Fort Bliss Army Growth and Force Structure Realignment

Final Environmental Impact Statement

March 2010

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FORT BLISS ARMY GROWTH AND FORCE STRUCTURE REALIGNMENT

Final Environmental Impact Statement

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March 2010

Re: Release and review of the Fort Bliss Army Growth and Force Structure Realignment Environmental Impact Statement

Dear Reader,

In April 2007, the U.S. Army (Army) signed the Record of Decision (ROD) for the Fort Bliss, Texas and New Mexico Mission and Master Plan Supplemental Programmatic Environmental Impact Statement (2007 SEIS). The SEIS sought to more fully realize the training opportunities at Fort Bliss through land use changes and range construction to support the stationing of six Heavy Brigade Combat Teams (HBCTs) at Fort Bliss based on the 2005 Base Realignment and Closure Commission (BRAC) and the Global Defense Posture Realignment (GDPR) decisions.

In December 2007, the Army signed the ROD for the Final Programmatic Environmental Impact Statement for Army Growth and Force Structure Realignment (also known as the Grow the Army PEIS or GTA PEIS). This ROD directed the stationing of four HBCTs and two light Infantry Brigade Combat Teams (IBCTs) at Fort Bliss. These stationing changes would leverage the training infrastructure and range modernization at Fort Bliss.

This current effort – the Fort Bliss Army Growth and Force Structure Realignment Final Environmental Impact Statement (GFS Final EIS) – tiers from the GTA PEIS, and evaluates alternatives at Fort Bliss for the use of stationing and training capacity, land use changes, and training infrastructure improvements.

Alternatives comprising the proposed action were grouped into three categories. Category 1 contains stationing and training alternatives, Category 2 contains alternatives involving land use changes, and Category 3 contains alternatives involving training infrastructure improvements. All three categories include a No Action Alternative. The No Action Alternative is the same as Alternative 4 in the 2007 SEIS, which is currently being implemented. These Categories and their Alternatives were developed in internal scoping meetings with the Fort Bliss Garrison, Installation Management Command – West Region (IMCOM-W), and U.S. Army Environmental Command (USAEC) staff.

This Final EIS (FEIS) has been developed in accordance with the National Environmental Policy Act (NEPA); with the Council on Environmental Quality (CEQ) regulations for Implementing the Procedural Provisions of NEPA, 40 Code of Federal Regulations (CFR), Parts 1500–1508; and with Environmental Analysis of Army Actions (32 CFR, Part 651), the Army's regulations for implementing NEPA. The purpose of the EIS is to inform Army decision makers and the public of the likely environmental consequences of the Proposed Action and to provide reasonable alternatives to meet the purpose of and need for implementing land use changes and improving training infrastructure to support the GTA stationing decision. This EIS will assist Army decision makers to more fully understand the environmental issues and social concerns connected with the stationing action. There is sufficient information regarding existing conditions and potential impacts to environmental resources to allow the Army to take a fair, objective, and comparatively hard look at the environmental effects of the Proposed Action Categories and each of their alternatives.

The public comment period will run for 30 days beginning March 12, 2010, and ending April 12, 2010. During that time, you are welcome to submit written comments to the Army at the address listed below.

The Army is required to respond in the ROD to all substantive comments on the FEIS. The comment period mentioned above provides you, the public, with an opportunity to make an impact on the content of the document and, therefore, potentially affect the decision that will be made after the FEIS is released.

Written comments should be forwarded to: Mr. John Barrera, Attn: GFS FEIS; IMWE-BLS-PWE; Fort Bliss, TX 79916-6812; or e-mail comments to bliss.eis@conus.army.mil

FOR FURTHER INFORMATION, PLEASE CONTACT: Ms. Jean Offutt, Fort Bliss Public Affairs Office; IMWE-BLS-PA; Fort Bliss, Texas, 79916-6812; Tel: (915) 568-4505; Fax: (915) 568-2995; email: jean.offutt@us.Army.mil.

FINAL ENVIRONMENTAL IMPACT STATEMENT

Lead Agency: Department of the Army,

Cooperating Agencies: U.S. Bureau of Land Management.

Title to Proposed Action: Fort Bliss Army Growth and Force Structure Realignment Final Environmental Impact Statement

Affected Jurisdictions: El Paso County, Texas and Doña Ana and Otero Counties, New Mexico

Review and Comment: Written comments should be forwarded to: Mr. John Barrera, Attn: FB GTA EIS; IMWE-BLS-PWE; Fort Bliss, TX 79916-6812; or e-mail comments to bliss.eis@conus.army.mil. The document is available on line at: http://www.bliss.army.mil/About%20Ft%20Bliss/NEW-EIS/index_EIS.htm

Document Designation: Final Environmental Impact Statement

Abstract:

This Environmental Impact Statement (EIS) for the Fort Bliss Army Growth and Force Structure Realignment evaluates the Proposed Action at Fort Bliss in the context of three Categories – stationing and training capacity, land use changes, and training facility improvements. The Army's Proposed Action supports the growth of the Army at Fort Bliss and allows for reasonably foreseeable future actions that take advantage of the training opportunities at Fort Bliss. The Army needs to take the Proposed Action to implement the GTA stationing decisions for Fort Bliss as identified in the ROD for the 2007 GTA PEIS. This recent GTA stationing decision, in combination with previous Transformation, BRAC, and GDPR decisions, and other national defense policy documents, defines the known missions for Fort Bliss and establishes the near-term training requirements for terrain availability and training infrastructure improvements. Over the long term, Fort Bliss must continue to support the evolving operations, infrastructure, training, and testing requirements of the Army.

Alternatives comprising the Proposed Action were grouped into three categories. Category 1 contains four stationing and training alternatives, Category 2 contains five alternatives related to land use changes, and Category 3 contains four alternatives involving training infrastructure improvements. All three categories include a No Action Alternative. The No Action Alternative is the same as the Preferred Alternative in the 2007 SEIS and GTA PEIS, which is being implemented at Fort Bliss. These Categories and Alternatives were developed in internal scoping meetings with the Fort Bliss Garrison, Installation Management Command – West Region (IMCOM–W), and U.S. Army Environmental Command (USAEC) staff. The has identified Stationing and Training Alternative 4, Land Use Change Alternative 5, and Training Infrastructure Improvement Alternative 4 as the preferred alternatives in this FEIS.

PREFACE

An EIS usually is not read like a book — from chapter one to the end. The best way to read an EIS depends on your interests. You may be more interested in effects, whereas others might have more interest in the details of the proposed project or be more concerned about what opportunities were made available to the public to be involved in the environmental assessment process. Many readers may just want to know what is being proposed and how it will affect them.

This document follows the format established in the National Environmental Policy Act (NEPA) regulations (Title 40 Code of Federal Regulations Parts 1500 to 1508). The following paragraphs outline information contained in the chapters and appendices so that readers may find the parts of interest to them.

- *Summary*: Contains a short, simple discussion to provide the reader and the decision makers with a sketch of the more important aspects of the EIS. The reader can obtain additional, more-detailed information from the actual text of the EIS.

- *Chapter 1 — Purpose of and Need for Proposed Action*: Identifies the proposed action and describes the purpose of and need for the proposed action, the decisions to be made by the Army, and the NEPA process.

- *Chapter 2 — Description of the Proposed Action and Alternatives*: Describes the Proposed Action, the alternative selection criteria used to assess whether a proposed alternative is a "reasonable" alternative to be carried forward for full evaluation in the FEIS, and alternatives that were carried forward for evaluation. The three categories of alternatives for implementing the Proposed Action were identified by the Army as reasonable alternatives capable of meeting the Army's need criteria described in Chapter 1. In addition, the No Action Alternative in each category is described in detail.

- *Chapter 3 — Affected Environment and Environmental Consequences*: Describes the present condition of the environment that would be affected by implementation of the Proposed Action or any action alternative. It also describes the probable direct and indirect to the human environment that would result from implementing the Proposed Action or alternatives. The discussion also addresses the short-term uses versus long-term productivity, unavoidable impacts, and irreversible or irretrievable impacts.

- *Chapter 4 — Cumulative Effects*: Describes the cumulative effects for each of the category and associated alternatives.

- *Chapter 5 — Mitigation and Monitoring:* Describes the mitigation and monitoring measures for each category and associated alternatives.

- *Chapter 6 — Preparers and Contributors*: Identifies the people involved in the research, writing, and internal review of the FEIS.

- *Chapter 7 — Distribution and Review of the Final EIS*: Lists the agencies, organizations, and individuals who received a copy of the FEIS.

- *Chapter 8 — References Cited*: Lists the references cited in the FEIS.

- *Chapter 9 — Acronyms:* Contains the words and the acronyms used throughout this document.
- *Chapter 10 — Index*: Cross references and identifies specific pages where key topics can be found.

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EXECUTIVE SUMMARY

In April 2007, the Army signed the ROD for the SEIS. The SEIS sought to more fully realize the training opportunities at Fort Bliss through land use changes and range construction to support the stationing of six HBCTs at Fort Bliss through the BRAC 2005 and the GDPR decisions.

In December 2007 the U.S. Army signed the ROD for the GTA PEIS. This ROD directed the stationing of four HBCTs and two IBCTs at Fort Bliss.

This current effort – the Fort Bliss Army Growth and Force Structure Realignment Environmental Impact Statement – tiers from the 2007 GTA PEIS, and evaluates alternatives at Fort Bliss for the use of stationing and training capacity, land use changes, and training infrastructure improvements. These alternatives support at Fort Bliss the stationing decisions in that December 2007 ROD, the continued mobilization and pre-deployment training mission, and reasonably foreseeable future stationing decisions.

Alternatives to the proposed action were developed in internal scoping meetings with the Fort Bliss Garrison, Installation Management Command – West Region (IMCOM-W), and U.S. Army Environmental Command (AEC) staff. Alternatives comprising the proposed action were grouped into three categories. Category 1 contains stationing and training alternatives, Category 2 contains alternatives that require land use changes, and Category 3 contains alternatives involving training infrastructure improvements. All three categories include a No Action Alternative. The No Action Alternative is Alternative 4 in the 2007 SEIS and GTA PEIS that is being implemented.

This FEIS has been developed in accordance with the NEPA; the CEQ regulations for Implementing the Procedural Provisions of NEPA; 40 CFR, Parts 1500–1508; and with Environmental Analysis of Army Actions (32 CFR, Part 651), the Army's regulations for implementing NEPA. The purpose of the EIS is to inform Army decision makers and the public of the likely environmental consequences of the Proposed Action and provide reasonable alternatives to meet the purpose of and need for implementing land use changes and improving training infrastructure to support the GTA stationing decision. This EIS will assist Army decision makers to more fully understand the environmental issues and social concerns connected with the stationing action. There is sufficient information regarding existing conditions and impacts to environmental resources for all reasonable alternatives considered in this EIS. This information allows the Army to take a fair, objective, and comparatively hard look at the environmental effects of the Proposed Action and its alternatives.

Need for the Proposed Action

The Army needs to take the Proposed Action to implement the GTA stationing decisions for Fort Bliss as identified in the ROD for the 2007 GTA PEIS. This recent GTA stationing decision, in combination with previous Transformation, BRAC, and GDPR decisions, as well as other national defense policy documents, defines the known missions for Fort Bliss and establishes the near-term training requirements for terrain availability and training infrastructure improvements. Over the long term, Fort Bliss needs to continue supporting the evolving operations, infrastructure, training, and testing requirements of the Army.

Purpose of the Proposed Action

The Proposed Action

- Allows for reasonably foreseeable future stationing actions that take advantage of the training opportunities at Fort Bliss, including varied terrain; a full suite of training ranges; collocation with heavy, light, Stryker and aviation combat units; and collocation with various support units.

- Modifies land use on Fort Bliss to better support GTA and future stationing decisions, as well as continue mobilization and pre-deployment training of units at Fort Bliss.

- Constructs training infrastructure improvements to support the GTA stationing decision, and continue mobilization and pre-deployment training of units at Fort Bliss.

Scope of Analysis

This EIS has been developed in accordance with NEPA; the CEQ regulations for Implementing the Procedural Provisions of NEPA; 40 Code of Federal Regulations (CFR), Parts 1500–1508; and with *Environmental Analysis of Army Actions (32 CFR, Part 651),* the Army's regulations for implementing NEPA. The purpose of the EIS is to inform Army decision makers and the public of the likely environmental consequences of the Proposed Action and provide reasonable alternatives to meet the purpose of and need for implementing land use changes and improving training infrastructure to support the GTA stationing decision. This EIS will assist Army decision makers to more fully understand the environmental issues and social concerns connected with the stationing action. There is sufficient information regarding existing conditions and impacts to environmental resources for all reasonable alternatives considered in this EIS. This information allows the Army to take a fair, objective, and comparatively hard look at the environmental effects of the Proposed Action and its alternatives.

Decision(s) to be Made

The Army decision makers will review the analyses and conclusions drawn in this EIS and decide whether to implement land use changes and training infrastructure improvements and training infrastructure improvements to support the GTA stationing decision at Fort Bliss. This EIS identifies and presents a range of reasonable alternatives capable of meeting the purpose and need for use of stationing and training capacity, and implementation of land use changes and training infrastructure improvements at Fort Bliss. The final decision will be based on the information presented in this EIS and on consideration of other relevant factors, including mission requirements, resultant costs, technical factors, and environmental considerations.

Public Involvement

The public's participation is essential to any successful NEPA analysis. The CEQ and Army NEPA regulations provide several opportunities for the public to participate in this process. These opportunities include a public scoping process that is initiated with publication in the *Federal Register* of a Notice of Intent (NOI) to prepare an EIS, a 60-day public review period for the Draft EIS, and publication of the FEIS accompanied by a 30-day mandatory waiting period before a final decision can be made and a ROD issued.

As a matter of Army regulation and policy, public involvement is required for every EIS, and strongly encouraged for all Army actions. The CEQ requirement for public involvement (40 CFR 1506.6) states

that whenever analyzing environmental considerations, when practicable, all potentially interested or affected parties will be involved. This requirement starts at the very beginning of an EIS process by developing a plan to include all affected parties and implementing the plan with appropriate adjustments as it proceeded (AR 360-5). A public involvement plan includes the following:

- Local and installation communities receive information through such means as news releases to local media, announcements to local citizens groups, and Commander's letters at each milestone of the project. The dissemination of this information is based on the needs and desires of the local communities.

- Representatives of local, state, tribal, and federal government agencies coordinate on each milestone of the project.

- Public comments are invited, and two-way communication channels must be kept open through various means, dynamic in nature and updated regularly to reflect the needs of the local community.

Following the requirements outlined above, the Notice of Intent for this EIS was published in the *Federal Register* on September 25, 2008 (73 FR 119). Following publication of the NOI, public notices were published in the *Las Cruces Sun News*, *El Paso Times*, and *Alamogordo Daily News*, announcing the times and locations of public scoping meetings. These meetings were held between October 14 and 17, 2008, at Las Cruces, Chaparral, and Alamogordo, New Mexico and El Paso, Texas. The 45-day scoping period began on September 25, 2008, and ended on November 10, 2008.

At the public scoping meetings, a total of 35 people signed in at the four meetings, with individuals and organizational representatives providing oral comments via court reporters for the Army's consideration. The Army also received written comments from six organizations. The Army compiled a scoping report, identifying and assessing the issues identified through the scoping process. The major concerns and issues expressed during the scoping process that were determined to be within the scope of the EIS are summarized below. The issues are organized by each meeting and by those received by mail.

Alamogordo, New Mexico

Other than questions being raised regarding the definition of bivouac, whether an archaeological survey has been completed, no issues were raised at this meeting.

Las Cruces, New Mexico

A question was raised regarding whether there would be changes to the force structure that was previously briefed, and whether there would be any changes to the overall infrastructure and to the numbers of brigade combat teams. A recommendation was made to Fort Bliss to make a greater effort to get members of local communities and other interested parties to attend the next round of public meetings.

Issues raised during this meeting included the following:

- The difference between this EIS and the previous one should be made very clear to the reading public.

- The cumulative impacts section should address how this action will affect neighboring public lands. It should also address whether there will be populations or subpopulations of wildlife dispersing onto public lands and what the Bureau of Land Management (BLM) will need to do to manage this, especially big game. Finally, the cumulative impacts section should consider the increased activity at White Sands Missile Range, as well as at Spaceport America.

El Paso, Texas

The following issues were raised during the El Paso meeting:

- The training infrastructure improvement alternative that includes the proposed rail line should be seriously considered.
- Impacts to archaeological resources need to be addressed
- Even though Castner Range is not part of the scope of this project, the Army should consider cleaning up this range and transferring it to the state of Texas. This could be considered as mitigation to environmental impacts that will occur at other locations on Fort Bliss.
- The Army should address the use of depleted uranium (DU). The use of DU for coating Bradley tanks and for use in weaponry should be addressed in the EIS.

Chaparral, New Mexico

Only one issue was raised during this scoping meeting. One commenter would like the Army to consider alternative sources of energy.

WRITTEN CORRESPONDENCE

Comments were also received in writing from the following agencies and organizations:

- U.S. Fish and Wildlife Service
- Aircraft Owners and Pilots Association (AOPA)
- El Paso Regional Group of the Sierra Club
- The Southwest Environmental Center
- Otero County Grazing Advisory Board
- County of Otero

Written comments are summarized below.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) submitted written comments to Fort Bliss, which were received on November 10, 2008. The USFWS provided general comments relating to continuing to implement the Fort Bliss Integrated Natural Resources Management Plan (INRMP), applying ecosystem

management tools; conserving ecologically important vegetative communities and all species listed by the State of New Mexico as threatened or endangered; preserving and restoring, if necessary, unique natural ecological communities and landscape features; protecting migratory bird resources; and employing other best management practices minimize habitat fragmentation, avoid bird collisions or electrocutions, and minimize light pollution.

Additional management recommendations were provided by the USFWS relating to federally listed threatened and endangered species, the northern aplomado falcon, and bat conservation.

Aircraft Owners and Pilots Association (AOPA)

The AOPA's comments centered considering the impacts on civil and commercial aviation. Specifically, they indicated that it would be in the best interest of the Army, as well as to all the users of the national airspace system (NAS) that the current airspace and ranges infrastructure be examined at potential installations. The decision to move units into installations with existing ranges would save the Army time and financial resources, and avoid the need to unnecessarily create redundant special use airspace (SUA) around the country. Finally, AOPA reminded the Army about the requirement to consider the impact to civil and commercial aviation.

El Paso Regional Group of the Sierra Club

Representatives of the El Paso Regional Group of the Sierra Club requested that the Army consider the following when preparing the GFS Final EIS:

- Complete disclosure of DU contamination caused by the utilization of Abrams Tanks and DU tipped long-rod penetrators (shells).

- Complete disclosure of any other radioactive contamination (no matter how small) created by the planned expansion of McGregor Range. Include a listing of all radioactive elements and the amount of contamination.

The Southwest Environmental Center

The Southwest Environmental Center submitted comments on behalf of the following groups:

- The Wilderness Society (Denver)
- The Wilderness Society (Albuquerque)
- Retired Senior Ecologist, Fort Bliss
- National Wildlife Federation
- New Mexico Wilderness Alliance
- Wild Earth Guardians

Collectively, these groups represent thousands of members who enjoy and benefit from the myriad recreational opportunities and ecological values of public lands on (McGregor Range) or in the vicinity of Fort Bliss. The Southwest Environmental Center expressed their concern over potential changes in land uses affecting Otero Mesa as a result of the proposed action. The Coalition for Otero Mesa (which

includes most of the groups that signed the letter) submitted a nomination to the BLM for the establishment of an Otero Mesa Grasslands Wildlife Area of Critical Environmental Concern (ACEC). The purpose of this nomination is to provide landscape scale protection for the unique and threatened resources of the Otero Mesa desert grasslands. The proposed ACEC includes the portion of Otero Mesa located within the McGregor Range.

The Southwest Environmental Center expressed concern over potential adverse impacts resulting from proposed land use changes on Fort Bliss due to the proposed action. These impacts include, but are not limited to, habitat fragmentation, soil compaction, destruction of vegetation and wildlife, increased erosion, spread of invasive species, soil contamination, dust, noise, impacts to listed and candidate threatened and endangered species, and disturbance to wildlife. Because of the many valuable resources in the pending Proposed Grasslands Wildlife ACEC and the potential impacts of the proposed land use changes and training expansions, the Southwest Environmental Center provided a series of recommendations relating to analyzing the no action alternative. This would avoid impacts to the pending Proposed Grasslands Wildlife ACEC; analyzing the minimum amount of land use changes to meet the Army's expansion needs; conducting a cost-benefit analysis of any land use changes, weighing increased training opportunities against impacts to the many resources and values of the pending Proposed Grasslands Wildlife ACEC; developing and implementing a mitigation and monitoring program; developing and analyzing alternatives that consider use of other military lands; analyzing the effects of the proposed action on long-term regional water resources; and analyzing potential impacts to the view shed and air quality.

Otero County Grazing Advisory Board

The Otero County Grazing Advisory Board submitted written comments after the scoping period ended. The Grazing Advisory Board outlined three concerns relating to the GFS Final EIS, including the following:

- Need for the supplemental EIS on the new short-range air defense (SHORAD) emplacement north of Highway 506 for live fire practice with the sparrow and stinger missile systems as this is a major change of mission.
- Fire danger as a result of the firing of the sparrow and stinger missiles and control of such fires.
- Future closing of Highway 506 due to maneuvers associated with the additional missions.

Otero County

The Otero County Manager also submitted comments to Fort Bliss after the scoping period ended. The County's concerns include the following:

- Expansion of installation activities on Otero Mesa. While the group of affected citizens may be small, this group of citizens represent a custom and culture County officials are trying to preserve in the county and throughout the West.
- Effects of heavy equipment maneuvers on county roads, particularly on County Road 506.
- Cattle ranching issues, including munitions-caused fires destroying range grasses.
- Consideration of stationing firefighting apparatus in the vicinity of the Border Patrol check point

on Highway 54.

The comments and concerns of the public and agencies were used to determine the focus of analysis and selection of alternatives. A summary of the comments received during the scoping process is included in the project record, organized by location, meeting date, and subject.

Following publication of the Draft EIS, the Army held four public meetings (one in Texas and three in New Mexico) during a 60-day public comment period that started on October 30, 2009 and closed on December 30, 2009. The oral comments received from these meetings have been presented to Senior Army Leadership to provide additional information to decision makers and they have been used to help shape discussion presented in this FEIS.

In addition to oral comments collected at the public meetings, 61 written comments were received by mail and e-mail. Comments on the Draft EIS are summarized below.

- Potential closure of Highway 506 due to increased live fire training, vehicles crossing the highway, and vehicle trips.
- Depleted uranium contamination of the environment due to vehicles and training activities.
- Potential overcrowding of local schools in the Chaparral area due to increased student population.
- Potential impacts to the environment from solid waste disposal at off-site landfills.
- Increase in dust impacts due to Cantonment and range construction activities.
- Increase in potential for wildfires in the Northeast McGregor Range North of Highway 506 due to live fire exercises.
- Increase in road maintenance activities on the Fort Bliss Training Complex (FBTC) due to increased training activities.
- Potential for using the clean-up of Castner Range as part of the mitigation for potential impacts associated with this EIS.
- Potential impacts to grasslands due to an increase in Fixed Sites, Controlled Field Training Exercise (FTX) military activities, and Off-Road Vehicle Maneuver military activities.
- Potential for an increase in invasive species due to increased military activities.
- Potential impact of the proposed rail road and increased training activities on endangered species habitat and erosion within arroyo-riparian areas.
- Potential impacts to animal grazing units and public recreation access (including hunting) due to an increase in training days, as well as Fixed Site areas, Controlled FTX military activities, Off-Road Vehicle Maneuver, and Live Fire military activities.
- Concerns over the bird and bat surveys used by the Army to determine impact to natural resources.

- Concerns of the Army's ability to identify cultural resources and relevant studies.

NEPA Process

NEPA is a federal environmental law establishing a national policy of procedural requirements for all federal government agencies, including the preparation of an EIS for proposed agency actions. Pursuant to NEPA, the Army must disclose the effects of its proposed GTA activities at Fort Bliss to the public and officials who must make decisions concerning the proposal.

Tiering

The regulations that implement NEPA encourage tiering EISs. Tiering refers to the coverage of general matters in broad EISs (such as the 2007 GTA PEIS) with subsequent narrower environmental analyses (such as those contained within this EIS) that incorporate the general discussions while concentrating solely on the issues specific to the subsequent analysis (CEQ 2007). Tiering is appropriate when the sequence of EISs or analyses is from an EIS on a specific action at an early stage (such as site selection) to a subsequent EIS or analysis at a later stage (site-specific analysis). Tiering in these cases is appropriate when it helps the lead agency focus on the issues that are ready for decision and exclude from consideration issues already decided or not yet timely (CEQ 2007). Tiering also helps to minimize repetition. This EIS assesses use of stationing and training capacity, implementation of land use changes, and training infrastructure improvements at Fort Bliss. In addition to quoting from the broader coverage of the GTA PEIS (October 2007) and the SEIS (March 2007) tiers, this EIS also incorporates more specific information from a variety of other sources referenced in the document bibliography.

Proposed Action

The Army's Proposed Action is to implement at Fort Bliss land use changes and training infrastructure improvements to support the GTA stationing decision. Units considered in the stationing decision include three types of brigade combat teams (BCTs) –HBCTs, IBCTs, and Stryker BCTs (SBCTs) along with the required support from Artillery (Fires) Brigades, Sustainment Brigade Equivalents (SBEs), and Combat Aviation Brigades (CABs).

The HBCT, IBCT, and SBCT are self-contained brigades that provide combat power needed to deploy and fight.

HBCTs have considerable firepower and protective armament. Each HBCT includes four tank companies, four mechanized infantry companies, three reconnaissance troops (company size), two engineer companies, a fires battalion, and one surveillance unit.

IBCTs are designed for rapid deployability, speed, and agility. Each IBCT includes two infantry battalions, a brigade special troops battalion, a reconnaissance, surveillance, and target acquisition squadron, a fires battalion, a brigade support battalion, and a brigade headquarters.

SBCTs are capable of deploying quickly to respond and prevent, contain, stabilize, or resolve small-scale conflicts. Each SBCT includes three infantry battalions, a reconnaissance, surveillance, and target acquisition squadron, a fires battalion, a brigade support battalion, and brigade headquarters.

Fires Brigades, SBEs, and CABs all provide support to the BCTs. The Fires Brigade uses mounted and towed artillery to provide close support and precision strikes. It employs artillery within the unit but also can control and direct the fires of other armed forces or coalition partners. An SBE is a generic term

describing Combat Support and Combat Service Support units of various sizes and compositions. The support is often in the form of fuel, ammunition, parts, food, and contracting services. This grouping represents a potential average unit composition and is used for analysis throughout this document, but other grouping combinations may be present. CABs plan, prepare, execute, and assess aviation and combined arms operations. They are organized with two attack battalions, an assault battalion, a general support battalion, and an aviation support battalion.

