	0.6816	0.000341
Sulfur oxides	0.0015	0.3195	0.00016
PM_{10}	3.5	745.5	0.37275
$PM_{2.5}$	3.5	745.5	0.37275
Lead	0.000085	0.018105	9.05E-06
Ammonia	0	0	0
Carbon dioxide-equivalent	0.34	72.42	0.03621

lb = pound; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; yr = year

Particulate matter is the primary pollutant emitted from the use of both the XM929 120-mm white phosphorus smoke cartridge and the M819 81-mm red phosphorus smoke cartridge. Other criteria pollutants, hazardous air pollutants as defined by the CAA, and toxic chemicals regulated under Section 313 of EPCRA are emitted at low levels (USEPA, 2009).

3.4.7 Environmental Consequences

3.4.7.1 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 calculated emissions are compared against 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 alternatives are not considered significant and would not be subject to any further conformity determination.

The El Paso-Las Cruces-Alamogordo Intrastate AQCR is in nonattainment for the 2015 8-hour ozone NAAQS (40 CFR § 81.344) (USEPA, 2024a). Due to the nonattainment and maintenance status, the 250 tpy PSD value is not used for ozone precursors; instead, a more restrictive 100 tpy value is used for ozone precursors, also known as volatile organic compounds and nitrogen oxides. However, 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 for lead is used instead.

Combustion products from both red and white phosphorus munitions are potentially toxic if inhaled at high concentrations. These concentrations reduce significantly as the smoke from the obscurant munitions is dispersed. These combustions products include phosphorus pentoxide (P_2O_5) orthophosphoric acid (H_3PO_4). The range locations are evaluated from their potential downwind distance to populated areas and sensitive receptors. The USEPA estimated that an exposure concentration of white phosphorus could reach toxic levels of 146 milligrams per cubic meter (mg/m^3) P_2O_5 and 202 mg/m^3 H_3PO_4 100 meters downwind from munition deployment. A permissible public exposure level of 1.0 mg/m^3 as P_2O_5 and 1.4 mg/m^3 as H_3PO_4 would be expected be reached by 5,000 meters (just over 3 miles) downwind (NRC, 1999). The

USEPA does not expect community exposures to be severe at a distance of greater than 300 meters (0.19 mile); however, particularly susceptible individuals might experience respiratory irritation even at a distance of 5,000 meters (USEPA, 1990). The minimum safe downwind distance for red phosphorus obscurant munitions is approximately 200 meters (0.13 mile). Red phosphorus is less toxic than white phosphorus (Smit, 2003) and will disperse to a safe concentration at a lessor downwind distance than white phosphorus obscurant munitions. As such, the white phosphorus downwind distance of 5,000 meters is used to compare the range distances to prevent substantial public exposure.

3.4.7.2 Assumptions

The 2023 red phosphorus value is anticipated to be a standard annual baseline for red phosphorus use. For the purpose of the emissions analysis, the proposed obscurant munitions boxes are anticipated to support an increase in the amount of obscurant munitions rounds used annually, estimated to be:

- Alternative 1 – up to a 200-percent increase over the baseline obscurant munitions.
- Alternative 2 – up to a 100-percent increase over the baseline obscurant munitions.
- Alternative 3 – up to a 50-percent increase over the baseline obscurant munitions.

3.4.7.3 Alternative 1

Table 3-5 summarizes the results of the criteria pollutants emissions analysis annualized over the course of implementation of Alternative 1 within the ROI.

Table 3-5
Highest Annual Air Emissions and PSD Thresholds, Alternative 1

Pollutant	Baseline Average (ton/yr)	Alternative 1 Estimate (ton/yr)	General Conformity	
			Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.0000	0.000	100	No
Nitrogen oxides	0.0075	0.022	100	No
Carbon monoxide	0.0043	0.013	250	No
Sulfur oxides	0.0004	0.001	250	No
PM_{10}	4.4059	13.218	250	No
$PM_{2.5}$	4.6027	13.808	250	No
Lead	0.0002	0.001	25	No
Ammonia	0.0000	0.000	250	No
Carbon dioxide-equivalent	0.2461	0.738	NA	No

NA = not available; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

Public Exposure Potential

The USEPA would not expect community exposures to be severe from a distance greater than 300 meters (approximately 0.18 mile); however, particularly susceptible individuals might experience respiratory irritation even at a distance of 5,000 meters (just over 3 miles) (USEPA, 1990). None of the nine proposed obscurant munitions boxes under Alternative 1 would be within 3 miles of populated areas or sensitive receptors. Highway 54 is approximately 3 miles from proposed box F, although any air impacts from obscurant munitions would be temporary and minor at that distance.

3.4.7.4 Alternative 2

Table 3-6 summarizes the results of the criteria pollutants emissions analysis annualized over the course of implementation of Alternative 2 within the ROI.

Table 3-6
Highest Annual Air Emissions and PSD Thresholds, Alternative 2

Pollutant	Baseline Average (ton/yr)	Alternative 2 Estimate (ton/yr)	GENERAL CONFORMITY	
			Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.0000	0.000	100	No
Nitrogen oxides	0.0075	0.015	100	No
Carbon monoxide	0.0043	0.009	250	No
Sulfur oxides	0.0004	0.001	250	No
PM_{10}	4.4059	8.812	250	No
$PM_{2.5}$	4.6027	9.205	250	No
Lead	0.0002	0.000	25	No
Ammonia	0.0000	0.000	250	No
Carbon dioxide-equivalent	0.2461	0.492	N/A	No

N/A = not available; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

Public Exposure Potential

Potential impacts would be the same as under Alternative 1.

3.4.7.5 Alternative 3

Table 3-7 summarizes the results of the criteria pollutants emissions analysis annualized over the course of implementation of Alternative 3 within the ROI.

Table 3-7
Highest Annual Air Emissions and PSD Thresholds, Alternative 3

Pollutant	Baseline Average (ton/yr)	Alternative 3 Estimate (ton/yr)	GENERAL CONFORMITY	
			Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.0000	0.000	100	No
Nitrogen oxides	0.0075	0.011	100	No
Carbon monoxide	0.0043	0.006	250	No
Sulfur oxides	0.0004	0.001	250	No
PM_{10}	4.4059	6.609	250	No
$PM_{2.5}$	4.6027	6.904	250	No
Lead	0.0002	0.000	25	No
Ammonia	0.0000	0.000	250	No
Carbon dioxide-equivalent	0.2461	0.369	N/A	No

N/A = not available; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; PSD = Prevention of Significant Deterioration

Public Exposure Potential

Potential impacts would be the same as under Alternative 1.

3.4.7.6 No Action Alternative

The no action alternative would result in no impacts to regional air quality. Under the no action alternative, new obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and

obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to air quality beyond baseline conditions.

3.5 NOISE

3.5.1 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).

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 to de-emphasize very low and very high frequencies to better replicate human sensitivity and is denoted as an A-weighted decibel (dBA). All sound levels presented in this document are in units dBA unless otherwise noted.

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* (PL 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: *Environmental Protection and Enhancement* offers land use recommendations, which, if adopted both on and off the Installation, would facilitate future development that is unaffected by military noise. It also provides guidance on how to manage noise and address noise complaints.

The ROI for noise is the Doña Ana and McGregor ranges within the FBTC.

3.5.2 Existing Conditions

The *Fort Bliss Installation Compatible Use Zone Study* quantifies noise sources generated by military training activities on Fort Bliss and recommends the most appropriate uses of noise-impacted areas. In the range areas of Fort Bliss, sources of noise include military aviation activities, small arms ranges, use of artillery, large-caliber weapons training, combat demolition activities, and vehicular traffic. Aviation activities occur primarily enroute between Biggs Army Airfield and the Doña Ana and McGregor ranges along a flight track that generally overflies US Highway 54. Impulse noise (sudden, sharp sounds) from small arms artillery and large-caliber weapons training also occurs at the Doña Ana and McGregor ranges (Fort Bliss, 2021b).

Small arms weapons operations are concentrated in the southern portion of the Installation at the Rod and Gun Club and McGregor Small Arms Ranges. Large-caliber weapons and explosives operations are concentrated in the central portion of Fort Bliss and take place namely on the Doña Ana Range Complex and at the Oro Grande Range Complex in the McGregor Range. A small portion of the Land Use Planning

Noise Zone associated with these operations extends beyond the Installation boundary but encompasses only uninhabited desert land (Fort Bliss, 2021b).

Fort Bliss outlines allowable noise levels in different areas of the Installation using zones that set noise limits in different areas. **Table 3-8** lists the noise limits for each of the three noise zones, as illustrated in **Figure 3-2**.

Table 3-8
Noise Limits for Noise Zones

Noise Zones	Noise Limits			Noise-Sensitive Land Use
	Aviation ADNL (dB)	Impulsive CDNL (dB)	Small Arms (dBP)	
Land Use Planning Zone	60–65	57–62	N/A	Generally compatible
I[a]	<65	<62	<87	Generally compatible
II	65–75	62–70	87–104	Generally not compatible
III	>75	>70	>104	Not compatible

Source: AR 200-1, Table 14-1, *Noise Limits for Noise Zones*
Note:
a Zone I is not one of the noise contours shown on Figure 3-2, and instead refers to the entire area outside of the Zone II contours (Fort Bliss, 2021b).
ADNL = A-weighted Day-Night Level; dB = decibel; dBP = peak decibel; CDNL = C-weighted Day-Night Level; N/A = not applicable

In the Installation Compatible Use Zone, Fort Bliss quantifies the noise generated by three main types of military training operations it conducts: small arms weapons operations, large-caliber weapons and explosives operations, and aviation operations (Fort Bliss, 2021b).

McGregor small arms ranges associated with Fort Bliss' small arms weapons operations are characterized as Noise Zone III around the center of firing activity and Noise Zone II as distance from the center of firing activity increases (**Figure 3-2**). While noise zones from firing activity are generally contained within range and impact areas, Zone II does extend beyond the boundary of the Installation at both range locations. The off-Installation areas encompassed by Zone II associated with the McGregor small arms range consists of uninhabited desert land. No sensitive land uses in Fort Bliss itself are within a noise zone. No portions of Noise Zone III extend off Installation. Small arms weapons operations also include non-fixed firing ranges, which refers to multiple Urban Operations Sites throughout Fort Bliss that are utilized for training activities requiring firing small arms weapons using blank ammunition. Such operations do not take place near any noise-sensitive land uses (Fort Bliss, 2021b).

While Zone II is generally not considered compatible with noise-sensitive land uses, local conditions like the availability and cost of developable land may necessitate that noise-sensitive land uses are situated within this zone. Fort Bliss' Noise Zone II encompasses a small residential area called Mesquite Hills in El Paso, Texas. Mesquite Hills includes Parkland Elementary School and the Good Life Assisted Living and Memory Care Center and is considered noise sensitive (see **Table 3-8**).

Large-caliber weapons and explosives operations are concentrated in the central portion of Fort Bliss and take place namely on the Doña Ana Range Complex and at the Oro Grande Range Complex within the McGregor Range. A small portion of the Land Use Planning Noise Zone associated with these operations extends beyond the Installation boundary but encompasses only uninhabited desert land (Fort Bliss, 2021b).

The Doña Ana and McGregor ranges are home to a variety of wildlife species, including birds, mammals, and reptiles (see **Section 3.8**). The impacts of noise on wildlife across Fort Bliss have been thoroughly investigated and results indicate that said impacts vary among the types of activity/noise being generated and the species potentially affected (Fort Bliss, 2021a, 2021b).

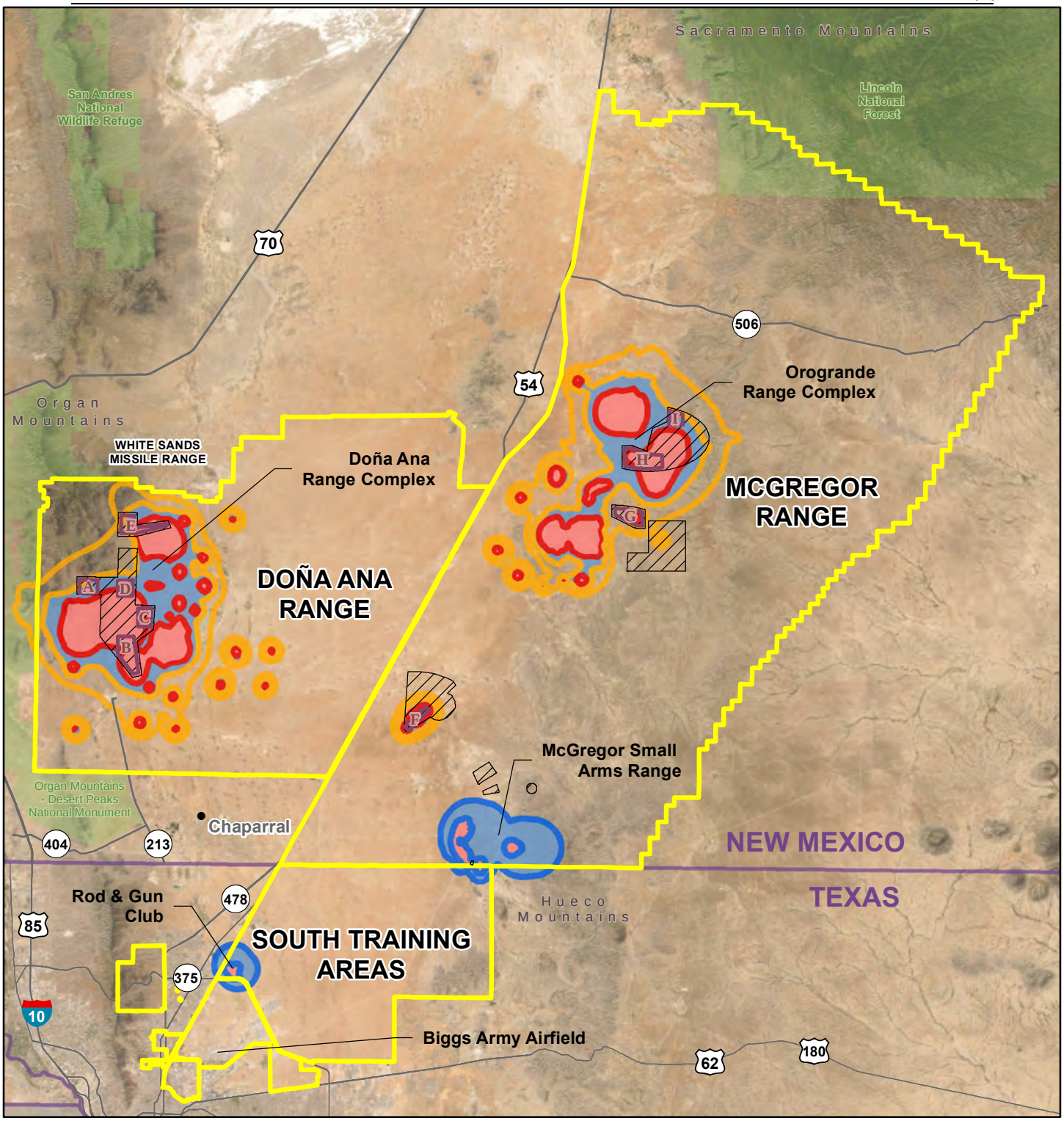


FIGURE 3-2
Noise

- Installation Boundary
- LUPZ
- Obscurant Munitions Box
- Designated Impact Area
- Zone II
- Zone III

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

All areas of Fort Bliss other than Zones II and III are designated as Zone I (Fort Bliss, 2021b).

Aviation operations would not occur within the ROI. Aircraft operations occurring in other areas of Fort Bliss outside of the ROI have the potential to cause annoyance and result in possible noise complaints from singular overflight. Noise complaints at Fort Bliss and its ranges are infrequent but are usually due to low-flying helicopters passing over civilian areas (Fort Bliss, 2021b). The proposed action alternatives would occur solely within the ROI, would not involve aircraft, and would be similar to other existing training activities; therefore, aviation noise and noise-complaint risk are not further discussed in this EA.

3.5.3 Environmental Consequences

3.5.3.1 Evaluation Criteria

When evaluating noise effects, several aspects are examined:

- the degree to which noise levels generated by training and operations, as well as construction and demolition activities, would be higher than the ambient noise levels; and
- the degree to which there would be hearing loss and/or annoyance.

3.5.3.2 Alternatives 1, 2, and 3

Under Alternatives 1, 2, and 3, all additional obscurant munitions boxes would be located within permanently dudded DIAs within the ROI. Obscurant munitions would be fired from designated locations that are an established distance from the detonation, and all impacts would occur inside the box boundaries. The establishment of these boxes would not require construction of facilities or infrastructure. There are no communities located within noise zones associated with Alternatives 1, 2, and 3, and there would be no impacts to noise-sensitive receptors.

The DIAs used for establishing the additional obscurant munitions boxes under Alternatives 1, 2, and 3 are located in noise zones that are appropriate for noise generated by the detonation of munitions. Noise impacts to wildlife are described in **Section 3.8.3.2**. Expanded obscurant munitions training activities would have the potential to result in an increased number or frequency of munitions impacts within the DIAs. Existing range complexes at Fort Bliss are already situated within noise zones appropriate for range activities. Any obscurant munitions training activities associated with the proposed action under Alternatives 1, 2, and 3 would produce noise that would not be expected to exceed existing noise levels. The noise generated would have the potential to result in long-term, negligible, adverse impacts on the noise environment within the ROI.

3.5.3.3 No Action Alternative

The no action alternative would result in no impact to the noise environment. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing land use beyond baseline conditions.

3.6 GEOLOGICAL AND SOIL RESOURCES

3.6.1 Definition of the Resource

The ROI for geological and soil resources is the Doña Ana and McGregor ranges within the FBTC.

3.6.2 Existing Conditions

3.6.2.1 Bedrock Properties

The Doña Ana and McGregor ranges are located in southern New Mexico in an area that was a stable, shallow marine shelf from approximately 570 to 290 million years ago. The majority of sedimentary deposits on the shelf were marine shales and shaly limestones until tectonic disturbances altered the environment from marine to terrestrial, changing the type of deposits and creating higher elevation landmasses to the east, west, and southwest (Fort Bliss, 2021a).

Most of the sedimentary rocks in the area are made up of limestone strata from the San Andres formation. Topography on McGregor Range is varied, with the Hueco Mountains in the southeast corner and the Sacramento Mountains in the northeast corner. The Sacramento Mountains contain Precambrian granite that lies beneath a layer of Paleozoic sedimentary rock, whereas the Hueco Mountains are made of marine limestone that was deposited during the Pennsylvanian and Permian periods (BLM, 2020). Proposed obscurant munitions boxes would be located within McGregor Range along the western edge of Otero Mesa and further south within Tularosa Basin. The range of elevation among the proposed obscurant munition box areas in McGregor Range is approximately 4,100–4,600 feet (ft) above mean sea level (MSL).

Topography on Doña Ana Range is also varied, with the Organ Mountains in the northwest corner and the rest mostly belonging to Tularosa Basin. Proposed obscurant munitions boxes within Doña Ana Range would be located along the southern and eastern base and foothills of the Organ Mountains. The range of elevation in this area is approximately 4,100–6,100 ft above MSL. Underlying bedrock within the ROI consists of the Hueco Formation or Group, Mesoproterozoic granitic plutonic rocks, Mississippian and Devonian rocks, Pennsylvanian rocks, Piedmont alluvial deposits, Silurian through Cambrian rocks, and the Upper Santa Fe Group. The bedrock associated with these groups contains gray fossiliferous limestone, shale, sandstone, granite, carboniferous rocks, sedimentary and volcanic rocks, and siliceous and carbonate assemblages (NMBGMR, 2024).

The Otero Mesa Formation is a part of the early Permian Yeso Group and is exposed along the base of the Otero Mesa escarpment (steep slope or cliff) on McGregor Range. The formation is made up of reddish-brown mudstone- dominated intervals, capped by sandstone beds. Historically, the Otero Mesa Formation has yielded a small number of trace plant, vertebrate, and invertebrate fossil localities. Trace plant fossils primarily consist of leaves and stems, vertebrate fossils primarily consist of footprints from small amphibians and reptiles, and invertebrate fossils include burrows and tracks that were left in the mud (Fort Bliss, 2023a). Literature reviews and an examination of the BLM Las Cruces District Office database indicated the presence of trace fossil material as well as several previously documented places located within the greater McGregor Range. A paleontological survey of 1,868.5 acres was conducted in support of a different proposed action between April and May 2023. The survey included all visible outcrops of the Otero Mesa Formation as well as portions of a 200-foot buffer from these outcrops (Fort Bliss, 2023a). Numerous trace fossils were observed during the survey. The overall density of localities containing trace fossils that could be considered scientifically important (mainly vertebrae trace fossils) was not high. The 2023 paleontological survey areas are located northeast and southeast of proposed obscurant boxes G, H, and I on McGregor Range

3.6.2.2 Seismology

A significant part of the Fort Bliss area falls within the Rio Grande Rift, a region classified as having moderate seismic activity (Sanford et al., 2002). According to earthquake data, the most intense earthquakes occurring within a 100-year timeframe typically range between magnitudes of 4.5 and 5.8 on the Richter Scale, with heightened seismic activity occurring approximately 100 miles north of the Installation, known as the Socorro Seismic Anomaly (Sanford et al., 2002; Fort Bliss, 2021).

3.6.2.3 Economically Viable Minerals

This overview of economically viable minerals provides context for the ROI. The most recent mineral and energy resource analysis of McGregor Range was completed in 1998. This analysis was part of *McGregor Range Land Withdrawal Legislative Environmental Impact Statement* (1999), which was prepared in support of the Army's previous application to renew the withdrawal that was set to expire in 2001. Metallic, non-metallic/industrial, and energy resources were evaluated based on the likelihood that enough of any one resource would be present in a large enough quantity that it could be extracted economically under current or future conditions. The certainty of these evaluations was based on a scale of A–D: with A indicating an inadequate amount of available information to make a determination of resource potential, B indicating that the available information is adequate to suggest the level of resource potential, C indicating that the available information is a decent measure of the level of resource potential, and D indicating that the available information clearly defines the level of resource potential (US Army, 1998).

Twelve types of metallic mineral resources and 14 types of non-metallic/industrial mineral resources were found on the Range. The metallic mineral resources found were beryllium, copper, gold, iron, lead-zinc, manganese, molybdenum, niobium, platinum-group elements, silver, thorium and rare earth elements, and tin. All metallic mineral resources were rated as having low to moderate potential to occur with certainty levels ranging from B to D. The industrial mineral resources found included barite, fluorite, borate, building stone, clay, garnet, halite, dolostone, nepheline syenite, silica, and sulfur. All except building stone were rated as having low potential; building stone was rated as having low to moderate potential. The potential of these industrial mineral resources had certainty levels ranging from B to D. Construction aggregate, limestone, and gypsum were also found, all three rated as having low to high potential for development with certainty levels of D, D, and B to C, respectively. The determination of potential levels for industrial mineral resources considered the exploration, development, mining, milling, transportation, and marketing needed to make use of said resources (US Army, 1998).

The energy resource analysis looked at leasable energy resources (e.g., petroleum, geothermal, and coal) and minerals (e.g., uranium) that could be extracted and utilized. The potential for petroleum resources was rated as low to moderate with a certainty level of C, and the potential for uranium resources was rated as none to low with certainty levels of C and D. No potential for coal resources was found due to the absence of rocks dating back to the Cretaceous period (US Army, 1998).

For the Doña Ana Range, mineral resource studies have not been as extensive as those conducted for McGregor Range. The assessment of mineral resource potential in the Organ Mountains has mostly taken place in Organ Mountains Wilderness area (Ludington et al., 1988), which is located on the western slopes of Organ Mountains, opposite of the ROI areas in Doña Ana Range. Some of the following may or may not apply to the ROI. The mineral reserves in Doña Ana County are primarily situated within the mountainous regions where igneous and sedimentary rocks of pre-Santa Fe age (more than 10 million years ago) are exposed. The significant metal deposits are concentrated in and around the Organ Mountains batholith. Within the Organ Mountains, there are deposits of copper, silver, lead, gold, and zinc. In the southern part of the Organ Mountains and the northern section of the Franklin Mountains (located approximately 25 miles south of the Organ Mountains), there are deposits of barite and fluorite, along with minor amounts of lead. The Potrillo Mountains (located approximately 40 miles southwest of the Organ Mountains) also contain barite with a small amount of lead. The outer region of the Organ deposits contains fluorite, barite, and some non-argentiferous galena. Given the absence of significant igneous intrusions outside the Organ Mountains, it is unsurprising that surrounding minor districts mainly yield outer-zone minerals (Ludington et al. 1988).

3.6.2.4 Soil Series and Properties

According to the Natural Resources Conservation Service's Web Soil Survey, there are 37 different soil types found in the ROI (**Table 3-9**). The Bissett-Rock outcrop complex, Missile very gravelly fine sandy loam, Reyab silt loam, and Infantry-Sonic complex make up the largest percentage of the ROI (19.6, 11.9, 11.8, and 10.2 percent, respectively). Most soils in these ranges are broadly classified as poorly developed rocky desert soils or unconsolidated sediment of sand and/or very fine gravel (Fort Bliss, 2021a).

Table 3-9
Soil Types Associated with the Proposed Action Alternatives

Name	Slope (%)	Acres in ROI	Percent of ROI
Reyab silt loam	0–1	185.7	0.5%
Reyab silt loam	1–3	3,886.8	11.3%
Malargo silt loam	1–3	659.8	1.9%
Pendero fine sand	2–5	311.9	0.9%
Copia loamy fine sand	5–15	276.7	0.8%
Dozer-Rock outcrop complex	35–65	27.8	0.1%
Cavalry loamy fine sand	1–3	121.2	0.4%
Infantry-Sonic complex	3–10	3,536.2	10.2%
Dozer-Rock outcrop complex	15–35	88.9	0.3%
Allamore very gravelly loam	10–35	549.4	1.6%
Mcnew-Copia complex	2–5	2,370.2	6.9%
Hueco loamy fine sand	1–3	365.0	1.1%
Copia-Nations complex	1–3	570.3	1.7%
Piquin very gravelly sandy loam	5–15	1,071.1	3.1%
Mariola fine sandy loam	1–3	246.6	0.7%
Sonic very gravelly fine sandy loam	1–8	98.8	0.3%
Crossen-Tinney complex	1–3	724.6	2.1%
Tinney loam	2–5	391.1	1.1%
Crossen gravelly fine sandy loam	2–5	703.6	2.0%
Pendero-Copia-Nations complex	2–5	755.9	2.2%
Bankston extremely channery loam	15–35	445.8	1.3%
Copia-Patriot complex	2–5	4.7	0.0%
Chaparral gravelly sandy loam	2–5	105.0	0.3%
Condrone sand	2–5	725.4	2.1%
Bissett-Rock outcrop complex	5–15	2,317.5	6.7%
Bissett-Rock outcrop complex	15–35	1,887.1	5.5%
Bissett-Rock outcrop complex	35–65	2,561.5	7.4%
Stallone extremely bouldery sandy loam	5–15	2,495.1	7.2%
Chuzzie very gravelly loam	0–3	307.7	0.9%
Chipotle extremely gravelly sandy clay loam	0–3	377.5	1.1%
Sotol gravelly loam	15–35	256.2	0.7%
Brewster very gravelly loam	35–65	203.5	0.6%
Rock outcrop-Brewster complex	65–90	1,635.2	4.7%
Brewster very bouldery loam	35–65	59.3	0.2%
Crotalus extremely gravelly loam	15–35	64.3	0.2%
Reduff very gravelly loam	35–65	32.0	0.1%
Missile very gravelly fine sandy loam	3–15	4,098.2	11.9%

Source: https://websoilsurvey.nrcs.usda.gov/app/

Prime farmland is protected under the *Farmland Protection Policy Act of 1981* and is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Prime farmland is not present in the ROI and is not discussed further in this EA.

3.6.2.5 Soil Erosion Potential

The vulnerability of specific soils to erosion and their suitability for infrastructure and military use depend on various physical and chemical properties, interacting with climate, topography, and vegetation. In the Fort Bliss area, wind and water erosion are the primary processes affecting soils, particularly those lacking vegetation. Where deep land channels are noticeable, concentrated water flow and erosion substantially impact soil movement. McGregor Range and Doña Ana Range face vulnerability to both water and wind erosion. In the coppice (soft-sided) dunes area of the Tularosa Basin, wind erosion is prevalent, worsened by disrupted surface crusts due to tracked vehicle maneuvers. This localized movement generates blowing dust, affecting air quality, especially on windy days. Roads in the Tularosa Basin, acting as runoff channels, experience erosion, as do those leading to Otero Mesa. Grazing by livestock on Otero Mesa reduces vegetative cover, exposing soil to erosion, notably near holding pens, watering points, and mineral licks (Fort Bliss, 2021a).

3.6.3 Environmental Consequences

3.6.3.1 Evaluation Criteria

Evaluation criteria for environmental consequences in the context of geologic resources include a determination regarding how the proposed action alternatives impact the physical characteristics of the resource. Significant impacts to geological and soil resources would occur if the proposed action alternatives result in the following:

- substantial alteration of unique, valued, or beneficial geologic or topographic conditions;
- substantial soil loss or erosion off site;
- measurable loss or degradation of a valued or beneficial soil function; and/or
- disturbance of soils with contaminant(s) above regulatory threshold(s).

3.6.3.2 Alternative 1

Bedrock Properties

Alternative 1 would not change the underlying geology of the ROI within either the Doña Ana and McGregor ranges. The establishment of new obscurant munitions boxes within previously dudded DIAs would not have the potential to impact the underlying bedrock. No adverse impacts to bedrock geology would occur under Alternative 1.

Seismology

Alternative 1 would not change the seismology of the ROI within either the Doña Ana and McGregor ranges. The establishment of new obscurant munitions boxes within previously dudded DIAs would not have the potential to impact seismology within the region. No adverse impacts to seismology would occur under Alternative 1.

Economically Viable Minerals

Alternative 1 would not involve the use of minerals, and the establishment of new obscurant munitions boxes within previously dudded DIAs would not have the potential to impact existing deposits within the ROI. No adverse impacts to economically viable minerals would occur under Alternative 1.

Soil Series and Properties

Alternative 1 would not involve any construction or ground-disturbing activities. Soil contamination, such as localized soil chemistry changes, phosphine contamination, and contaminated soil runoff, would have the potential to occur due to the increased use of red and white phosphorus. Impacts to soils would be expected to be localized to areas within the proposed obscurant munitions box locations and surface and stormwater runoff would be managed with the use of best management practices (BMPs) as described in **Section 3.7.3**. Alternative 1 would result in long-term, minor, adverse impacts to soils.

Soil Erosion Potential

Alternative 1 would not involve construction activities and detonation impacts from obscurant munitions training would negligibly contribute to soil erosion potential. Wind and/or water erosion would have the potential to occur during high wind or high precipitation events during which obscurant munitions training would not occur. Alternative 1 would result in long-term, negligible adverse impacts to soil erosion potential.

3.6.3.3 Alternative 2

The potential impacts from implementation of Alternative 2 would be the same as those for Alternative 1 except that two fewer boxes would be established. The BMPs described in **Section 3.7.3** would be implemented to reduce potential contamination from red and white phosphorus into soils.

3.6.3.4 Alternative 3

The potential impacts from implementation of Alternative 3 would be the same as those for Alternative 1. Under Alternative 3, only two boxes would be established, resulting in fewer opportunities for localized soil chemistry changes, phosphine contamination, and contaminated soil runoff. The addition of two boxes would present opportunities for new contamination when compared to baseline conditions. The BMPs described in **Section 3.7.3** would be implemented to reduce potential contamination from red and white phosphorus into soils.

3.6.3.5 No Action Alternative

The no action alternative would result in no impacts to geological and soil resources. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing geological and soil resources beyond baseline conditions.

3.7 WATER RESOURCES

3.7.1 Definition of the Resource

3.7.1.1 Surface Water

The USEPA defines surface waters as waters of the US, 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*. Man-made features not directly associated with a natural drainage, such as upland stock ponds and irrigation canals, are generally not considered jurisdictional waters.

3.7.1.2 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 National Pollutant Discharge Elimination System (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. EISA establishes stormwater design requirements for development and redevelopment projects. Under these requirements, Federal facility projects larger than 5,000 ft^2 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.

3.7.1.3 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* 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.

3.7.1.4 Floodplains and Wetlands

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, melting snow, or overbank flooding. 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 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 indicate 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. EO 13807 was revoked by EO 13990, *Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis.* EO 13690 was then reinstated by EO 14030, *Climate-Related Financial Risk.*

The CWA regulates discharges of pollutants in surface waters of the US. Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into waters of the US, including wetlands. The US Army Corps of Engineers 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." Wetlands generally include swamps, marshes, bogs, and similar areas (Environmental Laboratory, 1987). EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands, defines wetlands more broadly than the Section 404 program. This EO directs Federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands.

Water resources are protected and identified under several Federal laws and EOs including; The Clean Water Act; NPDES permit under Section 402 of the CWA; the *Federal Water Pollution Control Act of 1948*, as amended by the CWA; 33 CFR Part 328; EISA*; Safe Drinking Water Act*; Section 10 of the *Rivers and Harbors Act*.; FEMA; EO 13690, *Establishing a Flood Risk Management Standard and Process for Further Soliciting and Considering Stakeholder Input;* and EO 11990, *Protection of Wetlands.* El Paso Water, the source of McGregor Range's drinking water, has adopted stringent water conservation measures to ensure sustainable water consumption. The City of El Paso's Conservation Ordinance No. 752 was developed to ensure water conservation compliance. Doña Ana Range receives drinking water from wells, as described in **Section 3.12.2.1**.

The ROI for water resources is the land within the Doña Ana and McGregor ranges at Fort Bliss.

3.7.2 Existing Conditions

3.7.2.1 Surface Water

The majority of the ROI is located within the Tularosa Basin Watershed. A small portion of the northeast McGregor Range is in the Salt Basin Watershed, and a small portion of the western border of the Doña Ana Range is in the El Paso-Las Cruces Watershed (**Figure 3-3**). Surface water on Fort Bliss mostly consists of ephemeral streams (streams that flow and contain water only for a short period of time during precipitation events) with permanent springs observed in the Organ Mountains in the northwest portion of the FBTC and tributaries surrounding the ranges supplied by the Rio Grande (**Figure 3-4**). This water is sourced from snowmelt in Northern New Mexico and southern Colorado (Fort Bliss, 2021a).

3.7.2.2 Stormwater

The majority of the ROI is undeveloped. Stormwater on the Doña Ana and McGregor ranges feeds into ephemeral streams and drains from the steep terrain within the ROI. This steep terrain is present in the Organ Mountains at the northwest corner of the Doña Ana Range as well as on the McGregor Range in the northeast from the Sacramento Mountains and southeast from the Hueco Mountains. Runoff drains toward the Tularosa, Salt, and Hueco Bolson groundwater basins.

Earthen impoundments called dirt tanks, intended for livestock and wildlife use, catch runoff during precipitation events which commonly happen between July and September, when more than half of the average annual precipitation typically occurs (Fort Bliss, 2021a). Additionally, Fort Bliss implements a Stormwater Management Program and operates a Phase II (Small) Municipal Separate Storm Sewer System under General Permit TXR040000 (Fort Bliss, 2019).

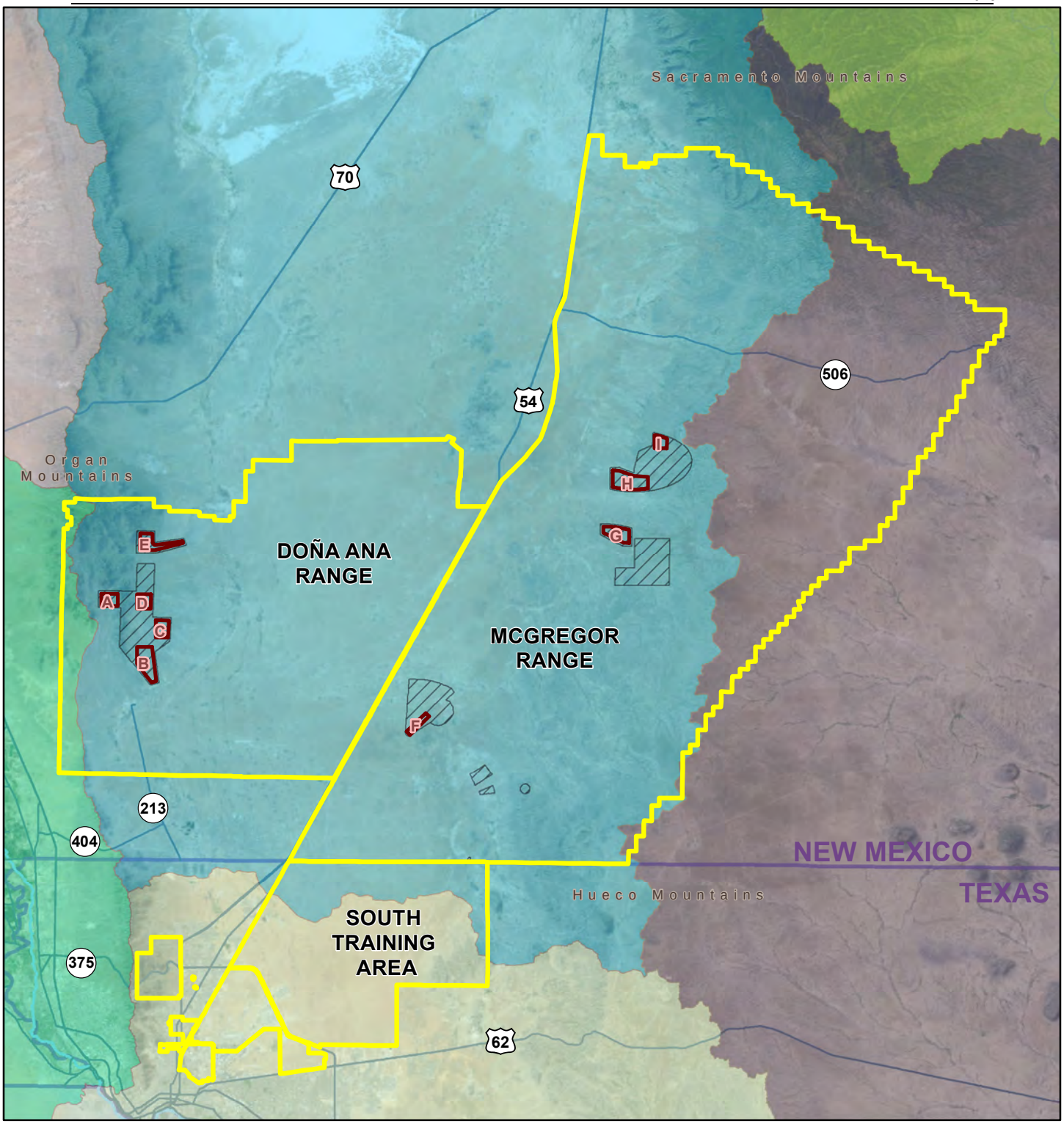


FIGURE 3-3
Watersheds

- Installation Boundary
- Obscurant Munition Box
- Designated Impact Area
- El Paso-Las Cruces
- Jordana Draw
- Rio Grande-Fort Quitman
- Rio Penasco
- Salt Basin
- Tularosa Valley

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

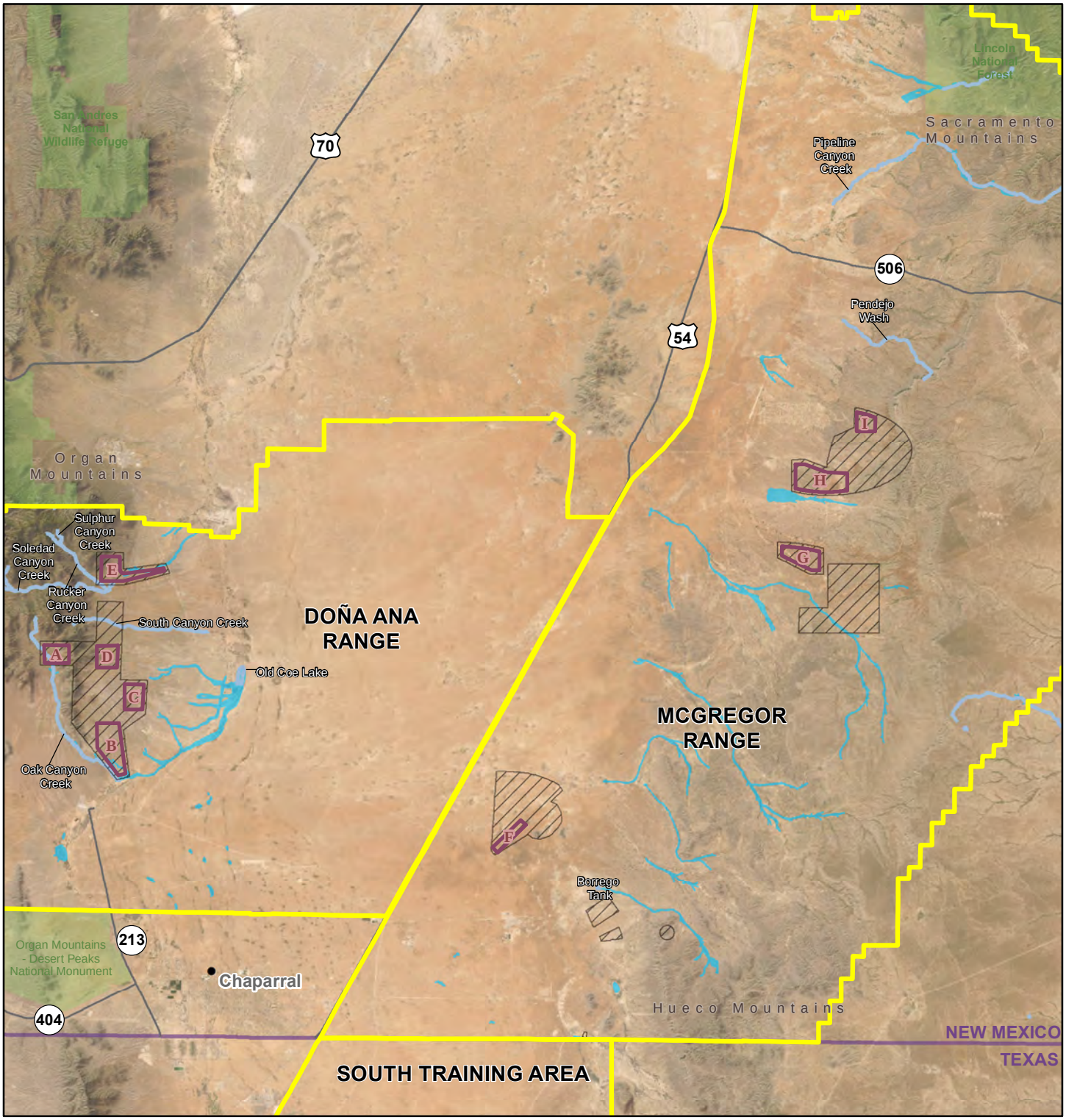


FIGURE 3-4
Water Resources

- Water Feature
- Installation Boundary
- Obscurant Munition Box
- 100-Year Floodplain
- Designated Impact Area

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

3.7.2.3 Groundwater

Four groundwater basins exist within the ROI: the Hueco Bolson, Tularosa, Mesilla, and Salt basins. The proposed obscurant munition boxes would be located within the Hueco Bolson, Tularosa, and Salt basins. The Hueco Bolson Basin at its thickest (more than 1,000 ft deep) is underneath Fort Bliss; specifically, beneath the southwest portion of McGregor Range and the southern portion of the Doña Ana Range. The Hueco Bolson Basin is primarily recharged by runoff from the Hueco, Franklin, and Organ Mountains. The Tularosa Basin is located beneath the majority of the Doña Ana Range and the western boundary of McGregor Range and is contiguous with and geologically similar to the Hueco Bolson. The Tularosa Basin is recharged primarily by storm runoff from the Organ and Sacramento mountains. The Salt Basin lies beneath the northeastern portion of McGregor Range and is recharged primarily by precipitation collected in flat areas of the range that are situated between higher areas of elevation. The Hueco Bolson and Tularosa basins are characterized by brackish water with higher salinity (Texas Water Development Board, 2021; Fort Bliss, 2021a).

3.7.2.4 Floodplains and Wetlands

The majority of Fort Bliss is categorized by FEMA as Zone X, area of minimal flood risk. Isolated areas of Zone A, also known as the 100-year floodplain, occur along ephemeral creeks and streams throughout the Installation (see **Figure 3-4**). During the months of July through September, brief, heavy rainstorms can cause localized flooding (Fort Bliss, 2021a). These storms account for more than half of the average annual precipitation of 8.8 inches on Fort Bliss. Floodplain management on Fort Bliss is achieved through the Installation's compliance with EO 11988; *Floodplain Management*.