Specific alternatives comprising this Proposed Action are indicated in each category of alternatives below.

Alternatives Considered

Three categories of alternatives were identified as critical elements of the Proposed Action, including the following:

- Stationing and Training
- Land Use Changes
- Training Infrastructure Improvements

Each of the three categories of alternatives analyzed contain a no action and several action alternatives. A "cafeteria" approach is expected to be taken, where the decision maker will select one alternative from each of the three categories. These categories and their alternatives are necessary components of action for meeting the Army's requirements for use of stationing and training capacity, and implementation of land use changes, and execution of training infrastructure improvements at Fort Bliss.

The categories, their alternatives, and their impacts are outlined here and discussed in detail in subsequent chapters. In addition, the direct, indirect, and cumulative effects on the natural and human environment of proposed activities are considered in subsequent chapters of this document. Specific alternatives comprising this Proposed Action are identified in each category of alternatives below.

Category 1: Stationing and Training

Category 1: Stationing and Training includes four alternatives, which are all cumulative. That is the features described in Alternative 2 are in addition the features described in Alternative 1, the features described in Alternative 3 are in addition to the features described in Alternative 2, and the features described in Alternative 4 is inclusive of all four alternatives.

A significant consideration in the development of the alternatives was sustaining force readiness. The Army has always focused on maintaining an operationally ready force that can respond to emerging threats and potential contingencies that threaten national security. Maintaining operational readiness means providing Soldiers and leaders with dedicated time to train and rehearse core mission essential tasks, fully employ the capabilities of their equipment in a training environment, and maintain their vehicles, weapons, and other essential combat systems. The Army plan includes a readiness model to manage the force and ensure the ability to support demands for Army forces. This readiness model is the process known as Army Forces Generation (ARFORGEN).

ARFORGEN ensures that individual units receive adequate time to prepare for deployment through training and maintenance activities and that manning, equipping, and resourcing can be synchronized with unit deployments. The ARFORGEN force readiness model brings units to a full state of readiness in

terms of manning, equipment and training before they are scheduled to deploy. The ARFORGEN process is designed to reduce Soldier uncertainty with regards to deployments and provide Combatant Commanders of the U.S. Army with a consistent level of ready forces to execute operations abroad. In providing Commanders with "ready" trained, manned, and equipped units, the ARFORGEN model assumes that active duty units will support one operational deployment in a three year period. This means that at all times one of the HBCTs stationed at Fort Bliss would be deployed abroad.

Stationing and Training Alternative 1 (ST-1)

Stationing and Training Alternative 1 (ST-1) is the No Action Alternative. This alternative implements the GTA Decision as selected in the GTA PEIS, the ROD for which was signed in December 2007. Two IBCTs would be stationed and train at Fort Bliss. Under the ARFORGEN model, one-third of the four HBCTs and two IBCTs stationed at Fort Bliss would be deployed each year of a three year deployment cycle. Under these deployment parameters, one of the three years would likely result in the training of up to three of the four HBCTs and both IBCTs at the FBTC. This assumes that this level of deployment would continue through the foreseeable future. One Brigade Combat Team (BCT) would also train at Fort Bliss each year on a Temporary Duty (TDY) or visiting basis. The environmental impact analysis in this EIS assumed that the TDY or visiting BCT would be an HBCT. However, the TDY or visiting BCT could be of other types, such as IBCT or SBCT.

Stationing and Training Alternative 2 (ST-2)

Under Stationing and Training Alternative 2 (ST-2), the number of BCTs stationed at Fort Bliss would remain the same as ST-1; however, BCT deployment would be halted and all units would be present and training at Fort Bliss. As a result, seven BCTs would train within the FBTC each year. These seven BCTs include the six BCTs stationed (4 HBCTs and 2 IBCTs) at Fort Bliss, and one TDY HBCT.

Stationing and Training Alternative 3 (ST-3)

This alternative seeks to capture reasonably foreseeable future stationing actions based on the availability at Fort Bliss of flexible maneuver spaces and modernized ranges, and Fort Bliss' status as a Power Projection Platform. In this alternative, one SBCT is added to the number of military units stationed at Fort Bliss. Under this alternative, the stationed BCTs would increase from six to seven and would include four HBCTs, two IBCTs, and one SBCT
.
This alternative includes evaluation of capacity of housing, administrative office space, vehicle parking and maintenance space, and quality of life facilities needed to support the additional population. It also considers facilities that are funded for future construction and their projected dates of availability. The alternative analyses evaluate capacity problems and potential construction requirements.

Stationing and Training Alternative 4 (ST-4)- The Preferred Alternative

This alternative adds a second SBCT to the number of units stationed at Fort Bliss. Under this alternative, the stationed BCTs would increase from six to eight and would include four HBCTs, two IBCTs, and two SBCTs. This alternative would also add a second TDY HBCT training. This would result in a total of 10 BCTs training at the FBTC each year, including the four HBCTs, two IBCTs, and two SBCTs stationed at Fort Bliss, and the two TDY HBCTs. With the addition of the second SBCT, the Other Units would increase by one Fires Brigade and three SBEs stationed at Fort Bliss.

Table S-1 below provides a summary comparison of the units associated with each alternative. An explanation of the units represented by the acronyms in the table immediately follows the table.

Table S-1. Summary of Stationed and Training Units by Alternative.

	Stationed Units				Training Units			
Alternative	**HBCT**	**IBCT**	**SBCT**	**Other Units**	**HBCT**	**IBCT**	**SBCT**	**Other Units**
ST-1	4	2	0	*	4[a]	2	0	*
ST-2	4	2	0	*	5[b]	2	0	*
ST-3	4	2	1	*	5[b]	2	1	*
ST-4	4	2	2	**	6[c]	2	2	**

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.

** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss.

a. Training HBCTs = 4 Bliss + 1 TDY minus 1 deployed.

b. Training HBCTs = 4 Bliss + 1 TDY.

c. Training HBCTs = 4 Bliss + 2 TDY.

Category 2: Land Use Changes

This category includes five alternatives. Like Category 1, the features described for each alternative Category 2 are additive to the features described in the previous alternative.

Land Use Changes Alternative 1 (LU-1)

Land Use Changes Alternative 1 (LU-1) is the No Action Alternative and does not propose any land use changes.

Land Use Changes Alternative 2 (LU-2)

This alternative would include changes in land use designations in two primary areas of the FBTC. First, the Army would allow four square kilometers of fixed sites in the Southeast McGregor Range by removing the Grassland Limited Use Area (LUA) restriction in those four square kilometers areas. These fixed sites would be within 1,000 m of a road and predominantly on slopes of less than 30 percent and conceptual location are discussed in this document. Fixed sites would also be allowed in the Sacramento Mountains of the Northeast McGregor Range North of Highway 506 (no changes to the Culp Canyon Wilderness Study Area (WSA) by removing the Grassland LUA in this area.

Land Use Changes Alternative 3 (LU-3)

In addition to LU-2, this alternative includes the features described in LU-2 plus introduces Land Use Category C in Northeast McGregor Range North of Highway 506. This change allows the establishment of Controlled FTX and Mission Support Facilities, and Live-Fire military uses in the Northeast McGregor Range North of Highway 506. This would also establish five square kilometers of Controlled FTX sites on the Northeast McGregor Range North of Highway 506. The Controlled FTX areas would be within 500 meters of existing roads and generally on slopes of less than 30 percent (15 degrees). In addition, with the Grassland LUA removed in LU-2, a Controlled FTX zone would be established in the

Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 on all areas within 500 meters of a road on slopes of less than 30 percent (15 degrees).

Land Use Changes Alternative 4 (LU-4)

Land Use Change Alternative 4 (LU-4) includes the changes proposed in LU-3 and adds Off-Road Vehicle Maneuver: Light military use within limited areas in the Northeast McGregor Range North of Highway 506 to the previous land use change alternatives. Off-Road Vehicle Maneuver of light wheeled vehicles (e.g., High Mobility Multipurpose Wheeled Vehicles [HMMWVs]) would be permitted within 500m of an existing road on slopes of less than 30 percent.

Land Use Changes Alternative 5 (LU-5), The Preferred Alternative

This alternative includes all subsequent land use alternatives and allows three square kilometers of Controlled FTX sites on the Otero Mesa South of Highway 506 by removing the Grassland LUA limitations in these areas. These sites would be located adjacent to existing roads.

Category 3: Training Infrastructure Improvements

As previously discussed, the Army has modernized and standardized the inventory of ranges available at stationing locations that support modular BCTs. This standardization emphasizes the availability of a suite of modular BCT training ranges to ensure that all BCTs have access to critical training infrastructure and can meet requirements for pre-deployment training certification. These modernized ranges incorporate increased levels of digital technology, and they are designed to replicate situations and scenarios encountered in the contemporary and projected future operating environments.

This category includes four alternatives and each subsequent alternative includes all of the features described in the previous alternatives in the training infrastructure improvements category.

Training Infrastructure Improvements Alternative 1 (TI-1)

This is the No Action Alternative and does not propose any improvements to training infrastructure.

Training Infrastructure Improvements Alternative 2 (TI-2)

This alternative analyzes the construction of additional ranges to support the ROD for the 2007 GTA PEIS. Construction of these ranges would use a phased approach, with the first phase including approximately 27 ranges constructed in the FY2010 to 2016 period, with additional ranges constructed as funds are available and depending upon the stationing and Training alternative selected.

Training Infrastructure Improvements Alternative 3 (TI-3)

This alternative includes TI-2 and the expansion of existing range camps and construction of Contingency Operating Locations (COLs) in the FBTC. COL construction is analyzed at the programmatic level, with total and per-instance acreage and possible general locations indicated. COLs are temporary facilities with minimal engineering placed in austere locations along unimproved surface roads.

Training Infrastructure Improvements Alternative 4 (TI-4), The Preferred Alternative

This alternative includes all subsequent training infrastructure improvement alternatives and a rail line connecting the Fort Bliss Cantonment to the FBTC. The rail line would run from the Fort Bliss Cantonment generally north-northeast parallel to US Highway 54 and an existing rail line to a location north of the Orogrande Range Complex. This alternative is in conceptual in nature.

Affected Environment

An EIS evaluate effects to the human environment through short term long term direct, indirect and cumulative factors. These factors are described below.

Short-Term versus Long-Term Effects

Effects may be expressed in terms of duration. The duration of short-term effects is considered to be one year or less, and long-term effects are described as lasting beyond one year. Long-term effects can potentially continue in perpetuity.

Direct, Indirect, and Cumulative Effects

The CEQ regulations for implementing NEPA define three types of effects. They are direct, indirect, and cumulative. Direct effects are those that are caused by an action and occur at the same time and place as the action. Indirect effects are those effects that are caused by an action and that occur later in time or are farther removed in distance from the action.

Cumulative impact is the cumulative effect on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

In addition to the CEQ regulations requiring the analysis of cumulative effects, the Army's implementing regulations to NEPA, *Environmental Analysis of Army Actions* (32 CFR Part 651), also requires that cumulative actions, when viewed with other proposed actions that have cumulatively significant effects, be discussed in the same impact statement. Direct, indirect, and cumulative effects should be viewed together to determine the full effects from each alternative identified in this EIS.

This EIS may identify significant direct or indirect effects for certain resources while finding that there are no significant cumulative effects for the same resource. In addition, the converse may occur where a less than significant direct or indirect project-level impact may tip the scale and cause a significant cumulative impact to the same resource. This difference is normally due to the different geographical context (Region of Influence [ROI]) for measuring direct and indirect versus cumulative effects. The ROI for cumulative impact analysis is generally larger than the ROI for project-related effects. This is because effects to resources at a project level can result in synergistic effects to the same resources at a larger scale, such as regional air quality or the population levels of a certain species.

Valued Environmental Components

In 1997, CEQ published specific guidelines for Cumulative Effects Analysis (CEA), establishing new impact assessment approach (or paradigm) that focuses on important regional resources, as opposed to the traditional action-impact approach used for direct and indirect effects. The new assessment approach

focuses on valued environmental components (VECs), or resources that are important in a specific region. In May 2007, the Army published its NEPA Analysis Guidance Manual. This manual is based on the need for a specific, detailed Army methodology to implement NEPA analysis requirements outlined in the CEQ CEA guidelines. Fort Bliss used the VEC methodology put forward in the CEQ guidance manual in the preparation of this EIS.

Impact Methodology and Significance

A systematic approach to analysis of effects has been developed for this assessment. This approach consists of a description of the components of each alternative, identification of each VEC, development of methods to analyze effects, identification of significance criteria to determine the intensity of effects, and development of mitigation measures that may be implemented to reduce or eliminate effects.

The effects are classified into the following categories:

- Significant
- Significant, but mitigable to less than significant
- Less than significant
- No impact
- Beneficial impact

Summary of Environmental Effects by Category and Alternative

A summary of the classification of direct and indirect, and cumulative effects of implementing each action alternative in each of the categories for implementing the GTA stationing decision at Fort Bliss are presented below on Tables S-2 and S-3, respectively.

Preferred Alternatives

The Army has selected ST-4, LU-5, and TI-4 as the preferred alternatives for this FEIS. These alternatives were selected as the preferred action because together they provide all the stationing, training and facility improvement benefits of the other alternatives and offer the most capacity and flexibility to accommodate foreseeable future stationing and training, land use, and facility requirements.

Table S-2. Classification of Direct and Indirect Effects Associated with the Proposed Action Alternatives

VEC	Stationing and Training				Land Use Changes																				Training Infrastructure Improvements			
					LU-1				LU-2				LU-3				LU-4				LU-5							
	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	TI-1	TI-2	TI-3	TI-4
Land Use	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⦸	⦸
Earth Resources	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	○	⊙	⊙	⊗
Natural Resources	○[1]	○[1]	○[1]	○[1]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	○[2]	⊙[2]	⊙[2]	⊙[2]
Cultural Resources	○[1]	⦸[1]	⦸[1]	⦸[1]	⊙[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	⦸[2]	○[2]	⦸[2]	⦸[2]	⦸[2]
Air Quality	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Water Resources	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	○	⦸	⦸	⦸
Facilities	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙
Transportation and Traffic	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Air Space	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Energy	○	⊙	⊙	⊙	○	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Solid Waste and Hazardous Materials/ Waste	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Noise	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊙	⊙	⊙	⊙
Socioeconomics	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	○	○	○	○

⊗ Significant
⦸ Significant but mitigable to less than significant
⊙ Less than Significant
○ No Impact
1 Classification of impacts to the Fort Bliss Cantonment only.
2 Classification of impacts to the Fort Bliss Training Complex only.

Table S-3. Classification of Cumulative Effects Associated with the Proposed Action Alternatives.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Land Use	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	⊙	⊙
Earth Resources	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Natural Resources	○	○	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Cultural Resources	○	○	○	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○
Air Quality	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○
Water Resources	⊙	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Facilities	○	○	○	○	○	○	○	○	○	○	○	○	○
Transportation and Traffic	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Air Space	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Energy	○	○	⊙	⊙	○	○	○	○	○	○	○	○	○
Solid Waste and Hazardous Materials/ Waste	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○
Noise	⊙	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	⊙	⊙
Socioeconomics	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○

⦸ Significant but mitigate to less than significant.
⊙ Less than Significant
○ No Impact

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CHAPTER 1 PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 Introduction

This Fort Bliss Army Growth and Force Structure Realignment Final Environmental Impact Statement (GFS Final EIS) is intended to inform Army decision makers and the public of the likely environmental consequences of various stationing, land use, and training infrastructure alternatives to support implementation of the 2007 Final Programmatic Environmental Impact Statement for Army Growth and Force Structure Realignment (2007 GTA PEIS) and Global Defense Posture Realignment (GDPR) decisions as they pertain to Fort Bliss.

Fort Bliss is a multi-mission United States Army installation located on approximately 1.12 million acres in Texas and New Mexico (Figure 1-1). It consists of the Cantonment Area and the Fort Bliss Training Complex (FBTC). The Cantonment Area is comprised of the Main Post, William Beaumont Army Medical Center (WBAMC), and Logan Heights. The FBTC is comprised of three large geographic segments: the South Training Areas, the Doña Ana Range-North Training Areas, and McGregor Range.

Fort Bliss was first established in 1849. Since 1957, the installation has been the home of the U.S. Army Air Defense Artillery Center, with its primary mission to support the Army's Air Defense Artillery training. In recent years and under the 2007 GTA PEIS and GDPR decisions, Fort Bliss serves as a Power Projection Platform for regular Army, Army Reserve, and Army National Guard troops mobilizing for deployment.

The Army is continuing the 30-year process of transforming the Army from a Cold War focus to one that addresses new, unconventional threats to national security. The Army has completed the initial phases of this modular transformation effort and continues to implement those actions needed to maintain training and operational readiness levels, preserve a high quality of life for U.S. Army Soldiers and Families, and field a force that is best configured to meet the evolving national security and defense requirements of the 21st century.

The Army has taken action to:

- Realign existing forces.
- Increase its end strength permanently to a size and configuration that is capable of meeting national security and defense objectives.
- Sustain unit equipment and training readiness.
- Ease the deployment burden on its Soldiers and Families.

In April 2007, the U.S. Army signed the Record of Decision (ROD) for the Fort Bliss Texas and New Mexico Mission and Master Plan Final Supplemental Programmatic Environmental Impact Statement (2007 SEIS). The 2007 SEIS sought to realize more fully the training opportunities at Fort Bliss through land use changes and range construction to support stationing of six Heavy Brigade Combat Teams (HBCTs) at Fort Bliss based on the 2005 Base Realignment and Closure (BRAC) Commission and the GDPR decisions.

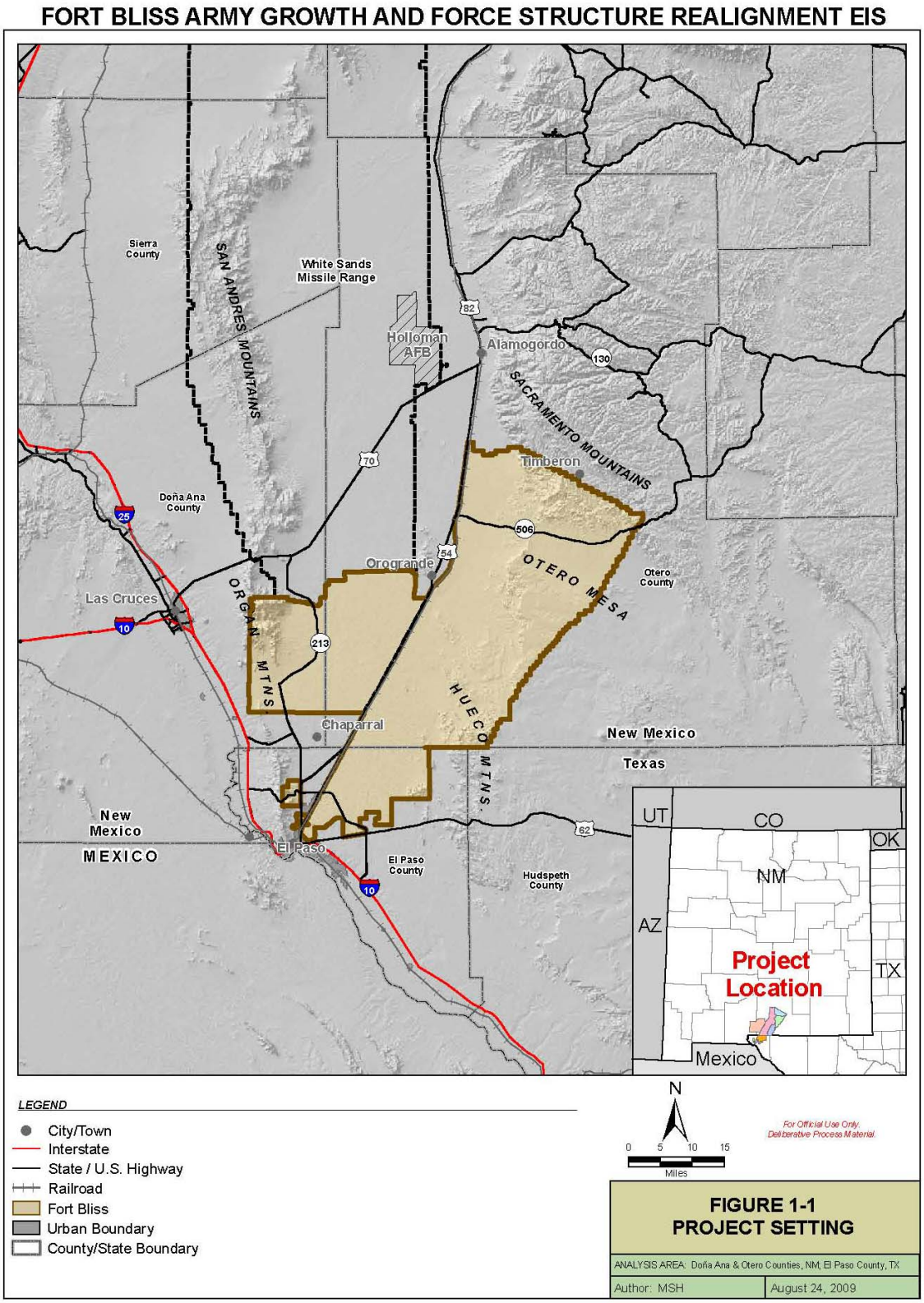


Figure 1-1. Project Setting.

In December 2007, the Army signed the ROD for the 2007 GTA PEIS. This ROD directed the stationing of four HBCTs and two light Infantry Brigade Combat Teams (IBCTs) at Fort Bliss. These stationing changes will leverage the training infrastructure and range modernization at Fort Bliss.

In order to further Army transformation, the Army needs to increase its overall size and restructure its forces in accordance with modular transformation decisions. The resulting increase in the personnel numbers and changes in unit configuration will enhance operational readiness by allowing Soldiers more time to train and maintain their equipment. Additionally, this transformation allows Soldiers and families more time together at home station while providing the nation with greater capability to respond effectively to increased national defense and security challenges.

This GFS Final EIS tiers from the 2007 GTA PEIS, and evaluates the Proposed Action and alternatives for Fort Bliss stationing, land use changes, and training infrastructure improvement. The alternatives support Fort Bliss stationing decisions identified in the GTA PEIS ROD, the installation's continued mobilization and pre-deployment training mission, as well as reasonably foreseeable future stationing decisions. The GFS Final EIS will assist Army decision makers' understanding of the environmental issues and social concerns connected with the stationing action. The information regarding existing conditions and impacts to environmental resources for all alternatives in this GFS Final EIS will allow the Army to make a fair, objective, and comparative assessment of the environmental effects of the Proposed Action and its alternatives.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to support the growth of the Army and to allow for reasonably foreseeable future stationing actions, land use changes, and training infrastructure improvements that take advantage of the Fort Bliss' varied terrain; full suite of training ranges; collocation with heavy, light, and aviation combat units; and collocation with various support units.

The Army needs to implement the Proposed Action to support stationing decisions applicable to Fort Bliss as identified in the ROD for the 2007 GTA PEIS. This recent stationing decision, in combination with previous Transformation, BRAC, and GDPR decisions, as well as other national defense policy documents, defines the known missions for Fort Bliss, and will assist the Army in fielding a sustainable force that matches mission requirements. It allows for the adjustment of the composition of Army forces to accommodate Army transformation objectives and create additional unit capabilities in high demand areas where mission requirements exceed current manning authorizations. The Proposed Action also is necessary to determine land use changes on Fort Bliss to better support the 2007 GTA PEIS decisions and future stationing decisions, as well as continued mobilization and pre-deployment training of units at Fort Bliss. Lastly, the Proposed Action includes training infrastructure improvements supporting the various mission requirements at Fort Bliss. Over the long term, Fort Bliss is a designated military installation whose mission is to continue supporting the evolving operations, infrastructure, training, and testing requirements of the Army.

1.3 NEPA Process

This document has been prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (Public Law 91-190) with regulations published at 40 CFR 1500 et seq. and at 32 CFR 651 et seq. NEPA is a federal environmental law establishing a national policy of procedural requirements for all federal government agencies, including the preparation of EISs for proposed agency actions. NEPA directs the Army to disclose the effects of its proposed GTA activities at Fort Bliss to the public and officials who must make decisions concerning the proposal.

1.3.1 Tiering

Tiering refers to the coverage of general matters in a broad EIS (such as the 2007 GTA PEIS) with subsequent narrower environmental analyses (such as those contained within this Final EIS [FEIS]) that incorporate the general discussions while concentrating solely on the issues specific to the subsequent analysis (CEQ 2007). Tiering is appropriate when the sequence of analyses for EISs moves from an EIS on a specific action at an early stage (such as site selection) to a subsequent EIS or analysis at a later stage (site-specific analysis). Tiering in these cases is appropriate when it helps the lead agency focus on the issues that are ready for decision and exclude from consideration issues already decided or not yet timely (CEQ 2007). Tiering also helps to minimize repetition. This FEIS assesses use of stationing and training capacity, land use changes, and training infrastructure improvements at Fort Bliss and analyzes the impacts of the improvements on Fort Bliss and the adjacent off-post areas or region of influence (ROI). The ROI discussed in this FEIS may vary but generally consists of a three-county area comprised of El Paso County in Texas and Doña Ana and Otero Counties in New Mexico. In addition to referencing and quoting from the broader coverage of the GTA PEIS (October 2007) and the SEIS (March 2007), this FEIS also incorporates more specific information from a variety of other sources referenced in the document bibliography.

1.3.2 Cooperating Agencies

The Bureau of Land Management (BLM), Las Cruces Area Office, and United States Forest Service (USFS) are cooperating agencies on this FEIS as defined in 40 CFR Part 1501.6. BLM has joint responsibility for managing public lands on McGregor Range that have been withdrawn for military use. BLM also provides expertise in resource management and livestock grazing on McGregor Range. The USFS has joint responsibility for managing the Lincoln National Forest within Training Area (TA) 33.

1.3.3 Public Involvement

The public's participation is essential to any successful NEPA analysis. The CEQ and Army NEPA regulations provide several opportunities for the public to participate in this process. These opportunities include a public scoping process that is initiated with publication in the *Federal Register* of a Notice of Intent (NOI) to prepare an EIS, a public review period for the Draft EIS, and publication of the FEIS, accompanied by a 30-day mandatory waiting period before a final decision can be made and a ROD issued.

Public involvement is required for every EIS and, as a matter of Army policy, strongly encouraged for all Army actions. The requirement for public involvement (40 CFR 1506.6) requires that agencies make a diligent effort to involve interested or affected parties, whenever analyzing environmental considerations. This requirement starts at the very beginning of an EIS process by developing a plan to include all affected parties and implementing the plan with appropriate adjustments as it proceeded (32 CFR 651.47). The public involvement plan for this EIS included multiple avenues of communication such as:

- The NOI was published on September 25, 2008 in the Federal Register.