A 2014 wetlands monitoring and assessment report identified 43 wetlands within the boundaries of Fort Bliss. None of these wetlands are located within the proposed obscurant munitions box locations (Fort Bliss, 2014). Therefore, wetlands are not carried forward for analysis in the EA.

3.7.3 Environmental Consequences

3.7.3.1 Evaluation Criteria

A significant impact to water resources within the ROI would include the following:

- overdrafts groundwater basins;
- exceeds safe annual yield of water supply sources;
- adversely affects water quality of the region; and/or
- violates established laws or regulations adopted to protect sensitive water resources.

3.7.3.2 Alternative 1

Surface Water

Oak Canyon Creek is located within 1 mile of Alternative 1 obscurant munitions boxes A, B, D, and E. Just under 1 mile of Oak Canyon Creek bisects the southwest corner of the proposed obscurant munitions box A and is located about 0.13 mile west of the southwest perimeter of proposed obscurant munitions box B. Sulphur Canyon Creek is located approximately 200 ft from the southwest corner of proposed obscurant munitions box E where it meets with Soledad Canyon Creek. Soledad Canyon Creek terminates at the boundary of the proposed obscurant munitions box E (see **Figure 3-4**).

All nine proposed obscurant munitions boxes under Alternative 1 would be located in previously dudded DIAs where explosives training routinely occurs. Alternative 1 would result in an increase in the use of these areas for the proposed additional obscurant munitions training. Within obscurant munitions box A, where Oak Canyon Creek bisects the southwest corner, red and white phosphorus would have the potential to enter surface water and result in phosphine contamination if low-oxygen water environments are present. Use of obscurant munitions boxes B and E, which are located within 0.13 mile of a named creek, likely

would not result in red and white phosphorus entering surface water because of the use of BMPs and the localized impact from obscurant munitions. BMPs may include avoiding the use of obscurant munitions during heavy precipitation events that may increase the probability of surface water runoff. As described in **Section 3.13.3**, if contamination was suspected, subsequent water resource studies would be conducted to evaluate the presence and extent of contamination. Implementation of Alternative 1 would result in long-term, moderate, adverse impacts to surface water.

Stormwater

Proposed obscurant munitions boxes would be located in previously established permanently dudded DIAs and no construction is proposed; therefore, no stormwater pollution prevention plan is required. The addition of nine obscurant munitions box locations would result in an increased use of obscurant munitions that use red and white phosphorus. This increased use would have the potential to release additional red and white phosphorus within the ROI. However, both the Doña Ana and McGregor ranges currently are used for a variety of Army testing missions, and additional obscurant munitions use would not greatly increase the amount of stormwater contamination in these ranges. All stormwater would be managed in accordance with BMPs identified within Fort Bliss' Stormwater Management Program. BMPs under this program include conducting regular inspections and maintenance of storm drains, use of secondary containment valves, use of oil/water separators for discharges, and controlling site runoff.

Localized flooding and stormwater events are most likely to occur between July and September. During, but not limited to these events, there is the potential for red and white phosphorus compounds to enter stormwater runoff resulting in stormwater contamination. While many of the streams within the ROI are ephemeral and do not permanently carry water, avoiding use of obscurant munitions during heavy rain events would reduce potential adverse impacts to stormwater. Implementation of Alternative 1 would result in long-term, moderate, adverse impacts to stormwater due to the increase in potential for the presence of red and white phosphorus during heavy rain events.

Groundwater

Red and white phosphorus released during obscurant munitions training activities have the potential to result in short-term, localized impacts to soil and subsequently groundwater resources; however, the groundwater system within the ROI is expansive and deep, and obscurant munitions training would occur in previously established DIAs that have similar existing uses and potential for groundwater contamination. The addition of nine new obscurant munitions boxes would have the potential to increase the frequency of contaminants used in these DIAs; with the implementation of BMPs described above and due to the depth of groundwater, implementation of Alternative 1 would result in no adverse impacts to groundwater in the ROI.

Floodplains

Under Alternative 1, five boxes (B, C, E, G, and H) would be located within approximately 1 mile of a floodplain. A floodplain bisects portions of proposed boxes B and E. Proposed box B overlies 49 acres of Zone A, and proposed box E overlies 1,392 acres of Zone A. The Zone A floodplain accounts for approximately 0.01 percent (2,920 acres) and 0.01 percent (7,345 acres) of the total acreage for the Doña Ana and McGregor ranges, respectively. The increased use of obscurant munitions would not change or modify existing floodplains. Implementation of Alternative 1 would result in no adverse impacts to floodplains.

3.7.3.3 Alternative 2

Surface Water

Of the seven obscurant munitions boxes proposed under Alternative 2, only box B is located within 1 mile of any surface waters. Obscurant munitions box B is located within 0.13 mile of a named creek but likely would not result in red and white phosphorus entering surface water due to the localized impact from obscurant munitions and the use of BMPs. As discussed under Alternative 1, BMPs would be implemented to reduce the potential for adverse impacts to surface water. Implementation of Alternative 2 would result in long-term, minor, adverse impacts to surface water.

Stormwater

Impacts to stormwater under Alternative 2 would be similar to Alternative 1 except that Alternative 2 would establish seven new obscurant munitions boxes, resulting in slightly fewer opportunities for stormwater contamination from red and white phosphorus use. Potential stormwater contamination within the Doña Ana and McGregor ranges would not be expected to greatly increase due to the addition of seven new obscurant munitions boxes. These proposed boxes would be managed through the use of BMPs as described under Alternative 1. Implementation of Alternative 2 would result in long-term, minor, adverse impacts to stormwater.

Groundwater

Impacts to groundwater under Alternative 2 would be similar to Alternative 1. The addition of seven new obscurant munitions boxes would have the potential to increase the frequency of contaminants used in DIAs; with the implementation of BMPs described above and due to the depth of groundwater, implementation of Alternative 2 would result in no adverse impacts to groundwater in the ROI.

Floodplains

Of the seven obscurant munitions boxes proposed under Alternative 2, only box B would be partially bisected by the 100-year floodplain. Implementation of Alternative 2 would not change or modify existing floodplains. No adverse impacts to floodplains would occur.

3.7.3.4 Alternative 3

Surface Water

Under Alternative 3, two new obscurant munitions boxes would be established. Box B would be located within 0.13 mile of a named creek but likely would not result in red and white phosphorus entering surface water due to the use of BMPs and the localized impact from obscurant munitions. As discussed under Alternative 1, BMPs would be implemented to reduce the potential for adverse impacts to surface water. Implementation of Alternative 3 would result in long-term, minor, adverse impacts to surface water.

Stormwater

Under Alternative 3, two new obscurant munitions boxes would be established. Potential stormwater contamination would not be expected to greatly increase within the Doña Ana and McGregor ranges under Alternative 3 and would be managed through the use of BMPs as identified under Alternative 1. Alternative 3 would result in long-term, minor, adverse impacts to stormwater.

Groundwater

Under Alternative 3, the addition of two new obscurant munitions boxes would increase the frequency of contaminants used in DIAs; with the implementation of BMPs described above and due to the depth of groundwater, implementation of Alternative 3 would result in no adverse impacts to groundwater in the ROI.

Floodplains

Under Alternative 3, proposed obscurant munitions box B would be partially bisected by the 100-year floodplain. Implementation of Alternative 3 would not change or modify existing floodplains. No adverse impacts to floodplains would occur.

3.7.3.5 No Action Alternative

The no action alternative would result in no impacts to water resources. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing water resources beyond baseline conditions.

3.8 BIOLOGICAL RESOURCES

3.8.1 Definition of the Resource

3.8.1.1 Endangered Species Act

The ESA established protection for threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plant and animal species listed as threatened, endangered, or special status by USFWS. The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Under the ESA, an "endangered species" is defined as any species in danger of extinction throughout all, or a large portion, of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. USFWS maintains a list of candidate species being evaluated for possible listing as threatened or endangered under the ESA. Although candidate species receive no statutory protection under the ESA, USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and may warrant protection in the future under the ESA. Refer to **Section 1.5.3** for additional information on the Section 7 consultation process under the ESA.

3.8.1.2 Migratory Bird Treaty Act

The MBTA makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations. Per the MBTA, "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR § 10.12). Birds protected under the MBTA include nearly all species in the US except for non-native/human-introduced species and some game birds.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, requires all Federal agencies undertaking activities that may negatively impact migratory birds to follow a prescribed set of actions to further implement the MBTA. EO 13186 directs Federal agencies to develop a memorandum of understanding with USFWS that promotes the conservation of migratory birds.

The *National Defense Authorization Act for Fiscal Year 2003* (PL 107-314, 116 Stat. 2458) provided the Secretary of the Interior the authority to prescribe regulations to exempt the armed forces from the incidental take of migratory birds during authorized military readiness activities. Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Further, in October of 2012, the Authorization of Take Incidental to Military Readiness Activities was published in the *Federal Register* (50 CFR § 21.15), authorizing incidental take during military readiness activities unless such activities may result in significant adverse effects on a population of a migratory bird species.

In December 2017, the US DOI issued M-Opinion 37050, which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the purpose of that activity is not the take of a migratory birds, eggs, or nests. On August 11, 2020, the US District Court, Southern District of New York, vacated M-Opinion 37050. Thus, incidental take of migratory birds is again prohibited. The interpretation of the MBTA remains in flux, and additional court proceedings are expected.

3.8.1.3 Bald and Golden Eagle Protection Act

The BGEPA prohibits actions to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof." Further, the BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle's normal breeding, feeding or sheltering behavior, or nest abandonment by substantially interfering with the eagle's

normal breeding, feeding, or sheltering behavior." The BGEPA also prohibits activities around an active or inactive nest site that could result in disturbance to returning eagles.

3.8.1.4 Invasive Species

Invasive species are non-native species in an ecosystem whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, requires Federal agencies to identify actions that may affect invasive species; use relevant programs to prevent introductions of invasive species; detect, respond, and control such species; monitor invasive species populations; and provide for restoration of native species. Invasive species damage native habitat and impede management by outcompeting native species.

Biological resources are protected and identified under several Federal laws and EOs, including BGEPA, ESA, *National Defense Authorization Act for Fiscal Year 2003* (PL 107-314, 116 Stat. 2458); EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*; and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds.*

3.8.1.5 Wildland Fires

Wildland fires are unintentional fires that can be started by military activities or natural forces such as lightning strikes. Wildland fires are managed in accordance with the *Integrated Wildland Fire Management Plan* (Fort Bliss, 2020a). The Fort Bliss Directorate of Emergency Services (DES), Fire and Emergency Services (FES) Division is responsible for monitoring and suppressing all fires caused by military activities on the Installation. The BLM is responsible for monitoring and suppressing all natural fires (lightning-caused) on the military withdrawn lands of McGregor Range. The BLM assists the Fort Bliss FES as requested when military-caused wildfires occur.

The ROI for biological resources is the locations of the obscurant munitions boxes within the Doña Ana and McGregor ranges of the FBTC.

3.8.2 Existing Conditions

3.8.2.1 Vegetation

There is a high degree of biodiversity at Fort Bliss due to its varied topography and size (Fort Bliss, 2021a). The proposed obscurant munition boxes would be located in the western part of the Doña Ana Range in the foothills of the Organ Mountains and in the central and southern part of the McGregor Range. On the Doña Ana Range, vegetation within the ROI is primarily Foothill Desert Scrub and Foothill Desert Grass. Other vegetation associations within the box areas include Foothill Desert Shrubland and smaller areas of Creosote Piedmont Shrubland. The most common species associated with these vegetation communities is creosote bush (*Larrea tridentata*). In the Foothill Desert Grassland community, side-oats grama grass (*Bouteloua curtipendula*) is a common species. In the central part of the McGregor Range, vegetation in proposed obscurant munition boxes G, H, and I is primarily Foothill Desert Scrub and Foothill Desert Shrubland, with small areas of Basin Desert Lowland Shrubland. Like the areas on the Doña Ana Range, creosote bush is a dominant species. Obscurant munition box F is in the southern part of the McGregor Range. The vegetation on this site is Basin Desert Shrubland (Coppice Dunes). Honey mesquite (*Prosopis glandulosa*) is a common species in this association. The Basin Desert Shrubland association covers much of the southwestern part of the McGregor Range and approximately the eastern two-thirds of the Doña Ana Range (**Figure 3-5**).

Three important plant communities occur on Fort Bliss. These include the black grama (*Bouteloua eriopoda*) grasslands on Otero Mesa in the McGregor Range, sand sagebrush (*Artemisia filifolia*) community, and shinnery oak (*Quercus havardii*). The black grama grassland is an important remaining component of the Chihuahuan Desert region because much of the former grassland areas of the Chihuahuan Desert have been converted to shrublands.

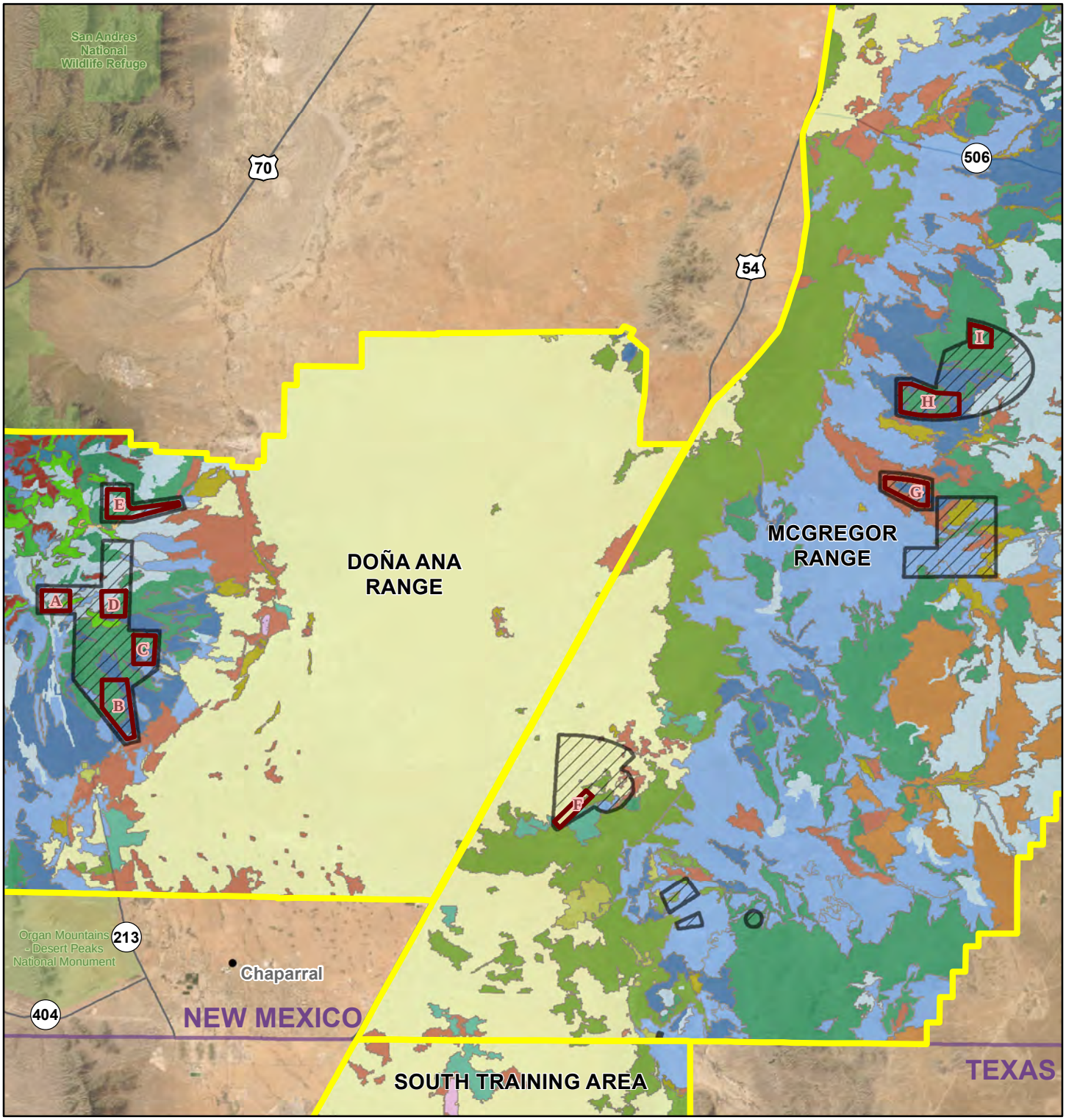


FIGURE 3-5
Vegetation

- Installation Boundary
- Obscurant Munitions Box
- Designated Impact Area
- Basin Desert Lowland Shrubland
- Basin Desert Shrubland (Coppice Dunes)
- Basin Lowland Grassland
- Basin Sandshrub
- Creosote Piedmont Shrublands
- Foothill Desert Shrublands
- Foothills Desert Grassland
- Foothills Desert Scrub
- Mesa Grassland
- Military Facilities
- Montane Forest (PIPO/PSME)
- Montane Riparian
- Montane Shrubland (CEMU, MUSE)
- Montane Shrubland (QUGA/SYOR)
- Montane Woodland (JUDE, PIED)
- Montane Woodland (JUMO)
- Non-Native Vegetation
- Sandy Plains Desert Grassland

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

3.8.2.2 Wildlife

The Doña Ana and McGregor ranges are mostly undeveloped with an abundance of wildlife with species represented from those found in the Intermountain West and the Great Plains. Approximately 335 species of birds, 58 species of mammals, 39 species of reptiles, and 8 species of amphibians occur on Fort Bliss lands. (Fort Bliss, 2021a).

Mammals found in habitats in the ROI include the coyote (*Canis Latrans),* the mule deer (*Odoceileus hemionus*), pronghorn antelope *(Antilocapra americana)*, badger (*Taxidea taxus*), and mountain lion (*Puma concolor*). Common small mammals include species of pocket mice (*Chaetodipus* spp.), Merriam's kangaroo rat (*Dipodomys merriami*), woodrats (*Neotoma* spp.), deer mice (*Peromycus maniculatus*), cactus mouse (*Peromycus eremicus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), and Botta's pocket gopher (*Thomomys bottae*).

Common birds found in habitats in the ROI include the northern mockingbird (*Mimus polyglottos*), black-throated sparrow (*Amphispiza bilineata*), western kingbird (*Tyrannus verticalis*), Scott's oriole (I*cterus parisorum*), ash-throated flycatcher (*Myiarchus cinerascens*), Swainson's hawk (*Buteo swainsoni*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), and horned lark (*Eremophila alpestris*).

Reptiles found in habitats in the ROI include the long-nose leopard lizard (*Gambelia wizlizenii*), striped whiptail (*Aspidoscelis inornata*), side-blotched lizard (*Uta stansburiana*), and marbled whiptail (*Aspidoscelis marmoratus*).

3.8.2.3 Threatened and Endangered Species

The USFWS IPaC tool identified 13 plant and animal species classified as threatened or endangered and one animal species as a candidate species under the ESA found within or near the ROI (**Table 3-10**).

The Kuenzler hedgehog cactus (*Echinocereus fendleri* var*. kuenzleri*) has been documented in the Sacramento Mountains north of Fort Bliss, but surveys have not confirmed any occurrence within the boundaries of Fort Bliss. The Mexican spotted owl (*Strix occidentalis lucida*) and the piping plover (*Charadrius melodus*) have been documented by single or historical sightings. While the willow flycatcher (*Empidonax trailii*), a common species, has been observed on the McGregor Range, the southwestern willow flycatcher (*Empidonax trailii extimus*), an endangered species known to occur, or with the potential to occur, on Fort Bliss, has not been observed (Fort Bliss, 2021a). The most suitable riparian habitat for the federally listed southwestern willow flycatcher (*Empidonax trailii extimus*) occurs on the west side of the Organ Mountains in Soledad Canyon. Suitable habitat does not exist within the east side of the Organ Mountains (i.e., the ROI). Four observations of the federally threatened yellow-billed cuckoo (*Coccyzus americanus*) have been recorded on Fort Bliss, including sightings in Soledad Canyon on the west side of the Organ Mountains and on Otero Mesa on the McGregor Range (Fort Bliss, 2021a). The preferred habitat of the yellow-billed cuckoo is wooded habitat with dense cover near water.

The Sneed pincushion cactus (*Coryphantha sneedii* var*. sneedii*) is a federally endangered species that grows in cracks and on vertical cliffs and ledges as well as on horizontal benches of loose rock. At Fort Bliss, three known populations of Sneed pincushion cactus exist on separate rocky limestone hills on the Doña Ana Range. The entire range of hills where the cactus occurs is identified on training maps as Off Limit Areas (OLAs) and the perimeter of the hills is delineated in the field with Seibert stakes. The USFWS recently conducted a five-year status review of the cactus and described the distribution of known populations in the southwestern part of Fort Bliss and on adjacent mountains (USFWS, 2023). The population on Rattlesnake Ridge south and west of proposed obscurant munitions boxes A, B, and C is the closest population to the proposed action alternatives.

Table 3-10
Federal Listed Species within the ROI

Species	Status	Army Determination
Mammals		
New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)	Endangered	No effect
Birds		
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened	May affect, not likely to adversely affect
Northern aplomado falcon (*Falco femoralis septentrionalis*)	Endangered	May affect, not likely to adversely affect
Piping plover (*Charadrius melodus*)	Endangered	May affect, not likely to adversely affect
Rufa red knot (*Calidris canutus rufa*)	Threatened	May affect, not likely to adversely affect
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Endangered	May affect, not likely to adversely affect
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	May affect, not likely to adversely affect
Plants		
Kuenzler hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)	Threatened	No effect
Sacramento Mountain thistle (*Cirsium vinaceum*)	Threatened	No effect
Sacramento prickly poppy (*Argemone pleiacantha* ssp. *Pinnatisecta*)	Endangered	No effect
Sneed pincushion cactus (*Coryphantha sneedii* var. *sneedii*)	Endangered	No effect
Todsen's pennyroyal (*Hedeoma todsenii*)	Endangered	No effect
Wright's marsh thistle (*Cirsium wrightii*)	Threatened	No effect
Insects		
Monarch butterfly (*Danaus plexippus*)	Candidate	May affect, not likely to adversely affect

Source: USFWS, 2024

The northern aplomado falcon (*Falco femoralis septentrionalis*) is listed as federally endangered and is a transient species on Fort Bliss; no breeding of northern aplomado falcons has been documented on Fort Bliss (Fort Bliss, 2021a). Northern aplomado falcons do not consistently inhabit the Installation. The subspecies has been designated as a Nonessential Experimental Population within the states of New Mexico and Arizona under Section 10(j) of the ESA; meaning, the species is managed as if it were proposed for listing under the ESA (USFWS, 2006). The last reported sightings were in 2018 on the McGregor Range. The best potential habitat for the falcon on Fort Bliss is within areas of Otero Mesa on the McGregor Range where relatively large areas of intact grasslands remain.