- Four scoping meetings were held for the public. Meetings were announced in the local papers and scheduled for four separate locations (Alamogordo, Chaparral, Las Cruces, New Mexico, and El Paso, Texas). Meetings were held during the week of October 13 through 17, 2008. Each meeting included a presentation by the Army concerning the Proposed Action and the alternatives. Participants were then offered the opportunity to provide written and oral comments. Additionally, information stations were established around the room offering participants information about the FBTC and the associated proposed action and alternatives.

The results of the public scoping included a variety of statements that were reviewed and considered during the preparation of the FEIS.

- Moving forward, local and installation communities receive information through such means as news releases to local media, announcements to local citizens groups, and Commander's letters at each milestone of the project. The dissemination of this information is based on the needs and desires of the local and installation communities.

- Representatives of local, state, tribal, and federal government agencies coordinate at each milestone of the project. At Fort Bliss, consultation with the tribal government occurred from June 7 through 12, 2009.

- The GFS Draft EIS along with a notice for public meetings, and a public comment form were distributed to individuals and organizations on the Distribution List and submitted to U.S. Environmental Protection Agency (USEPA) on October 30, 2009.

- The Notice of Availability (NOA) was published by the Army in the El Paso Times, Las Cruces Sun-News, Alamogordo Daily News, and Fort Bliss Monitor on October 30, 2009 and in the Federal Register on November 3, 2009.

- Copies of the GFS Draft EIS were made available for public review at eight libraries in the region and on the Fort Bliss website.

- The public review period for the GFS Draft EIS ended December 30, 2009. During the review period, Fort Bliss conducted two field visits and held four public meetings. The field visits, conducted on November 12, 2009 and December 14, 2009, provided interested members of the public an opportunity to tour the FBTC, specifically the Northeast McGregor Range North of Highway 506. The public meetings were held in Alamogordo, New Mexico on November 16, 2009; Las Cruces, New Mexico on November 17, 2009; Chaparral, New Mexico on November 18, 2009; and El Paso, Texas on November 19, 2009. During each meeting, the Army provided a presentation describing the Proposed Action, the associated alternatives, and the EIS process. Displays and handouts summarizing the Proposed Action, the other alternatives and their environmental consequences were distributed to participants and available throughout the meeting.

- Following the presentation, members of the public had the opportunity to make oral comments on the GFS Draft EIS. A total of nine oral comments were received as a result of all four public meetings. All of these comments were recorded for the record by a court reporter. By the end of the 60-day comment period, the Army had received 11 letters, one comment form, and nine e-mails, which contained a total of 61 written comments. A total of 70 oral and written comments were received and addressed from the public review period. Copies of the written comments and responses to all 70 oral and written comments are included in Appendix C of this FEIS.

- Communication with public affairs officers at all Army, USEPA, and cooperating agency levels.

1.4 CHANGES BETWEEN THE DRAFT AND THE FINAL EIS

The following changes and additions have been made to the GFS Draft EIS in response to the public comments:

- A new appendix (Appendix C Comments and Responses) has been added. It contains transcripts of the public meetings held to accept comments on the GFS Draft EIS and copies of all written comments received during the review period. It also contains responses to those comments.

- Additional information has been added to Sections 2.2.2, 3.1.1.4.5, 3.2.6, 3.2.7, 3.2.8, 3.2.9, 3.4.11, 3.5.3.5, 3.6.1.3, 3.7.4.4, 3.7.5.5, 3.10, 3.21.2.1.7, Table 4-2, and Table 5-1 to clarify or expand upon land use, impacts from live fire training, invasive species management, impacts to natural resources, cultural resource analyses, air quality analyses, lack of depleted uranium at Fort Bliss, cumulative impacts, and mitigation and monitoring. Minor additions and corrections have been made in various parts of the document.

CHAPTER 2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and alternatives that the Army evaluated for this FEIS. The Purpose and Need described in Chapter 1 sets forth a context in which to analyze the alternatives. The Purpose and Need, while defining necessary elements, allows consideration of several alternatives that comprise the Proposed Action. Specific criteria for evaluating the various alternatives in each category include mission support, technical viability, economic feasibility, and sustainability.

2.1 Proposed Action

The Proposed Action will assist the Army in the implementation of actions needed to support the Army's decisions on growth, realignment, and modernization at Fort Bliss as documented in the ROD for the 2007 GTA PEIS, dated December, 2007 and the May 11, 2009 Training and Doctrine Command (TRADOC) modernization plan (U.S. Army 2009). These actions would allow the Army to achieve a size and composition that is better able to meet national security and defense requirements, modify the force in accordance with Army Transformation, sustain unit equipment and training readiness, and preserve quality of life for the Soldiers and their Families. The Proposed Action will be comprised of elements from each of the three categories defined in this analysis: the GTA and reasonably foreseeable stationing/training actions, land use changes, and training infrastructure improvements. Most of Fort Bliss' current Air Defense mission will continue to include Patriot and other missile firings, Theater High Altitude Air Defense (THAAD) radar battery testing and training, and Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) training.

2.2 Alternatives Considered

A significant consideration in the development of the alternatives is sustaining force readiness. The Army focuses on maintaining an operationally ready force that can respond to situations that may threaten national security. Maintaining force readiness means providing Soldiers and leaders with time to train and rehearse on core mission-essential tasks, fully employ the capabilities of their equipment, and maintain their vehicles, weapons, and other essential combat systems.

Alternatives to the Proposed Action were developed in internal scoping meetings with the Fort Bliss Garrison, Installation Management Command – West Region, and the U.S. Army Environmental Command staff. These alternatives were presented in public scoping meetings in Alamogordo, Las Cruces, and Chaparral, New Mexico; and El Paso, Texas, during the week of October 13 through 17, 2008. The purpose of the public scoping meetings was to provide a clear explanation of the Proposed Action, and to engage the public in the decision making process by soliciting input on the range of alternatives and potential environmental impacts proposed for analysis.

The following three categories were identified for evaluation as part of the Proposed Action:

- Stationing/Training
- Land Use Changes
- Training Infrastructure Improvements

Each of the three categories analyzed contains a No Action and several action alternatives. These categories and their alternatives are necessary components of action to meet the Army's requirements for use of stationing and training capacity. They also comprise the associated necessary land use changes and training infrastructure improvements at Fort Bliss.

The categories, their alternatives, and their impacts are separated out in this chapter and subsequent environmental analysis chapters for ease of comparison and understanding. The direct, indirect, and cumulative effects on the natural and human environment are considered in subsequent chapters of this document. Specific alternatives within each category comprising the Proposed Action are identified below. A description of each alternative is also provided.

2.2.1 Category 1: Stationing/Training

The Category 1 alternatives address the stationing and training of various units at Fort Bliss. Units considered in these alternatives include three types of brigade combat teams (BCTs) – Heavy BCTs (HBCTs), Infantry BCTs (IBCTs), and Stryker BCTs (SBCTs) – along with the required support from Artillery (Fires) Brigades, Sustainment Brigade Equivalents (SBEs), Combat Aviation Brigades (CABs), and other combat support and service units (all referred to as 'Other Units').

The stationing component of Category 1 alternatives accounts for the facilities necessary to station each of the alternative's units at Fort Bliss. These include garrison operations for the units and quality of life facilities for the Soldiers and their families. Adequate garrison facilities are required to ensure that the units are administratively prepared and functionally equipped to support deployments. Stationing of units, particularly BCTs, requires dedicated administrative office space, motor pools, vehicle maintenance facilities, and weapons armories. Quality of life facilities include adequate housing and living space, schools, medical facilities, and recreational facilities. These facilities are generally located in the Cantonment.

The training component of Category 1 focuses on the units training at the FBTC and includes the units stationed at Fort Bliss as well as units stationed elsewhere but deployed to Fort Bliss to accomplish some or all of their training requirements. Other aspects of training are also examined in the other Categories. Category 2 alternatives focus on the land use associated with training on the FBTC. Category 3 alternatives, in contrast, examine construction or emplacement of training infrastructure.

Table 2-1 provides the number of military units that comprise each stationing and training alternative. As shown in Table 2-1, Stationing and Training Alternative 1 (ST-1) and Stationing and Training Alternative 2 (ST-2) would contain the same number of military units stationed at Fort Bliss. One BCT would also train at Fort Bliss each year on a TDY or visiting basis. This FEIS assumed that the TDY or visiting BCT would be an HBCT. However, the TDY or visiting BCT could be of other types, such as IBCT or SBCT.

The training units under ST-1 and ST-2 differ, however, because under ST-1 one of the stationed HBCTs would be deployed and would not train at Fort Bliss. Stationing and Training Alternative 3 (ST-3) adds an SBCT to the units stationed and training at Fort Bliss. Stationing and Training Alternative 4 (ST-4), the preferred stationing and training alternative, adds a second SBCT to the units stationed and training at Fort Bliss, along with a second TDY or visiting HBCT. In addition, one Fires Brigade and three SBEs would station and train at Fort Bliss under ST-4. Each stationing and training alternative are further discussed in the following sections.

Table 2-1. Summary of Stationed and Training Units by Alternative.

Alternative	Stationed Units				Training Units			
	HBCT	IBCT	SBCT	Other Units	HBCT	IBCT	SBCT	Other Units
ST-1	4	2	0	*	4[b]	2	0	*
ST-2	4	2	0	*	5[c]	2	0	*
ST-3	4	2	1	*	5[c]	2	1	*
ST-4[a]	4	2	2	**	6[d]	2	2	**

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.
** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss.
a. The preferred stationing and training alternative for the FEIS.
b. Training HBCTs = 4 Bliss + 1 TDY minus 1 deployed.
c. Training HBCTs = 4 Bliss + 1 TDY.
d. Training HBCTs = 4 Bliss + 2 TDY.

The HBCTs, IBCTs, SBCTs, and Other Units vary in terms of mission, equipment, and personnel. The HBCTs, IBCTs, and SBCTs are self-contained brigades that provide combat power needed to deploy and fight. HBCTs have considerable firepower and protective armament. Each HBCT includes four tank companies, four mechanized infantry companies, three reconnaissance troops (company size), two engineer companies, a fires battalion, and one surveillance unit.

IBCTs are designed for rapid deployment, speed, and agility. Each IBCT includes two infantry battalions, a brigade special troops battalion, a reconnaissance, surveillance, and target acquisition squadron, a fires battalion, a brigade support battalion, and a brigade headquarters.

SBCTs are capable of deploying quickly to respond and prevent, contain, stabilize, or resolve small-scale conflicts. Each SBCT includes three infantry battalions, a reconnaissance, surveillance, and target acquisition squadron, a fires battalion, a brigade support battalion, and brigade headquarters.

Fires Brigades, SBEs, CABs, and other combat support and service units provide support to the BCTs. The Fires Brigade uses mounted and towed artillery to provide close support and precision strikes. It employs artillery within the unit but also can control and direct the fires of other armed forces or coalition partners. An SBE is a generic term describing Combat Support and Combat Service Support units of various sizes and compositions. The support is often in the form of fuel, ammunition, parts, food, and contracting services. This grouping represents a potential average unit composition and is used for analysis throughout this document, but other grouping combinations may be present. CABs plan, prepare, execute, and assess aviation and combined arms operations. They are organized with two attack battalions, an assault battalion, a general support battalion, and an aviation support battalion.

Each military unit contains an estimated quantity of tracked and wheeled vehicles that are grouped according to the low (L), medium (M), and high (H) soil contact pressure exerted on the underlying soils by each wheel or track. The vehicle soil contact pressures shown in Table 2-2 are based on vehicle weight. The vehicle weight was based on normal design loads or combat weights, equipment, cross country tire pressures, and crews as the conditions would be under full operational deployment in typical off-road movements.

As summarized in Table 2-2, a majority of the wheeled vehicles are generally classified as L or M, with the exception of the Heavy Expanded Mobility Tactical Truck (HEMTT) and the Stryker type vehicles that have an H classification. Tracked vehicles are generally classified as L, with the exception of the M1A1 Abrams Tank and M88 Recovery Vehicle which have an M classification.

Table 2-2. Contact Pressure Classification for Common Military Vehicles.

Type of Vehicle	Weight (tons)	Total tire/track pad contact width (cm)	Soil Contact Pressure (kg/cm^2)	Soil Contact Pressure Classification
Wheeled Vehicles				
HEMTT (M977)	19.4	44.5	6	H
High Mobility Multipurpose Wheeled Vehicle (HMMWV) (M998)	2.6	26.7	2	L
Light Medium Tactical Vehicle (LMTV) (M1078)	7.4	31.8	3	M
MTV (M1084)	11.8	35.6	3	M
All Terrain Lifter Articulated System (ATLAS)	16.75	59.7	4	M
Stryker	19	40.6	5	H
Tracked Vehicles				
Self-Propelled 120mm Mortar (M1064)	13.8	38.1	2	L
Abrams tank (M1A1)	68	63.5	4	M
Bradley fighting vehicle (M2/M1)	33.5	53.3	2	L
Recovery vehicle (M88)	70	71.1	3	M
Armored Personnel Carrier (M113)	12.9	38.1	2	L

cm centimeter
Kg/cm2 kilograms per square centimeter

The number of Soldiers and vehicles/aircraft are listed in Table 2-3 for the military units that would be stationed at Fort Bliss. As shown in Table 2-3, a majority of the tracked vehicles with L and M classifications are contained in an HBCT. IBCTs contain the most wheeled vehicles with an L classification, and SBCTs contain the most wheeled vehicles with an M and H classification. SBCTs employ the most Soldiers and consequently, have the largest count of total vehicles, all of which are wheeled. Both the HBCTs and IBCTs contain the same number of unmanned aerial vehicles (UAVs), while rotary wing aircrafts (RWAs) are exclusive to the CAB support unit.

Table 2-3. Number of Soldiers and Vehicles/Aircraft in each Military Unit Stationed at Fort Bliss.

Military Unit	Soldiers	Number of Vehicles/Aircraft							
		L Classification		M Classification		H Classification		UAVs	RWA[1]
		W	T	W	T	W	T		
HBCT	3,800	438	247	241	91	128	0	16	0
IBCT	3,500	621	2	230	0	112	0	16	0
SBCT	4,100	426	0	282	0	486	0	4	0
Other Units*	18,300	1,535	18	720	10	350	0	0	220
Other Units**	21,400	3,784	36	1,362	20	464	0	0	220

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.
** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss.
T Tracked vehicles.
W Wheeled vehicles.
UAVs Unmanned aerial vehicles.
1. Rotary wing aircraft (RWA) include attack helicopters, utility helicopters, cargo helicopters, and medevac helicopters.

The number of non-military and dependent personnel, the required military unit vehicles, the required military unit aircraft, and the development within the Cantonment associated with the stationed and training alternatives are included in Table 2-4. The number of military dependents was based on a multiplier of 1.52 from the Army Stationing Installation Plan (ASIP 2008).

Table 2-4. Personnel, Vehicle, and Cantonment Details for each Stationing and Training Alternative.

Stationed and Training Units by Alternative	Number of Personnel				Number of Vehicles/Aircrafts								Cantonment		
					L Classification		M Classification		H Classification						
	Military[1]	Other Personnel[2]	Military Family[3]	Total	W	T	W	T	W	T	RWA	UAV	Extent of Additional Development (acres)	Additional Building Construction (ft^2)	Extent of Additional Impervious Surface (acres)
ST- 1															
Stationed Units	40,500	17,400[a]	61,600	119,500	4,529	1,010	2,215	374	1,120	0	220	96	0	0	0
Training Units[4]	36,700	3,800	N/A	40,500	4,529	1,010	2,215	374	1,120	0					
ST- 2															
Stationed Units	40,500	17,400[a]	61,600	119,500	4,529	1,010	2,215	374	1,120	0	220	96	0	0	0
Training Units[4]	40,500	3,800	N/A	44,300	4,967	1,257	2,456	465	1,248	0		112			
ST-3															
Stationed Units	44,600	19,200[a]	67,800	131,600	4,955	1,010	2,497	374	1,606	0	220	100	240	1,660,000	315
Training Units[4]	44,600	3,800	N/A	48,400	5,393	1,257	2,638	465	1,734	0		116			
ST-4															
Stationed Units	51,800	22,300[a]	78,700	152,800	5,381	1,010	2,779	374	2,092	0	220	104	480	3,320,000	630
Training Units[4]	51,800	7,600	N/A	59,400	6,373	1,275	3,212	475	2,334	0		136			

All numbers are approximate.

ft^2 Square feet of building capacity
NA Not applicable.
RWA Rotary wing aircraft.
T Tracked vehicle.
UAV Unmanned Aerial Vehicle
W Wheeled Vehicle

a. Estimation based on a 0.43 multiple of military column values.

1. Active duty, permanent party U.S. military assigned to Fort Bliss.
2. Includes non-U.S. military, civilian employees, students, and military temporary duty personnel training on the FBTC.
3. Estimation based on a 1.52 multiple of military column values.
4. Training unit numbers are inclusive of units stationed at Fort Bliss, and TDY under the 'Other Personnel' column.

Using the number of vehicles presented in Table 2-4, the percent of wheeled and tracked vehicle in each vehicle soil pressure contact classification can be determined for each stationing and training alternative (Table 2-5). As shown in Table 2-5, a majority of the vehicles with L and M classifications are wheeled, while the vehicles with H classifications are 100 percent wheeled.

Table 2-5. Composition of Wheeled and Tracked Vehicles Training under Each Stationing and Training Alternative.

Stationing and Training Alternative	L Classification		M Classification		H Classification	
	W	T	W	T	W	T
ST-1	82%	18%	85%	15%	100%	0%
ST-2	80%	20%	83%	17%	100%	0%
ST-3	81%	19%	82%	18%	100%	0%
ST-4	83%	17%	85%	15%	100%	0%

BCT units train in accordance with the Army doctrine standards in Training Circular (TC) 25-1. TC 25-1 provides unit-specific information detailing the size of the maneuver training box in squared kilometers, the number of annual training repetitions, and the total days per each repetition to determine a total square kilometer days (km^2d) annual maneuver space requirement.

The annual maneuver space requirements for each stationing and training alternative are summarized in Table 2-6. The annual maneuver space requirements are accomplished by rotational scheduling of units into Training Areas (TAs). Correlation between annual maneuver space requirements to Army doctrine standards and actual training that occurs at any particular installation may vary based on numerous scheduling influences and operational requirements. Based on TC 25-1 and input from unit operational planners, an HBCT has an annual maneuver space requirement of 109,000 km^2d (SEIS 2007).

The annual maneuver space requirements for one IBCT and one SBCT are based on ratio multipliers from the maneuver land requirements for an HBCT (170,000 acres [688 square kilometers]), an IBCT (112,000 acres [453 square kilometers]), and an SBCT (225,000 acres [911 square kilometers]), which are the planning numbers from the Department of Army Military Operations, Training (DAMO-TR) information paper dated June 2, 2008. Applying these ratio multipliers resulted in 72,000 km^2d and 144,000 km^2d annual maneuver space requirements for each IBCT and SBCT, respectively.

In accordance with the Army Training Support Center's (ATSC) Army Ranges and Training Land Program Requirement Model calculations, the annual maneuver space requirement for Other Units was collectively calculated at a 1.35 multiplier of the 109,000 km^2d for an HBCT, which resulted in an annual maneuver space requirement of 147,000 km^2d (SEIS 2007). To account for the increase in support units under ST-4, the annual training capacity for the Other Units was increased from a 1.35 multiplier to a 2.0 multiplier of the 109,000 km^2d for an HBCT, which resulted in an annual maneuver space requirement of 218,000 km^2d.

Table 2-6. Summary of Annual Maneuver Space Requirement by Stationing and Training Alternative.

Military Unit	Annual Requirement (km^2d)	ST-1		ST-2		ST-3		ST-4	
		Number of Training Units	Annual Requirement (km^2d)	Number of Training Units	Annual Requirement (km^2d)	Number of Training Units	Annual Requirement (km^2d)	Number of Training Units	Annual Requirement (km^2d)
HBCT	109,000	4	436,000	5	545,000	5	545,000	6	654,000
IBCT	72,000	2	144,000	2	144,000	2	144,000	2	144,000
SBCT	144,000	0	0	0	0	1	144,000	2	288,000
Other Units*	147,000[a]	N/A	147,000	N/A	147,000	N/A	147,000	0	0
Other Units**	218,000[a]	0	0	0	0	0	0	N/A	218,000
Total			727,000		836,000		980,000		1,304,000

[a] Based on ATSC model calculations, support units are collectively calculated by a multiplier of the HBCT.
* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.
** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss. Applies only to ST-4.

Based on TC 25-1 and input from unit operational planners, the average percent of on-road and off-road distance driven by L, M, and H vehicle classifications under each alternative can be determined (Table 2-7). As shown on Table 2-7, the percent of vehicles with an L-classification that are driven on-road steadily decreases from 54 percent under ST-1 to 45 percent under ST-4. Conversely, the percent of vehicles with an H-classification steadily increases from 13 percent under ST-1 to 26 percent under ST-4. This increase in H-classification vehicles under ST-3 and ST-4 is based on the presence of SBCTs and associated Stryker vehicles, which have an H-classification and conduct 90 percent of vehicle maneuver training on-road. Under all alternatives, an average of 30 percent of all vehicles driven on-road have an M-classification. The percent of all vehicles driven off-road with L-classifications (65 percent), M-classifications (27 percent), and H-classifications (8 percent) generally remains the same under all alternatives. This is also based on the presence of SBCTs, which only conduct 10 percent of vehicle maneuver training off-road.

Table 2-7. Average Percent of On-Road and Off-Road Distance Driven by Vehicle Classification in each Alternative.

Military Unit	ST-1		ST-2		ST-3		ST-4	
	On-Road	Off-Road	On-Road	Off-Road	On-Road	Off-Road	On-Road	Off-Road
L-Classification	54%	65%	53%	66%	48%	65%	45%	64%
M-Classification	33%	27%	33%	27%	30%	27%	29%	27%
H-Classification	13%	8%	14%	7%	22%	8%	26%	9%

Based on TC 25-1, the quantity of military units training at Fort Bliss (Table 2-1), and the average percent of on-road distance driven (Table 2-7), a total linear kilometer on-road vehicle maneuver distance can be determined as part of each military unit's annual on-road training requirement (Table 2-8).

Table 2-8. Annual On-Road Vehicle Maneuver Distances Required by Stationing and Training Alternative.

Military Unit	On-Road Distance (km)	ST-1		ST-2		ST-3		ST-4	
		No. of Units	On-Road Distance (km)	No. of Units	On-Road Distance (km)	No. of Units	On-Road Distance (km)	No. of Units	On-Road Distance (km)
HBCT	358,100	4	1,432,400	5	1,790,500	5	1,790,500	6	2,148,600
IBCT	462,100	2	924,200	2	924,200	2	924,200	2	924,200
SBCT	1,154,000	0	0	0	0	1	1,154,000	2	2,308,000
Other Units*	297,400	1	297,400	1	297,400	1	297,400	0	0
Other Units**	438,200	0	0	0	0	0	0	1	438,200
Total			**2,654,000**		**3,012,100**		**4,166,100**		**5,819,000**

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.
** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss. Applies only to ST-4.

For off-road vehicle use, the estimated annual training requirement is measured in square kilometers. The quantity of military units training at Fort Bliss (Table 2-1), vehicle classifications (Table 2-2), and average percent of off-road distance driven (Table 2-7), can be used to determine the physical wheel/track off-road footprint from the vehicles (a total off-road ground [square kilometers] contact) as part of each military unit's annual off-road training requirement (Table 2-9).

Table 2-9. Summary of Annual Off-Road Ground Contact by Stationing and Training Alternative.

Military Unit	Ground Contact (km^2)	ST-1		ST-2		ST-3		ST-4	
		Number of Training Units	Ground Contact (km^2)	Number of Training Units	Ground Contact (km^2)	Number of Training Units	Ground Contact (km^2)	Number of Training Units	Ground Contact (km^2)
HBCT	460	4	1,840	5	2,300	5	2,300	6	2,760
IBCT	180	2	360	2	360	2	360	2	360
SBCT	90	0	0	0	0	1	90	2	180
Other Units*	555	1	555	1	555	1	555	0	0
Other Units**	780	0	0	0	0	0	0	1	780
Total			**2,755**		**3,215**		**3,305**		**4,080**

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.
** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss. Applies only to ST-4.

2.2.1.1 Alternative 1 – No Action (ST-1)

2.2.1.1.1 Units Stationing and Training at Fort Bliss

ST-1 is the selected alternative from the 2007 ROD for the SEIS (Alternative 4) as modified by the ROD for the 2007 GTA PEIS. It includes the stationing at Fort Bliss of four HBCTs and two IBCTs (Table 2-1).

Under ST-1 and as shown in Table 2-1, four HBCTs and two IBCTs would train at Fort Bliss each year. Under the Army's force generation (ARFORGEN) model, one-third of the four HBCTs and two IBCTs stationed at Fort Bliss would be deployed each year of a three year deployment cycle. Under these deployment parameters, one of the three years would likely result in the training of up to three of the four HBCTs and both IBCTs at the FBTC. This assumes that this level of deployment would continue through the foreseeable future. The equivalent of one HBCT would also train at Fort Bliss each year on a TDY or visiting basis. A total of 40,500 Soldiers would train at the FBTC annually under ST-1.

The number of Soldiers stationed at Fort Bliss under this alternative would be approximately 40,500 and the overall stationed population of Fort Bliss (including military families) would be approximately 119,500 people (Table 2-4).

2.2.1.1.2 Training Requirements

This alternative would result in a total maneuver requirement of 727,000 km^2d (Table 2-6). The kilometers of on-road vehicle maneuver would be approximately 2,654,000 kilometers (Table 2-8). The ground contact from off-road vehicle maneuver each year would total approximately 2,755 square kilometers (Table 2-9).

2.2.1.1.3 Cantonment Construction for Stationed Units

Under this alternative, approximately 40,500 Soldiers would be stationed at Fort Bliss (Table 2-4). No additional development of the Cantonment or renovation of existing structures would be required. Approximately 4,000 acres are being developed within the Cantonment, and an additional 1,500 acres on the east side of Biggs Army Airfield (AAF) and along the existing camp areas are being developed. This acreage includes approximately 1,300 acres of additional impervious surface area and 21.9 million square feet of new building construction. The new development extends the Cantonment to the north and east, up to and extending east of Loop 375 into a portion of TA 1B. This on-going development of the Cantonment and renovation of existing structures was previously analyzed (SEIS 2007). The facilities within the Cantonment would be constructed in accordance with the minimum antiterrorism standards identified in the current Unified Facilities Criteria 4-010-01and subsequent updates.

2.2.1.2 Alternative 2 – No Deployment (ST-2)

2.2.1.2.1 Units Stationed and Trained at Fort Bliss

Under ST-2, the number of BCTs stationed at Fort Bliss would remain the same as ST-1; however, BCT deployment would be halted and all units would be present and training at Fort Bliss. As a result, seven BCTs would train within the FBTC each year. These seven BCTs include the six BCTs stationed (four HBCTs and two IBCTs) at Fort Bliss, and one TDY or visiting HBCT (Table 2-1).

The number of Soldiers stationed at Fort Bliss would be the same as for ST-1. The number training would increase by one HBCT (the HBCT that otherwise would be deployed) to 44,300 Soldiers (Table 2-4).

2.2.1.2.2 Training Requirements

This alternative would result in a total maneuver requirement of 836,000 km^2d (Table 2-6). The kilometers of on-road vehicle maneuver would be approximately 3,012,100 kilometers (Table 2-8). The ground contact from off-road vehicle maneuver each year would total approximately 3,215 square kilometers (Table 2-9).

2.2.1.2.3 Cantonment Construction for Stationed Units

Under this alternative, approximately 40,500 Soldiers would be stationed at Fort Bliss (Table 2-4). As discussed for ST-1, no additional development of the Cantonment or renovation of existing structures would be necessary beyond that previously analyzed.

2.2.1.3 Alternative 3 – Additional Stryker Unit (ST-3)

2.2.1.3.1 Units Stationed and Trained at Fort Bliss

ST-3 adds one SBCT to the number of military units stationed at Fort Bliss. Under this alternative, the stationed BCTs would increase from six to seven and would include four HBCTs, two IBCTs, and one SBCT (Table 2-1).

A total of eight BCTs would train at the FBTC each year, including the four HBCTs, two IBCTs, and one SBCT stationed at Fort Bliss, and one TDY or visiting HBCT (Table 2-1). This would result in a total of 48,400 Soldiers training annually at the FBTC.

Under this alternative, the number of Soldiers stationed at Fort Bliss would increase to approximately 44,600 and the overall stationed population of Fort Bliss (including military families) would increase to approximately 131,600 people. Redevelopment and the associated construction disturbance, along with new impervious surfaces would be expected within the Cantonment (Table 2-4).

2.2.1.3.2 Training Requirements

Under this alternative, the annual maneuver space requirement for the five HBCTs, two IBCTs, one SBCT, and the Other Units would be 980,000 km^2d (Table 2-6). The kilometers of on-road vehicle maneuver would be approximately 4,166,100 km annually (Table 2-8). The ground contact from off-road vehicle maneuver in this alternative would be 3,305 square kilometers annually (Table 2-9).

2.2.1.3.3 Cantonment Construction for Stationed Units

Under this alternative, 44,600 Soldiers would be stationed at Fort Bliss (Table 2-4). Redevelopment in the Cantonment would be needed to meet requirements for garrison operations and quality of life facilities for the Soldiers and their Families. This would not result in expansion of the existing Cantonment footprint, but would require redevelopment within the existing Cantonment. The area of redevelopment would be 240 acres and additional building construction would be 1.66 million square feet for the additional SBCT stationed. The new facilities within the Cantonment will be constructed in accordance with the minimum antiterrorism standards identified in the current Unified Facilities Criteria 4-010-01and subsequent updates. The additional impervious surface is expected to increase by 315 acres (Table 2-4).

2.2.1.4 Alternative 4 – Additional Units (ST-4)

2.2.1.4.1 Units Stationed and Trained at Fort Bliss

ST-4, the preferred stationing and training alternative, adds a second SBCT to the number of units stationed at Fort Bliss. Under this alternative, the stationed BCTs would increase from seven to eight and would include four HBCTs, two IBCTs, and two SBCTs. With the addition of the second SBCT, the Other Units would increase by one Fires Brigade and three SBEs stationed at Fort Bliss (Table 2-1).

ST-4 would add a second TDY HBCT training. This would result in a total of 10 BCTs training at the FBTC each year, including the four HBCTs, two IBCTs, and two SBCTs stationed at Fort Bliss, and the two TDY or visiting HBCTs (Table 2-1). This would result in a total of 59,400 Soldiers training annually at the FBTC.

Under this alternative, the number of Soldiers stationed at Fort Bliss would increase to approximately 51,800 and the overall stationed population of Fort Bliss (including military families) would increase to approximately 152,800 people. Redevelopment and the associated construction disturbance, along with new impervious surfaces would be expected within the Cantonment (Table 2-4).

2.2.1.4.2 Training Requirements

The training requirements for ST-4 would increase from ST-3 by two HBCTs, one SBCT, one Fires Brigade, and three SBEs. Under this alternative, the annual maneuver space requirement for the six HBCTs, two IBCTs, two SBCTs, and Other Units would be 1,304,000 km^2d (Table 2-6). The kilometers of on-road vehicle maneuver would be approximately 5,819,000 kilometers annually (Table 2-8). The ground contact from off-road vehicle maneuver in this alternative would be 4,080 square kilometers annually (Table 2-9).

2.2.1.4.3 Cantonment Construction for Stationed Units

Under this alternative, 51,800 Soldiers would be stationed at Fort Bliss (Table 2-4). Redevelopment in the Cantonment would be needed to meet requirements for garrison operations and quality of life facilities for the Soldiers and their families. As with ST-3, ST-4 would not result in expansion of the existing Cantonment footprint, but would require redevelopment within the existing Cantonment. The area of redevelopment would be 480 acres and additional building construction would be 3.32 million square feet for the additional SBCT stationed. The new facilities within the Cantonment will be constructed in accordance with the minimum antiterrorism standards identified in the current Unified Facilities Criteria 4-010-01and subsequent updates. The additional impervious surface is expected to increase by 630 acres (Table 2-4).

2.2.2 Category 2: Land Use Changes

The Category 2 alternatives address changes to land use in the FBTC that would be needed to support the training of units included in the Category 1 alternatives (Section 2.2.1). This category includes five alternatives. The features described for each alternative in Category 2 are additive to the features described in the previous alternative. For example, Land Use Change Alternative 3 (LU-3) includes the features of Land Use Change Alternatives 1 (LU-1) and 2 (LU-2) plus the features specific to LU-3, and Land Use Change Alternative 4 (LU-4), the preferred land use alternative, includes the features of LU-1 through LU-3 plus the features specific to LU-4.

As shown in Table 2-10, the FBTC contains 4,383 square kilometers of land and consists of three large geographical segments: the South Training Areas in El Paso County, Texas; the Doña Ana Range-North Training Areas, in Doña Ana and Otero Counties, New Mexico; and the McGregor Range, in Otero County, New Mexico. McGregor Range is further divided into the Tularosa Basin, Otero Mesa South of Highway 506, Northeast McGregor Range North of Highway 506, and the Southeast McGregor Range. The FBTC is subdivided into numbered TAs to manage and schedule the different training missions (Figure 2-1).

Table 2-10. Summary of Land on the FBTC.

FBTC Subdivision	Total Area (km^2)	Total Training Space Available (km^2)
South Training Areas	373	373
Doña Ana Range-North Training Areas[1]	1,196	1,057
Tularosa Basin of McGregor Range	1,440	1,440
Southeast McGregor Range	392	392
Northeast McGregor Range North of Hwy 506	424	424
Otero Mesa South of Hwy 506	558	558
FBTC Total	**4,383**	**4,244**

1 Approximately 139 km^2 of land area in the Organ Mountains west of the Doña Ana Range impact areas are primarily used for safety danger zones for the ranges, and separated from those ranges and other maneuver space by duded impact areas, and are not included in calculations for km^2 of space used for maneuver.

Using the 4,244 square kilometers of total training space available, the FBTC contains 1,549,060 km^2d of maneuver space within a year training period. The square kilometer day metric is used for direct comparisons of percent training days scheduled between subdivisions of the FBTC. The comparison of the km^2d percentages between the subdivisions is a more precise index than the specific percentage or number of days of expected use in any particular subdivision of the FBTC.

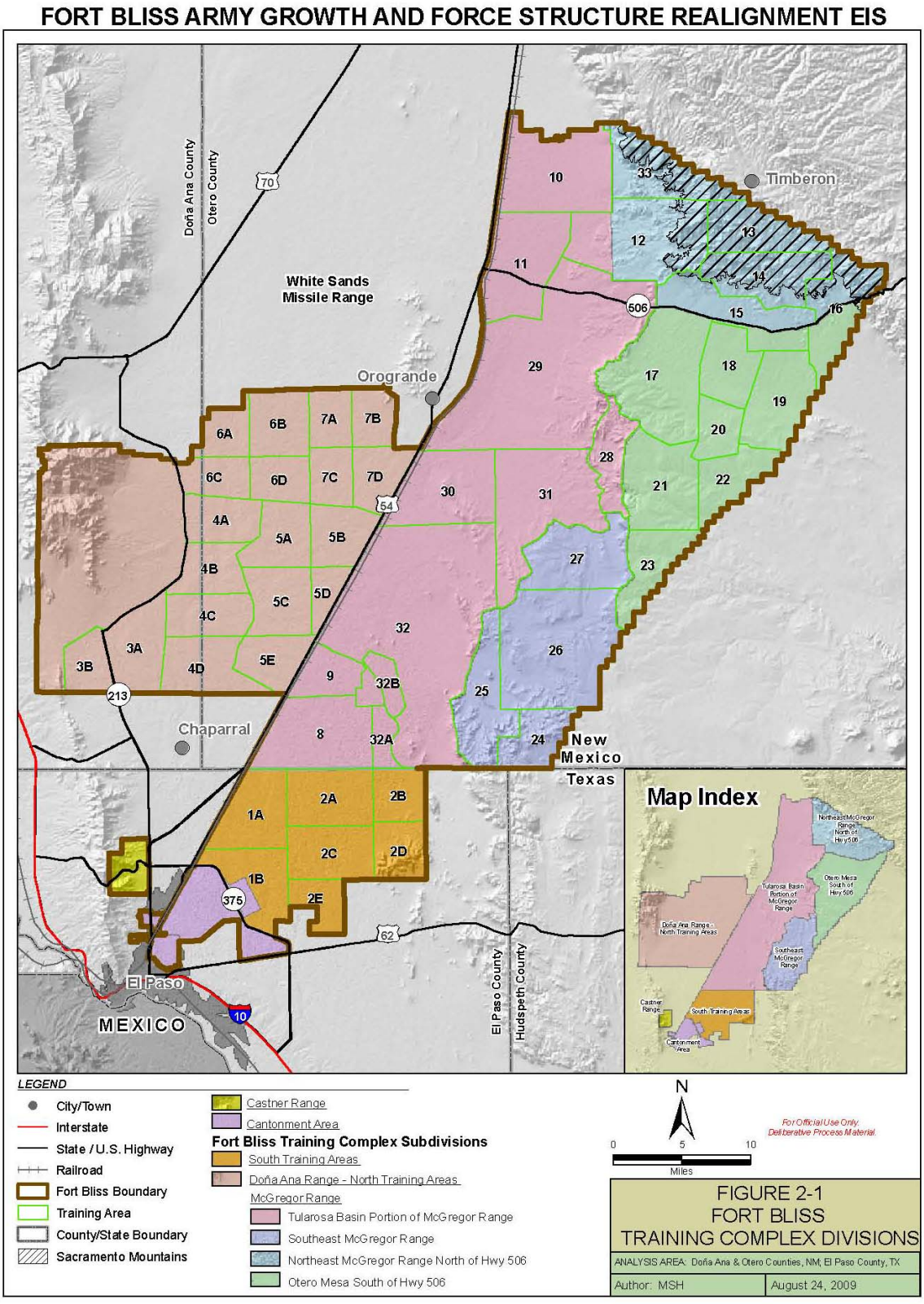


Figure 2-1. Fort Bliss Training Complex Divisions.

2.2.2.1 Key Land Use Management and Planning Documents

Several plans direct the land use planning and management process on Fort Bliss. They include the Range Complex Master Plan (RCMP), Real Property Master Plan (RPMP), Integrated Natural Resource Management Plan (INRMP), Integrated Cultural Resource Management Plan (ICRMP), Integrated Training Area Management Plan (ITAM), and ITAM Range and Training Land Assessment (RTLA) Plan. This section briefly describes these key components of the Fort Bliss installation land use planning and management process. Land use planning and management on Fort Bliss, including a description of activities by fiscal year, is further described in the 2007 SEIS.

The objectives of these plans are to manage installation resources to provide the optimum environment that sustains the military mission; develop, initiate, and maintain progressive programs for land management and utilization; and maintain, protect, and improve environmental quality, aesthetic values, and ecological relationships. The primary results of these objectives are reduced environmental damage and effective land rehabilitation, reduced costs for land management and environmental compliance, and enhanced land stewardship. These plans and procedures form the foundation for land use management at Fort Bliss and are common to all the alternatives considered in this EIS.

Range Complex Master Plan. Developed pursuant to Army Regulation (AR) AR 350-19, *The Army Sustainable Range Program*, the Fort Bliss RCMP supports the installation's integrated sustainable range planning process. It details the land requirements and the plan for range and maneuver training construction and modernization, as well as the constraints that impact range and training land assets. The RCMP provides information that is used for the development of the Fort Bliss RPMP. The RCMP is being updated in response to recent stationing actions at Fort Bliss.

Real Property Master Plan. Developed pursuant to AR 210-20, *Real Property Master Planning for Army Installations*, the RPMP describes the current physical composition of Fort Bliss and the plans for orderly long-range development of facilities, especially those in the Cantonment. The Fort Bliss RPMP includes the Long Range Component (LRC), Capital Investment Strategy (CIS), and Short Range Component (SRC), all of which date to December 2006. The LRC establishes future development goals and objectives, and the CIS and SRC are continuously evolving mechanisms to implement the overall LRC objectives. Long range planning goals specific to the development of this document include: construct new, self-contained maneuver mission campuses with a distinctive physical identity and needed linkages; expand and modernize range training lands and capacities; maintain and increase land inventories through maximum utilization of major buildable and development areas, co-location strategies, planned land use density increases and strategic land acquisitions; and integrate important environmental needs into all planning and construction projects to efficiently improve overall installation environmental quality.

Integrated Natural Resource Management Plan. Developed pursuant to AR 200-1, *Environmental Protection and Enhancement*, and AR 200-3, *Natural Resources-Land, Forest and Wildlife Management*, the INRMP provides guidance for the implementation and management of natural resources on Fort Bliss. It serves as the installation's master plan for managing its natural resources. The goal of the Fort Bliss INRMP is to ensure conservation of the installation's natural resources, comply with environmental laws and regulations, and maintain quality lands upon which to accomplish training and testing missions. Environmental conservation efforts and range utilization are maximized by thoroughly integrating the INRMP into Fort Bliss mission and master plan activities. Currently, the INRMP, approved in November 2001, is being updated.

Integrated Cultural Resource Management Plan. The ICRMP provides direction for the protection and management of cultural resources on Fort Bliss in compliance with the National Historic Preservation Act (NHPA) and other legal requirements. The ICRMP describes surveys and other activities undertaken by Fort Bliss to ensure compliance with its Programmatic Agreement (PA) and other agreement documents. The ICRMP was updated in April 2008 to incorporate the PA, a legal agreement between the Army, the State Historic Preservation Officers (SHPOs) of Texas and New Mexico, and the Advisory Council on Historic Preservation (ACHP) and other agreement documents. The PA and the ICRMP include standard operating procedures (SOPs) for the management of historic properties on Fort Bliss and that apply to all entities conducting activities which may affect those properties.

Integrated Training Area Management Plan. The ITAM program is a core component of AR 350-19, *The Army Sustainable Range Program*, and its primary function is to establish policies and procedures to achieve optimal, sustainable use of military training and testing lands. The four components of the ITAM program are the Training Requirements Integration (TRI), integrating training and testing requirements with training land capacity; the RTLA, assessing land quality, monitoring land conditions and recommending land rehabilitation options; Land Rehabilitation and Maintenance (LRAM), rehabilitating and maintaining training land; and Sustainable Range Awareness (SRA), educating land users to minimize adverse impacts. The ITAM program is fully integrated into the installation staff and works closely with the Environment Division. Additionally, ITAM has partnerships with external organizations, such as the New Mexico Natural Resource Conservation Service, Jornada Experimental Range, and the WSMR ITAM program. The Fort Bliss ITAM Five Year Plan, FY2008 to 2012, signed on March 27, 2009, identifies detailed projects planned through FY2012.

The RTLA Plan of the ITAM, approved December 2007, is a land condition monitoring plan. The plan provides a tool for monitoring and assessing the impacts of live training and testing activities, and prioritizing land management activities to maximize the capability of the land, ensure sustainability, and maintain the training mission. Specific projects of the RTLA Plan through 2013 include: delineating and characterizing gullies in the maneuver/training areas; maintaining landscape diversity in maneuver/training areas; assessing soil stability; delineating and monitoring concentrated use areas; and assessing and mitigating combat/tank trail erosion.

Other Plans and Tools. Additional management plans on Fort Bliss, which are further described in the SEIS, include the following: Storm Water Management Plan (SWMP); Integrated Solid Waste Management (ISWM) Plan; Pollution Prevention (P2) Plan; Installation Pest Management Plan (IPMP); Waste Analysis Plan (WAP); Spill Prevention, Control, and Countermeasures Plan (SPCCP); and Asbestos Management Plan (AMP).

Fort Bliss uses various land management tools, including land trades, easements, and buffer zones, to address encroachment and conflicting land issues. Fort Bliss participates in the Army Compatible Use Buffer (ACUB) Program: Title 10, Section 2684a of the United States Code authorizes the U.S. Department of Defense (DoD) to partner with non-Federal governments or private organizations to establish buffers around installations (Fort Bliss, 2008). Fort Bliss also has received funds under the DoD Readiness and Environmental Protection Initiative (REPI) (Wolters 2008).

Under the authority of the ACUB Program and with REPI funds, Fort Bliss is acting upon several land management priorities (Wolters 2008). For example, as a result of a noise analysis associated with the BRAC/GDPR stationing decisions, the Department of the Army recently purchased an easement from the New Mexico State Land Office of approximately 5,200 acres adjacent to the southern boundary of the Doña Ana Range Complex. The easement establishes restrictions on certain types of development (including residential uses) for 75 years.

2.2.2.2 Military Uses at Fort Bliss

The FBTC supports a wide variety of military and other non-military uses. The military uses are described in Table 2-11.

Table 2-11. Description of Fort Bliss Training Complex Military Uses.

Military Use	Description
Off-Road Vehicle Maneuver: Heavy	Space for ground units to practice movements and tactics. Different unit types may work in support of one another (combined arms), or a unit may operate on its own to practice a specific set of tasks. The "Heavy" designation refers to areas where maneuver may consist of all types of vehicles and equipment, including both tracked and wheeled vehicles. This category includes fixed sites (e.g., bivouac, assembly, command, logistic support), limited digging (e.g., fighting positions), and other miscellaneous training activities.
Off-Road Vehicle Maneuver: Light	Space for ground units to practice movements and tactics. Different unit types may work in support of one another (combined arms), or a unit may operate on its own to practice a specific set of tasks. The "Light" designation refers to areas where vehicle maneuver is restricted to light, wheeled vehicles (e.g., HMMWV). This category includes fixed sites (e.g., bivouac, assembly, command, logistic support), limited digging (e.g., fighting positions), and other miscellaneous training activities.
Dismounted Maneuver	Space for ground units to practice movements and tactics. Different unit types may work in support of one another (combined arms), or a unit may operate on its own to practice a specific set of tasks. The "Dismounted" designation refers to areas where maneuver is restricted to foot traffic only. This category includes fixed sites (e.g., bivouac, assembly, command, logistic support), limited digging (e.g., fighting positions), and other miscellaneous training activities.
On-Road Vehicle Maneuver	Use of wheeled or tracked vehicles on existing roads.
Aircraft Operations	Fixed-wing and rotary-wing over flights and air-to-air training
Controlled Field Training Exercise (FTX)	Fixed sites (e.g., bivouac, assembly, command, logistic support), limited digging (e.g., fighting positions), and concentration of troops and vehicles may occur only at designated locations. Controlled FTX allow for fixed sites and specified activities described in this military use at designated locations regardless of the underlying maneuver use.
Mission Support Facilities	Ranges (including live-fire); test facilities; landing zones/pads/strips; drop zones; radar facilities; etc.
Live-Fire	Firing of individual and crew-served weapons systems (surface-to-surface, surface-to-air, and air-to-surface); launch sites and firing points; laser certified ranges; etc. These activities occur under controlled conditions.
Safety Danger Zone (SDZ)/Safety Footprint	Target debris areas and safety footprints for weapons and laser use.
Surface Impact	Areas in which range activities are expected to produce unexploded ordnance (UXO).
Range Camps	Built environment providing limited administrative, living, quality of life, and other support services in closer proximity to training locations.
Environmental Management	Environmental management and training area maintenance activities; conservation efforts.

The collection of military uses (Table 2-11) that occur on any particular FBTC subdivision results in a Land Use Category. The FBTC Land Use Categories and the military uses that occur within each category are shown in Table 2-12. For example, military uses that may occur in Land Use Category G include On-Road Vehicle Maneuver, Dismounted Maneuver, Aircraft Operations, SDZ/Safety Footprints, and Environmental Management (Table 2-12).

Table 2-12. Fort Bliss Training Complex Land Use Categories.

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

NOTE: Land Use Category codes do not follow those used in the 2007 SEIS.

Within the installation's Lands Uses as shown in Table 2-12, Fort Bliss has applied special land use designations to certain areas on the FBTC. This includes the Culp Canyon Wilderness Study Area (WSA) and Black Grama Grassland Areas of Critical Environmental Concern (ACEC) on McGregor Range, which are managed to protect valuable biological resources and to study the ecology of undisturbed grasslands, respectively. The designations consist of Off-Limits Areas (OLAs) and Limited Use Areas (LUAs), whereby limitations on military uses are defined according to the degree of protection necessary to protect the value of the underlying resource. The designations can be applied to protect any resource type (i.e., they can be applied to protect natural, cultural, or any other resource). Figure 2-2 presents existing OLAs and LUAs on the FBTC (U.S. Army 2008, Knight 2008). LUAs are open to military training activities, but are off-limits to static vehicle positions, concentrations of vehicles, or digging, to include the following types of operations: all logistical, training unit assembly areas; fuel depots; any digging or excavation; field fortifications; bivouac areas; Tactical Operations Centers (TOCs); and any other proposed concentrations or vehicles or personnel or ground disturbance.

No military uses are allowed in OLAs. OLAs are noted on maps and surrounded by siebert stakes (distinctly colored fiberglass cylinders atop t-posts). Per the Fort Bliss ICRMP, additional OLAs are planned on McGregor Range and will be implemented as survey and site evaluations are completed (U.S. Army 2008).

The following table summarizes the land use change alternatives for the proposed action.

Table 2-13. Summary of Land Use Change and Part of FBTC Subdivision Affected by Alternative.

Alternative[1]	Land Use Change	Locations	FBTC subdivision Affected
LU-1	No Action: No Land Use Changes		
LU-2	Allowing four km^2 of fixed sites in Southeast McGregor Range by removing the Grassland LUA limitations in these areas. These areas would be within 1,000m of existing road and predominantly on slopes of less than 30% (15 degrees).	TAs 24 – 27	1 %
	Allowing fixed sites in the Sacramento Mountains portion of Northeast McGregor Range North of Highway 506 by removing the Grassland LUA limitations in this area (no changes to the Culp Canyon WSA)	TAs 12E, 13, 14, 16N, 33	31 %
LU-3	Alternative 2 plus, adding a new Land Use Category C, which would allow establishment of Controlled FTX and Mission Support Facilities, and Live Fire military uses in Northeast McGregor Range North of Highway 506 (no changes to the Culp Canyon WSA and Black Grama Grassland ACEC).	TAs 12E, 13, 14, 15N, 16N, 33	100 %
	Establishing five km^2 of Controlled FTX sites on the Northeast McGregor North of Highway 506 within 500m of existing roads and predominantly on slopes of less than 30% (15 degrees).	TAs 12E, 14, 15N, 16N	1 %
	Establishing Controlled FTX zones on all areas within 500m of existing roads on slopes of less than 30% (15 degrees) in the Sacramento Mountains portion of Northeast McGregor Range North of Highway 506.	TAs 12E, 13, 14, 16N, 33	10%
LU-4	Alternatives 2 and 3 plus, adding a New Land Use Category B, which will allow the Off-road Vehicle Maneuver: Light wheeled military uses to all areas within 500m of existing roads on slopes of less than 30% (15 degrees) in the Northeast McGregor North of Highway 506 (no change to the Culp Canyon WSA and Black Grama Grassland ACEC).	TAs 12E, 13, 14, 15N, 16N, 33	27 %
LU-5[a]	Alternatives 2, 3 and 4, plus establishing three km^2 of Controlled FTX sites on the Otero Mesa South of Highway 506 by removing the Grassland LUA limitations in these areas.	TAs 15S, 16S, 17-23	< 1 %

1. Alternatives are additive to the features described in the previous alternative.
a. The preferred land use alternative for the FEIS.

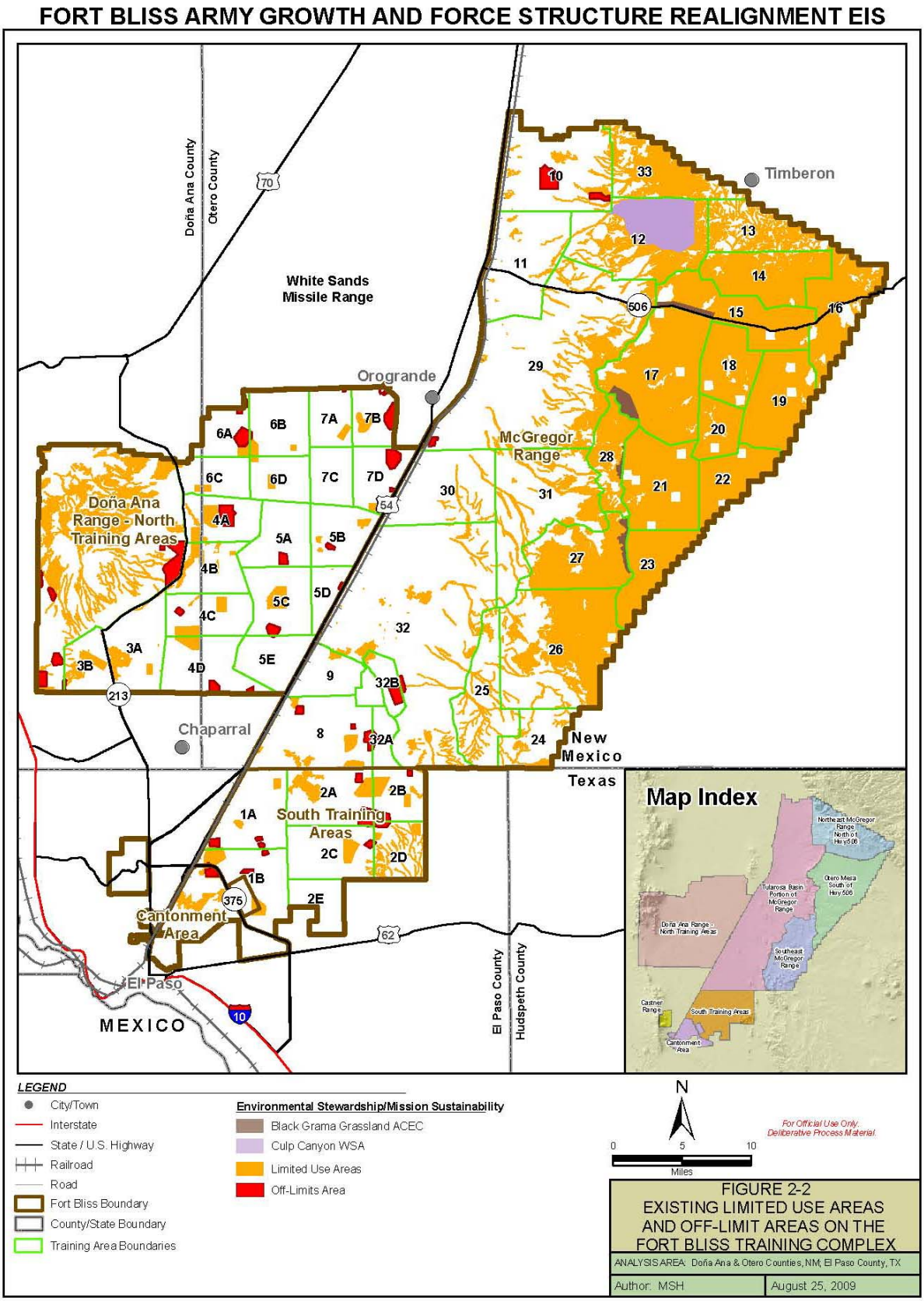


Figure 2-2. Existing Limited Use Areas and Off-Limits Area on the Fort Bliss Training Complex.