The monarch butterfly (*Danaus plexippus*) is a candidate species being considered for protection under the ESA and has the potential to occur within the ROI. Monarch butterflies feed on nectar from many flower species but breed only where there are milkweeds (*Asclepias* spp.). The ROI is considered suitable for spring and summer breeding areas for the monarch butterfly.

In addition to those species listed as either federally threatened or endangered, several plant and animal species that have been listed as threatened or endangered by the State of New Mexico or that have been identified as a Species of Greatest Conservation Need in Texas occur on or in the vicinity of Fort Bliss (Fort Bliss, 2021a). The State-listed species that have been observed on Fort Bliss include 5 plant species, 12 bird species, and 2 mammal species. Observations of several of these species are based on single sightings or on historical records. A 2011 survey identified the night-blooming cactus (*Peniocereus greggii*) within proposed obscurant munitions box B (Fort Bliss, 2011). The status of Federal- and State-listed

species and those species considered sensitive or species of concern are listed in the Fort Bliss *Integrated Natural Resource Management Plan* (Fort Bliss, 2021a).

3.8.2.4 Migratory Birds

Most migratory birds are protected under the MBTA and include most of the 336 bird species found on Fort Bliss. Approximately 80 species are year-round residents, 129 species are temporary migrants, 42 species are spring and summer residents, and the remaining primarily are winter residents (Fort Bliss, 2021a). Non-native species, such as the house (or English) sparrow (*Passer domesticus*) and European starlings (*Sturnus vulgaris*), are not protected. Common raptors (e.g., hawks, eagles, and owls) that occur on Fort Bliss include the Swainson's hawk (*Buteo swainsonii*) and turkey vulture (*Cathartes aura*). Other raptor species include the golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*), burrowing owl (*Athene cunicularia*), great horned owl (*Bubo virginianus*), and red-tailed hawk (*Buteo jamaicensis*). Several bird species, such as scaled quail *(Callipepla squamata)* and Gambel's quail *(Callipepla gambelli),* are managed as game species by the State of New Mexico; mourning doves and waterfowl are managed under Federal hunting regulations.

3.8.2.5 Invasive Species

Three plant species classified as noxious weeds in New Mexico are known to occur within the ROI. African rue (*Peganum harmala*) exists along roads and in disturbed areas and is the only actively controlled invasive species on Fort Bliss. Malta starthistle (*Centaurea melitensis*) is another potentially problematic plant that grows along Highway 54 and may occur along other roadways within Fort Bliss. Salt cedar (*Tamarix ramosissima*) exists at some stock tanks and other widely scattered locations on Fort Bliss. Russian thistle (*Salsola tragus*) is not classified as a noxious weed but is another species that is established on disturbed ground and exists throughout Fort Bliss.

Two African large mammal species, the oryx or gemsbok (*Oryx gazelle*) and the Barbary sheep (*Ammotragus lervia*), occur on Fort Bliss. The populations of these species originated from the expansion of introductions in New Mexico. Population reduction hunts for the oryx are conducted on the Doña Ana, McGregor, and South Training ranges. Limited hunting for Barbary sheep occurs on Fort Bliss (Fort Bliss, 2021a).

3.8.2.6 Wildland Fires

Fort Bliss manages wildland fires that may occur on the Installation through the Fort Bliss DES, FES Division. Wildland fires may be caused by military activity (e.g., live-fire ranges) or through natural causes such as lightning strikes. Fort Bliss maintains an *Integrated Wildland Fire Management Plan* (IWFMP) that defines the roles and responsibilities for wildland fire management and describes the wildfire prevention and suppression actions (Fort Bliss, 2020a). Fort Bliss is divided into 52 fire management units (FMUs). FMUs are areas of similar vegetation and mission capabilities surrounded by firebreak roads in most places. Wildfire prevention includes maintaining vegetation on the shoulders of firebreak roads and inspecting live-fire areas, cultural sites, and facilities for accumulations of brush and weeds and removing flammable materials as needed. Prescribed fire may be used to reduce accumulations of fuel loads. Fire suppression includes systems and procedures for wildfire risk warnings and fire detection along with all efforts to physically suppress fires with equipment and manpower. The general approach to fire management is full suppression although some fires may be managed as natural burns if the fire would serve a beneficial ecological purpose and does not pose a risk to Installation assets or the public. Wildfires are not suppressed within DIAs.

3.8.3 Environmental Consequences

3.8.3.1 Evaluation Criteria

Potential adverse effects on biological resources would depend on factors unique to an individual or population of plant(s) or animal(s). These include the resource's value or importance to humans (e.g.,

commercial, recreational, ecological, and scientific); legal status under Federal, State, or local law and/or international treaty; range and abundance across geography or jurisdiction; and vulnerability or sensitivity to a particular activity considering distance from source, exposure duration, and a myriad of other variables.

A significant impact to biological resources within the ROI would include the following:

- negatively affects species or habitats of concern;
- causes reductions in population size or distribution of species of high concern;
- disturbs or destroys habitats of concern;
- removes or changes critical protections provided to species and habitats of concern;
- causes substantial amount of vegetation removal from riparian habitats;
- results in direct loss or substantial degradation of terrestrial (e.g., fragmentation) or aquatic (e.g., wetlands) habitats; and/or
- causes an adverse effect on the recovery of a federally listed or candidate species.

3.8.3.2 Alternative 1

Vegetation

Potential impacts to vegetation include disturbances caused by the impact of obscurant munitions. Detonation of red and white phosphorus obscurant munitions could potentially burn vegetation because of the hot ignition temperatures. The risk of fire spread is greater in obscurant munitions boxes that contain more grassland vegetation, such as boxes A, D, and E. Potential effects of red and white phosphorus smoke on plants may include leaf tip burn, leaf curl, and leaf abscission (leaf drop); effects may vary based on factors such as the plant species, dormant or growing plant stage, smoke concentration, duration of exposure, relative humidity, and wind speed (von Stackleback et al., 2004). Impacts to vegetation would be confined to the nine proposed obscurant munition box areas that comprise 6,881 acres. Beyond the potential for soil and water contamination described in **Sections 3.6** and **3.7**, fires are the only vegetation impact that could potentially extend beyond the defined obscurant munitions boxes. Because none of the three important vegetation associations occur in the ROI, they would not be affected by Alternative 1. Implementation of Alternative 1 would result in long-term, minor, adverse impacts to vegetation in the ROI.

Wildlife

Impacts to wildlife within the obscurant munitions boxes would occur from loss of vegetation (i.e., habitat loss), direct disturbance from the impacts of obscurant munitions, and potential toxic effects of red and white phosphorus smoke and the various derivative phosphorus chemical compounds formed after detonations. The proposed obscurant munitions boxes would be located in permanently dudded DIAs that are not suitable for wildlife habitation due to their use for explosives training.

The species most likely affected would be small mammals and reptiles that have a limited home range but are relatively common on Fort Bliss. Larger, more mobile species would avoid the impact areas. Because munitions activities would take place during daylight hours, potential effects of toxic smoke and formation of subsequent phosphorus compounds most likely would affect diurnal species such as reptiles and birds (see **Migratory Birds** below). Reptiles are most active during the day and would be most vulnerable. Many of the small mammal species are nocturnal and live underground during the day; as such they likely would not be affected by obscurant munitions smoke. Implementation of Alternative 1 would result in long-term, minor, adverse impacts in the ROI.

Threatened and Endangered Species

Based on previous survey observations, habitat requirements, and known distributions, no threatened or endangered species are expected to permanently occur in the ROI under Alternative 1. Obscurant munitions box A potentially has habitat for the Sneed's pincushion cactus that is similar to habitat along Rattlesnake Ridge to the south. The Army has conducted surveys for the cactus throughout the area and marked the three known populations of the cactus as OLAs to Army activities. Mobile species have the

potential to migrate into the obscurant munitions box locations but are unlikely due to limited habitat and the consistent use of training activities that would deter species.

The Army has determined that Alternative 1 would result in no effect to the federally listed New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), Kuenzler hedgehog cactus, Sacramento Mountain thistle (*Cirsium vinaceum*), Sacramento prickly poppy (*Argemone pleiacantha* ssp. *Pinnatisecta*), Sneed pincushion cactus (*Coryphantha sneedii* var. *sneedii*), Todsen's pennyroyal (*Hedeoma todsenii*), and Wright's marsh thistle (*Cirsium wrightii*). The Army has also determined that Alternative 1 may affect, but is not likely to adversely affect, the federally listed Mexican spotted owl, northern aplomado falcon, piping plover, rufa red knot (*Calidris canutus rufa*), southwestern willow flycatcher, yellow-billed cuckoo, and the candidate monarch butterfly. On 6 May 2025, USFWS concurred with the Army's determinations.

Additionally, based on previous biological survey results and species habitat requirements, the night-blooming cactus has been located within proposed obscurant munitions box B. As of 2025, the USFWS is conducting ongoing surveys for the presence of the night-blooming cactus. As a species that is considered a Species of Greatest Conservation Need in Texas, Fort Bliss has committed to conserve this species. Should the night-blooming cactus be found pending updated surveys, Fort Bliss would adhere to ESA requirements for conservation of this species; therefore, no impacts to this species would be expected to occur. None of the other species listed as threatened or endangered by the State of New Mexico are likely to occur in the obscurant munition boxes proposed under Alternative 1, and no impact to these species is anticipated (Fort Bliss, 2021a).

Migratory Birds

Potential impacts to migratory birds include loss of habitat through physical disturbance by munitions and from possible burning of vegetation by detonation of obscurant munitions. Because the surrounding areas contain large areas of similar vegetation and habitat, the impacts to migratory birds are expected to be long-term but minor. Although most birds occupying the obscurant munitions box areas would immediately disperse when an obscurant munition detonates, inhalation of red and white phosphorus smoke by birds may have detrimental health effects. Inhalation effects primarily have been studied using rats and mice but not birds (National Research Council, 1999). Negative effects of phosphorus obscurant munitions on birds have been documented in waterfowl that have ingested residual phosphorus preserved in aquatic sediments under low-oxygen conditions (Racine et al., 1992). Low-oxygen conditions would not be present under Alternative 1. Adverse impacts to migratory bird populations resulting from implementation of Alternative 1 would be long-term and minor.

Invasive and Exotic Species

Alternative 1 would not involve any activities that would promote the spread of noxious weed species. Soil and vegetation disturbance that may occur in the obscurant munition box areas could provide opportunities for establishment of noxious weeds. Therefore, implementation of Alternative 1 would result in long-term, minor, adverse impacts to invasive and exotic species.

Wildland Fires

The deployment of obscurant munitions such as red and white phosphorus may be a fire hazard and a potential igniter of wildland fires. BMPs, including the pre-planning of training exercises with the DES and deployment of fire suppression resources in ready state, would reduce the potential effects if fires were ignited. The risk is higher in those areas that have a higher composition of grasses (fine fuels) that ignite easier and carry fire more quickly. In accordance with the IWFMP, training units have at least eight soldiers with transportation, fire tools, and communications equipment ready to initially attack wildfires on live-fire ranges between May and September (Fort Bliss, 2020a). Therefore, implementation of Alternative 1 would result in long-term, minor, adverse impacts to wildland fires.

3.8.3.3 Alternative 2

The potential types of impacts to biological resources under Alternative 2 would be the same as Alternative 1 albeit with a smaller impact area (see **Table 2-2**). The Army has determined that Alternative 2 may affect, but is not likely to adversely affect, threatened or endangered species as described under Alternative 1.

3.8.3.4 Alternative 3

The potential types of impacts to biological resources under Alternative 3 would be the same as Alternative 1 albeit with a smaller impact area (see **Table 2-3**). The Army has determined that Alternative 3 may affect, but is not likely to adversely affect, threatened or endangered species as described under Alternative 1.

3.8.3.5 No Action Alternative

The no action alternative would result in no impacts to biological resources including vegetation, wildlife, threatened and endangered species, invasive species, and wildland fires. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used. Additional contamination and exposure of red and white phosphorus to vegetation and wildlife and additional risks of wildland fires would not occur. There would be no changes to existing biological resources beyond baseline conditions.

3.9 CULTURAL RESOURCES

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 1974* (54 USC § 312501–312508 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), and the NHPA (54 USC § 300101 et seq.) and its implementing 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 sites (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Historic Architectural properties (i.e., buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- TCPs (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. Since there would be no aboveground construction or visible significant changes to the landscape, no visual adverse effects would be anticipated. Therefore, the APE is limited to physical effects within the nine polygons (A through I) proposed for obscurant munitions boxes.

3.9.1 Existing Conditions

Fort Bliss has an *Integrated Cultural Resources Management Plan* (ICRMP), which provides direction for the protection and management of cultural resources on Fort Bliss, including the Doña Ana and McGregor ranges, in compliance with the NHPA and other legal requirements (Fort Bliss, 2022b). The ICRMP describes surveys and other activities undertaken by Fort Bliss to ensure compliance with its Programmatic Agreement (PA), a legal agreement among the Army, the SHPOs of Texas and New Mexico, and the Advisory Council on Historic Preservation. The PA and the ICRMP include standard operating procedures for the management of historic properties on Fort Bliss that apply to all entities conducting activities that may affect those properties. The PA guides Fort Bliss in its management of cultural resources and meets its NHPA, Section 106 responsibilities. Fort Bliss is also operating under research and significance standards that guide the determination of NRHP eligibility of archaeological sites across the Installation.

3.9.1.1 Archaeological Sites

The ICRMP and PA identify the DIAs as containing high amounts of unexploded ordnance that will never be surveyed due to safety concerns. All nine proposed obscurant munitions boxes being considered under the proposed action are located within the DIAs, which are exempt from archaeological survey (Fort Bliss, 2022b).

Prior to the DIAs' designation of exempt from survey, several archaeological sites were identified within these areas. According to the New Mexico Cultural Resources Information System, there are nine known archaeological resources within the APE (**Table 3-11**) that were encountered during six previous surveys completed between 1977 and 2009. Of these sites, four are not eligible for listing in the NRHP, and five have not been officially evaluated for eligibility. For this analysis, the five unevaluated sites are treated as eligible for listing in the NRHP until official determinations are made.

Table 3-11
Previously Recorded Archaeological Sites within the APE

Site Number	Cultural / Temporal Affiliation	Date Recorded	NRHP Status	Proposed Obscurant Box
LA37016	Prehistoric	1975	Unevaluated	F
LA37086	Prehistoric & Historic	1975	Unevaluated	F
LA37087	Prehistoric & Historic	1975	Unevaluated	F
LA37331	Prehistoric	1975	Unevaluated	F
LA116587	Historic	1997	Not Eligible	F
LA116906	Historic	1997	Not Eligible	H
LA116907	Historic	1997	Not Eligible	H
LA117744	Prehistoric: Late Archaic	1997	Unevaluated	G
LA157764	Prehistoric: Early Pithouse to Late Pueblo & Historic	2003	Not Eligible	F

3.9.1.2 Historic Architectural Properties

Historic architectural properties on McGregor Range and Doña Ana Range include ranching and homestead structures and Cold War-era military structures. NRHP-eligible and/or -listed architectural properties within these ranges are located at each respective base camp (Fort Bliss, 2022b), which are greater than 2 miles from the nearest proposed obscurant munitions box. There are no recorded historic buildings listed or eligible for listing in the NRHP within the APE.

3.9.1.3 Traditional Cultural Properties

Fort Bliss consults with the following seven federally recognized Native American tribes with interests in lands managed by the Installation:

- Comanche Nation of Oklahoma
- Fort Sill Apache Tribe of Oklahoma
- Pueblo of Isleta
- Kiowa Tribe of Oklahoma
- Ysleta Del Sur Pueblo
- Mescalero Apache Tribe
- White Mountain Apache Tribe

Fort Bliss continues to coordinate with Native American tribes to identify TCPs within Fort Bliss and determine the appropriate management strategy for each site. No TCPs have been identified at Fort Bliss or within its associated ranges; however, consultation with Native American tribes has resulted in the identification of at least 46 known sacred sites within McGregor Range, Doña Ana Range, and the South Training Areas. As such, Fort Bliss has defined “Cultural Restricted Areas” within the Installation. These areas are categorized as “Limited Use Area” or “Off Limits.” No Cultural Restricted Areas are located within or near the APE, with the nearest restricted area being nearly 2 miles east of proposed obscurant munitions box C (Fort Bliss, 2022b).

3.9.1.4 Historic Viewsheds

The locations of the proposed additional obscurant munitions boxes are in remote areas of the FBTC. There would be no aboveground construction or visible changes to the landscape within the APE. Therefore, the APE is limited to physical effects within the proposed obscurant munitions boxes, and there would be no

adverse visual effects to historic properties within the viewshed. Therefore, historic viewsheds are not carried forward for analysis in this EA.

3.9.2 Environmental Consequences

3.9.2.1 Evaluation Criteria

Adverse effects on cultural resources would occur if the proposed action 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; and/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 if the action would potentially impact TCPs.

3.9.2.2 Alternative 1

Archaeological Resources

According to NMCRIS, there are nine previously recorded archaeological sites within the APE for proposed obscurant munitions box locations F, G, and H under Alternative 1 (see **Table 3-11**). Four of the nine known sites within the APE are not eligible for listing in the NRHP. Five of the nine sites are unevaluated for NRHP eligibility and are being treated as eligible for this analysis. Four of the unevaluated sites are within proposed obscurant munitions box F and the fifth unevaluated site is within proposed obscurant munitions box G. These locations are prohibited and exempt from archaeological survey according to the ICRMP and PA due to safety concerns from unexploded ordnance (Fort Bliss, 2022b). If determined eligible, the five unevaluated sites would have the potential to be at risk of adverse effects from exploded ordnances. However, according to the PA, military activities in existing designated SDZs are considered exempt undertakings and do not require Section 106 review.

Should there be an unanticipated discovery of an archaeological resource, Fort Bliss would suspend training activities and initiate the inadvertent discovery procedures outlined in the ICRMP if safety protocol would allow (Fort Bliss, 2022b).

Historic Architectural Properties

There are no NRHP-eligible or -listed historic buildings or structures within the APE for Alternative 1. Therefore, implementation of Alternative 1 would not impact historic buildings, structures, or districts.

Traditional Cultural Properties

To date, there have been no TCPs identified within or associated with the APE for Alternative 1. Therefore, implementation of Alternative 1 would not impact TCPs.

Should an unexpected discovery of human remains, associated funerary objects, or archaeological materials occur, Fort Bliss would halt training activities and notify the SHPO, Advisory Council on Historic Preservation, and federally recognized tribes affiliated with Fort Bliss within 48 hours of discovery in compliance with 36 CFR § 800.13. Inadvertent discovery procedures are outlined in the ICRMP (Fort Bliss, 2022).

3.9.2.3 Alternative 2

Archaeological Resources

There are nine previously recorded archaeological sites within the APE for proposed obscurant munitions box locations F, G, and H under Alternative 2 (see **Table 3-11**). Four of the nine known sites within the APE are not eligible for listing in the NRHP. Five of the nine sites are unevaluated for NRHP eligibility and are being treated as eligible for this analysis. Known archaeological sites within the APE for Alternative 2 have not been officially evaluated for NRHP eligibility. Four of the unevaluated sites are within proposed obscurant munitions box F and the fifth unevaluated site is within proposed obscurant munitions box G. These locations are prohibited and exempt from archaeological survey according to the ICRMP and PA due to safety concerns from unexploded ordnance (Fort Bliss, 2022b). If determined eligible, the five unevaluated sites could be at risk of adverse effects from exploded ordnances. However, according to the PA, military activities in existing designated SDZ are considered exempt undertakings and do not require Section 106 review.

Should there be an unanticipated discovery of an archaeological resource, Fort Bliss would suspend training activities and initiate the inadvertent discovery procedures outlined in the ICRMP if safety protocol would allow (Fort Bliss, 2022b).

Historic Architectural Properties

There are no NRHP-eligible or -listed historic buildings or structures within the APE for Alternative 2. Therefore, implementation of Alternative 2 would not impact historic buildings, structures, or districts.

Traditional Cultural Properties

As with Alternative 1, there have been no TCPs identified within or associated with the APE; therefore, implementation of Alternative 2 would not impact TCPs.

3.9.2.4 Alternative 3

Archaeological Resources

There are six previously recorded archaeological sites within the APE for proposed obscurant munitions box location F under Alternative 3 (see **Table 3-11**). Two of the six known sites within the APE are not eligible for listing in the NRHP. Four of the six sites are unevaluated for NRHP eligibility and are being treated as eligible for this analysis. These locations are prohibited and exempt from archaeological survey according to the ICRMP and PA due to safety concerns from unexploded ordnance (Fort Bliss, 2022b). If determined eligible, the four unevaluated sites could be at risk of adverse effects from exploded ordnance. However, according to the PA, military activities in existing designated SDZ are considered exempt undertakings and do not require Section 106 review.

Should there be an unanticipated discovery of an archaeological resource, Fort Bliss would suspend training activities and initiate the inadvertent discovery procedures outlined in the ICRMP if safety protocol would allow (Fort Bliss, 2022b).

Historic Architectural Properties

There are no NRHP-eligible or -listed historic buildings or structures within the APE for Alternative 3. Therefore, implementation of Alternative 3 would not impact historic buildings, structures, or districts.

Traditional Cultural Properties

As with Alternative 1, there have been no TCPs identified within or associated with the APE; therefore, implementation of Alternative 3 would not impact TCPs.

3.9.2.5 No Action Alternative

The no action alternative would result in no impacts to cultural resources. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing cultural resources beyond baseline conditions.

3.10 TRANSPORTATION AND TRAFFIC

3.10.1 Definition of Resource

Transportation is defined as the system of roadways, highways, and transit services that provide ingress/egress from or to a particular location, as well as access to regional goods and services.

The ROI for transportation and traffic is El Paso County in Texas; Otero and Doña Ana counties in New Mexico; the Fort Bliss cantonment area; and the FBTC.

3.10.2 Existing Conditions

3.10.2.1 Roadways

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

Loop 375, also an important regional traffic corridor, connects the northeastern and eastern portions of the city of El Paso and helps to reduce traffic congestion along Highway 54. Loop 375 crosses Fort Bliss between Montana Avenue and Highway 54. Overpasses have been constructed to allow military vehicles and equipment to pass under the roadway, preventing through-traffic interference with military operations. West of Highway 54, Loop 375 becomes Woodrow Bean Trans Mountain Drive, which connects to I-10 northwest of El Paso and has the advantage of few cross streets, allowing traffic to flow at high speeds.