TAs represent a range of geographies on Fort Bliss and experience different types of military uses. Consequently, and as a result of the existing LUAs, the distribution of BCT maneuver on the FBTC will vary.

The current land use at the FBTC is shown on Figure 2-3 and described in Table 2-12. Training doctrine, the existing operational environment, and the current land use categories, can be used to determine the distribution of training days scheduled (Table 2-14). This distribution is based upon general training preferences. The following guidelines to the general training preferences applied to all stationing and training alternatives:

- More than 80 percent of training days scheduled for a BCT are platoon and company level exercises. Based on historical use, most of the platoon and company level exercises would likely occur in areas closest to the Cantonment, specifically the South Training Areas.

- Higher levels of Off-Road Vehicle Maneuver by HBCTs would occur in the South Training Areas, Doña Ana Range-North Training Areas, Tularosa Basin of McGregor Range, and to a lesser extent, the Southeast McGregor Range (due to limited access to the area).

- Higher levels of Dismounted Maneuver by IBCTs would occur in rugged/broken terrain such as found in TA 2D in the South Training Areas and the entirety of Northeast McGregor Range North of Highway 506. While similar terrain is found in TAs 24 through 27 in the Southeast McGregor Range, limited availability reduces preference for this area.

- Higher levels of On-Road Vehicle Maneuver by SBCTs would occur in the road networks of the Doña Ana Range-North Training Areas and the Tularosa Basin of McGregor Range.

2.2.2.3 Alternative 1 – No Action Alternative (LU-1)

LU-1 is the No Action Alternative and would not change any current land use (Figure 2-3). The current designations of land use categories and military uses were determined in the ROD for the 2007 SEIS.

Under LU-1, fixed sites and off-road vehicle maneuver are not allowed in the Northeast McGregor Range North of Highway 506. As a result, some of the IBCT training preference for this area would shift to other FBTC subdivisions (Table 2-14).

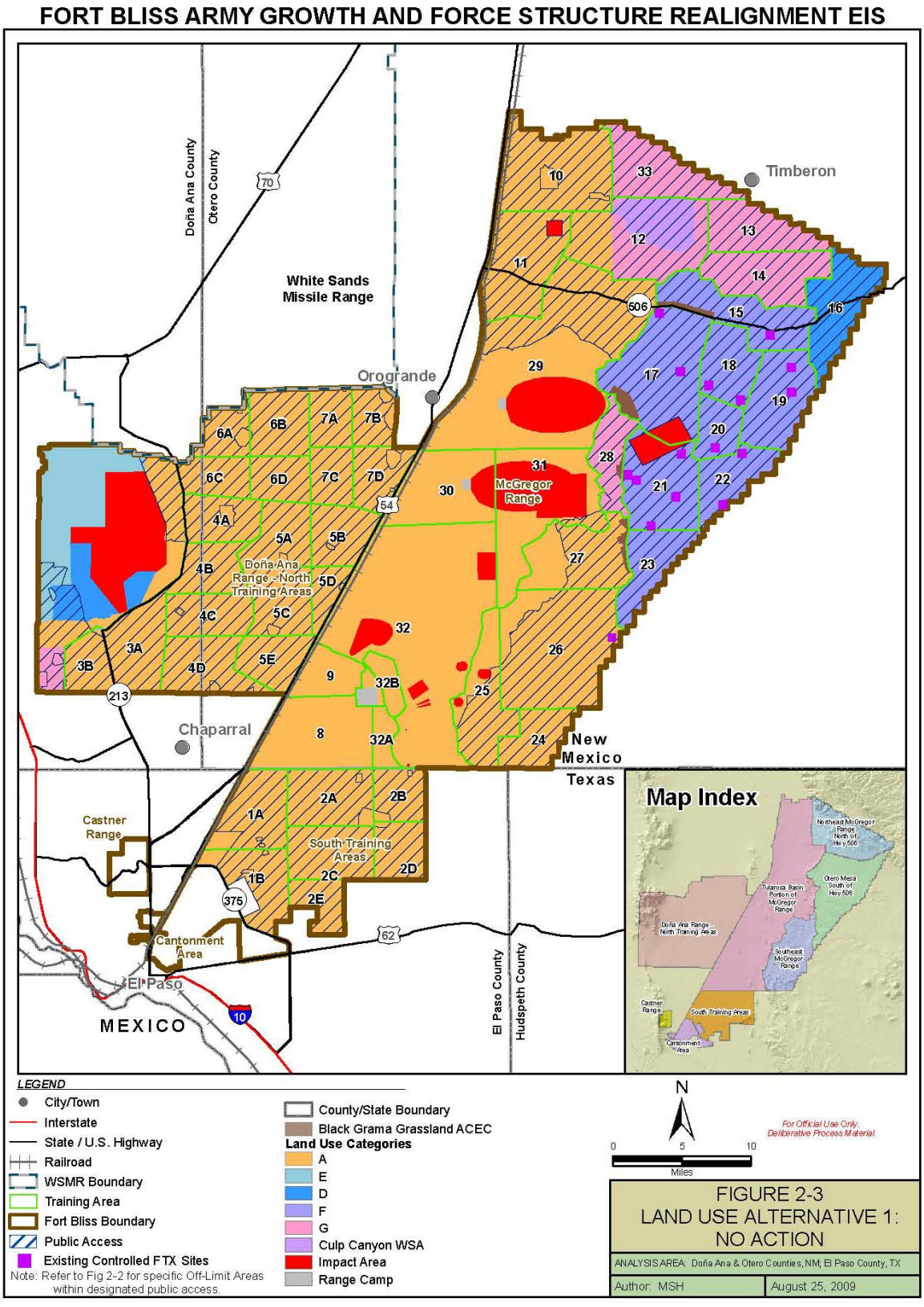


Figure 2-3. Land Use Alternative 1: No Action.

Table 2-14. Estimated Percent of Training Days Scheduled for the Fort Bliss Training Complex under Land Use Change Alternative 1.

FBTC Subdivision[1]	Total Available[2] (km^2)	Percent of Training Days Scheduled[2] Under LU-1																	
		ST-1[a]				ST-2[b]				ST-3[c]					ST-4[d]				
		HBCT	IBCT	Other	Total	HBCT	IBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total
South Training Areas	373	50%	25%	15%	90%	60%	25%	15%	100%	60%	25%	5%	15%	105%	70%	25%	10%	20%	125%
Doña Ana Range-North Training Areas	1,057	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	10%	10%	75%	60%	5%	20%	15%	100%
Tularosa Basin of McGregor Range	1,440	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	15%	10%	80%	60%	5%	25%	15%	105%
Southeast McGregor Range	392	5%	5%	5%	15%	5%	5%	5%	15%	5%	5%	5%	5%	20%	10%	5%	10%	10%	35%
Northeast McGregor Range North of Hwy 506[e]	424	-	25%	5%	30%	-	25%	5%	30%	-	25%	5%	5%	35%	-	25%	15%	15%	55%
Otero Mesa South of Hwy 506[e, f]	558	-	10%	10%	20%	-	10%	10%	20%	-	10%	5%	10%	25%	-	10%	10%	10%	30%

\- FBTC subdivisions with less than 1 percent training days scheduled would receive unquantifiable levels of both On-Road Vehicle and Dismounted maneuver military uses.

[1] Refer to Figure 2-3.

[2] Percent training days/ scheduled in a 365 day year to meet maneuver requirements. FBTC subdivisions with total training days scheduled equal to or exceeding 100 percent would require concurrent use. It is noted that percent training days scheduled can be up to 300 percent and still remain sustainable.

[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.

[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.

[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.

[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.

[e] Percent maneuver in the Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506 is limited to On-Road Vehicle and Dismounted Maneuvers. Off-Road Vehicle Maneuver in these subdivisions is not allowed under LU-1.

[f] Majority of support for units training in the Northeast McGregor Range North of Highway 506 occurs in fixed sites located on the northern portion of the Otero Mesa South of Highway 506.

There are no additional training preferences unique to LU-1/ST-1 (Table 2-14).

ST-2 adds one HBCT training at the FBTC. Therefore, under LU-1/ST-2, the HBCT percent training days scheduled would increase in the South Training Areas, Doña Ana Range-North Training Areas, and Tularosa Basin of McGregor Range. No increased IBCT training would occur. The Other Unit percent training days scheduled would also remain the same (Table 2-14).

ST-3 adds one SBCT training at the FBTC. Under LU-1/ST-3, the HBCT, IBCT, and Other Unit percent training days scheduled would remain the same as LU-1/ST-2. SBCT percent training days scheduled in the South Training Areas and the Northeast McGregor Range North of Highway 506 (excluding Off-Road Vehicle Maneuver) would be less due to the higher percentage of HBCTs and IBCTs, respectively. The SBCT percent training days scheduled in the Southeast McGregor Range and Otero Mesa South of Highway 506 would also be less due to the limited access and limitations on military uses, respectively (Table 2-14).

The increase in training days associated with the additional HBCT training under LU-1/ST-4 would be evenly distributed in the South Training Areas, Doña Ana Range-North Training Areas, and Tularosa Basin of McGregor Range, with a slight increase in the Southeast McGregor Range. The additional SBCT training would increase the percent training days scheduled in all FBTC subdivisions in similar context to LU-1/ST-3 methodology, with one exception. The Northeast McGregor Range North of Highway 506 would experience the same level of increased percent training days scheduled (not associated with Off-Road Vehicle Maneuver) as the Doña Ana Range-North Training Areas and the Tularosa Basin of McGregor Range. This would be based on the percent training days scheduled equaling or exceeding 100 percent in the South Training Areas, Doña Ana Range-North Training Areas, and Tularosa Basin of McGregor Range; and the limited access and the limitations on military uses in the Southeast McGregor Range and Otero Mesa South of Highway 506, respectively. The Other Unit percent training days scheduled would increase by five percent in all FBTC subdivisions, with a 10 percent increase in the Northeast McGregor Range North of Highway 506. The Other Unit increase in this FBTC subdivision would be due to the distance of this area from the Cantonment, which equates to a higher demand for support units (Table 2-14).

As shown in Table 2-14, in some instances, the percent training days scheduled would equal or exceed 100 percent in the FBTC subdivisions. While these assumptions provide a conservative (worst-case) scenario of potential impacts, in reality, increasing maneuver demands would require training day scheduling efficiency and concurrent use between military units within the FBTC. According to HQDA (2/25th Stryker EIS, 2008), percent training days scheduled can be up to 300 percent and still remain sustainable. Under LU-1, the FBTC subdivisions are scheduled less than 300 percent and, therefore, can meet the training day scheduled requirements.

Based on input from unit operational planners, examples of concurrent use include the following:

- Fires Brigade, SBE, and CAB units would complete maneuvers while training with the BCT being supported.

- Two BCTs could complete annual maneuver space requirements during force-on-force training or while sharing portions of the FBTC. Example: Two SBCTs would occupy portions of the same roadway segment during On-Road Vehicle Maneuver.

- TA maintenance activities would be completed as part of the annual maneuver space requirement.

Based on the number and type of vehicles per each BCT (Table 2-1) and the percent training days scheduled for each military unit (Table 2-14), an estimated distribution of percent training days scheduled by L, M, and H classified vehicles in the FBTC subdivisions can be determined (Table 2-15). Table 2-15 examines estimated distribution of percent of training day scheduled by vehicle classification rather than unit type.

Table 2-15. Estimated Distribution of Percent Training Days by Ground Pressure Vehicle Groupings in the Fort Bliss Training Complex under Land Use Change Alternative 1.

FBTC Subdivision[1]	Total Available Area (km^2)	Distribution of Percent Training Days by Ground Pressure Vehicle Groupings Under LU-1[2]															
		ST-1[a]				ST-2[b]				ST-3[c]				ST-4[d]			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	373	64%	20%	6%	90%	71%	22%	6%	100%	73%	24%	9%	105%	85%	28%	12%	125%
Doña Ana Range-North Training Areas	1,057	39%	12%	3%	55%	47%	15%	4%	65%	50%	17%	8%	75%	64%	22%	14%	100%
Tularosa Basin of McGregor Range	1,440	39%	12%	3%	55%	47%	15%	4%	65%	52%	18%	10%	80%	66%	24%	16%	105%
Southeast McGregor Range	392	10%	4%	1%	15%	10%	4%	1%	15%	12%	5%	4%	20%	20%	8%	7%	35%
Northeast McGregor Range North of Hwy 506[e]	424	20%	7%	3%	30%	20%	7%	3%	30%	22%	8%	5%	35%	31%	13%	11%	55%
Otero Mesa South of Hwy 506[e]	558	13%	5%	3%	20%	13%	5%	3%	20%	14%	6%	5%	25%	16%	7%	7%	30%

[1] Refer to Figure 2-3.

[2] Percent of L/M/H classified vehicles extrapolated with 365 training days/year.

[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.

[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.

[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.

[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.

[e] Vehicle use in the Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506 is limited to On-Road Vehicle Maneuvers. Off-Road Vehicle Maneuver in these subdivisions is not allowed under LU-1.

The FBTC contains approximately 3,887 kilometers of roadways that are used for On-Road Vehicle Maneuver. Using the On-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-8), the percent of vehicle classifications training in each FBTC subdivision (Table 2-15), and the total kilometers of road network available in each FBTC subdivision (Table 2-16), the number of vehicle trips can be determined (Table 2-16). Vehicle trips are defined as the number of times an L, M, or H classified vehicle would travel the entire FBTC subdivision roadway network annually. The results of Table 2-16 are heavily influenced by percent of training day scheduled and kilometers of roadway available in each FBTC subdivision (fewer kilometers of roadways results in more vehicle trips) (Table 2-16).

Under LU-1/ST-1, the highest number of vehicle trips would generally occur in the Tularosa Basin of McGregor Range, followed by the South Training Areas, and the Northeast McGregor Range North of Highway 506 (Table 2-16). Under LU-1/ST-2, the additional HBCT training results in a somewhat even distribution of increased vehicle trips in the Tularosa Basin of McGregor Range, the Doña Ana Range-North Training Areas, and the South Training Areas. The Northeast McGregor Range North of Highway 506 would still contain the third highest number of vehicle trips due to the presence of the IBCTs training and fewer kilometers of roadways (Table 2-16). The addition of one SBCT training under LU-1/ST-3 would increases vehicle trips throughout the FBTC subdivisions. The scarcity of roadway network in Southeast McGregor Range would result in a relatively significant increase in number of vehicle trips in that area (Table 2-16). Under LU-1/ST-4, the additional HBCT, SBCT, and Other Units would continue the trend established in LU-1/ST-3. The Northeast McGregor Range North of Highway 506 incurs the second highest number of vehicle trips under this alternative due to a less extensive roadway network (Table 2-16).

Table 2-16. Estimated Annual Vehicle Trips completed on the Fort Bliss Training Complex under Land Use Change Alternative 1.

FBTC Subdivision	Roadway Available (km)	On-Road Vehicle Trips Completed Under LU-1															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	446	517	307	128	952	558	348	146	1,052	653	390	197	1,240	794	468	276	1,538
Doña Ana Range-North Training Areas	1,149	367	215	78	660	422	259	93	773	517	317	209	1,044	687	428	360	1,475
Tularosa Basin of McGregor Range	1,066	539	316	114	969	620	380	136	1,135	784	497	394	1,675	1,035	663	615	2,314
Southeast McGregor Range	165	242	161	86	490	233	166	94	493	311	231	245	787	554	406	466	1,426
Northeast McGregor Range North of Hwy 506	221	394	252	152	797	379	258	166	804	470	319	288	1,076	690	520	627	1,836
Otero Mesa South of Hwy 506	491	144	109	74	327	139	112	81	332	180	146	153	478	211	170	228	609

The maximum ground contact under LU-1 can be determined from vehicle specifications (i.e., tire/tread width) (Table 2-2), the Off-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-9), and the percent of vehicle classifications training in each FBTC subdivision (Table 2-15). These calculations are presented according to vehicle classification (Table 2-17).

Table 2-17. Estimated Maximum Ground Contact for Off-Road Vehicle Military Uses on the Fort Bliss Training Complex under Land Use Change Alternative 1.

FBTC Subdivision	Maximum Ground Contact Under LU-1 (km^2)															
	ST-1				ST-2				ST-3				ST-4			
	L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	340	140	44	525	382	157	46	586	366	144	32	542	411	159	39	609
Doña Ana Range-North Training Areas	596	242	66	904	714	288	72	,1074	714	289	84	1,088	877	359	124	1,360
Tularosa Basin of McGregor Range	812	330	90	1,232	972	392	99	1,463	1,005	420	146	1,572	1,225	517	197	1,939
Southeast McGregor Range	56	26	11	93	57	26	11	94	62	30	14	106	101	49	23	174
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The number of times the ground would be driven over was calculated by dividing the area driven over by the area available for Off-Road Vehicle maneuver. The area available for Off-Road Vehicle Maneuver in each FBTC subdivision is limited by OLAs, range footprints, impact areas, and existing land use categories (Table 2-18).

The drive-over value assumes uniform distribution of the Off-Road Vehicle Maneuver throughout the FBTC subdivision; however, in practice, some areas would be driven over more often than others. This would be influenced by such factors as terrain, management areas, and the location of range facilities, among others.

Example: Under LU-1/ST-1, approximately 356 square kilometers of the 373 square kilometers South Training Area would be available for Off-Road Vehicle Maneuver. Within a training year, approximately 96 percent of the 356 square kilometers would be driven over once by a vehicle with an L classification, approximately 39 percent would be driven over once by a vehicle with an M classification, and approximately 12 percent would be driven over by a vehicle with an H classification. The 1.5 total drive-over rate indicates that within a year, 100 percent of the 356 square kilometers would be driven over by a vehicle and 50 percent of this area would be driven over a second time by a vehicle.

Table 2-18. Number of Times Ground is Driven Over Annually as Part of Off-Road Vehicle Maneuver under Land Use Change Alternative 1.

FBTC Subdivision	Area Available (km^2)	Number of Times Ground is Driven Over Under LU-1															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	356	0.96	0.39	0.12	1.5	1.07	0.44	0.13	1.6	1.03	0.40	0.09	1.5	1.16	0.45	0.11	1.7
Doña Ana Range-North Training Areas	996	0.60	0.24	0.07	0.91	0.72	0.29	0.07	1.08	0.72	0.29	0.08	1.1	0.88	0.36	0.12	1.4
Tularosa Basin of McGregor Range	1,195	0.68	0.28	0.08	1.03	0.81	0.33	0.08	1.2	0.84	0.35	0.12	1.3	1.03	0.43	0.16	1.6
Southeast McGregor Range	387	0.15	0.07	0.03	0.24	0.15	0.07	0.03	0.24	0.2	0.1	0.04	0.27	0.26	0.13	0.06	0.45
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Under LU-1, the highest level of drive-over rates would occur in the South Training Areas, followed by the Tularosa Basin of McGregor Range, and the Doña Ana Range-North Training Areas. Within each FBTC subdivision, the L classification drive-over rate would be the highest, followed by the M classification, and the H classification. The drive-over rates would gradually increase from LU-1/ST-1 through LU-1/ST-4. The drive-over rate in the Southeast McGregor Range is less than half of the average total drive-over rate in the other FBTC subdivisions. This is based on limited HBCT access to the area (Table 2-18).

2.2.2.4 Alternative 2 – Allowing Fixed Sites in Southeast McGregor Range and Sacramento Mountains Portion of the Northeast McGregor Range North of Highway 506(LU-2)

LU-2 would include changes in land use designations in two primary areas of the FBTC. First, the Army would allow four square kilometers of fixed sites in the Southeast McGregor Range by removing the Grassland LUA restriction in those four square kilometers. These fixed sites would be within 1,000m of a road and predominantly on slopes of less than 30 percent. Conceptual locations for three fixed sites are shown in Figure 2-4. This would affect approximately 1 percent of the Southeast McGregor Range area (Table 2-13). Second, fixed sites would be allowed in the Sacramento Mountains of the Northeast McGregor Range North of Highway 506 (no changes to the Culp Canyon WSA) by removing the Grassland LUA in this area (Figure 2-4). This would affect approximately 31 percent of the Northeast McGregor Range North of Highway 506 (Table 2-13).

Under LU-2, training military units would be allowed to engage in the full range of activities associated with the military uses supported by the existing land use in the four square kilometers area of the Southeast McGregor Range and the Sacramento Mountains of the Northeast McGregor Range North of Highway 506 (no changes to the Culp Canyon WSA). Specifically, military units would be allowed to concentrate in fixed sites and perform limited digging (e.g., fighting positions) activities as part of maneuver. This alternative, however, would not, change the military uses allowed by the existing land use designation in these areas. Further, any LUA designation applied for a different reason (e.g., arroyo riparian habitat buffer) would remain in effect.

Under LU-2, the percent training days scheduled, on-road maneuver training, and off-road maneuver training would remain approximately the same as LU-1 (refer to Tables 2-14 through 2-18).

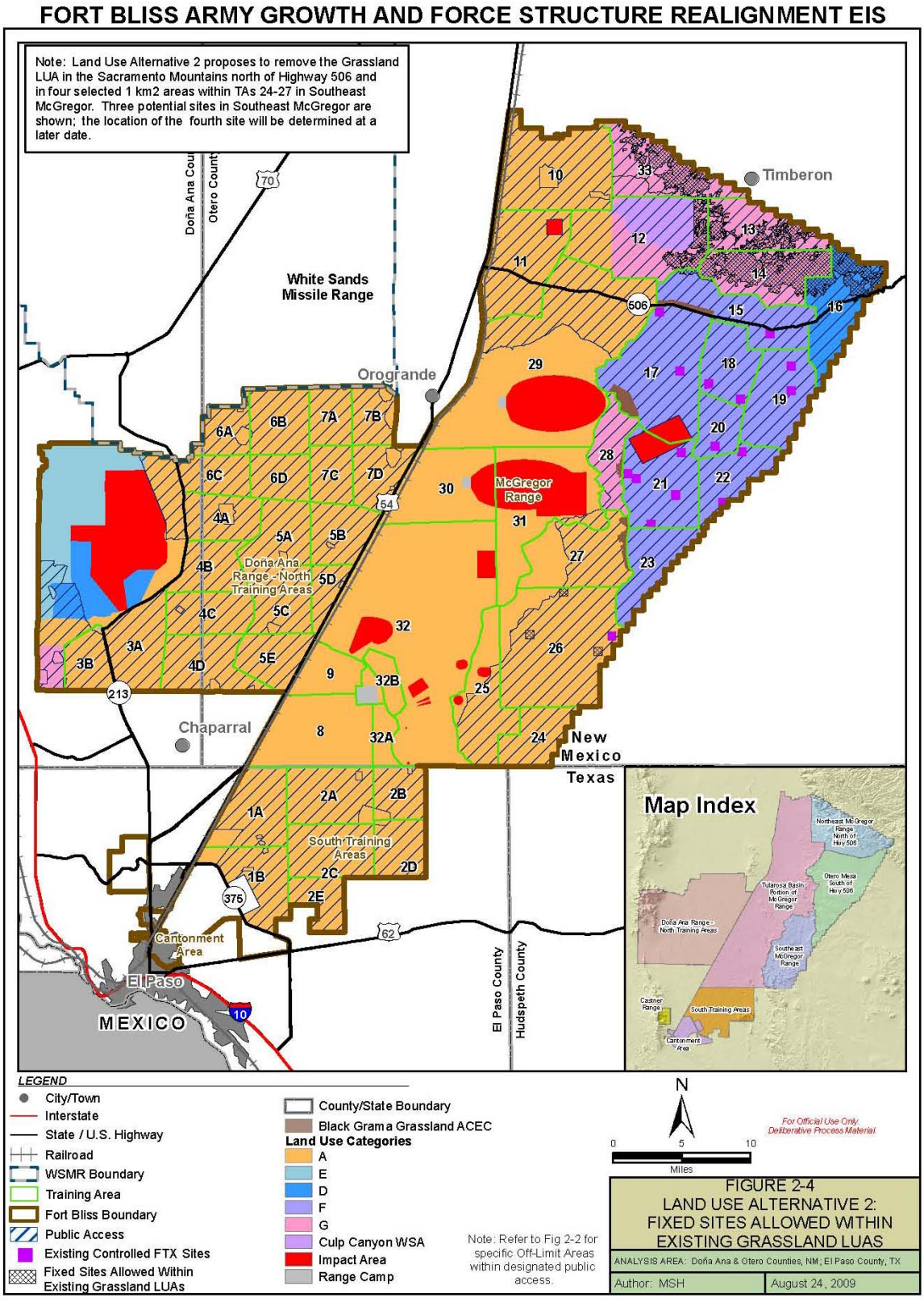


Figure 2-4. Land Use Alternative 2: Fixed Sites Allowed Within Grassland Limited Use Area.

2.2.2.5 Alternative 3- New Land Use Category Allowing Controlled FTX in the Northeast McGregor Range North of Highway 506 (LU-3)

In addition to the land use changes identified for LU-2, LU-3 would introduce Land Use Category C in Northeast McGregor Range North of Highway 506. This change allows the establishment of Controlled FTX and Mission Support Facilities, and Live-Fire military uses in the Northeast McGregor Range North of Highway 506 (Figure 2-5). LU-3 would also establish five square kilometers of Controlled FTX sites on the Northeast McGregor Range North of Highway 506. The Controlled FTX areas would be within 500 meters of existing roads and generally on slopes of less than 30 percent (15 degrees). In addition, with the Grassland LUA removed in LU-2, a Controlled FTX zone would be established in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 on all areas within 500 meters of a road on slopes of less than 30 percent (15 degrees). Establishing the five Controlled FTX sites and the Controlled FTX zone would affect approximately 10 percent of the Northeast McGregor Range North of Highway 506 (Table 2-12).

Military uses permitted with Controlled FTX would include establishing fixed sites and limited digging (e.g., fighting positions) at designated locations. Live-fire training would also occur in the Northeast McGregor Range North of Highway 506, affecting 100 percent of this subdivision. The live-fire activities would occur under controlled conditions. This training could involve individual and vehicle-mounted weapons (e.g. helicopter door gunnery) that do not produce dudded rounds (i.e., have no residual explosive hazard). The use of pyrotechnics is allowed under existing conditions and is expected to increase in the Northeast McGregor Range North of Highway 506 under LU-3. Figure 2-5 shows conceptual locations for the five Controlled FTX areas and the Controlled FTX zone in the Sacramento Mountains.

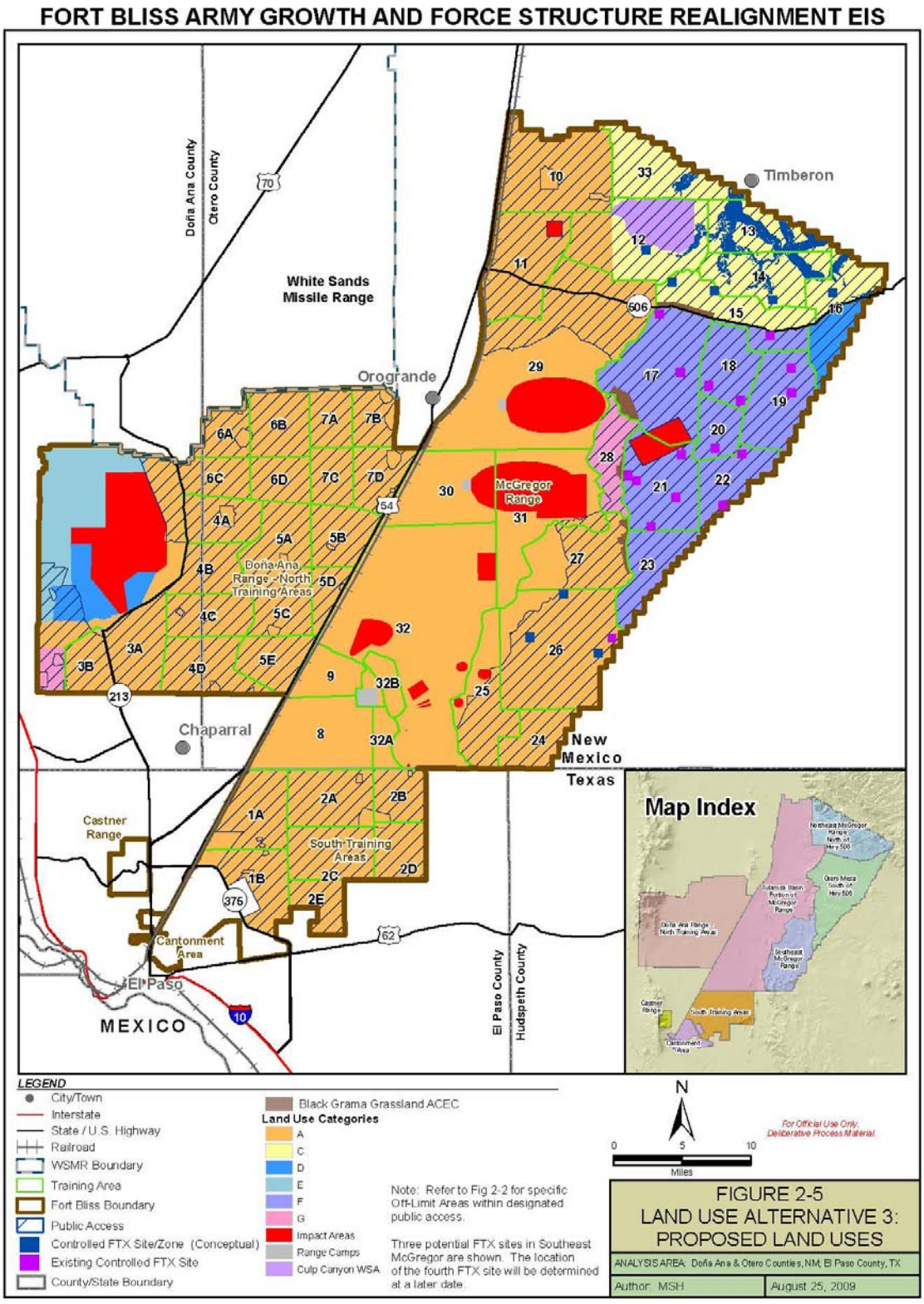


Figure 2-5. Land Use Alternative 3: Proposed Land Use.

Table 2-19 presents the estimated training day scheduled for the FBTC subdivisions under LU-3. In general, LU-3 would make the Northeast McGregor Range North of Highway 506 a more attractive training destination for IBCTs by allowing Controlled FTX activities near existing roadways. This would result in an approximate five percent shift in IBCT and Other Unit percent training days scheduled from the Otero Mesa South of Highway 506 to the Northeast McGregor Range North of Highway 506 under all stationing and training alternatives (Table 2-19). The HBCT and SBCT percent training days scheduled for all stationing and training alternatives would remain the same as LU-1 (Table 2-19). As with LU-1 and LU-2, LU-3 would not allow Off-Road Vehicle Maneuver in the Northeast McGregor Range North of Highway 506.

Table 2-19. Estimated Percent Training Days Scheduled for the Fort Bliss Training Complex under Land Use Change Alternative 3.

FBTC Subdivision[1]	Total Area Available (km²)	Percent Training Days Scheduled Under LU-3[2]																	
		ST-1[a]				ST-2[b]				ST-3[c]					ST-4[d]				
		HBCT	IBCT	Other	Total	HBCT	IBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total
South Training Areas	373	50%	25%	15%	90%	60%	25%	15%	100%	60%	25%	5%	15%	105%	70%	25%	10%	20%	125%
Doña Ana Range-North Training Areas	1,057	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	10%	10%	75%	60%	5%	20%	15%	100%
Tularosa Basin of McGregor Range	1,440	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	15%	10%	80%	60%	5%	25%	15%	105%
Southeast McGregor Range	392	5%	5%	5%	15%	5%	5%	5%	15%	5%	5%	5%	5%	20%	10%	5%	10%	10%	35%
Northeast McGregor Range North of Hwy 506[e]	424	-	30%	10%	40%	-	30%	10%	40%	-	30%	5%	10%	45%	-	30%	15%	20%	65%
Otero Mesa South of Hwy 506[e, f]	558	-	5%	5%	10%	-	5%	5%	10%	-	5%	5%	5%	15%	-	5%	10%	5%	20%

\- FBTC subdivisions with less than 1 percent training days scheduled would receive unquantifiable levels of both On-Road Vehicle and Dismounted maneuver military uses.

[1] Refer to Figure 2-5.

[2] Percent training days/ scheduled in a 365 day year to meet maneuver requirements. FBTC subdivisions with total training days scheduled equal to or exceeding 100 percent would require concurrent use. It is noted that percent training days scheduled can be up to 300 percent and still remain sustainable.

[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.

[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.

[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.

[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.

[e] Percent maneuver in the Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506 is limited to On-Road Vehicle and Dismounted Maneuvers. Off-Road Vehicle Maneuver in these subdivisions is not allowed under LU-3.

[f] Majority of support for units training in the Northeast McGregor Range North of Highway 506 occurs in fixed sites located on the northern portion of the Otero Mesa South of Highway 506.

Table 2-20 examines estimated distribution of percent of training days scheduled (Table 2-19) by vehicle classification rather than military unit type.

Table 2-20. Estimated Distribution of Ground Pressure Vehicle Groupings in the Fort Bliss Training Complex under Land Use Change Alternative 3.

FBTC Subdivision[1]	Total Area Available (km^2)	Distribution of Ground Pressure Vehicle Groupings Under LU-3[2]															
		ST-1[a]				ST-2[b]				ST-3[c]				ST-4[d]			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	373	64%	20%	6%	90%	71%	22%	6%	100%	73%	24%	9%	105%	85%	28%	12%	125%
Doña Ana Range-North Training Areas	1,057	39%	12%	3%	55%	47%	15%	4%	65%	50%	17%	8%	75%	64%	22%	14%	100%
Tularosa Basin of McGregor Range	1,440	39%	12%	3%	55%	47%	15%	4%	65%	52%	18%	10%	80%	66%	23%	16%	105%
Southeast McGregor Range	392	10%	4%	1%	15%	10%	4%	1%	15%	12%	5%	4%	20%	20%	8%	7%	35%
Northeast McGregor Range North of Hwy 506[e]	424	27%	10%	4%	40%	27%	10%	4%	40%	28%	11%	7%	45%	37%	15%	13%	65%
Otero Mesa South of Hwy 506[e]	558	6%	3%	1%	10%	6%	3%	1%	10%	8%	4%	4%	15%	10%	5%	6%	20%

[1] Refer to Figure 2-5.
[2] Percent of L/M/H classified vehicles extrapolated with 365 training days/year.
[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.
[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.
[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.
[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.
[e] Vehicle use in the Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506 is limited to On-Road Vehicle Maneuvers. Off-Road Vehicle Maneuver in these subdivisions is not allowed under LU-3.

Using the On-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-8), the percent of vehicle classifications training in each FBTC subdivision (Table 2-20), and the total kilometers of road network available in each FBTC subdivision (Table 2-21), the number of vehicle trips can be determined under LU-3 (Table 2-21).

Under LU-3, the five percent shift and the fewer kilometers of roadways in the Northeast McGregor Range North of Highway 506 results in this area containing the highest number of vehicle trips under LU-3/ST-1 and the second highest number of vehicle trips (below the Tularosa Basin of McGregor Range) under LU-3/ST-2, LU-3/ST-3, and LU-3/ST-4. The total vehicle trips on the Otero Mesa South of Highway 506 would be the lowest, reduced to less than half of the next highest number of vehicle trips on the FBTC.

Table 2-21. Estimated Annual Vehicle Trips completed on the Fort Bliss Training Complex under Land Use Change Alternative 3.

FBTC Subdivision	Roadway Available (km)	On-Road Vehicle Trips Completed Under LU-3															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	446	520	310	130	959	561	351	148	1,059	656	392	198	1,246	797	471	277	1,546
Doña Ana Range-North Training Areas	1,149	369	217	79	665	424	260	94	778	520	319	211	1,049	690	431	361	1,481
Tularosa Basin of McGregor Range	1,066	542	318	116	976	623	382	137	1,143	788	499	396	1,683	1,039	663	617	2,320
Southeast McGregor Range	165	243	163	88	493	234	167	95	497	312	232	247	791	556	409	468	1,432
Northeast McGregor Range North of Hwy 506	221	518	346	217	1,082	499	356	236	1,091	606	423	357	1,386	834	624	698	2,155
Otero Mesa South of Hwy 506	491	72	55	37	165	70	57	41	167	101	86	113	300	128	112	188	427

Using the vehicle specifications (i.e., tire/tread width) (Table 2-2), the Off-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-9), and the percent of vehicle classifications training in each FBTC subdivision (Table 2-20), the maximum ground contact under LU-3 can be determined. These calculations are presented according to vehicle classification (Table 2-22).

Table 2-22. Estimated Maximum Ground Contact for Off-Road Vehicle Training Activities on the Fort Bliss Training Complex under Land Use Change Alternative 3.

FBTC Subdivision	Maximum Ground Contact Under LU-3 (km^2)															
	ST-1				ST-2				ST-3				ST-4			
	L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	340	140	42	522	382	157	46	586	366	144	32	542	411	160	39	609
Doña Ana Range-North Training Areas	596	242	62	900	714	288	73	1,074	714	289	84	1,087	877	360	124	1,361
Tularosa Basin of McGregor Range	811	330	85	1,227	972	392	99	1,463	1,005	420	146	1,571	1,225	515	196	1,937
Southeast McGregor Range	56	26	10	92	57	26	11	94	62	30	14	106	101	49	23	174
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The number of times the ground would be driven over was calculated by dividing the area driven over by the area available for Off-Road Vehicle Maneuver. The area available for Off-Road Vehicle Maneuver in each FBTC subdivision is limited by OLAs, range footprints, impact areas, and existing land use categories (Table 2-23).

Under LU-3, the number of times a FBTC subdivision would be driven over generally remains the same as LU-1. This is due to the five percent shift in training days scheduled occurring between the Otero Mesa South of Highway 506 and the Northeast McGregor Range North of Highway 506, which do not allow Off-Road Vehicle Maneuver under LU-3.

Table 2-23. Number of Times Ground is Driven Over Annually as Part of Off-Road Vehicle Maneuver under Land Use Change Alternative 3.

FBTC Subdivision	Area Available (km^2)	Number of Times Ground is Driven Over Under LU-3															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	356	0.96	0.39	0.12	1.5	1.07	0.44	0.13	1.6	1.03	0.40	0.09	1.5	1.2	0.45	0.11	1.7
Doña Ana Range-North Training Areas	996	0.60	0.24	0.06	0.90	0.72	0.29	0.07	1.08	0.72	0.29	0.08	1.09	0.88	0.36	0.12	1.4
Tularosa Basin of McGregor Range	1,195	0.68	0.28	0.07	1.03	0.81	0.33	0.08	1.2	0.84	0.35	0.12	1.3	1.0	0.43	0.16	1.6
Southeast McGregor Range	387	0.15	0.07	0.03	0.24	0.15	0.07	0.03	0.24	0.16	0.08	0.04	0.27	0.26	0.13	0.06	0.45
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2.2.2.6 Alternative 4 – New Land Use Category Allowing Light Off-Road Vehicle Maneuver in the Northeast McGregor Range North of Highway 506 (LU-4)

LU-4 adds Off-Road Vehicle Maneuver: Light military use within limited areas in the Northeast McGregor Range North of Highway 506 to the previous land use change alternatives (Figure 2-6). Under LU-4, Off-Road Vehicle Maneuver of light wheeled vehicles (e.g., HMMWV vehicles) would be permitted within 500m of an existing road on slopes of less than 30 percent. This would affect approximately 27 percent of the Northeast McGregor Range North of Highway 506 (Table 2-13), resulting in the Off-Road Vehicle Maneuver: Light military use shifting from other FBTC subdivisions that allow Off-Road Vehicle Maneuver to this area.

Under this alternative, the Controlled FTX (allowed under LU-3) and the off-road military activities would make the Northeast McGregor Range North of Highway 506 the most attractive training destination for the IBCTs in the FBTC.

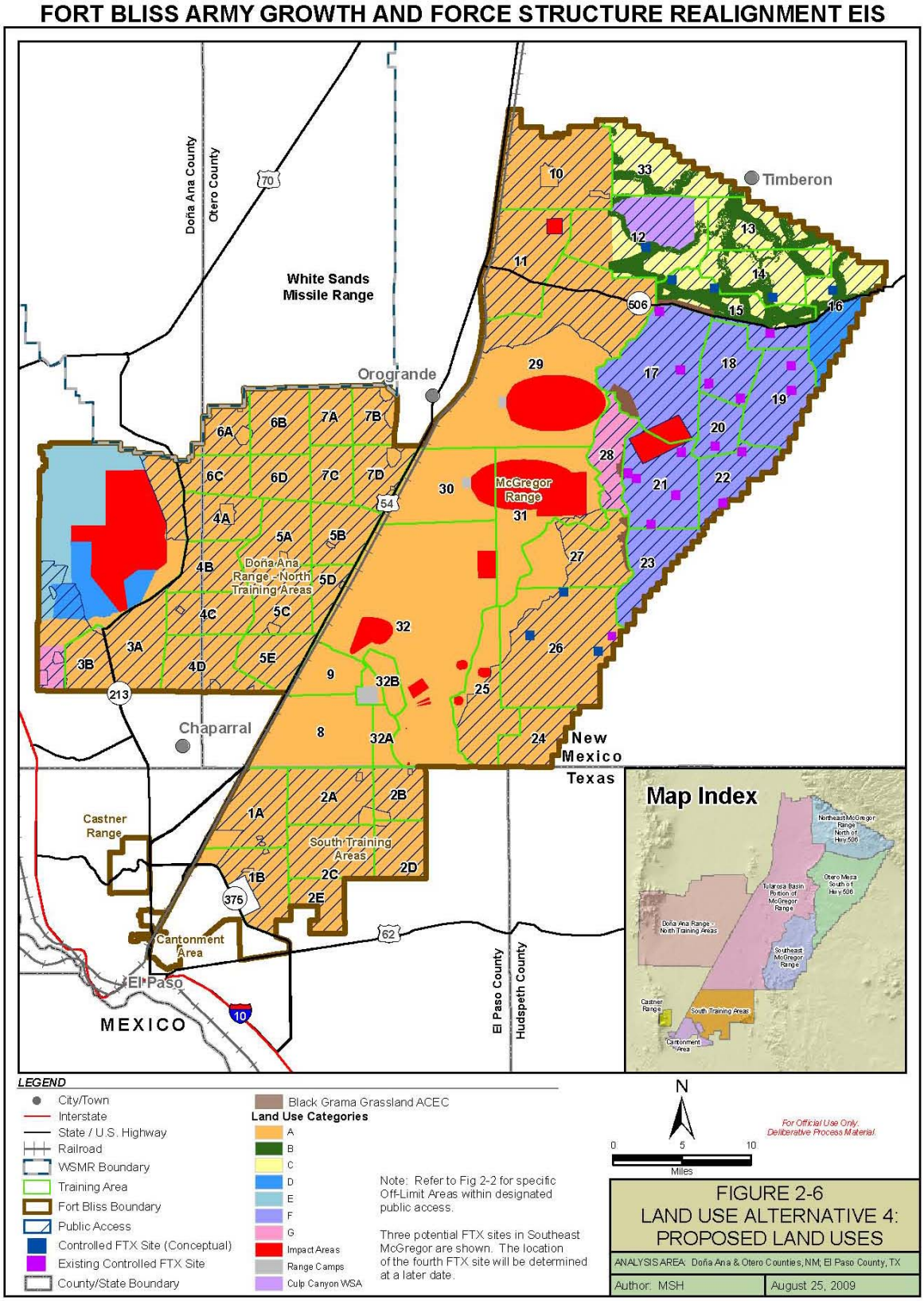


Figure 2-6. Land Use Alternative 4: Proposed Land Uses.

Table 2-24 presents the estimated training days scheduled for the FBTC subdivisions under LU-4. Under LU-4, the IBCT percent training days scheduled would shift by approximately five percent from the South Training Areas to the Northeast McGregor Range North of Highway 506 under all stationing and training alternatives. In addition, the Other Unit percent training days scheduled would increase by five percent in this FBTC subdivision. These increases would result in LU-4 allowing the highest percent of training days scheduled for Northeast McGregor Range North of Highway 506.

Table 2-24. Estimated Percent Training Days Scheduled for the Fort Bliss Training Complex under Land Use Change Alternative 4.

FBTC Subdivision[1]	Total Area Available (km^2)	Percent Training Days Scheduled Under LU-4[2]																	
		ST-1[a]				ST-2[b]				ST-3[c]					ST-4[d]				
		HBCT	IBCT	Other	Total	HBCT	IBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total
South Training Areas	373	50%	20%	15%	85%	60%	20%	15%	95%	60%	20%	5%	15%	100%	70%	20%	10%	20%	120%
Doña Ana Range-North Training Areas	1,057	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	10%	10%	75%	60%	5%	20%	15%	100%
Tularosa Basin of McGregor Range	1,440	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	15%	10%	80%	60%	5%	25%	15%	105%
Southeast McGregor Range	392	5%	5%	5%	15%	5%	5%	5%	15%	5%	5%	5%	5%	20%	10%	5%	10%	10%	35%
Northeast McGregor Range North of Hwy 506	424	-	35%	15%	50%	-	35%	15%	50%	-	35%	5%	15%	55%	-	35%	15%	25%	75%
Otero Mesa South of Hwy 506[e, f]	558	-	5%	5%	10%	-	5%	5%	10%	-	5%	5%	5%	15%	-	5%	10%	5%	20%

\- FBTC subdivisions with less than 1 percent training days scheduled would receive unquantifiable levels of both On-Road Vehicle and Dismounted maneuver military uses.

[1] Refer to Figure 2-6.

[2] Percent training days/ scheduled in a 365 day year to meet maneuver requirements. FBTC subdivisions with total training days scheduled equal to or exceeding 100 percent would require concurrent use. It is noted that percent training days scheduled can be up to 300 percent and still remain sustainable.

[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.

[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.

[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.

[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.

[e] Percent maneuver in the Otero Mesa South of Highway 506 is limited to On-Road Vehicle and Dismounted Maneuvers. Off-Road Vehicle Maneuver in this subdivision is not allowed under LU-4.

[f] Majority of support for units training in the Northeast McGregor Range North of Highway 506 occurs in fixed sites located on the northern portion of the Otero Mesa South of Highway 506.

Table 2-25 examines estimated distribution of percent of training days scheduled (Table 2-24) by vehicle classification rather than military unit type.

Table 2-25. Estimated Distribution of Ground Pressure Vehicle Groupings in the Fort Bliss Training Complex under Land Use Change Alternative 4.

FBTC Subdivision[1]	Total Area Available (km^2)	Distribution of Ground Pressure Vehicle Groupings Under LU-4[2]															
		ST-1[a]				ST-2[b]				ST-3[c]				ST-4[d]			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	373	60%	19%	6%	85%	68%	21%	6%	95%	70%	22%	8%	100%	82%	27%	12%	120%
Doña Ana Range-North Training Areas	1,057	39%	12%	3%	55%	47%	15%	4%	65%	50%	17%	8%	75%	64%	22%	14%	100%
McGregor Range, Tularosa Basin	1,440	39%	12%	3%	55%	47%	15%	4%	65%	52%	18%	10%	80%	66%	23%	16%	105%
McGregor Range, Southeast	392	10%	4%	1%	15%	10%	4%	1%	15%	12%	5%	4%	20%	20%	8%	7%	35%
McGregor Range, Northeast McGregor Range North of Hwy 506	424	33%	12%	6%	50%	33%	12%	6%	50%	34%	13%	8%	55%	43%	18%	14%	75%
McGregor Range, Otero Mesa South of Hwy 506[e]	558	6%	3%	1%	10%	6%	3%	1%	10%	8%	4%	4%	15%	10%	5%	6%	20%

[1] Refer to Figure 2-6.
[2] Percent of L/M/H classified vehicles extrapolated with 365 training days/year.
[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.
[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.
[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.
[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.
[e] Vehicle use in the Otero Mesa South of Highway 506 is limited to On-Road Vehicle Maneuvers. Off-Road Vehicle Maneuver in these subdivisions is not allowed under LU-4.

Using the On-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-8), the percent of vehicle classifications training in each FBTC subdivision (Table 2-25), and the total kilometers of road network available in each FBTC subdivision (Table 2-26), the number of vehicle trips can be determined under LU-4 (Table 2-26).

Under LU-4, the total vehicle trips in the FBTC subdivisions would be the highest in the Northeast McGregor Range North of Highway 506, followed by the Tularosa Basin of McGregor Range and the South Training Areas. It is noted that the shift in vehicle trips between the Northeast McGregor Range North of Highway 506 and the South Training Areas is not a 1 for 1 shift. This is due to the amount of roadway available in the South Training Areas being greater than in the Northeast McGregor Range North of Highway 506.

Table 2-26. Estimated Annual Vehicle Trips completed on the Fort Bliss Training Complex under Land Use Change Alternative 4.

FBTC Subdivision	Roadway Available (km)	On-Road Vehicle Trips Completed Under LU-4															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	446	487	289	117	892	529	329	134	992	620	370	186	1,175	760	449	265	1,474
Doña Ana Range-North Training Areas	1,149	366	214	77	656	421	257	91	769	516	316	208	1,040	686	427	359	1,471
Tularosa Basin of McGregor Range	1,066	537	314	113	964	618	377	134	1,129	782	494	391	1,667	1,033	658	613	2,304
Southeast McGregor Range	165	241	160	85	486	232	165	93	490	310	229	244	783	552	405	465	1,423
Northeast McGregor Range North of Hwy 506	221	634	433	273	1,340	612	445	298	1,355	736	519	421	1,675	969	719	761	2,449
Otero Mesa South of Hwy 506	491	72	54	36	162	69	56	40	165	100	85	112	297	127	111	187	425

Using the vehicle specifications (i.e., tire/tread width) (Table 2-2), the Off-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-9), and the percent of vehicle classifications training in each FBTC subdivision (Table 2-24), the maximum ground contact under LU-4 can be determined. These calculations are presented according to vehicle classification (Table 2-27).

Table 2-27. Estimated Maximum Ground Contact for Off-Road Vehicle Training Activities on the Fort Bliss Training Complex under Land Use Change Alternative 4.

FBTC Subdivision	Maximum Ground Contact Under LU-4 (km^2)															
	ST-1				ST-2				ST-3				ST-4			
	L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	292	134	42	468	335	151	44	530	322	138	30	490	364	154	37	555
Doña Ana Range-North Training Areas	542	245	67	854	658	290	74	1,021	660	291	84	1,035	808	362	124	1,295
Tularosa Basin of McGregor Range	738	334	91	1,163	896	395	100	1,391	928	423	147	1,498	1,130	518	197	1,845
Southeast McGregor Range	51	26	11	88	52	27	11	90	57	30	14	101	94	49	23	166
Northeast McGregor Range North of Hwy 506	181	0	0	181	184	0	0	184	181	0	0	181	220	0	0	220
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The number of times the ground would be driven over was calculated by dividing the area driven over by the area available for maneuver. The area available for Off-Road Vehicle Maneuver in each FBTC subdivision is limited by OLAs, range footprints, impact areas, and existing land use categories (Table 2-28).

Under LU-4, the number of times of drive-over in the South Training Areas, Doña Ana Range-North Training Areas, Tularosa Basin of McGregor Range, and Southeast McGregor Range would decrease from the LU-3 rates, with the most significant reduction occurring in the South Training Areas. The drive-over rate for wheeled vehicles with an L classification would range from 1.25 to 1.53 times per year on the Northeast McGregor Range North of Highway 506. It is noted that no tracked or wheeled vehicles with M and H classifications would be allowed to off-road maneuver in the Northeast McGregor Range North of Highway 506 under this alternative.

Table 2-28. Number of Times Ground is Driven Over Annually as Part of Off-Road Vehicle Maneuver under Land Use Change Alternative 4.