The Fort Bliss cantonment area is surrounded by major arterial city streets, with Fred Wilson Avenue (east-west) forming the cantonment's northern boundary, Airport Road (north-south) as the eastern boundary, Montana Avenue (east-west) as the southern boundary, and Highway 54 as the western boundary. Other major roadways are Railroad Drive and Dyer Street.

Twelve access control points provide access to the Installation. Eight of the gates provide access to the cantonment area: Cassidy Gate, Chaffee Gate, Bradley Gate, Marshall Gate, Pershing Gate, Remagen Gate, Buffalo Soldier Gate, and Sheridan Gate. There are two gates on Biggs AAF—Biggs Gate and Global Reach Gate. Access to the Old William Beaumont Army Medical Center is at Spur 601 and Loop 375. Fort Bliss has determined that the roadways on Fort Bliss are in good condition and adequate for deployment operations (Fort Bliss, 2018).

Military convoy traffic between the Fort Bliss cantonment and the training areas (Doña Ana Range-North Training Areas) on Highway 54 is limited to wheeled vehicles. Tracked vehicles are generally transported to and from the training areas by heavy-equipment tactical trucks or transit through the training areas on tank trails. Dirt roads primarily provide access between different parts of the range. The Union Pacific Railroad also provides rail service to Fort Bliss and equipment is transported by rail lines and freight transport to the McGregor training areas northeast of the Fort Bliss cantonment area (Fort Bliss, 2020b).

McGregor Range is accessible to the public via NM 506 or Otero County roads. Some roads throughout the range are accessible only with a permit. McGregor Range is open to the public via the previously identified roads unless closed due to Army training exercises (BLM, 2023; New Mexico, 2023).

3.10.2.2 Traffic Volume

Table 3-12 provides the most recently available (2022) average annual daily traffic data for key roadway segments that provide access to Fort Bliss.

Table 3-12
2022 Traffic Data for Roadways Serving Fort Bliss

Roadway	2022 AADT	Description
I-10	162,976	ID: 72S114. Located east of Located east of Buffalo Soldier Road, southeast of the Fort Bliss cantonment area.
	176,690	ID: 72H83. Located west of Highway 62/180 and south of Trowbridge Road, south of the Fort Bliss cantonment area.
	184,970	ID: 72H1007, located west of Chelsea Street, east of Highway 54, and south of the Fort Bliss cantonment area.
Highway 54	57,652	ID: 72H5401. Located along the western edge of the Fort Bliss cantonment area, south of Cassidy Road.
	69,346	ID: 72H5407. Located just north of I-10, southwest of the Fort Bliss cantonment area.
Montana Ave (Highway 62/180)	24,442	ID: 72S112. Located east of Buffalo Soldier Road, southeast of the Fort Bliss cantonment area.
	12,365	ID: 72H85. Located north of the I-10 near Trowbridge Road, south of the Fort Bliss cantonment area.
Loop 375	36,981	ID 72H37503. Located east of Railroad Drive, north of the Fort Bliss cantonment area and within Fort Bliss training area.
	19,013	ID: 72H18, Located east of McCombs Street and Highway 54A, north of the Fort Bliss cantonment area.
	25,258	ID: 72H15. Located west of Highway 54A, north of the Fort Bliss cantonment area.
Spur 601	35,462	ID: 72H28B. Located just west of Loop 375
	75,893	ID: 72H60101. Located north of Fort Bliss cantonment area, east of Marshall Road.
Fred Wilson Avenue	19,319	ID: 72HP1054A. Located just west of Highway 54, at the northwestern corner of the Fort Bliss cantonment area.
Railroad Drive	16,404	ID: 72HP1062A. Located just north of Spur 601.

Source: Texas Department of Transportation, 2024
AADT = average annual daily traffic; I- = interstate; SR = State Route

3.10.3 Environmental Consequences

3.10.3.1 Evaluation Criteria

A significant effect on transportation and traffic would occur if the proposed action alternatives result in:

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

Additionally, adverse impacts to transportation and traffic would occur if the proposed action alternatives:

- substantially increase the use of the street systems or mass transit, or

- fail to meet on-Installation parking needs.

3.10.3.2 Alternatives 1, 2, and 3

Implementation of Alternatives 1, 2, and 3 would not result in any personnel increases on the Installation. There would be no additional daily commuters that could contribute to traffic within the ROI. Roadways would not be modified under the Alternatives 1, 2, and 3, and obscurant munition training would be conducted within DIAs on the FBTC. The DIAs are all geographically removed from public roadways. The training activities would not impact traffic volumes or transportation resources. Therefore, implementation of Alternatives 1, 2, and 3 would not impact transportation and traffic.

3.10.3.3 No Action Alternative

The no action alternative would result in no impacts to transportation and traffic. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing transportation and traffic beyond baseline conditions.

3.11 AIRSPACE

3.11.1 Definition of the Resource

Airspace management involves the direction, control, and handling of flight operations in the airspace that overlies the borders of the US and its territories. The Federal Aviation Administration (FAA) has the responsibility to plan, manage, and control the structure and use of all airspace over the US. FAA rules govern the national airspace system, and FAA regulations establish how and where aircraft may fly. Collectively, the FAA uses these rules and regulations to make airspace use as safe, effective, and compatible as possible for all types of aircraft such as private propeller-driven planes, rotary-wing aircraft such as helicopters, commercial aircraft, and military jets.

Aircraft use different kinds of airspace according to the specific rules and procedures defined by the FAA for each type of airspace. For the proposed action, the airspaces used are Restricted (R-) Areas and Military Operations Areas (MOAs) over land. R-Areas are typically used by the military due to safety or security concerns. Hazards include the existence of unusual and often invisible threats from artillery use, aerial gunnery, or guided missiles. A MOA is designated airspace outside of Class A airspace used to separate or segregate certain non-hazardous military activities from Instrument Flight Rules traffic and to identify for Visual Flight Rules traffic where these activities are conducted (14 CFR § 1.1). Activities in MOAs include, but are not limited to, air combat maneuvers, air intercepts, and low-altitude tactics. The defined vertical and lateral limits vary for each MOA. While MOAs generally extend from 1,200 ft above ground level to 18,000 ft above MSL, the floor may extend below 1,200 ft above ground level if there is a mission requirement and minimal adverse aeronautical effect. MOAs allow military aircraft to practice maneuvers and tactical flight training at airspeeds in excess of 250 knots indicated airspeed (approximately 285 miles per hour). The FAA requires publication of the hours of operation for any MOA so that all pilots, both military and civilian, are aware of when other aircraft could be in the airspace.

Each military organization responsible for a MOA develops a daily use schedule. Although the FAA designates MOAs for military use, other pilots may transit the airspace. To avoid conflicts, MOAs are designed to avoid entirely or have specific avoidance procedures around busy airports; these procedures also apply to small private and municipal airfields. Such avoidance procedures are maintained for each MOA, and military aircrews build them into daily flight plans.

In addition to the lower limits of charted airspace, all aircrews adhere to FAA avoidance rules. Aircraft must avoid congested areas of a city, town, settlement, or any open-air assembly of persons by 1,000 ft above the highest obstacle within a horizontal radius of 2,000 ft of the aircraft. Outside of congested areas, aircraft

must avoid any person, vessel, vehicle, or structure by 500 ft. Installations, such as Fort Bliss, may establish additional avoidance restrictions under MOAs.

The ROI for airspace is the special-use airspace (SUA) controlled by Fort Bliss and the associated SUA in the southeastern New Mexico region. This airspace generally includes the area around WSMR and Holloman Air Force Base as well as Fort Bliss.

3.11.2 Existing Conditions

The airspace around El Paso and Fort Bliss is designated by the FAA as controlled airspace around the El Paso International Airport. The controlled airspace is designed to provide aircraft separation for approach, landing, and takeoff from the airports in the El Paso area. The Class C and E airspace around the El Paso International Airport dominates the controlled airspace pattern over El Paso, and the SUA R-Areas over the FBTC dominate the airspace north of El Paso. The R-Areas on FBTC are restricted to military aircraft flights.

Fort Bliss provides the largest contiguous tract (1,500 square miles or 3,900 square kilometers) of restricted airspace in the US, which is used for missile and artillery training and testing. The SUA associated with Fort Bliss exists as part of a larger series of SUA units that cover much of the southeastern quadrant of New Mexico, including a complex set of R-Areas, MOAs, and military training routes (**Figure 3-6**). The SUA is designed to ensure the segregation of incompatible, non-participating aircraft from potentially hazardous operations occurring either in flight (e.g., munitions releases, unmanned aerial systems [UAS] operations) or on the ground (e.g., artillery ranges, testing activities).

Several R-Areas are combined to form Fort Bliss, to include R-5103A/B/C and R-5107A/K (at or above 13,000 ft above MSL). R-5103 is subdivided into R-5103A, B, and C. R-5103A altitudes are surface, up to but not including 18,000 ft above MSL; R-5103B is surface to unlimited; and R-5103C is surface to unlimited. The controlling agency for R-5103 is the FAA Albuquerque Air Route Traffic Control Center, and the airspace is operated on a continuous basis. R-5107A is a subsection of WSMR and divided into an A and K subsection. R-5107A altitudes are surface to unlimited and operated on a continuous basis.

R-5107K is surface to unlimited and active 0700–2000 local time and other times in accordance with Notices to Airmen. The controlling agency for R-5107 is also the FAA Albuquerque Air Route Traffic Control Center.

The major airspace units are subdivided vertically and horizontally, enabling airspace managers and schedulers to activate particular blocks of airspace that are sized appropriately for the activities occurring within them. Four military units are the use or scheduling agencies: one at Fort Bliss, one at WSMR, and two at Holloman Air Force Base, New Mexico. A wide variety of activities occurs within the SUA; however, for the SUA managed by Fort Bliss, the principal uses and purposes of the SUA are:

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

3.11.3 Environmental Consequences

3.11.3.1 Evaluation Criteria

The type, size, shape, and configuration of individual airspace elements in a region are based upon, and are intended to satisfy, competing aviation requirements. Potential impacts could occur if air traffic in the region and/or the air traffic control systems were encumbered by changed flight activities associated with the proposed action alternatives.

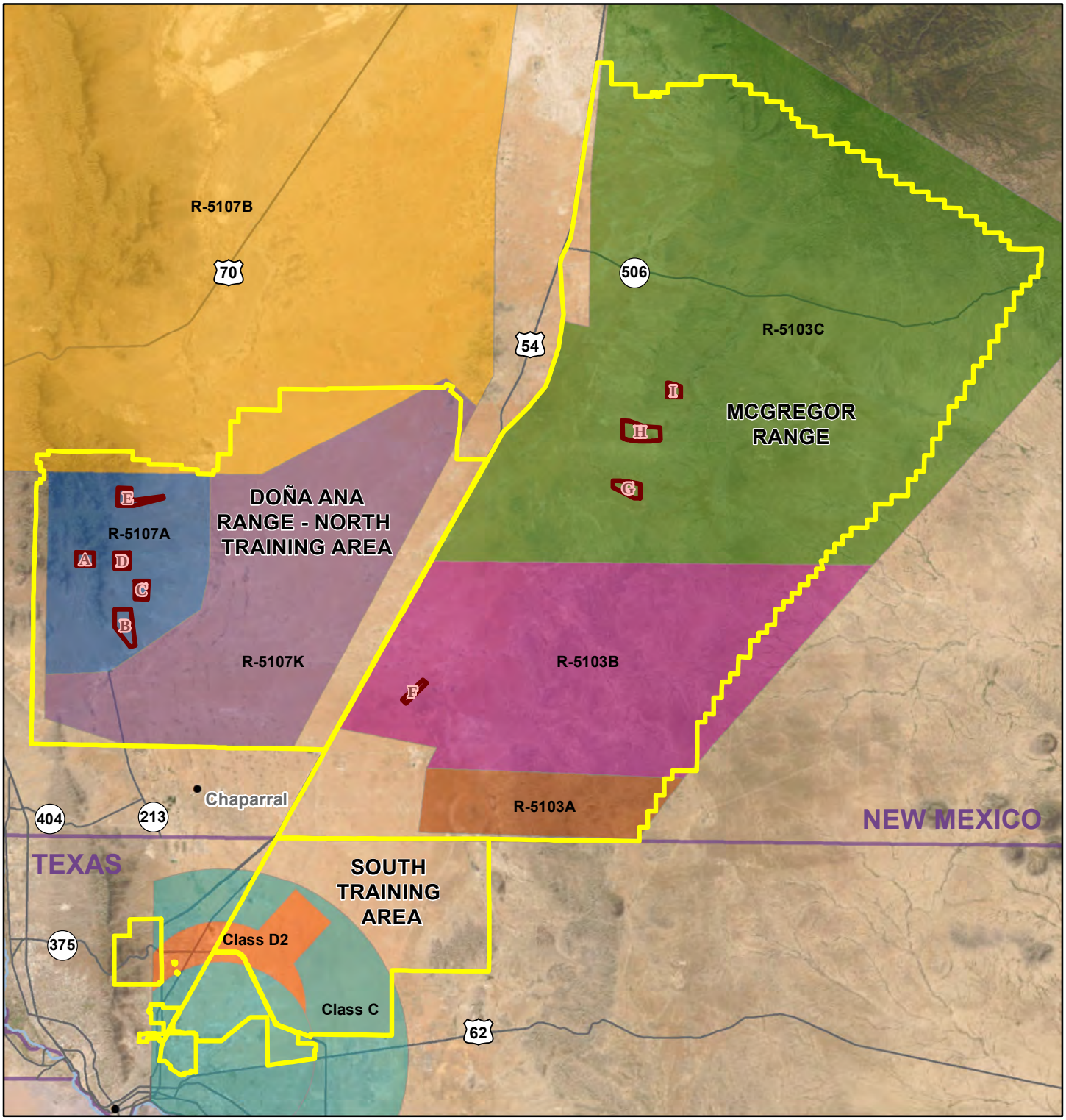


FIGURE 3-6
Airspace

- Installation Boundary
- Class C
- Class D2
- R-5103A
- R-5103B
- R-5103C
- R-5107A
- R-5107B
- R-5107K

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

Adverse impacts to airspace would occur if the proposed action alternatives:

- restrict movement of other air traffic in the area;
- create conflicts with air traffic control in the region;
- change operations within airspace already designated for other purposes;
- result in a need to designate controlled airspace where none previously existed;
- result in a reclassification of controlled airspace from a less restrictive to a more restrictive classification; and/or
- result in a need to designate regulatory SUA.

When any significant change is planned, such as new or revised defense-related activities within an airspace area or a change in the complexity or density of aircraft movements, the FAA reassesses the airspace configuration.

3.11.3.2 Alternatives 1, 2, and 3

Alternatives 1, 2, and 3 would not result in any significant impacts or changes to airspace in the ROI. Operations and training activities under Alternatives 1, 2, and 3 would be consistent with existing conditions. Fort Bliss would not modify or change existing military training airspace or SUA. The number of operations in the airspace would not change. Therefore, implementation of Alternatives 1, 2, and 3 would not impact airspace.

3.11.3.3 No Action Alternative

The no action alternative would result in no impacts to airspace. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. Existing R-Area airspace would continue to protect non-participating aircraft from range activities. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing airspace beyond baseline conditions.

3.12 UTILITIES

3.12.1 Definition of the Resource

Utilities consists of the systems and structures that enable a population in a specified area to function. Utilities are wholly man-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as developed. Utilities components include potable water supply, wastewater, solid waste management, energy sources and usage, communications, and sanitary and storm sewers. The availability of utilities and its capacity to support more users, including future development of an area, are generally regarded as essential to continued economic growth.

The ROI for utilities is the Doña Ana and McGregor ranges within the FBTC.

3.12.2 Existing Conditions

3.12.2.1 Potable Water Supply

American States Utility Services, Inc., supplies drinking water for both McGregor Range and Doña Ana Range. The City of El Paso also supplies water to McGregor Range through El Paso Water, where Fort Bliss Water Services Company (FBWSC) checks the water for chlorination. FBWSC serves McGregor Range and Doña Ana Range through a combination of water piping, storage tanks, and lift stations (American States Utility Services, Inc., 2023). River and groundwater make up approximately 97 percent of drinking water provided by the City of El Paso. Groundwater is pumped from the Mesilla and Hueco Bolson

basins, which are located beneath portions of New Mexico, Texas, and Chihuahua, Mexico (State of New Mexico, 2004; El Paso Water, 2018). The Hueco Bolson Basin supplies the main potable water for the range areas of Fort Bliss via a desalination plant that draws brackish (salty) water from the Hueco Bolson Basin and produces potable water (US Army, 2011). This plant is a joint project between the City of El Paso and Fort Bliss and allows the City of El Paso to meet peak summer water demand, producing up to 27.5 million gallons per day (mgd) of fresh water (El Paso Water, 2018). The City of El Paso is exploring options to develop systems to increase use of water reclamation (El Paso Water, 2023). Sixteen production wells and 16 blend wells feed groundwater from the Hueco Bolson aquifer to the desalination plant. To meet future water needs, El Paso Water plans to expand the plant in the coming years to as much as 42 mgd. El Paso Water, the source of McGregor Range's drinking water, has adopted stringent water conservation measures to ensure sustainable water consumption. The City of El Paso, with El Paso Water, has developed Conservation Ordinance No. 752 to ensure water conservation compliance.

3.12.2.2 Wastewater

Wastewater is water generated after the use of freshwater, raw water, drinking water, or saline water in a variety of deliberate applications or processes. FBWSC also is responsible for wastewater at Fort Bliss. Fort Bliss' Directorate of Public Works is responsible for oxidation ponds that treat the water at the ranges. The company oversees a variety of utility assets, including 1.7 million ft of water piping and nearly 1 million ft of wastewater piping, 40 storage tanks, and 16 wastewater lift stations for wastewater management for Fort Bliss. The service area for FBWSC expands beyond the Main Cantonment Area in El Paso, providing additional coverage for Doña Ana, McGregor, and Meyer ranges in southeastern New Mexico.

3.12.2.3 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. Fort Bliss holds two Stormwater Permits, a Municipal Separate Storm Sewer System, and a Multi-Sector General Permit. 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. The majority of the ROI is undeveloped land utilized for training with minimal existing impervious surfaces. Stormwater in the ROI feeds into ephemeral springs and drains from the steep terrain on the northeastern perimeter of the ROI toward the Tularosa Basin at the middle and west boundary of the ROI. Earthen impoundments called dirt tanks, intended for livestock and wildlife use, catch runoff during precipitation events. Because of the association of stormwater as a water resource, the current conditions and potential impacts to stormwater are discussed in **Section 3.7**.

3.12.2.4 Solid Waste

Fort Bliss is a Pilot Integrated Net-Zero Installation. This designation aims to achieve a net-zero status in energy, water, and waste by 2020 (US Army, 2011). Solid waste management at Fort Bliss is provided by El Paso Environmental Services. In 2020, the DoD issued a Memorandum on Integrated Solid Waste Management Metrics, which aims to reduce annual waste generation by 2 percent of total waste each year through fiscal year 2025 by the continued diversion of waste from incineration and landfill. Because the onsite landfill has reached capacity, Fort Bliss' qualified recycling program diverts waste to recycling when possible. Waste that cannot be recycled is shipped to landfills within 50 miles of Fort Bliss, including the City of El Paso Clint Landfill and Camino Real Landfill (US Army, 2023). Most waste disposal facilities throughout New Mexico have sufficient capacity through 2043, with some having as much as 150 years of capacity with many retaining the ability to expand if necessary (NMED, 2015).

The State of New Mexico follows its Solid Waste Management Plan, which was developed in accordance with the *New Mexico Solid Waste Act* §§ 74-9-1 through 74-9-43. The plan aims to divert solid waste through recycling and composting efforts while routing remaining waste to larger, regional landfills. Since

implementation of the plan, solid waste has become managed through regulated systems and illegal dumping has been reduced (NMED, 2015, 2023).

3.12.2.5 Energy

Electrical services to Fort Bliss are provided by Rio Grande Electric Cooperative, Inc. Electrical distribution systems include transmission lines, underground lines, and overhead energized lines. Based on geographic information system data provided by Fort Bliss, electrical lines within McGregor Range primarily follow Highway 54 and NM 506. Doña Ana Range power is provided by electrical lines on power poles in the western portion of the range. The majority of the major ranges within McGregor Range receive electricity via electrical lines. Additionally, 12 generators are distributed throughout McGregor Range with 8 located in proximity to a gas line in the southwest portion of the range. One substation associated with these generators is located in the southwest portion of the range. This substation was put in service in 1996 and has a capacity rate of 10,000 kilovolts. In 2013, Fort Bliss announced the establishment of a 20-megawatt solar farm to power a large portion of the Installation and work to reduce energy consumption. This effort, along with other solar arrays, contributed to Fort Bliss' goal of achieving 25-percent renewable energy by 2015 (US Army, 2013).

Texas Gas Service provides public and privatized utility natural gas to Fort Bliss. Presently, only the McGregor/Meyer Range Complex is serviced with natural gas lines. As of April 2024, the Army has initiated Sage Geosystems for the development of geothermal energy and storage technologies at Fort Bliss. One of the goals of this action is install a microgrid on every military base by 2035 in order to enhance energy security.

3.12.2.6 Heating and Cooling

Existing climate control in manned facilities in the ROI is managed by commercial-grade heating, ventilation, and air conditioning (HVAC) systems. HVAC uses various systems to regulate the temperature, humidity, and air purity of an enclosed space. The goal of HVAC is to provide thermal comfort and acceptable indoor air quality. The proposed action would not involve facilities requiring HVAC systems; therefore, this resource is not further discussed.

3.12.2.7 Communications

The ROI utilizes FBTC communications systems during active training missions. Based on 2023 geographic information system data provided by Fort Bliss, two communications antennas support McGregor Range. Additional communications support is provided through the McGregor Range Camp, which manages all range control functions and houses organizational support facilities (Global Security, 2023). Training communication on Doña Ana Range is supported by two communications towers: one tower is located in the southwestern portion of the range near four of the proposed obscurant munition boxes, and the second tower is located in the northeastern portion of the range adjacent to existing power line poles.

3.12.3 Environmental Consequences

3.12.3.1 Evaluation Criteria

A significant effect on or from utilities within the ROI would involve one or more of the following:

- prolonged or repeated service disruptions to utility end users; and
- substantial increase in utility demand relative to existing and planned regional uses.

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

- create a demand that exceeds the existing supply capacity, or
- require services in conflict with adopted plans and policies for the area.

3.12.3.2 Alternatives 1, 2, and 3

Potable Water Supply

Alternatives 1, 2, and 3 would not use or modify the potable water supply in the ROI. Establishment of the nine additional obscurant munition boxes would not require additional personnel that would require additional usage. Both ranges would continue supporting water conservation efforts already set in place. Therefore, implementation of Alternatives 1, 2, and 3 would not impact the potable water supply in the ROI.

Wastewater

Alternatives 1, 2, and 3 would not modify the wastewater system in the ROI. It is possible that portable restrooms would be utilized during training missions. Portable restrooms use biocides to manage waste, which is considered hazardous waste and, if used, would be disposed of in accordance with established regulations. Therefore, implementation of Alternatives 1, 2, and 3 would result in long-term, negligible, adverse impacts to wastewater.

Solid Waste

Alternatives 1, 2, and 3 would result in a minor increase to solid waste management at McGregor Range due to the disposal of materials utilized for training purposes; however, obscurant munitions training is ongoing within the Doña Ana Range, and waste produced from additional training would be similar in type and volume. Solid waste would continue to be managed and diverted to off-Installation landfills or sorted for recycling per Fort Bliss' qualified recycling program. Specialized waste disposal is described in **Section 3.13** and is regulated by USEPA, the TCEQ, and/or the NMED. Alternatives 1, 2, and 3 would not contribute to a substantial change in Fort Bliss' overall generation of solid waste. Therefore, implementation of Alternatives 1, 2, and 3 would result in long-term, negligible, adverse impacts to solid waste.

Energy

Alternatives 1, 2, and 3 would not involve construction or operation of facilities. Electricity and natural gas usage would remain unchanged in the ROI. Therefore, implementation of Alternatives 1, 2, and 3 would not impact energy resources.

Communications

Under Alternatives 1, 2 and 3, there would be no change to communications systems, equipment, or procedures in the ROI. Support facilities would remain as is and would continue to provide communications support for training missions. Therefore, implementation of Alternatives 1, 2, and 3 would not impact communications systems.

3.12.3.3 No Action Alternative

The no action alternative would result in no impacts to utilities. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing utilities beyond baseline conditions.

3.13 HAZARDOUS AND TOXIC MATERIALS AND WASTE

3.13.1 Definition of the Resource

HAZMAT refer largely to products that are still intended for and have yet to be used for their original purpose. This includes products like degreaser, paint thinner, adhesives, acids, and antifreeze. The handling of HAZMAT is regulated by the Occupational Safety and Health Administration and the Department of Transportation. HAZMAT is not subject to RCRA until it is discarded and becomes a waste (Fort Bliss, 2022c).

RCRA establishes the mandatory procedures and requirements for Federal facilities that use, accumulate, transport, treat, store, or dispose of HAZMAT and 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). In Texas, TCEQ implements the RCRA program; NMED implements RCRA in that state. Fort Bliss's *Hazardous Waste Management Plan* (HWMP) complies with rules from both states.

The *Solid Waste Disposal Act*, as amended by RCRA, which was further amended by the *Hazardous and Solid Waste Amendments of 1984* (PL 98-616), defines hazardous wastes as any solid, liquid, contained gaseous, or semi-solid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. In general, both HAZMAT and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health and welfare or the environment when released or otherwise improperly managed.

CERCLA, as amended by SARA and the *Toxic Substances Control Act* (15 USC § 2601 et seq., as implemented by 40 CFR Part 761), defines HAZMAT as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment.

The *Occupational Safety and Health Administration* (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.

AR 200-1 *Environmental Protection and Enhancement,* addresses HAZMAT, hazardous wastes, toxic substances, and contaminated areas. More specific rules and regulations applicable at this Installation are laid out in the Fort Bliss HAZMAT and waste management plans (Fort Bliss 2017a, 2022a).

The Military Munitions Rule and later USEPA munitions response guidelines clarify when military munitions may be managed under RCRA. The rule states: "… military munitions that have been used as intended in training or in research, development, testing or evaluation would remain excluded from the regulatory definition of solid waste …" when fired on an operational range under the management of the DoD. Further, a land transfer to a non-Army entity would require an evaluation of the risks associated with munitions and explosives of concern. This could result in the need for CERCLA-related munitions response actions.

The Army's Environmental Restoration Program (ERP) addresses hazardous substances, pollutants, contaminants and military munitions resulting from past activities at active Army installations. The mission of the ERP is to protect human health and the environment and to enable readiness by restoring Army lands to a usable condition through the remediation of contaminated sites. The Army's ERP is executed under two separate programs: the Defense Environmental Restoration Program, which ensures compliance with applicable Federal and State environmental regulations, and the Compliance Cleanup Program, which addresses closure and post-closure care of permitted units or sites like landfills and open burn/open detonation areas (US Army, 2022).

Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are two of the most commonly used per- and polyfluoroalkyl substances (PFAS). PFAS make up a group of man-made chemicals that have been utilized in a variety of industrial and consumer products since the 1940s because they have heat, stain, water, and grease-resistant properties that make them ideal for use in certain applications, such as non-stick cookware, food packaging, and furniture. PFAS are also commonly used in firefighting foams and are notably effective for extinguishing fuel fires (Department of Defense Environment, Safety & Occupational Health Network and Information Exchange [DINEX], 2022a).

In 2016, USEPA issued a lifetime drinking water advisory of 70 parts per trillion of PFAS (USEPA, 2016b). In August 2022, USEPA issued a proposal to designate two of the most widely used PFAS as hazardous substances under CERCLA, and in March 2023 proposed to establish legally enforceable levels for six

PFAS known to occur in drinking water (USEPA, 2024a). In April 2024, the USEPA finalized a critical rule to designate two of the most widely used PFAS (PFOA and PFOS) as hazardous substances under CERCLA and issued a National Primary Drinking Water Regulation for PFAS under the *Safe Drinking Water Act*. The PFAS regulation is the first-ever national, legally enforceable drinking water standard for PFAS. The standard establishes maximum contaminant levels (MCLs) for six PFAS in drinking water: PFOS, PFOA, perfluorohexane sulfonate, perfluorononanoate, hexafluoropropylene oxide-dimer acid, and perfluorobutanesulfonic acid. The USEPA also finalized health-based, non-enforceable maximum contaminant level goals for these PFAS (USEPA, 2024b). Current research suggests that exposure to certain PFAS may lead to adverse health outcomes, although additional research to determine the range of health effects that may result from varying levels of exposure to different types of PFAS is ongoing (USEPA, 2024c).

Section 311 of the CWA, as amended by the *Oil Pollution Act* (PL 101-380), establishes requirements to prevent, prepare for, and respond to oil discharges at specific types of facilities, including military installations. The goal of the *Oil Pollution Act* is to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil. The Act established the Spill Prevention, Control, and Countermeasures Rule under 40 CFR Part 112, which requires facilities with an aggregate aboveground petroleum storage capacity greater than 1,320 gallons or an aggregate underground storage capacity of 42,000 gallons to develop and implement a spill prevention, control, and countermeasures plan. The plan establishes procedures, methods, and equipment requirements for managing the storage, transfer, and potential release of petroleum products. These plans must be prepared by or under the supervision of a professional engineer and must be designed to prevent a release from reaching navigable waters.

The ROI for this resource is the Doña Ana and McGregor ranges within the FBTC.

3.13.2 Existing Conditions

3.13.2.1 Hazardous Materials and Waste

The McGregor Range training area currently is used for vehicle maneuvering, live-fire exercises, and aircraft operations. Tenants that use the training areas often conduct routine maintenance and minor repair of vehicles, machinery, and weapons while using the ranges. These activities require that tenants bring small amounts of HAZMAT into the field. Tenants are required to call Hazardous Waste Field Services to pick up unused portions of any HAZMAT when on the range (Fort Bliss, 2021a). HAZMAT on Fort Bliss is inventoried and tracked throughout its lifetime via the Enterprise Environmental Safety and Occupational Health–Management Information System (EESOH-MIS) to ensure safe handling, storage, and usage, as well as compliance with environmental regulations and health and safety regulations (Fort Bliss, 2017a).

HAZMAT is also used for periodic grounds and infrastructure maintenance across the Installation as required. Types of HAZMAT typically used for ground and infrastructure maintenance include pesticides/herbicides, paints, cleaners, and other miscellaneous materials. As part of the Fort Bliss *Integrated Pest Management Plan*, application of pesticides and herbicides must be reported, and scheduling of their application must be coordinated with mission activities to avoid inadvertently exposing personnel. Unused portions of HAZMAT used for grounds and infrastructure maintenance are taken off site or managed as hazardous waste (Fort Bliss, 2017b).

The storage and disposal of hazardous waste at Fort Bliss is regulated by USEPA, TCEQ, and/or the NMED. The McGregor Range is located within the New Mexico portion of Fort Bliss and is managed under USEPA identification number NM4213720101, which lists McGregor Range as a large-quantity generator.[3] McGregor Range generated 3.2 tons (approximately 6,400 pounds) of hazardous waste during the 2021 reporting year (USEPA, 2021).

[3] As defined by the USEPA, a large-quantity generator is a facility that generates more than 2,200 pounds of hazardous waste or 2.2 pounds of acute hazardous waste per calendar month (see https://www.epa.gov/sites/default/files/2020-07/documents/10635_lqg-factsheet_508.pdf).

Wastes generated in the ROI are stored at satellite accumulation points (SAPs). These accumulation points are not permanent locations and are established as needed based on hazardous waste generation. Because of this, the number of waste storage areas in the ROI varies over time, increasing or decreasing as required to accommodate the needs of the generator (Fort Bliss, 2022c). These SAPs must comply with environmental laws; RCRA regulations applicable to 90-day facilities are contained in 40 CFR Part 262 and 40 CFR Part 264, Subparts C, D, and I.

Fort Bliss manages and operates 90-day storage facilities in the ROI to facilitate hazardous waste turn-in during large field training exercises (FTXs). Military units participating in FTXs are responsible for transporting waste from SAPs to the 90-day facilities. Waste generated on the Doña Ana and McGregor ranges are ultimately transported to the <90-day storage facility at Building 11607 in the Texas portion of the Installation for storage before being shipped off Installation for proper disposal. There are several 90-day waste accumulation points across other parts of Fort Bliss that are also activated/deactivated as needed (Fort Bliss, 2022c).

The use of proper procedures for the storage, transport, and disposal ensures that all hazardous waste generated on the Fort Bliss is disposed of according to applicable rules and regulations at the State and Federal levels (Fort Bliss, 2022c).

Per- and Polyfluoroalkyl Substances

The Army began using fluorinated aqueous film-forming foam (AFFF) in the 1970s to extinguish fuel-based fires, which contains both PFOS and PFOA, and this historic use is the primary mechanism for release of PFAS on Army installations. The Army ceased the use of fluorinated AFFF in all non-emergency situations in 2016 and is collaborating with the DoD to find substitutes. When AFFF is used during fuel-related fire emergencies, its release is treated as a spill response to minimize environmental effects (Army Environmental Command, 2019; Army, 2021). The Army investigates PFAS releases and assesses cleanup actions under the CERCLA framework (DINEX, 2022b). The Army also regularly samples drinking water distributed on Army installations from both Army-owned and -operated and non-Army-owned and -operated drinking water systems. If sampling results show PFAS levels that exceed properly promulgated and enforceable state and/or national drinking water standards, the Installation would notify the Environmental Division of the Installation Services Directorate, the office of the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health and the users of the drinking water system in question as soon as possible. The Army would then implement mitigation such as providing alternative drinking water or switching to different source water until PFAS levels are brought below MCLs (Beehler, 2021).

Fort Bliss published *a Final Preliminary Assessment and Site Inspection of Per- and Polyfluoroalkyl Substances* in 2023, detailing the identification and subsequent inspection of areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, and/or disposed of, or areas where known or suspected releases of PFAS-containing materials occurred. The report provides conclusions for each AOPI based on whether detected amounts of PFAS exceeded Office of the Secretary of Defense Risk Screening Levels. AOPIs were classified as either needing “no action at this time” or “further study in a remedial investigation”. Of the 37 AOPIs covered in the report, further study in a remedial investigation was recommended for 11. One of these 11 AOPIs, Solid Waste Management Unit 21 (McGregor Range Camp Former Firefighting Training Area), is the only AOPI within the ROI (**Figure 3-7**). This area was active until 1983 and consisted of two fire pits used as a vehicle burn pit and fixed wing burn pit. Flammable substances were used to ignite fires for training purposes and AFFF concentrate was used to extinguish fires. There is no readily available information on the amount of AFFF that was used (Fort Bliss, 2023b).

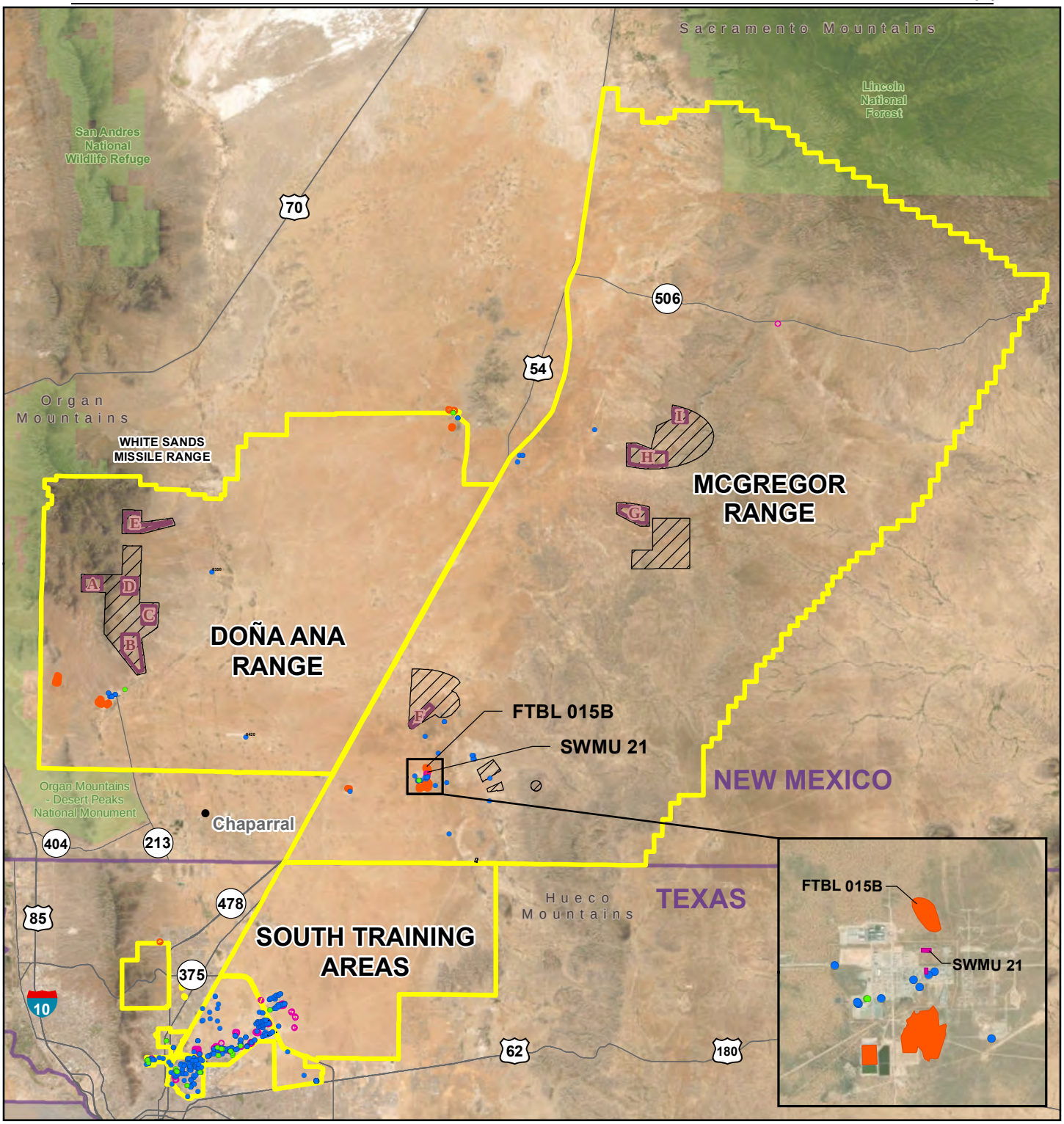


FIGURE 3-7
Hazardous Waste

- Aboveground Storage Tank
- Underground Storage Tank
- Installation Boundary
- Obscurant Munitions Box
- Designated Impact Area
- Environmental Restoration Program Site
- PFAS Area of Potential Interest

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N

FTBL = Fort Bliss; PFAS = Per- and Polyfluoroalkyl Substances; SWMU = Solid Waste Management Unit.

Environmental Restoration Sites

There are 10 ERP sites located within the ROI, with ERP site FTBL 015B the closest to the proposed action at approximately 2.5 miles. All other ERP sites are located at a greater distance from the proposed action (**Figure 3-7**). Although the ERP sites within the ROI have been closed, these sites could still require some level of post-closure monitoring in cooperation with the Army to remain in compliance with RCRA permit requirements. Post-closure requirements to ensure continued RCRA compliance such as annual inspections of the ERP site required sampling, and submission of annual reports of these inspections would continue to occur.

3.13.2.2 Underground/Aboveground Storage Tanks

Approximately 48 storage tanks are located in the ROI; 42 are ASTs and 6 are USTs (**Figure 3-7**). The tanks contain either diesel, gasoline, jet fuel, JP-8 fuel, Mogas fuel, or used oils. None of the ASTs or USTs are located within the proposed obscurant munitions boxes; therefore, ASTs and USTs are not carried forward for analysis in this EA.

3.13.2.3 Asbestos and Lead-Based Paint

Fort Bliss maintains both asbestos and lead management plans, which provide direction on how these toxic substances should be managed. Under these management plans, buildings must be surveyed for the presence of asbestos and/or lead if no previous surveys for the building(s) are available or if there is no certification from the builder stating that neither material was in the construction of said building(s), even if the structure(s) in question were constructed after 1981. The proposed action would not involve renovation or demolition of existing structures on Fort Bliss; therefore, asbestos and lead-based paint are not discussed further in this EA.

3.13.2.4 Radon

The ROI is located within Radon Zone 2, which has moderate potential for elevated indoor radon level. (USEPA, 2024b).[4] No mitigation measures are recommended in Zone 2 and radon is not discussed further in this EA (USEPA, 2024c).

3.13.2.5 Polychlorinated Biphenyls

PCBs are a group of synthetic organic chemicals that were used in numerous commercial and industrial applications including in electrical and hydraulic equipment and as plasticizers in paints, plastics, and rubber products, prior to being banned in manufacturing in 1979 (USEPA, 2024d). Equipment or wastes contaminated with PCBs are regulated by the *Toxic Substances Control Act*. All PCBs have some level of toxicity, but they also produce highly toxic byproducts when heated (Fort Bliss, 2022d; USEPA, 2024d). Many Federal agencies have instituted programs for removal of PCBs from service; however, many PCB-containing-transformers are still in use. Fort Bliss has a program for testing electrical equipment for PCBs, and any equipment found to contain these chemicals is removed from service and replaced (Fort Bliss, 2022d). The proposed action would not result in construction or modification of electrical equipment with the potential to contain PCBs within the ROI. If existing electrical equipment used for obscurant munitions training had not yet been tested for the presence of PCBs, and as part of the Army's PCB testing program at Fort Bliss were subsequently tested and found to contain these chemicals, such equipment would be removed from service and replaced per standard operating procedure. Therefore, PCBs are not carried forward for analysis in this EA.

3.13.2.6 Unexploded Ordnance

Fort Bliss regularly hosts and conducts training missions and exercises in the ROI, which are performed in accordance with Army safety regulations and OSHA standards and occur within surface impact areas.

[4] See https://www.epa.gov/system/files/documents/2024-05/radon-zones-map_updated.pdf

Surface impact areas are expected to produce UXO and are in designated land use areas that are associated with aircraft operations, SDZ/safety footprints, and surface impact military uses of the FBTC. There is potential for UXO to be present in several areas of Fort Bliss: 1) the Castner Range, a former training and weapons firing area located in the Main Cantonment Area, and 2) the FBTC, which is contains the South Training Area, the Doña Ana Range, and the McGregor Range.

3.13.2.7 Petroleum, Oil, and Lubricants

Numerous hazardous and non-hazardous POL products are used at Fort Bliss. Hazardous POLs include Mogas (a hydrocarbon-based unleaded fuel), diesel, and starter solvent. Non-hazardous POLs include used oil, transmission, hydraulic, or brake fluid, and grease. Non-hazardous POL wastes contaminated with HAZMAT may be considered hazardous wastes and, in such cases, are handled in accordance with the Installation's existing hazardous waste management procedures. Tenants using the training areas are required to call Hazardous Waste Field Services to pick up unused portions of any hazardous POL products when on the range (Fort Bliss, 2021a).

3.13.2.8 Emergency Planning and Community Right-to-Know Act

EPCRA imposed requirements for emergency planning and "community-right-to-know" reporting in relation to hazardous and toxic chemicals. The community-right-to-know provisions serve to increase the public's knowledge of and access to information about the applications and release of chemicals used at individual facilities, supporting improved chemical safety, public health, environmental protection (USEPA, 2024e). Federal agencies are required to comply with EPCRA Sections 301–303 (Fort Bliss, 2017a).

Management of HAZMAT at Fort Bliss is governed by EPCRA Sections 301–303, among other applicable regulations, and Fort Bliss ensures compliance by maintaining a hazardous material management program (HMMP) Plan. The HMMP Plan outlines Fort Bliss's HAZMAT process for handling HAZMAT brought onto the Installation. Specifically, all HAZMAT brought onto the Installation must be properly authorized through EESOH-MIS. The delivery of HAZMAT is entered into EESOH-MIS and a unique barcode is affixed, allowing the material to be tracked while on the Installation. The HMMP Plan also identifies the appropriate personnel to receive training on the proper use of EESOH-MIS. Under the HMMP Plan, the Directorate of Public Works is responsible for ensuring that data from EESOH-MIS are used to complete Installation EPCRA reporting requirements (Fort Bliss, 2017a).

3.13.3 Environmental Consequences

3.13.3.1 Evaluation Criteria

A significant impact to HAZMAT, toxic materials, and hazardous waste would occur if the proposed action:

- was noncompliant with applicable Federal and State regulations;
- increased the amounts of hazardous waste generated or procured beyond Fort Bliss's current waste management procedures and capacities; or
- disturbed or created contaminated sites resulting in negative effects to human health or the environment.