FBTC Subdivision	Area Available (km^2)	Number of Times Ground is Driven Over Under LU-4															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	LGPV	MGPV	HGPV	Total
South Training Areas	356	0.82	0.38	0.12	1.3	0.94	0.42	0.12	1.5	0.90	0.39	0.09	1.4	1.0	0.43	0.10	1.6
Doña Ana Range-North Training Areas	996	0.54	0.25	0.07	0.86	0.66	0.29	0.07	1.03	0.66	0.29	0.08	1.04	0.81	0.36	0.12	1.3
Tularosa Basin of McGregor Range	1,195	0.62	0.28	0.08	0.97	0.75	0.33	0.08	1.2	0.78	0.35	0.12	1.3	0.9	0.43	0.17	1.5
Southeast McGregor Range	387	0.13	0.07	0.03	0.23	0.13	0.07	0.03	0.23	0.15	0.08	0.04	0.26	0.24	0.13	0.06	0.43
Northeast McGregor Range North of Hwy 506	144	1.25	0.00	0.00	1.25	1.28	0.00	0.00	1.28	1.26	0.00	0.00	1.26	1.53	0.00	0.00	1.53
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2.2.2.7 Alternative 5 – Selected Grassland LUA Removal on Otero Mesa (LU-5)

In addition to the land use changes identified for LU-1 through LU-4, Land Use Change Alternative 5 (LU-5) allows three square kilometers of Controlled FTX military activities on the Otero Mesa South of Highway 506 by removing the Grassland LUA limitations in these areas. The Controlled FTX activities would be located adjacent to existing roads and would affect less than 1 percent of the Otero Mesa South of Highway 506 (Table 2-13). The conceptual locations for Controlled FTXs are shown on Figure 2-7. This is the preferred land use alternative for the FEIS.

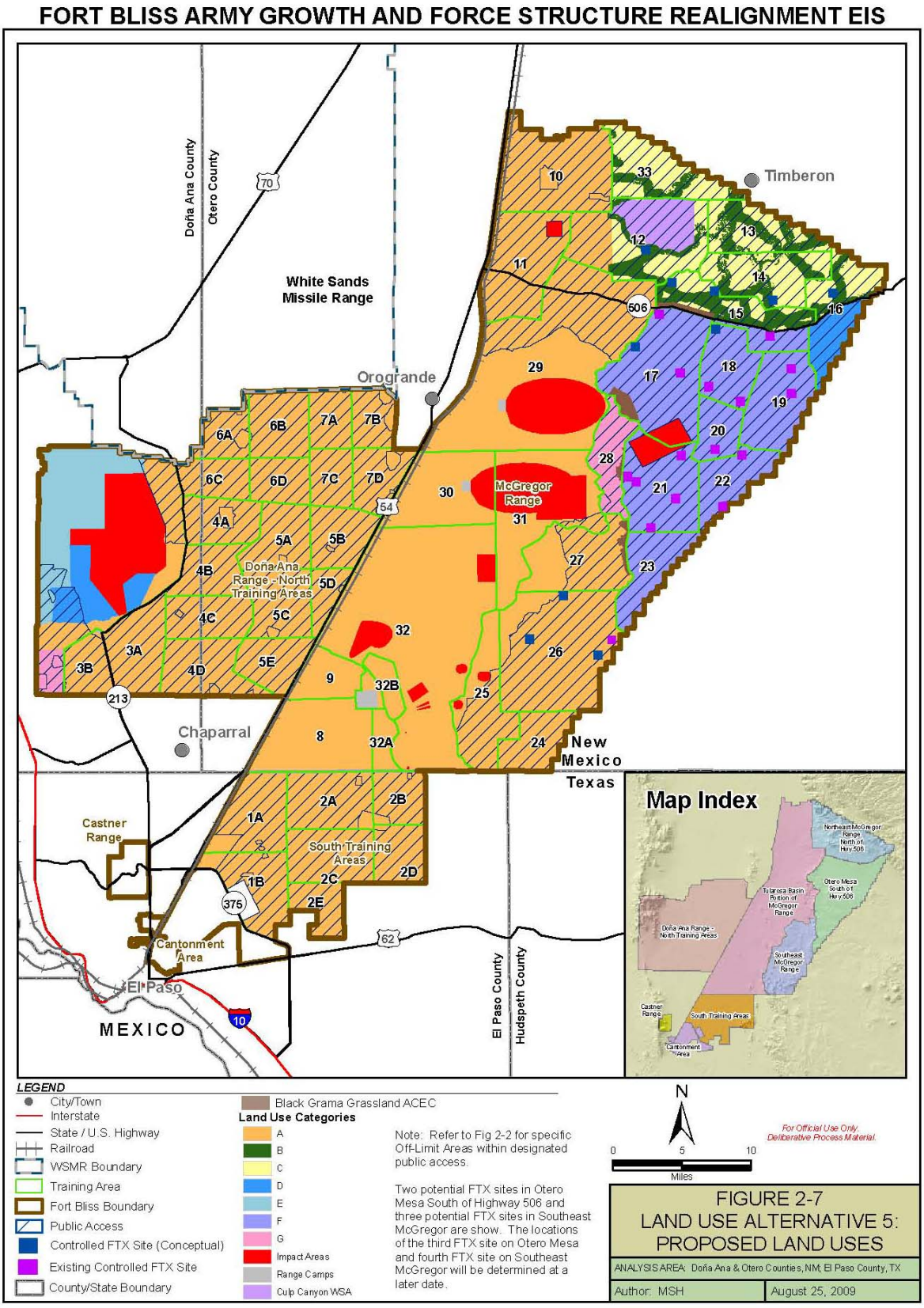


Figure 2-7. Land Use Alternative 5: Proposed Land Uses.

Table 2-29 presents the estimated percent training days scheduled for the FBTC subdivisions under LU-5. Under this alternative, the additional Controlled FTX military activities on the Otero Mesa South of Highway 506 would make this area attractive for the additional Other Units added under ST-4. This would result in an approximate 5 percent shift of Other Unit training days scheduled from the Northeast McGregor Range North of Highway 506 to the Otero Mesa South of Highway 506 under LU-5/ST-4 only (Table 2-29).

Table 2-29. Estimated Percent Training Days Scheduled for the Fort Bliss Training Complex under Land Use Change Alternative 5.

FBTC Subdivision[1]	Total Area Available (km^2)	Percent Training Days Scheduled Under LU-5[2]																	
		ST-1[a]				ST-2[b]				ST-3[c]					ST-4[d]				
		HBCT	IBCT	Other	Total	HBCT	IBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total	HBCT	IBCT	SBCT	Other	Total
South Training Areas	373	50%	20%	15%	85%	60%	20%	15%	95%	60%	20%	5%	15%	100%	70%	20%	10%	20%	120%
Doña Ana Range-North Training Areas	1,057	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	10%	10%	75%	60%	5%	20%	15%	100%
Tularosa Basin of McGregor Range	1,440	40%	5%	10%	55%	50%	5%	10%	65%	50%	5%	15%	10%	80%	60%	5%	25%	15%	105%
Southeast McGregor Range	392	5%	5%	5%	15%	5%	5%	5%	15%	5%	5%	5%	5%	20%	10%	5%	10%	10%	35%
Northeast McGregor Range North of Hwy 506	424	-	35%	15%	50%	-	35%	15%	50%	-	35%	5%	15%	55%	-	35%	15%	20%	70%
Otero Mesa South of Hwy 506[e, f]	558	-	5%	5%	10%	-	5%	5%	10%	-	5%	5%	5%	15%	-	5%	10%	10%	25%

\- FBTC subdivisions with less than 1 percent training days scheduled would receive unquantifiable levels of both On-Road Vehicle and Dismounted maneuver military uses.

[1] Refer to Figure 2-7.

[2] Percent training days/ scheduled in a 365 day year to meet maneuver requirements. FBTC subdivisions with total training days scheduled equal to or exceeding 100 percent would require concurrent use. It is noted that percent training days scheduled can be up to 300 percent and still remain sustainable.

[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.

[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.

[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.

[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.

[e] Percent maneuver in the Otero Mesa South of Highway 506 is limited to On-Road Vehicle and Dismounted Maneuvers. Off-Road Vehicle Maneuver in this subdivision is not allowed under LU-5.

[f] Majority of support for units training in the Northeast McGregor Range North of Highway 506 occurs in fixed sites located on the northern portion of the Otero Mesa South of Highway 506.

Table 2-30 examines estimated distribution of percent of training days scheduled (Table 2-29) by vehicle classification rather than military unit type

Table 2-30. Estimated Distribution of Ground Pressure Vehicle Groupings in the Fort Bliss Training Complex under Land Use Change Alternative 5.

FBTC Subdivision[1]	Total Area Available (km^2)	Distribution of Ground Pressure Vehicle Groupings Under LU-5[2]															
		ST-1[a]				ST-2[b]				ST-3[c]				ST-4[d]			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	373	60%	19%	6%	85%	68%	21%	6%	95%	70%	22%	8%	100%	82%	27%	12%	120%
Doña Ana Range-North Training Areas	1,057	39%	12%	3%	55%	47%	15%	4%	65%	50%	17%	8%	75%	64%	22%	14%	100%
McGregor Range, Tularosa Basin	1,440	39%	12%	3%	55%	47%	15%	4%	65%	52%	18%	10%	80%	66%	23%	16%	105%
McGregor Range, Southeast	392	10%	4%	1%	15%	10%	4%	1%	15%	12%	5%	4%	20%	20%	8%	7%	35%
McGregor Range, Northeast McGregor Range North of Hwy 506	424	33%	12%	6%	50%	33%	12%	6%	50%	34%	13%	8%	55%	41%	17%	13%	70%
McGregor Range, Otero Mesa South of Hwy 506[e]	558	6%	3%	1%	10%	6%	3%	1%	10%	8%	4%	4%	15%	12%	6%	7%	25%

[1] Refer to Figure 2-7.
[2] Percent of L/M/H classified vehicles extrapolated with 365 training days/year.
[a] Distribution percent based on the following training units: 4 HBCTs, 2 IBCTs, and Others Units.
[b] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, and Others Units.
[c] Distribution percent based on the following training units: 5 HBCTs, 2 IBCTs, 1 SBCT, and Others Units.
[d] Distribution percent based on the following training units: 6 HBCTs, 2 IBCTs, 2 SBCTs, and Other Units plus 1 Fires Brigades and 3 SBEs.
[e] Vehicle use in the Otero Mesa South of Highway 506 is limited to On-Road Vehicle Maneuvers. Off-Road Vehicle Maneuver in this subdivision is not allowed under LU-5.

Using the On-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-8), the percent of vehicle classifications training in each FBTC subdivision (Table 2-30), and the total kilometers of road network available in each FBTC subdivision (Table 2-31), the number of vehicle trips can be determined under LU-5 (Table 2-31).

Under LU-5, the total vehicle trips in the FBTC subdivisions would remain the under LU-5/ST-1, LU-5/ST-2, and LU-5/ST-3. Under LU-5/ST-4, the number of vehicle trips on the Northeast McGregor Range North of Highway 506 would decrease, resulting in an increase in vehicle trips on the Otero Mesa South of Highway 506. In addition, the Tularosa Basin of McGregor Range would contain the largest number of vehicle trips on the FBTC.

Table 2-31. Estimated Annual Vehicle Trips completed on the Fort Bliss Training Complex under Land Use Change Alternative 5.

FBTC Subdivision	Roadway Available (km)	On-Road Vehicle Trips Completed Under LU-5															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	446	487	289	117	892	529	329	134	992	620	370	186	1,175	759	448	264	1,471
Doña Ana Range-North Training Areas	1,149	366	214	77	656	421	257	91	769	516	316	208	1,040	684	426	358	1,468
Tularosa Basin of McGregor Range	1,066	537	314	113	964	618	377	134	1,129	782	494	391	1,667	1,031	657	612	2,299
Southeast McGregor Range	165	241	160	85	486	232	165	93	490	310	229	244	783	552	405	464	1,420
Northeast McGregor Range North of Hwy 506	221	634	433	273	1,340	612	445	298	1,355	736	519	421	1,675	905	662	716	2,283
Otero Mesa South of Hwy 506	491	72	54	36	162	69	56	40	165	100	85	112	297	164	144	212	520

Using the vehicle specifications (i.e., tire/tread width) (Table 2-2), the Off-Road Vehicle Maneuver training requirements (Table 2-7 and Table 2-9), and the percent of vehicle classifications training in each FBTC subdivision (Table 2-30), the maximum ground contact under LU-5 can be determined. These calculations are presented according to vehicle classification (Table 2-32).

Table 2-32. Estimated Maximum Ground Contact for Off-Road Vehicle Training Activities on the Fort Bliss Training Complex under Land Use Change Alternative 5.

FBTC Subdivision	Maximum Ground Contact Under LU-5 (km^2)															
	ST-1				ST-2				ST-3				ST-4			
	L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	292	134	42	468	335	151	44	530	321	138	30	490	366	154	37	557
Doña Ana Range-North Training Areas	542	245	67	854	658	290	74	1,021	659	291	84	1,035	813	362	124	1,299
Tularosa Basin of McGregor Range	738	334	91	1,163	896	395	100	1,391	928	423	147	1,498	1,136	518	197	1,851
Southeast McGregor Range	51	26	11	88	52	27	11	90	57	30	14	101	94	49	23	167
Northeast McGregor Range North of Hwy 506	181	0	0	181	184	0	0	184	181	0	0	181	207	0	0	207
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The maximum area of ground contacted can be divided by the area available (Table 2-32) to determine the number of times a FBTC subdivision is driven-over by ground pressure vehicle grouping under each LU-5 stationing and training alternative (Table 2-33).

Under LU-5/ST-4, the shift in Other Units to the Otero Mesa South of Highway 506 (which does not allow Off-Road Vehicle Maneuver) would result in a nine percent decrease of drive-over rates on the Northeast McGregor Range North of Highway 506 (Table 2-33).

Table 2-33. Number of Times Ground is Driven Over Annually as Part of Off-Road Vehicle Maneuver under Land Use Change Alternative 5.

FBTC Subdivision	Area Available (km^2)	Number of Times Ground is Driven Over Under LU-5															
		ST-1				ST-2				ST-3				ST-4			
		L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
South Training Areas	356	0.82	0.38	0.12	1.3	0.94	0.42	0.12	1.5	0.90	0.39	0.09	1.4	1.0	0.43	0.10	1.6
Doña Ana Range-North Training Areas	996	0.54	0.25	0.07	0.86	0.66	0.29	0.07	1.03	0.66	0.29	0.08	1.04	0.82	0.36	0.12	1.3
Tularosa Basin of McGregor Range	1,195	0.62	0.28	0.08	0.97	0.75	0.33	0.08	1.2	0.78	0.35	0.12	1.3	1.0	0.43	0.17	1.5
Southeast McGregor Range	387	0.13	0.07	0.03	0.23	0.13	0.07	0.03	0.23	0.15	0.08	0.04	0.26	0.24	0.13	0.06	0.43
Northeast McGregor Range North of Hwy 506	144	1.25	0.00	0.00	1.25	1.28	0.00	0.00	1.28	1.26	0.00	0.00	1.26	1.44	0.00	0.00	1.44
Otero Mesa South of Hwy 506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2.2.3 Category 3: Training Infrastructure Improvements

The Army is modernizing and standardizing the inventory of ranges at Fort Bliss to support modular BCTs. This standardization emphasizes availability of a suite of training ranges to ensure that all BCTs have access to critical training infrastructure and can meet requirements for pre-deployment training certification. These modernized ranges incorporate increased levels of digital technology, and are designed to replicate situations and scenarios encountered in the contemporary and projected future operating environments.

A variety of ranges are needed to meet the training requirements of BCTs. Ranges are needed for Soldiers to qualify semi-annually with their individual and crew-served weapons. In addition, ranges are needed to meet the requirements for combined arms live-fire training exercises. These exercises require considerable planning and coordination and are conducted to ensure proper integration and synchronization of the different types of units in combat scenarios. Descriptions of the primary ranges needed for training of the BCTs at Fort Bliss were obtained from TC 25-8 and are included as Appendix A.

In addition to ranges, the FBTC includes three Range Camps – identified as McGregor Range Camp, Doña Ana Range Camp, and Orogrande Range Camp – and a variety of miscellaneous facilities. Range Camps are defined as built environment providing limited administrative, living, quality of life, and other support services in closer proximity to training locations to support the Soldiers (e.g., billet space or living quarters).

The following table summarizes the Training Infrastructure Improvements Alternatives for the FBTC. Further detail of each alternative is discussed in the following sections.

Table 2-34. Summary of Training Infrastructure Improvements by Alternative.

Alternative	Improvement
TI-1	No Action: No additional improvements beyond those analyzed previously in a NEPA document.
TI-2	Construction of new ranges to accommodate stationing decision from Category 1.
TI-3	Alternative 2 improvements, plus expansion of existing range camps and construction of Contingency Operating Locations (COLs[1]) in FBTC as follows: - Six COLs in the South Training Areas - Five COLs in the Tularosa Basin of McGregor Range - Five COLs in the Doña Ana Range - North Training Areas
TI-4[a]	Alternatives 2 and 3, plus construction of rail line connecting Fort Bliss Cantonment to FBTC.

1 COLs are temporary facilities with minimal construction placed in austere locations along unimproved roads.

a. The preferred training infrastructure improvement alternative for the FEIS.

2.2.3.1 Alternative 1 – No Action (TI-1)

Training Infrastructure Improvement Alternative 1 (TI-1) is the No Action Alternative. Under this alternative, no additional improvements to training infrastructure would be constructed other the ranges that have been previously analyzed in previous NEPA documents. TI-1 would meet the range requirements for the four stationed HBCTs (five training HBCTs) identified in the 2007 ROD for the SEIS.

Table 2-34 shows ranges that currently exist or have previously been analyzed for construction in previous NEPA documents, at Fort Bliss. Figure 2-8 shows the distribution of these ranges throughout the FBTC.

Table 2-35. Ranges Present on Fort Bliss under Training Infrastructure Improvements Alternative 1.

Range Type	Range Location	Range #
Detainee Operations	McGregor Range	Detainee Ops
Gas Chamber w/Confidence Course	McGregor Range	Gas Chamber
Individual Tactical Training	McGregor Range	Range 1
Hand Grenade Qualification Course	McGregor Range	Range 2
Hand Grenade Distance and Accuracy Course	McGregor Range	Range 3
Hand Grenade Familiarization Range	McGregor Range	Range 4
Fire and Movement Range	McGregor Range	Range 5
Non-Standard Small Arms Range (ECP)	McGregor Range	Range 6
Combat Pistol Qualification Course	McGregor Range	Range 7
Non-Standard Small Arms Range (Pistol)	McGregor Range	Range 8
Non-Standard Small Arms Range (ARM)	McGregor Range	Range 9
Non-Standard Small Arms (Law Enforcement) (FBI)	McGregor Range	RG 10- FBI
Non-Standard SA (Department of Homeland Security-Special Operations)	McGregor Range	RG 11- BORTAC
Combat Pistol/MP Firearms Qualification Course	McGregor Range	Range 12
10-25 Meter Zero Range	McGregor Range	Range 13
10-25 Meter Zero Range	McGregor Range	Range 14
10-25 Meter Zero Range	McGregor Range	Range 15
Non-Standard Small Arms Range (Shotgun Range)	McGregor Range	Range 16
Non-Standard Small Arms Range (10-m Zero Range)	McGregor Range	Range 17
Machine Gun Field Fire	McGregor Range	Range 18
Modified Record Fire	McGregor Range	Range 19
Non-Standard Small Arms Range (25-m Zero Range)	McGregor Range	Range 19
Non-Standard Small Arms Range (CPQC)	McGregor Range	Range 20
Non-Standard Small Arms Range (MPQC)	McGregor Range	Range 21
Non-Standard Small Arms Range (25-m Zero Range)	McGregor Range	Range 22
Grenade Launcher Range (M203 TP)	McGregor Range	Range 23
Modified Record Fire (MRF)	McGregor Range	Range 24
Live Fire Breach and Light Demolition Range	McGregor Range	Range 30
40-mm (Grenade) Machine Gun Familiarization Range	McGregor Range	Range 34
Urban Assault Course	McGregor Range	Range 35
Shoothouse	McGregor Range	Range 36
Convoy Live Fire	McGregor Range	Range 37
Convoy Live Fire	McGregor Range	Range 38
Non-Standard Multi-Purpose Range (Aviation Gunnery/FARP/C-RAM)	McGregor Range	Range 39

Range Type	Range Location	Range #
Modified Record Fire (MRF)	Doña Ana Range	Range 53
Non-Standard Small Arms Range (25-m Zero)	Doña Ana Range	Range 54
Automated Combat Pistol/MP Firearms Qualification Course	Doña Ana Range	Range 55
Known Distance Range	Doña Ana Range	Range 56
Inactive Boresight and Direct Fire	Doña Ana Range	Range 59
Multi-Purpose Machine Gun	Doña Ana Range	Range 60
Infantry Squad Battle Course	Doña Ana Range	Range 62
Infantry Platoon Battle Course	Doña Ana Range	Range 63
Grenade Launcher Range	Doña Ana Range	Range 67
Mortar Range	Doña Ana Range	Range 68
MOUT Assault Course (Match)	Doña Ana Range	Range 69
Urban Assault Course	Doña Ana Range	Range 71
Urban Ops Village	Doña Ana Range	Range 72
Southwell Convoy Live Fire	McGregor Range	Range 80
Digital Air Ground Integration Range (DAGIR)	Orogrande Range	Range 83*
Urban Assault Course	Orogrande Range	Range 85
Digital Multi-Purpose Range Complex (DMPRC)	Orogrande Range	Range 88**
Combined Arms Collective Training Facility	Orogrande Range	Range 87
Short Range Air Defense (SHORAD)	Orogrande Range	Range 91

* Proposed construction start date, FY2010.

** Proposed construction start date, FY2009.

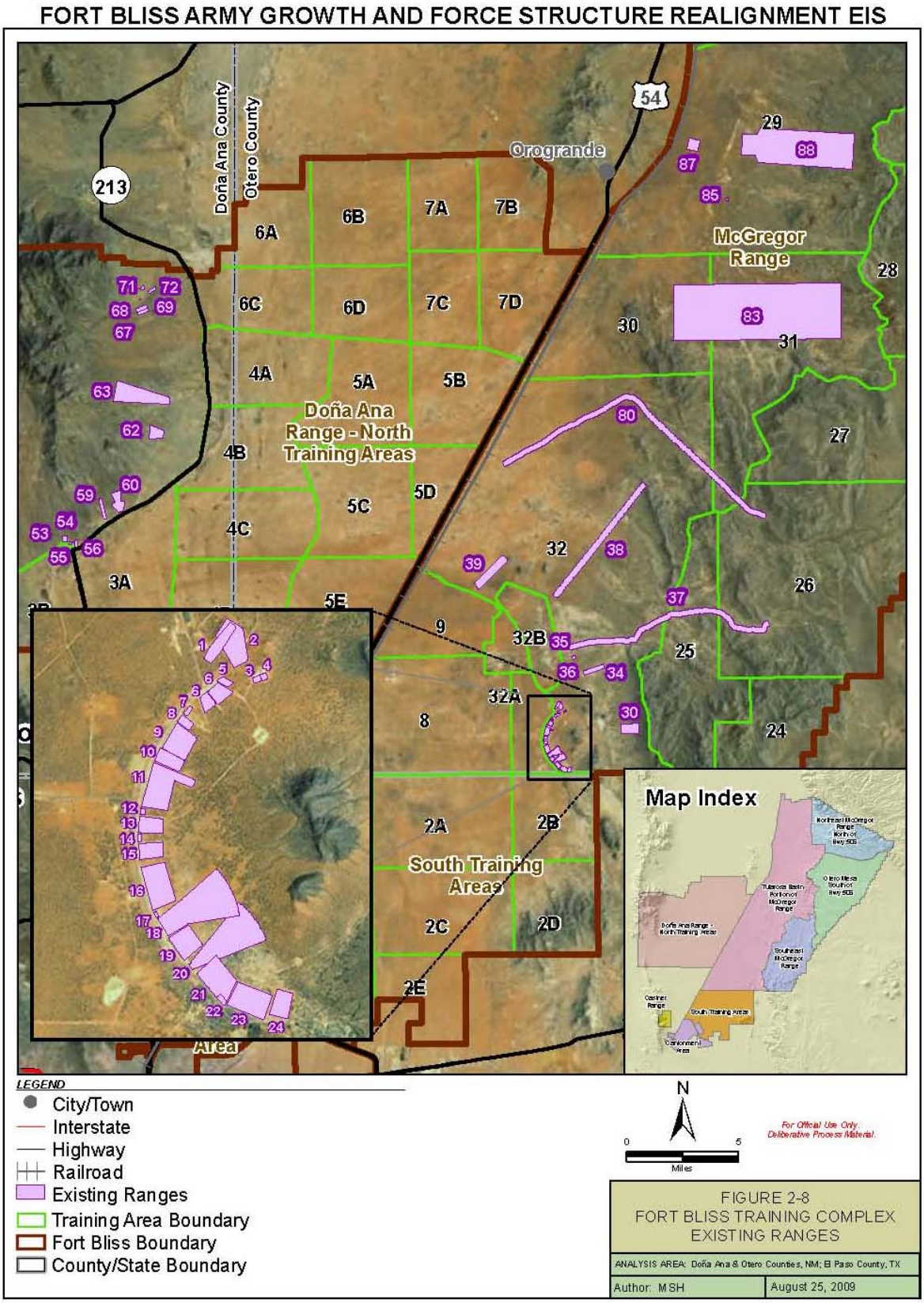


Figure 2-8. Fort Bliss Training Complex Existing Ranges.

2.2.3.2 Alternative 2 – Construction of New Ranges (TI-2)

Under Training Infrastructure Improvement Alternative 2 (TI-2), Fort Bliss would construct new ranges in the FBTC to accommodate the stationing and training alternative selected (Section 2.2.1). These ranges would accommodate the needs of the BCTs stationed at Fort Bliss.

Table 2-36 identifies the minimum number of ranges that would be constructed under TI-2 (i.e., those necessary to support ST-1 and ST-2). The 27 future ranges would be constructed during FY2010-2016 to accommodate the training of four HBCTs and two IBCTs stationed at Fort Bliss (ST-1 and ST-2). Table 2-35 lists these ranges, their general location, and the expected fiscal year during which construction would begin. Existing roads will be refurbished or new roads constructed to provide access to these ranges. Figure 2-9 shows the distribution of the minimum number of future ranges throughout the FBTC.

Table 2-36. Future Ranges supporting Stationing and Training Alternative 1.