3.13.3.2 Alternative 1

Hazardous Materials and Wastes

Under Alternative 1, HAZMAT in the form of small amounts of universal waste (i.e., small amounts of battery and transmission fluid) would continue to be used on site, and generation of hazardous waste would be anticipated to continue at similar levels. Toxic substances such as asbestos, lead, and PCBs would continue to be managed under their respective management plans and contaminated sites would continue to be managed according to the status quo.

The establishment of nine additional obscurant munitions boxes and subsequent expansion of obscurant munitions training exercises under Alternative 1 would increase the amount of chemicals used in in the ROI; specifically, red and white phosphorus. These chemicals constitute HAZMAT. Exposure to obscurant munitions can be toxic to humans. To prevent any such exposure, training personnel would maintain a safe distance from detonation within designated firing locations. The distance from firing to detonation would be great enough that no impacts to human health and safety from exposure to HAZMAT would be expected. Additionally, no obscurant firings would be conducted when wind speeds exceed 25 knots (just under 30 mph), also known as a Red Flag warning.

Alternative 1 would not occur within the boundary of the Solid Waste Management Unit 21 AFFF site and would not result in soil disturbance. There would be no risk of encountering any organic materials contaminated with PFAS. The nearest ERP site, FTBL 015B, is approximately 2.5 miles south of proposed obscurant munitions box F and would not be impacted by implementation of Alternative 1.

With implementation of appropriate safety and monitoring procedures, implementation of Alternative 1 would result in long-term, minor, adverse impacts to HAZMAT and hazardous wastes in the ROI.

Unexploded Ordnance

The designation of additional obscurant munitions boxes and the resulting expansion of obscurant munitions training exercises could result in a potential increase of UXO within the DIAs. The potential presence of UXO is an established risk associated with surface impact areas. The DIAs associated with Alternative 1 would continue to be managed according to applicable rules and regulations, including areas on the McGregor Range with the potential to contain UXO remaining as OLAs. With continued adherence to applicable safety procedures and land access restrictions, implementation of Alternative 1 would result in long-term, minor, adverse impacts to UXO and UXO management in the ROI.

Petroleum, Oil, and Lubricants

The establishment of nine additional obscurant munitions boxes under Alternative 1 could increase the amount of POLs used as a result of increased training activity. Any such substances would be handled according to standard procedures, and any situations necessitating the cleanup and/or disposal of POLs and/or non-hazardous POL wastes would be managed in accordance with applicable management plans. Any POL waste products determined to be hazardous would be disposed of according to the procedures outlined in Fort Bliss' HWMP Plan. With continued adherence to policies and procedures surrounding the handling and disposal of POLs and POL wastes, implementation of Alternative 1 would result in long-term, negligible, adverse impacts to POLs and POL management in the ROI.

Emergency Planning and Community Right-to-Know Act

The establishment of nine additional obscurant munitions boxes and the resulting expansion of obscurant munitions training exercises under Alternative 1 could increase the amount of obscurant munitions used in the ROI. Such increase would not be expected to impact these management systems. Implementation of Alternative 1 would have a long-term, negligible, adverse impact on the Army's ability to comply with the EPCRA.

3.13.3.3 Alternative 2

Hazardous Materials and Wastes

Under Alternative 2, impacts to HAZMAT and HAZMAT management in the ROI would be similar to those under Alternative 1. The quantity of HAZMAT and wastes generated under Alternative 2 would be slightly less than under Alternative 1 due to the addition of fewer obscurant munitions boxes and resulting smaller degree of expansion of obscurant munitions training exercises. The anticipated demand, supply, and usage of HAZMAT under Alternative 2 would be the same as Alternative 1. Implementation of Alternative 2 would result in long-term, minor, adverse impacts to HAZMAT and hazardous waste management in the ROI.

Unexploded Ordnance

Under Alternative 2, impacts to UXO and UXO management would be similar to Alternative 1, albeit on a smaller scale. Implementation of Alternative 2 would result in long-term, minor, adverse impacts to UXO and UXO management in the ROI.

Petroleum, Oil, and Lubricants

Under Alternative 2, impacts to POLs and POL management would be similar to Alternative 1. Implementation of Alternative 2 would result in long-term, negligible, adverse impacts to POLs and POL management in the ROI.

Emergency Planning and Community Right-to-Know Act

Under Alternative 2, the Army's compliance with EPCRA and environmental management through the EESOH-MIS would be the same as under Alternative 1. Implementation of Alternative 2 would have a long-term, negligible, adverse impact on the Army's ability to comply with the EPCRA.

3.13.3.4 Alternative 3

Hazardous Materials and Wastes

Under Alternative 3, impacts to HAZMAT and HAZMAT management in the ROI would be similar to those under Alternative 1. The quantity of HAZMAT and wastes generated under Alternative 3 would be slightly higher than under current conditions. The anticipated demand, supply, and usage of HAZMAT under Alternative 3 would be the same as Alternative 1. Implementation of Alternative 3 would result in long-term, minor, adverse impacts on HAZMAT and hazardous waste management in the ROI.

Unexploded Ordnance

Under Alternative 3, impacts to UXO and UXO management would be similar to Alternative 1, albeit on a much smaller scale. Implementation of Alternative 3 would result in long-term, minor, adverse impacts to UXO and UXO management in the ROI.

Petroleum, Oil, and Lubricants

Under Alternative 3, impacts to POLs and POL management would be similar Alternative 1. Implementation of Alternative 3 would result in long-term, negligible, adverse impacts to POLs and POL management in the ROI.

Emergency Planning and Community Right-to-Know Act

Under Alternative 3, the Army's compliance with EPCRA and environmental management through the EESOH-MIS would be the same as under Alternative 1. Implementation of Alternative 3 would have a long-term, negligible, adverse impact on the Army's ability to comply with the EPCRA.

3.13.3.5 No Action Alternative

The no action alternative would result in no impacts to hazardous and toxic materials and waste. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing hazardous and toxic materials and waste beyond baseline conditions.

3.14 HUMAN HEALTH AND SAFETY

3.14.1 Definition of the Resource

This section discusses safety concerns associated with ground, explosives, and flight activities. Ground safety considers issues associated with ground operations and maintenance activities that support unit operations including arresting gear capability, jet blast/maintenance testing, and safety danger. Aircraft maintenance testing occurs in designated safety zones. Ground safety also considers the safety of personnel and facilities from flight operations in the vicinity of the airfield and in the airspace. Clear zones and accident potential zones around the airfield restrict the public's exposure to areas with a higher accident potential. Explosives safety relates to the management and safe use of ordnance and munitions.

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. Regulations include AR 385-10 *The Army Safety Program*, Department of the Army Pamphlet 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 ROI for this resource area is the Doña Ana and McGregor ranges.

3.14.2 Existing Conditions

Currently, Fort Bliss utilizes obscurant munitions in training activities to support the overall mission of the FBTC. This training is limited due to the number and location of approved impact areas for obscurant munitions. The Army conducts training exercises on the Doña Ana and McGregor ranges in support of its mission at Fort Bliss. Surface impact areas are located in defined land use areas (**Figure 3-8**) and are associated with SDZ/safety footprint, and surface impact military uses of the FBTC. Training missions are performed in accordance with Army safety regulations and occupational health and safety standards.

Ranges within the ROI that have public access are closed to the public during Army training exercises, while some portions of the ROI are designated OLAs due to the possible presence of unexploded ordnance. To maximize public safety, public access is granted to McGregor Range through an FBTC Recreational Access Permit. Once the permit is received, access is granted on a case-by-case and day-by-day basis (BLM, 2023).

Fort Bliss facilities and operations involving ammunition and explosives must comply with the requirements of all applicable Federal, DoD, and Army regulations. It is the Range Officer's responsibility to follow the explosive safety rules to limit the exposure to a minimum number or personnel, for a minimum amount of time, to a minimum amount of ammunition and explosives consistent with safe and efficient operations.

Obscurant munitions boxes already exist in the ROI. Obscurant munitions boxes are confined to DIAs, which are designated for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems including explosives and demolitions. The SDZ is the area extending from a firing point to a distance downrange based on the projectile fired. Fort Bliss SDZs are three-dimensional areas that represent minimum safety requirements and prohibit recreational access (**Figure 3-8**). The size and shape of SDZs are based on several factors, including weapons system performance, ammunition, training requirements, geographical location, and environmental conditions.

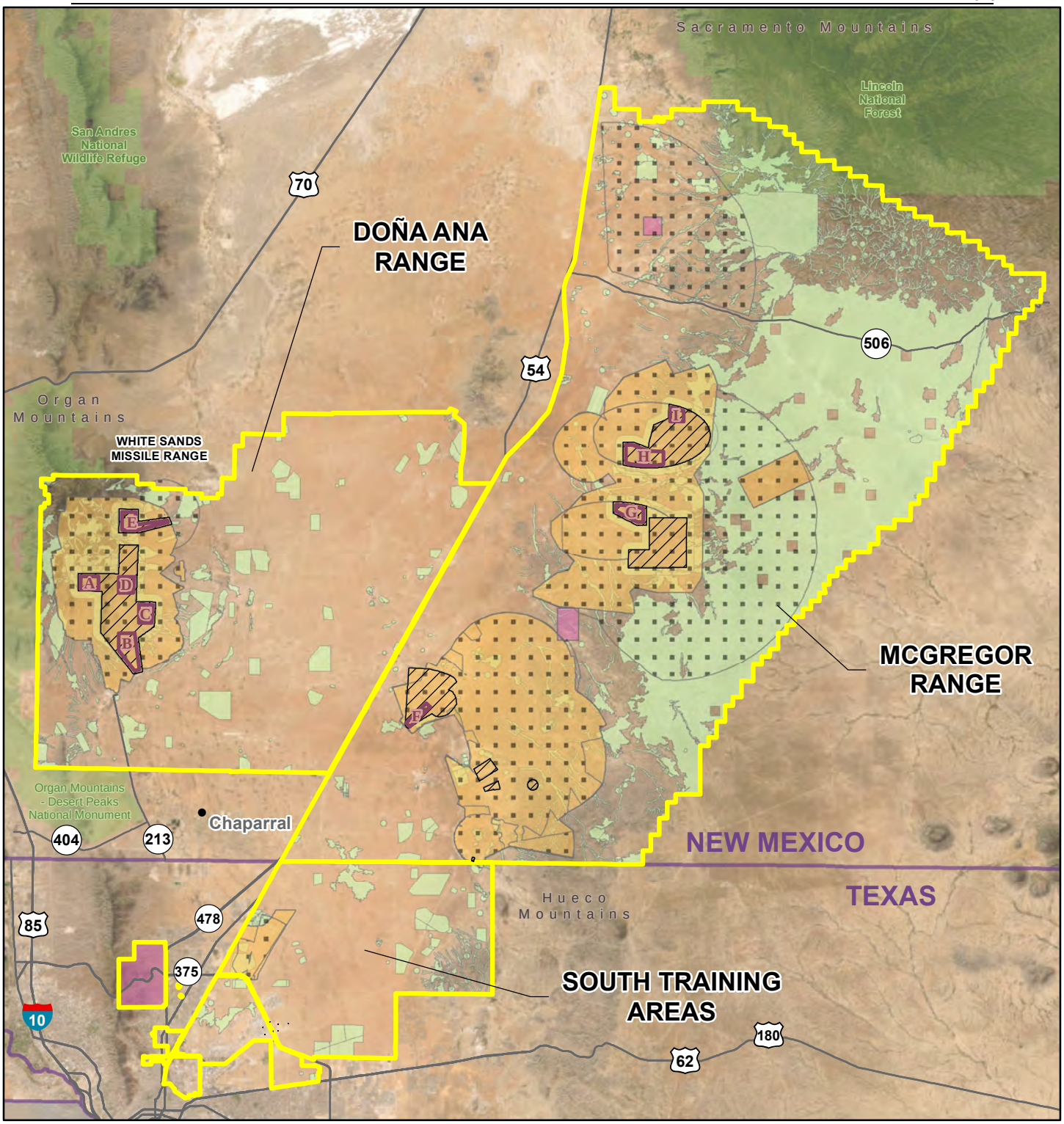


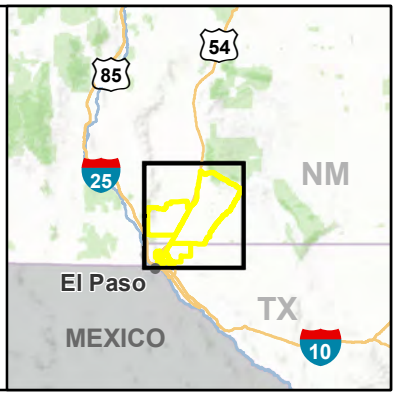
FIGURE 3-8
Safety

- Installation Boundary
- Obscurant Munitions Box
- Designated Impact Area
- Historic Impact Area
- Impact Area
- Military Restricted Area
- Surface Danger Zone

N

0 10 Miles

Coordinate System: WGS 1984 UTM Zone 13N



3.14.3 Environmental Consequences

3.14.3.1 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 alternatives:

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

3.14.3.2 Alternatives 1, 2, and 3

Health

Obscurant munitions utilize red and white phosphorus compounds, the effects of which includes exposure to hexachloroethane (HC) smoke and phosphorus smoke, posing a risk to human health as well as plants and animals (Agency for Toxic Substances and Disease Registry, 2024). HC smoke exposure risk is considered to arise primarily from inhalation of the zinc chloride components, which comprise almost two-thirds of the total mass of HC. Inhalation of phosphorus vapors or particles can cause respiratory irritation and may lead to more severe health effects. Skin contact with phosphorus can cause chemical burns and painful wounds on the skin. Chronic exposure may affect the health of plants and animals in addition to humans (see **Section 3.8.3.2**).

Exposure and contact with these chemicals would be limited during training activities because personnel would be required to maintain a safe distance from detonation within designated firing locations. The distance from firing to detonation would be great enough that exposure to HC and phosphorus smoke would not be expected. With continued adherence to Army and OSHA regulations for the proper use of protective gear, implementation of Alternatives 1, 2, and 3 would result in long-term, minor, adverse impacts to health.

Safety

During training missions, Army regulations would limit the use of the ranges, isolate DIAs, and maintain a safe perimeter from the firing location. Additionally, all obscurant munitions boxes would be located within existing SDZs, which are designed to enforce safety by restricting access to munitions training areas from the firing point to the detonation area. Proper safety equipment for both explosives training and personnel would be utilized, and an emergency response plan would be in effect. With proper adherence to Army and range regulations, implementation of Alternatives 1, 2, and 3 would result in long-term, minor, adverse impacts to safety.

3.14.3.3 No Action Alternative

The no action alternative would result in no impacts to health and safety. New obscurant munitions boxes would not be established within the Doña Ana and McGregor ranges to expand training capabilities at Fort Bliss. Training operations would continue under existing conditions, and obscurant munitions training would be limited to the four training locations currently located at the Doña Ana Range. There would be no increase in the number of munitions used or the frequency in which they are used and there would be no changes to existing health and safety environment beyond baseline conditions.

This page intentionally left blank

CHAPTER 4 REASONABLY FORESEEABLE ACTIONS AND IMPACTS

4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

An effort was made to identify past, present, and reasonably foreseeable actions that would affect lands included in the proposed action alternatives as well as in the region. The past, present, and reasonably foreseeable future major projects anticipated to occur on or near Fort Bliss are listed in **Table 4-1**.

Table 4-1
Past, Present, and Reasonably Foreseeable Future Projects near Fort Bliss

#	Project	Project Summary	Agency	Timeframe
1	Target Mechanism Upgrades on Range 19, 23, and 33	Replace life-cycle target mechanisms within Ranges 19, 23, and 33.	Army	Completed January 2023
2	Target Mechanism Upgrades on Range 32, 37, and 40	Replace target mechanisms in Ranges 32, 37, and 40.	Army	Fiscal Year 2024
3	Range 24 Unexploded Ordnance Clearance	Conduct unexploded ordnance clearance within Range 24 to repair and add new hard targets.	Army	Fiscal Year 2024–2030
4	Subterranean Training Facility Addition to Range 35 Urban Assault Course	Construct a subterranean training facility addition to the Urban Assault Course.	Army	Fiscal Year 2025–2031
5	Automated Record Fire Range on Range 16, Meyer Range Complex	Construct automated record fire range to meet Army requirement model for Fort Bliss.	Army	Fiscal Year 2025–2031
6	Weapons Modernization Stations, Fielding, Operations, and Maintenance	Evaluate the stationing and fielding of new weapon systems at Fort Bliss.	Army	Fiscal Year 2024
7	McGregor Legislative EA	Evaluate the extension of the withdrawal of public lands for Fort Bliss Army Reservation within McGregor Range.	Army	2024
8	Shiloh Pipeline	To improve livestock distribution, and secure a more uniform utilization of forage, with the overall goal of maintaining or improving range health. The need stems from lack of permanent water sources in the southern portions of Training Areas 21, 22, and 23 of McGregor Range (Grazing Units 13, 14 and 15). In addition, these new water sources could be utilized by Fort Bliss for firefighting purposes on McGregor Range.	Army	Fiscal Year 2024–2025
9	EPE Solar Arrays	Installation of Solar Array on McGregor Range to meet the Federal Government requirement to focus on renewable energy resources and increase energy security on the Installation.	Army	Fiscal Year 2025–2026
10	Advanced Water Purification Facility	The City of El Paso is designing a closed-loop Advanced Water Purification Facility, which would produce up to 10 million gallons per day of water to supplement the city's drinking water supply.	The City of El Paso	2024–2028

Source: Fort Bliss, 2023c

4.2 REASONABLY FORESEEABLE EFFECTS ANALYSIS

The following analysis considers how projects identified in **Table 4-1** could result in potential reasonably foreseeable environmental consequences when considered in conjunction with the proposed action alternatives.

4.2.1 Land Use

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor adverse reasonably foreseeable impacts to land use. Projects 1-5 defined in **Table 4-1** include improvements to ranges within Fort Bliss and would beneficially impact the proposed action alternatives by further improving training and mission readiness at Fort Bliss. Project 6 would utilize existing DIAs within the ROI and would occur concurrently with the proposed action alternatives. Project 6 would be compatible with existing land use and there would be no reasonably foreseeable impacts when combined with the proposed action and alternative. Project 7, the McGregor Legislative EA evaluated an extension of public land withdrawal for McGregor Range. If the extension is not granted, permanent changes to land use within the ROI would occur as this area would not be compatible for DoD use and training. If the extension is granted, no reasonably foreseeable effects would occur. Projects 8 and 9 would be compatible with existing land use. Project 10 would be located outside of the ROI and would have no impact on land use compatibility within the ROI.

4.2.2 Air Quality

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in short-term, negligible-to-minor, adverse impacts to air quality. Projects 1–6 and 8–10 defined in **Table 4-1** would involve short-term construction and renovation within and adjacent to Fort Bliss. Project 7 would have no reasonably foreseeable impact on air quality in the region.

4.2.3 Noise

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, negligible adverse reasonably foreseeable impacts to noise at Fort Bliss. Projects 7 and 10 defined in **Table 4-1** would have no reasonably foreseeable impacts to the noise environment when combined with the proposed action alternatives. Projects 1–6, 8, and 9 would involve temporary periods of increased construction noise. As construction noise for those projects would be short-term and as the proposed action alternatives would not be anticipated to exceed existing noise levels or alter the existing noise environment on the Installation, no reasonably foreseeable impacts would be anticipated to result.

4.2.4 Geological and Soil Resources

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in no reasonably foreseeable impacts to geological and soil resources. Within **Table 4-1**, ongoing and reasonably foreseeable projects (Projects 1–3, 5, and 6) within Fort Bliss would improve existing infrastructure through basic earth work and short-term, minor soil disturbances. These would not be expected to result in reasonably foreseeable impacts to geological and soil resources. Project 4 would construct a subterranean training facility addition to the Urban Assault Course located at Range 35. This would permanently alter the geology, soils, and topology of the area but is isolated to the specific training location at Range 35. Project 7, the *Legislative EA for the Extension of the Withdrawal of Public Lands for Fort Bliss*, would extend the withdrawal of public land as described in PL 106-65 for McGregor Range for 25 years. The project does not involve any ground-disturbing activity and would not result in soil disturbance, except from activities already occurring under normal operations on the McGregor Range.

4.2.5 Water Resources

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor beneficial reasonably foreseeable impacts to water resources. As defined in **Table 4-1**, Project 10, the Advanced Water Purification Facility, would result in long-term, beneficial impacts to water within the ROI by supplementing the city's drinking water supply which is a source of water for the FBTC. Project 8, the Shiloh Pipeline, would result in beneficial, long-term impacts to water by improving livestock grazing by providing water in areas that lack permanent water sources. Other remaining projects in **Table 4-1** would not be anticipated to result in reasonably foreseeable impacts to water resources.

4.2.6 Biological Resources

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor adverse reasonably foreseeable impacts to biological resources. Projects 1–6, defined in **Table 4-1,** would result in expansion and repair of existing ranges facilities within the FBTC which would reduce the amount of vegetation and wildlife habitat. These areas are already established as training ranges within the FBTC where vegetation is limited and wildlife is sparse. The remaining projects in **Table 4-1** would not be anticipated to result in reasonably foreseeable impacts to biological resources.

4.2.7 Cultural Resources

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in no adverse reasonably foreseeable impacts to cultural resources. Ongoing and reasonably foreseeable projects within Fort Bliss would improve existing infrastructure but would not alter or impact the existing cultural resources within Fort Bliss. As defined in **Table 4-1**, Projects 1–5 would occur on existing ranges within the FBTC where known cultural resources have been defined as "Cultural Restricted Areas" and are categorized as "Limited Use Area" or "Off Limits". Therefore, these projects would not be anticipated to result in reasonably foreseeable impacts to cultural resources within Fort Bliss.

Project 7 would result in no adverse effect on cultural resources. For this project, the withdrawal of public land as described in PL 106-65 for McGregor Range would be extended for 25 years. Fort Bliss would continue to follow standard operating procedures and standard mitigation measures for the management and protection of cultural resources on the withdrawn lands included within McGregor Range.

Project 10, the Advanced Water Purification Facility would be located outside of Fort Bliss; therefore, no impacts to cultural resources within the Installation would occur.

Overall, procedures, as outlined in the Fort Bliss ICRMP, address mission conflicts, management, and coordination for Section 106 of the NHPA, and other necessary consultation. In addition, limited use areas and OLAs within McGregor Range would remain in effect. Eligible archaeological sites within Fort Bliss would continue to be monitored by the Fort Bliss Cultural Resources Manager.

4.2.8 Transportation and Traffic

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor adverse reasonably foreseeable impacts to traffic volumes and transportation resources. Under the proposed action, personnel at the Installation, and therefore traffic, would not increase. Of the reasonably foreseeable actions listed in **Table 4-1**, only Project 6 would potentially increase traffic. The increase in personnel associated with that action is not fully defined at this time. The increase in traffic expected would result in minor, adverse impacts.

4.2.9 Airspace

The proposed action, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, negligible adverse reasonably foreseeable impacts to airspace. There would be no changes to existing airspace and no increase in operations at the ranges. Of the reasonably foreseeable actions listed in **Table 4-1**, only Project 6 could potentially impact airspace. The small increase in personnel and training activities associated with that action is not fully defined at this time. The increase in training activities expected would result in only negligible impacts to airspace since no new airspace is required and on ground training activities would occur with already restricted airspace.

4.2.10 Utilities

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor beneficial reasonably foreseeable impacts on utilities. Of the projects identified in **Table 4-1,** projects 8 and 10 involve the improvement or use of water systems at Fort Bliss. Project 8, the Shiloh Pipeline would add additional water sources in southern portions of the ranges to support livestock distribution and increase firefighting water reserves. Project 9, the EPE Solar Arrays would improve energy security within Fort Bliss. Project 10, Advanced Water Purification Facility, would produce up to 10 MGD of water to supplement the city's drinking water supply.

4.2.11 Hazardous and Toxic Materials and Waste

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would result in long-term, minor adverse reasonably foreseeable impacts to HAZMAT and hazardous wastes and their management at Fort Bliss. Projects 1–6, 8, and 9 (**Table 4-1**) would take place partially or entirely within Fort Bliss boundaries and would be under the responsibility of the Army. These projects would have the potential to increase the need for and use of HAZMAT and POLs and may increase the generation of hazardous wastes. These increases could occur temporarily during construction or maintenance activities, and/or over the long term due to continued operation and upkeep requirements. Depending on the amounts and types of HAZMAT, POLs, and hazardous waste that were associated with each project, there could be potential increased strain on the physical infrastructure used to manage these materials and on the ability of Fort Bliss personnel to adequately process and track materials present on the Installation.

Project 7 evaluates the extension of land withdrawal for McGregor Range and, if extended, would not have a reasonably foreseeable impact to HAZMAT and hazardous waste at Fort Bliss. If the land withdrawal is not extended, the use of McGregor Range would change and reasonably foreseeable impacts to HAZMAT and hazardous waste would occur.

Project 10 would take place outside of Fort Bliss and would not be the responsibility of the Army and would therefore not result in impacts to HAZMAT and hazardous wastes on the Installation or on the Army's ability to manage these materials.

4.2.12 Human Health and Safety

The proposed action alternatives, in combination with past, present, and reasonably foreseeable future actions within and in the vicinity of Fort Bliss, would be expected to have both long-term, minor beneficial reasonably foreseeable impacts and long-term, minor adverse reasonably foreseeable impacts to safety and occupational health. Of the projects listed in **Table 4-1**, Projects 1–5 and 8 would involve various ranges within the FBTC and would conduct unexploded ordnance clearance and repairs to existing targets and mechanisms improving the reasonably foreseeable safety of ranges and their intended uses. Project 6, would introduce new weapons fielding and operations within the FBTC, increasing the use of the ranges through added personnel and training missions. Additionally, Project 7, the McGregor Legislative EA, would extend the McGregor Range land withdrawal. If extended, McGregor Range would continue operational

uses. If not extended, McGregor Range would be returned to the BLM and additional analysis would be needed. Projects 9 and 10 would result in no reasonably foreseeable impacts to human health and safety.

4.3 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 result primarily 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 alternatives would not substantially increase the irreversible or irretrievable commitment of resources. Operational activities would remain the same. Training operations would consume nonrenewable resources such as gasoline for vehicles; however, the demand for these resources would represent a negligible decrease to the overall supply of regional petroleum resources. Use of training ordnance would result in a commitment to chemicals and other ordnance materials; however, increase in the use of these materials under the proposed action and alternatives would support the overall mission and training objectives of Fort Bliss.

4.4 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 alternatives.

Short-term effects to the environment are generally defined as a direct consequence of a project in its immediate vicinity. The proposed action provides for continuation of and needed expansion of current military training activities. As such, there would be no short-term effects from the proposed action because both Doña Ana and McGregor ranges are already in use for training; no adverse effects to the long-term productivity and future use are anticipated.

This page intentionally left blank

CHAPTER 5 LIST OF PREPARERS AND CONTRIBUTORS

The following individuals assisted in the preparation of this Draft EA.

Tom Daues, PMP
Environmental Assessment Services, LLC
NEPA and Compliance Program Manager
M.S., Natural Resources
B.S., Biology
Years of Experience: 32
Contribution: Program Management and Quality Control

Elyse Maurer, CFM
Environmental Assessment Services, LLC
Project Manager
B.A., Geography, GIS certificate
Years of Experience: 9
Contribution: Project Management, Utilities, Human Health and Safety

Ron Green
Environmental Assessment Services, LLC
Project Manager
Ph.D., Zoology
M.S./B.S., Wildlife Biology
Years of Experience: 33
Contribution: Biological Resources

Kevin Groppe, PE
Environmental Assessment Services, LLC
Project Manager
M.S., Environmental Engineering
B.S., Chemical Engineering
Years of Experience: 25
Contribution: Airspace, Transportation and Traffic

Michael Nied
Environmental Assessment Services, LLC
Project Manager
B.S., Biological Systems Engineering–Natural Resources
Years of Experience: 12
Contribution: Air Quality

Violet Perry
Environmental Assessment Services, LLC
Environmental Planner
M.S., Urban Planning
AICP Candidate
B.S., Outdoor Adventure Leadership
Years of Experience: 3
Contribution: Hazardous and Toxic Materials and Waste, Noise, GIS

Joanne Stover
Environmental Assessment Services, LLC
Technical Editor
B.S., Business Administration–Management
Years of Experience: 30
Contribution: Technical Editor/Document Production, Administrative Record

Chris Swisher, RPA
Environmental Assessment Services, LLC
Project Manager
M.A., Applied Archaeology
B.A., Sociology and Anthropology
Years of Experience: 10
Contribution: Geological and Soils Resources, Cultural Resources

Karin Volpe
Environmental Assessment Services, LLC
Environmental Planner
B.A., Urban Planning
Years of Experience: 3
Contribution: Land Use, Water Resources, GIS

5.1 GOVERNMENT CONTRIBUTORS

The following individuals contributed to this Draft EA.

Name	Location
Chelsea Montoya	USACE Regional Planning and Environmental Center
Ericka Buckreis	USACE Regional Planning and Environmental Center
Manroop Chawla	USACE, Engineer Research and Development Center, Construction Engineering Research Laboratory
Constance Parra	Fort Bliss Directorate of Public Works, Environmental Division, Conservation Branch
Shane Offutt	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Myra Guerrero	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Claudia Ramirez	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Elia Perez	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Martha Yduarte	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Donald Sevigny	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Gabriel Ramirez	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Chris Taylor	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Rita Crites	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Danielle Nguyen	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Paola Soto-Montero	Fort Bliss Directorate of Public Works, Environmental Division, Compliance Branch
Rafael Lopez-Gonzalez	Army Environmental Command
Jay Klimes	Army Environmental Command (Counsel)

CHAPTER 6 REFERENCES

Agency for Toxic Substances and Disease Registry, 2024. *Public Health Statement for Hexachloroethane.* Agency for Toxic Substances and Disease Registry. https://wwwn.cdc.gov/TSP/PHS/PHS.aspx?phsid=868&toxid=169#:~:text=Hexachloroethane%20is%20released%20to%20the,devices%20containing%20it%20are%20used. (accessed 24 June 2024).

American States Utility Services, Inc., 2023. *About Us.* https://www.asusinc.com/about-d79/ (accessed 9 October 2024).

Army Environmental Command, 2019. "Fact Sheet: Per- and Polyfluoroalkyl Substances (PFAS). https://home.army.mil/yakima/application/files/3016/2153/7457/PFAS_FACT_SHEET_ENGLISH.pdf (accessed 30 May 2024).

Beckes, M.R., 1977. *A Cultural Resource Inventory and Assessment of McGregor Guided Missile Range: An Interim Report*. NMCRIS report no. 596. Prepared for U.S. Department of Defense by University of Texas – Austin, Austin, TX.

Beehler, A.A., 2021. *Army Environmental Per- and Polyfluoroalkyl Substances (PFAS) Policy* [Memorandum]. January 8 https://www.denix.osd.mil/army-pfas/denix-files/sites/11/2022/03/Army-PFAS-Policy.pdf (accessed 29 May 2024).

Browning, C.B.; V. Gibbs; R. Phippen; R. Giese; and T. Church, 1998. *New Target Complex Cultural Resource Survey Fort Bliss, McGregor Range, Otero County, New Mexico*. NMCRIS report no. 55893. Prepared for U.S. Air Force Holloman Air Force Base by Geo-Marine, Inc., Plano, TX.

Bureau of Land Management (BLM), 2014. *Organ Mountains-Desert Peaks National Monument*. U.S. Department of the Interior. https://www.blm.gov/programs/national-conservation-lands/new-mexico/organ-mountains-desert-peaks-national-monument (accessed 14 June 2024).

BLM, 2020. *Geology of the Organ Mountains*. U.S. Department of the Interior. https://www.blm.gov/sites/default/files/docs/2021-08/NM_OMDP_Geology2020%28508%29.pdf (accessed 29 April 2024).

BLM, 2023. *McGregor Range.* https://www.blm.gov/visit/mcgregor-range (accessed 14 June 2024).

Camarena Garces, D., 2008. *Archaeological Survey of Approximately 2,950 Acres for the Proposed Digital Multipurpose Range Complex in Training Area 29, Fort Bliss Military Reservation, South Central New Mexico*. NMCRIS report no. 107109. Prepared for US Army Fort Bliss by Lone Mountain Archaeological Services, Albuquerque, NM.

Department of Defense Environment, Safety & Occupational Health Network and Information Exchange (DINEX), 2022a. "Army Per- and Polyfluoroalkyl Substances." https://www.denix.osd.mil/army-pfas/army-pfas-faq/ (accessed 29 May 2024).

DINEX, 2022b. "Army Response and Cleanup Process." https://www.denix.osd.mil/army-pfas/process/ (accessed 29 May 2024).

Dunbar, N.W., 2022. *Climate change in New Mexico over the next 50 years: Impacts on water resources*. New Mexico Bureau of Geology and Mineral Resources, Bulletin 164, https://doi.org/10.58799/B-164 (Accessed 1 May 2024).

El Paso Water, 2018. *Water Resources.* https://www.epwater.org/our_water/water_resources#:~:text=For%20over%20a%20century%2C%20El,El%20Paso's%20potable%20water%20supply (accessed 14 June 2024).

El Paso Water, 2023. *Advanced Purification.* El Paso Water. https://www.epwater.org/cms/one.aspx?portalId=6843488&pageId=7416470 (accessed 14 June 2024).

Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual*. US Army Corps of Engineers. January. https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/ (accessed 30 September 2024).

Federal Emergency Management Agency (FEMA), 2020. "FEMA Flood Maps and Zones Explained." https://www.fema.gov/blog/fema-flood-maps-and-zones-explained (accessed 14 June 2024).

Fort Bliss Army Garrison (Fort Bliss), 1999. *McGregor Range Land Withdrawal Legislative Environmental Impact Statement*. Fort Bliss Army Garrison, Texas.

Fort Bliss, 2009. *Fort Bliss Wetland GIS Database Project*. Fort Bliss Army Garrison, Texas.

Fort Bliss, 2010. *Wetland Delineation Report.* Fort Bliss Training Areas Doña Ana and Otero Counties, New Mexico, and El Paso County, Texas.

Fort Bliss, 2011. *2010-2011 Surveys for Sensitive Species on New FY10 and FY11 Ranges.* Fort Bliss Army Garrison, Texas. September.

Fort Bliss, 2014. *Natural Resources Support Tasks – Option 8*. Wetlands Monitoring and Assessment. Fort Bliss Army Garrison, Texas. November.

Fort Bliss, 2017a. *Hazardous Material Management Program Plan, Texas and New Mexico.* Fort Bliss Garrison Command, Fort Bliss, Texas.

Fort Bliss, 2017b. *Integrated Pest Management Plan for Fort Bliss, Texas and New Mexico.* Fort Bliss Army Reservation, Texas/New Mexico.

Fort Bliss, 2018. *US Army Sustainment Command Facility Assessment and Investment Strategy for the Fort Bliss, Texas Logistics Readiness Center and Army Power Project Platform*. Fort Bliss Army Garrison. November.

Fort Bliss, 2019. *Stormwater Management Program*. Fort Bliss Army Garrison Command, Texas. June.

Fort Bliss, 2020a. *Fort Bliss Integrated Wildland Fire Management Plan*. Fort Bliss Army Garrison, Texas and New Mexico. August.

Fort Bliss, 2020b. *Army Field Support Battalion - Bliss. Area Development Plan and Area Development Execution Plan*. Final. Fort Bliss Army Garrison. March.

Fort Bliss, 2021a. *Final Fort Bliss Texas and New Mexico Integrated Natural Resources Management Plan*. Fort Bliss Army Reservation, New Mexico. October.

Fort Bliss, 2021b. *Installation Compatibility Use Zone Study*. Fort Bliss Army Reservation, New Mexico. October.

Fort Bliss, 2022a. *Summary of Data for the Texas Commission on Environmental Quality 2022 Emissions Inventory for Fort Bliss Army Installation El Paso, Texas*. TCEQ Account Number EE-0024-G. Fort Bliss Army Reservation, New Mexico. March.

Fort Bliss, 2022b. *Integrated Cultural Resources Management Plan, 2022-2027, Fort Bliss Military Installation*. Fort Bliss Army Reservation, Texas.

Fort Bliss, 2022c. *Hazardous Waste Management Plan*. Fort Bliss Army Reservation, New Mexico.

Fort Bliss, 2022d. *Army Cleanup Program.* Fort Bliss Army Reservation, Texas/New Mexico. September.

Fort Bliss, 2023a. *Renewal of the Withdrawal of Public Lands within McGregor Range, Fort Bliss Army Reservation, El Paso Texas: Final Paleontology Resource Survey Summary Report*. Prepared by Zeigler Geologic Consulting, LLC., for Fort Bliss Army Reservation, New Mexico. October.

Fort Bliss, 2023b. *Final Preliminary Assessment and Site Inspection of Per- and Polyfluoroalkyl Substances, Texas/New Mexico.* Fort Bliss Army Reservation, New Mexico. June.

Fort Bliss, 2024. Standard Ammunition Fired Per Year. Data retrieved from Range Facility Management Support System and Standards in Training Commission Requirements for unit training 2019-2023. Fort Bliss Army Reservation, New Mexico.

Global Security, 2023. *McGregor Range.* https://www.globalsecurity.org/military/facility/mcgregor.htm (accessed 14 June 2024).

Glover, Thomas J., 1975. *Geology of the central Organ Mountains Doña Ana County, New Mexico*, in: Las Cruces Country, Seager, William R.; Clemons, Russell E.; Callender, Jonathan F., New Mexico Geological Society, Guidebook, 26th Field Conference, pp. 157-161. https://doi.org/10.56577/FFC-26.157.

Goetz, M., 2008. *An Archaeological Survey of 3317 Acres on McGregor and Doña Ana Ranges, Fort Bliss Military Reservation, Otero and Doña Anna Counties, New Mexico*. NMCRIS report no. 107763. Prepared for US Army Fort Bliss by Geo-Marine, Inc, Plano, TX.

Ludington, S.; W.F. Hanna; R.L. Turner; and R.E. Jeske, 1988. *Mineral Resources of the Organ Mountains Wilderness Study Area, Doña Ana County, New Mexico*. USGS Bulletin 1735-D.

National Oceanic and Atmospheric Administration, 2025. U.S. Climate Normals Quick Access. Chaparral 0.4 SE, NM. Summary of Annual/Seasonal Normals 1991-2020.

National Research Council, 1999. Toxicity of Military Smokes and Obscurants, Volume 2, Subcommittee on Military Smokes and Obscurants, National Academy Press, Washington, DC. 132 p.

New Mexico, 2023. *McGregor Range (BLM).* New Mexico Tourism Department. https://www.newmexico.org/listing/mcgregor-range-(blm)/1862/ (accessed 14 June 2024).

New Mexico Bureau of Geology and Mineral Resources, 2024. NMBGMR Interactive Resources Map. Electronic resource, https://maps.nmt.edu/ (accessed May 2024).

New Mexico Environment Department (NMED), 2015. *Solid Waste Management Plan. https://www.env.nm.gov/wp-content/uploads/sites/24/2018/04/SolidWasteManagementPlan.pdf (accessed 14 June 2024).*

NMED, 2023. *Rules and Statutes – Solid Waste Act*. https://www.env.nm.gov/solid-waste/rules-and-statutes/ (accessed 14 June 2024).

O'Leary, B.; T. Kludt,; T. Church; and R. Mauldin, 1997. *The McGregor Guided Missile Range Survey Project, New Mexico Volume I: The Archaeology of Landscape-General Survey*. NMCRIS report no. 54546. Prepared for US Army Fort Bliss by University of Texas – El Paso Anthropology Research Center, El Paso, TX.

Racine, C.H.; M.E. Walsh; B.D. Roebuck; C.M. Collins; D. Calkins; L. Reitsma; P. Buchli; and G. Goldfarb, 1992. White phosphorus poisoning of waterfowl in an Alaskan salt marsh. *J. Wildlife Diseases* 28(4): 669-673.

Sanford, A.R.; K.W. Lin; I.C. Tsai; and L.H. Jaksha, 2002. *Earthquake catalogs for New Mexico and bordering areas: 1869-199*8. Circular 210. Geophysical Research Center and Department of Earth and Environmental Science. New Mexico Bureau of Geology and Mineral Resources. New Mexico Institute of Mining and Technology. Socorro, New Mexico.

Shirley, L.S., 2009. *An Archaeological Survey of 162 Acres in Range 53/67, Fort Bliss, Doña Ana County, New Mexico*. NMCRIS report no. 113653. Prepared for and by US Army Fort Bliss, TX.

Smit, K.J., 2003. *Safety Related Aspects of Red Phosphorus Based Smoke Munitions*. Weapons Systems Division, DTSO. https://www.researchgate.net/publication/340684757_Safety_Related_Aspects_of_Red_Phosphorus_Based_Smoke_Munitions (accessed 20 June 2024).

Texas Water Development Board, 2021. Report 356, *Aquifers of West Texas*, Chapter 17, "Hydrogeology of the Salt Basin." https://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R356/Chapter17.pdf (accessed 14 June 2024).

United States Army (Army), 2010. *Fort Bliss Army Growth and Force Structure Realignment Final Environmental Impact Statement*. Department of the Army. March.

Army, 2011. *Fort Bliss, TX – Fact Sheet. Renewable Energy and Sustainability Program*. Fort Bliss Garrison. 8 August.

Army, 2013. *Fort Bliss to Launch Military's Largest Renewable Energy Project*. *https://www.army.mil/article/100457/fort_bliss_to_launch_militarys_largest_renewable_energy_project#:~:text=The%20Army%20Corps%20of%20Engineers,reporters%20at%20a%20news%20conference.* (accessed 14 June 2024).

Army, 2022. "Army Cleanup Program." https://aec.army.mil/restore/cleanup (accessed 30 May 2024).

United States Environment Protection Agency (USEPA), 1990. *Summary Review of Health Effects Associated with Elemental and Inorganic Phosphorus Compounds: Health Issue Assessment*. EPA 600/8-89/072. U.S. Environmental Protection Agency, Environmental Criteria and Assessment Office, Research Triangle Park, N.C.

USEPA, 2009. AP-42, Fifth Edition, Volume I Chapter 15: Ordnance Detonation, Section15.3 Cartridges 75 mm And Larger. https://www.epa.gov/sites/production/files/2020-11/documents/d15s02_jul09.pdf (accessed 20 June 2024).

USEPA, 2011. *RCRA Corrective Action Terms and Acronyms*. United States Environmental Protection Agency. 20 July, 2011. *https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=RCRA%20Corrective%20Action* (Accessed 14 June 2024).

USEPA, 2016a. *What Climate Change Means for New Mexico*. August. https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nm.pdf (Accessed 1 May 2024).

USEPA, 2016b. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA).* https://www.epa.gov/sites/default/files/2016-05/documents/pfoa_health_advisory_final_508.pdf (accessed 29 May 2024).

USEPA, 2021. "2021 Site Details for NM4213720101." https://rcrapublic.epa.gov/rcrainfoweb/action/modules/br/summary/view (accessed 28 May 2024).

USEPA, 2022. Summary of the Resource Conservation and Recovery Act. https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act (accessed 29 May 2024).

USEPA, 2024a. *Designation of Areas for Air Quality Planning Purposes – Section 197 Attainment Status Designations*. United States Environmental Protection Agency https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-81/subpart-C/section-81.344

USEPA, 2024b. *Radon Zones Map.* https://www.epa.gov/system/files/documents/2024-05/radon-zones-map_text_link.pdf (accessed 29 May 2024).

USEPA, 2024c. "EPA Map of Radon Zones." https://www.epa.gov/radon/epa-map-radon-zones (accessed 29 May 2024).

USEPA, 2024d. "Learn About Polychlorinated Biphenyls." https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls#what (accessed 28 May 2024).

USEPA, 2024e. "What is EPCRA." https://www.epa.gov/epcra/what-epcra (accessed 28 May 2024.).

United States Fish and Wildlife Service (USFWS), 2006. *Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of Northern Aplomado Falcons in New Mexico and Arizona*. 71 FR 42298.

USFWS, 2023. *Sneed Pincushion Cactus (Coryphantha sneedii var. sneedii), 5-Year Status Review: Summary and Evaluation*. https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/10110.pdf (accessed May 14, 2024).

United States Geological Survey, 1996. *Hydrogeology and ground-water quality of the chromic acid pit site*. US Army Air Defense Artillery Center and Fort Bliss, El Paso, Texas. https://pubs.usgs.gov/publication/wri964035 (accessed May 16, 2024).

von Stackleberg, K.; C. Amos; T. Smith; D. Cropek; and B. MacAllister, 2004. *Military Smokes and Obscurants Fate and Effects: A Literature Review Relative to Threatened and Endangered Species*. ERDC/CERL TR-04-29. US Army Corps of Engineers, Engineer Research and Development Center.

This page intentionally left blank