Range Type	Range Location	Range #
Fiscal Year 2010		
Known Distance	McGregor Range	25
Sniper Field Fire	McGregor Range	20
Multi-Purpose Machine Gun	McGregor Range	33
Scout Recce Gunnery	Doña Ana Range	70
Light Demolition Range	Doña Ana Range	64
Infantry Platoon Battle Course	Orogrande Range	82
Fiscal Year 2011		
Squad Defense Range	McGregor Range	26
Shoothouse	McGregor Range	27
Heavy Sniper Range	McGregor Range	32
Digital Multi-Purpose Training Range (DMPTR)	Doña Ana Range	61
Scout/RECCE Gunnery Complex	Doña Ana Range	65
Multi-Purpose Machine Gun	Orogrande Range	86
Light Demolition Range	Orogrande Range	89
Fiscal Year 2013		
10/25M Zero Range	McGregor Range	22
Modified Record Fire	McGregor Range	29
Multi-Purpose Machine Gun	McGregor Range	9
Infantry Squad Battle Course	Orogrande Range	81
Fiscal Year 2014		
Combat Pistol/Military Qualification Course	McGregor Range	31
Digital Multi-Purpose Range Complex (MPRC)	Doña Ana Range	50
Fiscal Year 2015		
Combined Arms Collective Training Facility (CACTF) Phase 2	Orogrande Range	87

Range Type	Range Location	Range #
Fiscal Year 2016		
Hand–Grenade Qualification Course	Doña Ana Range	51*
Hand-Grenade Familiarization	Doña Ana Range	52*
Modified Record Fire	McGregor Range	21
Qualification Training Range	Orogrande Range	90
Grenade Launcher Qualification Course	Doña Ana Range	57
Anti-Armor Tracking and Live Fire Training Range	Doña Ana Range	58
Infantry Platoon Battle Course	Orogrande Ranges	92

* Range 51 and 52 locations to be determined.

The stationing of an SBCT at Fort Bliss under ST-3 would also require the completion of one Battle Area Complex (BAX), which could accommodate training for up to four SBCTs. The construction of this range would occur as the need arises and funds are available. The site would be selected and analyzed for site-specific impacts at that time.

Later phases of construction would occur to accommodate any additional ranges required for the stationing of the second SBCT and additional support units, pursuant to the selection of ST-4. The construction of future ranges (Table 2-36) would occur as the need arises and funds are available. Sites would be selected and analyzed under NEPA for site-specific impacts at that time. This EIS looks at the impacts of these projects at a programmatic level. Specific sites would be selected to minimize impacts to grasslands, arroyo riparian buffer zones, and other LUAs, and Off-Limits Areas. All National Register cultural sites would be avoided or mitigated.

Table 2-37. Future Ranges analyzed Programmatically, Pending Selection of Stationing and Training Alternative 4.

Range Type	Number of Ranges
10-25 Meter Zero Range	1
Modified Record Fire (MRF)	2
Known Distance	1
Automated Combat Pistol	1
Multi-Purpose Machine Gun	3
LAW Range	1
Scout Recce Gunnery	2
Digital Multi-Purpose Training Range (DMPTR)	3
Digital Multi-Purpose Range Complex (DMPRC)	2
Stationary Gunnery Range	1
Urban Assault Course	1
Hand–Grenade Qualification Course	1
Grenade Launcher Qualification Course	1
Hand Grenade Familiarization Range	1

Range Type	Number of Ranges
Heavy Sniper Range	1
Squad Defense Range	1
Infantry Squad Battle Course	1
Infantry Platoon Battle Course	2
Combined Arms Collective Training Facility	1
Battle Area Complex (BAX)	1 (under ST-3)

Descriptions of ranges are included in Appendix A.

2.2.3.3 Alternative 3 – Expansion of Range Camps and Construction of Contingency Operating Locations (TI-3)

In addition to the improvements identified under TI-2, Training Infrastructure Improvement Alternative 3 (TI-3) would include expansion of existing Range Camps and construction of Contingency Operating Locations (COLs) in the FBTC. Billet space (temporary living quarters) is projected to increase from 3,121 to 5,000 at McGregor Range Camp; decrease from 1,783 to 1,750 at Doña Ana Range Camp; and increase from 364 to 1,750 at Orogrande Range Camp. Projected civilian work force is expected to be 473 at McGregor, 291 at Doña Ana and 235 at Orogrande.

Under this alternative, 16 COLs would be established in the FBTC. They would include:

- Six in the South Training Areas
- Five in the Tularosa Basin Portion of McGregor Range
- Five in the Doña Ana - North Training Areas

COLs are designed and constructed on an expedient basis along unimproved roads and characterized by austere facilities requiring minimal engineer effort. They are intended to support training unit operations for a limited time ranging up to 14 days. The facilities for COLs require an area of approximately one square kilometer. Thus, the area of full disturbance with heavy equipment would be approximately 125 acres per site. The COLs would be constructed in accordance with the minimum antiterrorism standards identified in the current Unified Facilities Criteria 4-010-01and subsequent updates.

Construction of COLs is analyzed at the programmatic level considering total and per-instance acreage and possible general locations. Specific sites would be selected avoiding grasslands, arroyo riparian buffer zones, and other LUAs, and Off-Limits Areas would not be used. All National Register cultural sites would be avoided or mitigated. In addition, any berms constructed or holes dug in the development of a COL would be restored after use by removing the berms and backfilling the holes. Once cleared for use, the same areas used for COL development would be used again, rather than constructing new COLs in undisturbed areas.

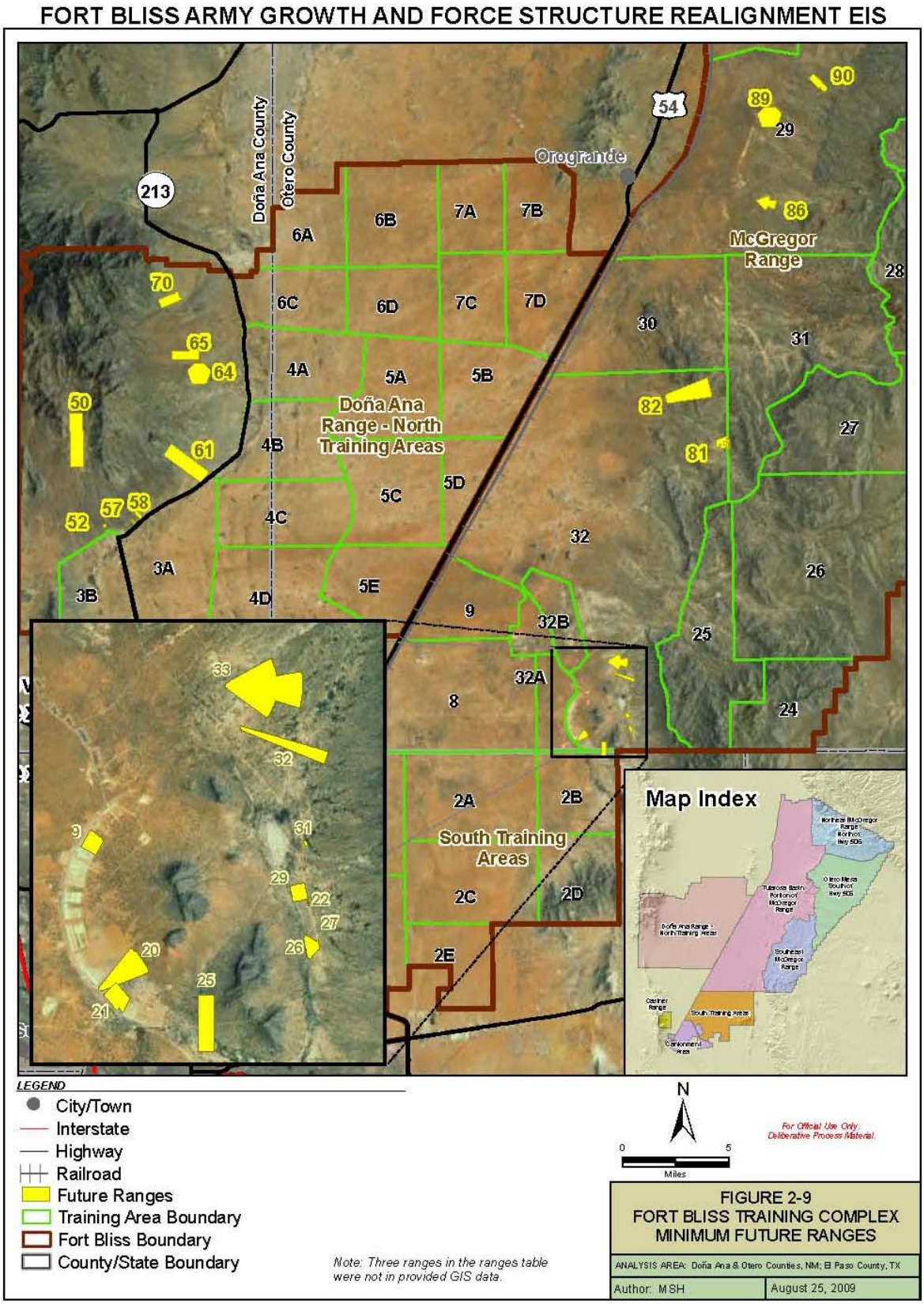


Figure 2-9. Fort Bliss Training Complex Minimum Future Ranges.

2.2.3.4 Alternative 4 – Rail Line Construction (TI-4)

In addition to the training infrastructure improvements included in TI-2 and TI-3, Training Infrastructure Improvement Alternative 4 (TI-4) would involve the construction of a rail line connecting the Fort Bliss Cantonment to the FBTC. In general, the rail line would run from the Fort Bliss Cantonment north-northeast, to the east of and parallel to U.S. Highway 54 and the existing commercial rail line, to a location on McGregor Range, north of the Orogrande Range Complex (Figure 2-10). This is the preferred training infrastructure improvement alternative for the FEIS.

Construction of the rail line would follow standard rail engineering, design, and installation practices, and would be designed to carry personnel, vehicles, and materiel.

2.3 Preferred Alternatives

The Army has selected ST-4, LU-5, and TI-4 as the preferred alternatives for this FEIS. These alternatives were selected as the preferred action because together they provide all the stationing, training, and facility improvement benefits of the other alternatives and offer the most capacity and flexibility to accommodate foreseeable future stationing and training, land use, and facility requirements.,

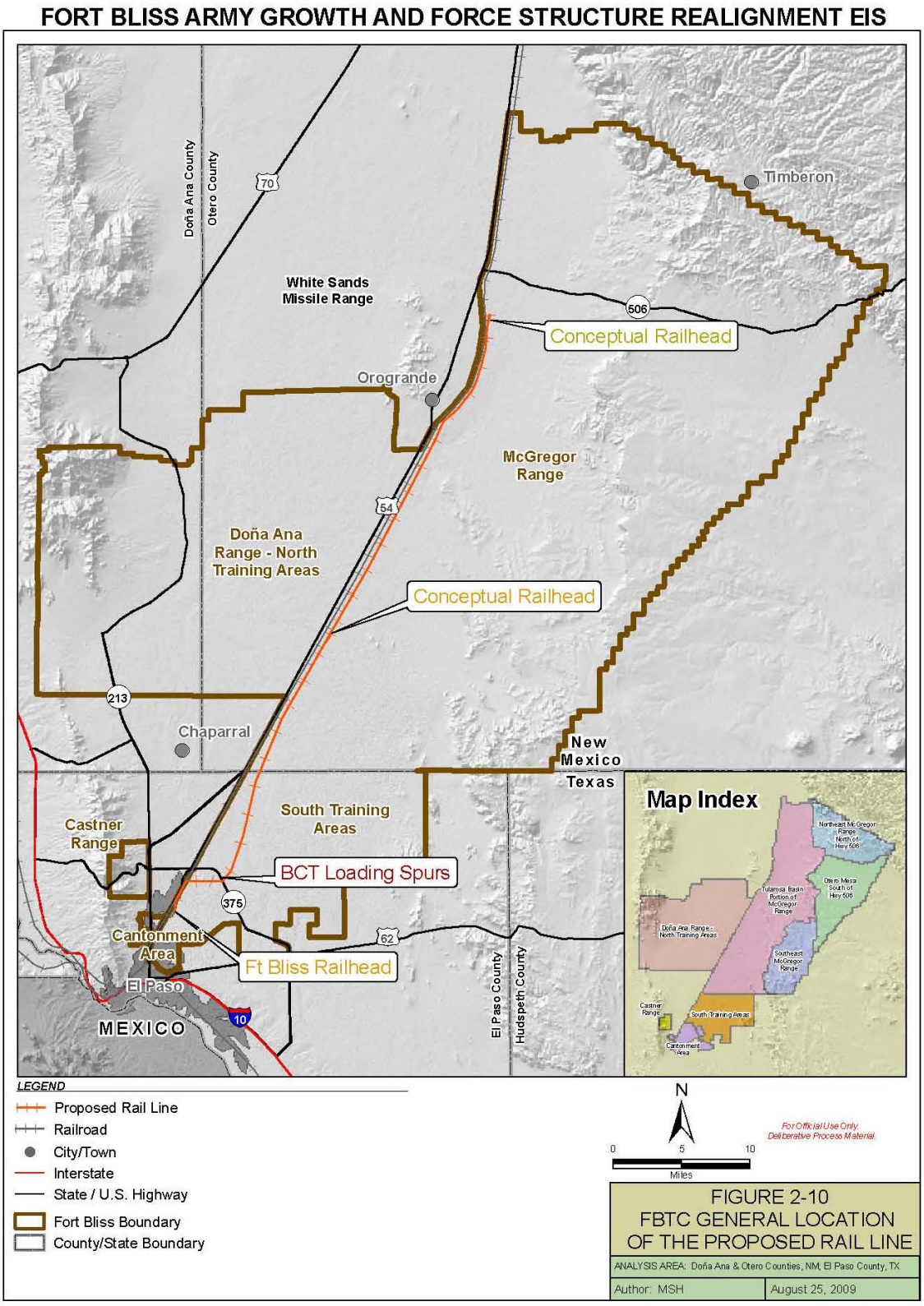


Figure 2-10. FBTC General Location of the Proposed Rail Line.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Land Use and Visual Resources: Affected Environment

Land use encompasses the general land use patterns, land ownership, land management plans, and special use areas on Fort Bliss. The land use region of influence (ROI) includes the installation and areas adjacent to Fort Bliss boundaries in El Paso County, Texas; and Doña Ana and Otero Counties, New Mexico.

Visual resources are defined as natural and man-made physical features that contribute to a particular landscape's character and value. Features that contribute to the overall impression of an area include landform, vegetation, water, color, adjacent scenery, scarcity, and man-made (cultural) modifications. The ROI for visual resources includes those areas of the installation that are visible when traveling along public roadways within Fort Bliss and surrounding areas and from overlooks at higher elevations that are located both within and outside the installation boundaries.

Fort Bliss land uses and visual resources are presented in detail in the SEIS, March 2007, and the ROD, April 2007 (USACE 2007a, 2007b). This section summarizes the affected environment for land uses and visual resources.

The installation presents two major settings: the developed Cantonment adjacent to the urban and suburban areas of the City and County of El Paso, Texas; and the extensive open TAs, surrounded primarily by undeveloped, publicly-owned lands. The TAs encompasses approximately 98 percent of the installation's areal extent (Table 3-1).

Table 3-1. Fort Bliss Installation Components.

Component	Square Kilometers (km^2)	Percent of Total
Cantonment area including Biggs Army Airfield	96	>2
Castner Range	27	< 1
South Training Areas	373	8
Doña Ana Range–North Training Areas	1,196	27
McGregor Range	2,814	62
Total	4,506	100

Source: Fort Bliss, 2009.

3.1.1 Fort Bliss Cantonment Area

3.1.1.1 Land Use

The Cantonment, presented in Figure 3-1, contains the heaviest concentration of facilities and mission support activities on Fort Bliss. It covers one percent of the total acreage of Fort Bliss, and includes all of the installation south and west of Loop 375, and a portion east of Loop 375. Support services in the Cantonment include administration, maintenance, service, storage and supply buildings, housing, and medical and community facilities. The Cantonment also includes the largest active army airfield in the world.

The Cantonment is undergoing major development and redevelopment to accommodate infrastructure and facility needs associated with BRAC and GDPR stationing decisions, as per the 2007 ROD for the SEIS. The Cantonment projects are identified from FY2009 through FY2015 on this programmed future development plan, dated December 11, 2008. Many of these projects renovate and upgrade existing facilities on the Main Post for reuse. Approximately 16 square kilometers (4,000 acres) are being developed within the Cantonment and an additional 6 square kilometers (1,500 acres) on the east side of Biggs AAF and along the existing ramp areas are being developed. This acreage includes approximately 5 square kilometers (1,300 acres) of additional impervious surface area and 2 square kilometers (21.9 million square feet) of new building construction. The new development extends in the Cantonment is occurring to the north and east, up to and extending east of Loop 375.

The Cantonment is designated for a single mixed-use land use designation, as opposed to having specific areas designated for individual land use categories. Facilities siting and development will continue to follow Army land use compatibility criteria. In the Cantonment, single-use "tactical campuses" accommodate the BCTs. As presented in the 2007 SEIS, a single mixed-use land designation supports the Army's transformation to a modular force by enabling BCT facilities to be planned as integrated enclaves, and also provides greater flexibility in responding to evolving mission and facility requirements. Furthermore, proximity of the BCT campuses to the South Training Areas reduces travel distances for training brigades, and minimizes intrusion of BCT vehicular activity into the remaining Cantonment area.

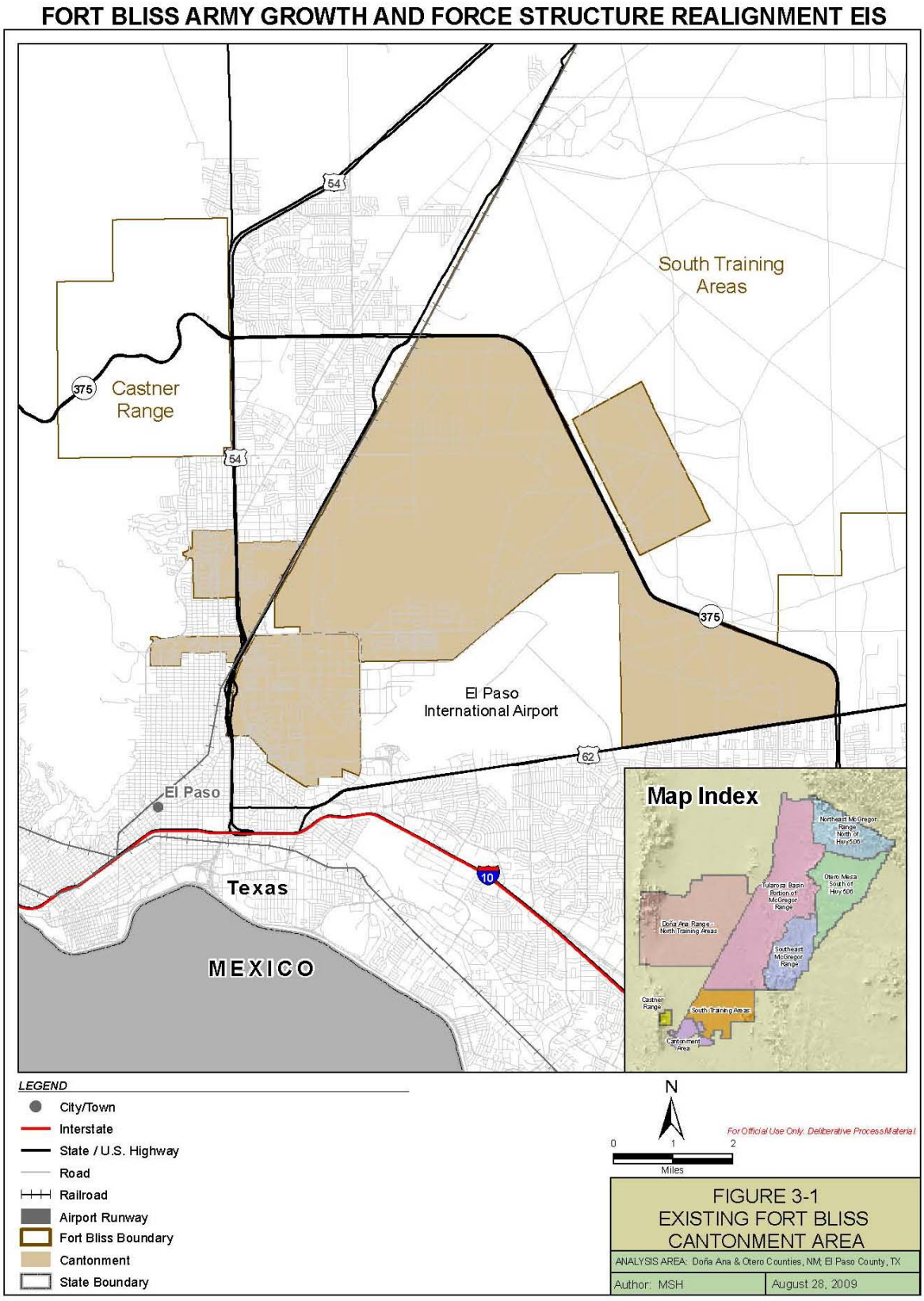


Figure 3-1. Existing Fort Bliss Cantonment Area.

3.1.1.2 Visual Resources

The physical development of the Cantonment is guided by the Installation Design Guide (IDG). The IDG defines the character of Fort Bliss as a product of its mission; historical character; and the climate, culture, and geography of the region. The IDG identifies five visual themes for the Fort Bliss Cantonment:

- Historic — reflecting the development phases of the installation since 1891
- Community life — including Troop and family housing, recreation facilities, and schools
- Support operations — including mission support, supply and storage, and administrative
- Military education — including military training
- Power projection — including air deployment facility

These themes apply to the different geographical areas of the Cantonment, creating in each a distinctive visual architectural character defined by the unique buildings and natural features (USACE 2006). The IDG provides design guidelines and specific recommendations for all renovation and new construction projects. The SEIS provides a description of visual character of the Cantonment and its different geographic areas.

Much of the existing Cantonment currently is geographically organized around these themes. However, the 2007 stationing decisions expand the Cantonment through the development of mission enclaves, or "tactical campuses," for each of the BCTs. The focus of the BCT enclaves is a "town center" of personnel support facilities such as shopping, indoor recreation, a community center, and greenway space. The eastern portion of the Cantonment, which includes Biggs AAF and areas east up to and beyond Loop 375, is continuing to urbanize. Within the existing Cantonment, replacement and infill projects continue, creating an increasingly dense visual context with less open area between facility groupings. While it is visible from Loop 375, the new development is consistent with the existing surrounding context of industrial and commercial development.

3.1.1.3 Castner Range

Castner Range located in El Paso County north of Logan Heights and adjacent to the Franklin Mountains, is a former training and weapons firing area. The Army has no plans for future use or disposal of Castner Range. Consequently, Castner Range is not discussed any further in this document.

3.1.1.4 Fort Bliss Training Complex

3.1.1.4.1 Overall Land Use

Chapter 2 describes existing land use categories, land use restrictions, and land use management activities on Fort Bliss. As shown in Tables 2-11 and 2-12 and on Figure 2-3, the FBTC supports a wide variety of military activities. Sections 3.1.1.4.3 through 3.1.1.4.5 describe military land uses unique to the South Training Areas, the Doña Ana Range–North Training Areas, and McGregor Range.

Non-military land uses on Fort Bliss include livestock grazing and public recreation. Livestock grazing is permitted on McGregor Range and is described in Section 3.1.1.4.5. The FBTC issues Recreation Access

Permits and to allow limited public access to the South Training Areas, TAs 3-7 of Doña Ana Range TAs, and TAs 10-23 and the northern portions of TA 29 in McGregor Range. Public access must be compatible with the military activities onsite at the time. Figure 2-3 shows the available public access areas within the FBTC. (Refer to Figure 2-2 for specific OLAs within designated public access areas.) Examples of recreational activities include hunting, hiking, and bird watching. There are approximately 300 recreational passes issued annually; approximately 25 percent of which are for recreational activities other than hunting. The most frequented areas for recreation are the South Training Areas, in particular TAs 1A and 1B (Locke 2009). Recreational vehicular traffic is limited to designated roads and trails. When military activities are incompatible with public use, the entire TA is closed to public access. Sections 3.1.1.4.3 through 3.1.1.4.5 describe other nonmilitary land uses on the South Training Areas, the Doña Ana Range–North Training Areas, and McGregor Range.

3.1.1.4.2 Overall Visual Resources

The FBTC is located in the semi-arid to arid Chihuahuan Desert, which is characterized by vistas framed by distant mountain ranges dominated by the overlying blue sky. The FBTC is surrounded on three sides by portions of the Organ, Franklin, Hueco, and Sacramento mountain ranges. Due to variations in elevation and precipitation, a range of vegetative regimes exists. Bunched or continuous grassy vegetation and areas of scattered shrubby vegetation create a patchwork of varying textures and patterns in the middle and distant landscape. Mixed hues of reddish brown and gray-colored soils, rocks and woody vegetation provide the dominant colors of the ground plane. In some areas, clumped or grassy vegetation introduces a range of pale sage and dark gray hues. The landscape is defined by both the natural setting and human modifications. Human-made features, including paved and unpaved roadways, fences, wooden corrals, isolated old homesteads and associated water windmills, watering tanks, pipelines, antennae, power lines, and satellite dishes, provide evidence of past and current uses. While many of these features are noticeable in the foreground, in the distant landscape they are either not perceptible or defined by subtle lines or forms. Sections 3.1.1.4.3 through 3.1.1.4.5 present the visual resources unique to each geographical segment of the FBTC.

3.1.1.4.3 South Training Areas

The South Training Areas consists of seven TAs (TAs 1A-1B; 2A-2E).

Military Land Use. The South Training Areas are used primarily for on- and off-road vehicle maneuvers and close-in military training ranges.

Non-Military Land Uses. The South Training Areas contain public utility infrastructure, including water treatment facilities, deep-well injection sites, water wells and gas and water pipelines. The Fred Hervey Water Reclamation Plant is located in TA 1A and the Kay Bailey Hutchinson Desalination Plant is located in TA 1B. The Fort Bliss Rod and Gun Club, open to the public, is located in TA 1B.

Visual Resources. The South Training Areas are comprised primarily of mesquite coppice dunes. East of the South Training Areas, the foothills of the Hueco Mountain rise from the desert floor, providing visual interest in the distance. The lower slopes have limited, mostly low-growing vegetation. Chain link fencing defines the Loop 375 highway corridor to the southwest. Portions of the South Training Areas have been disturbed by off-road vehicle operations, leaving denuded patches that are highly noticeable in the foreground, but do not alter the middle and distant visual character. As cited in Section 3.1.1.2, since the implementation of the stationing decisions, the Cantonment's built-environment has expanded to include portions of TA 1B, further extending the built environment and altering the relatively stable degraded landscape of the South Training Areas.

3.1.1.4.4 Doña Ana Range–North Training Areas

The Doña Ana Range–North Training Areas consists of 19 TAs (TAs 3A-3B, 4A-D, 5A-E, 6A-D, and 7A-D). War Highway (New Mexico Route 213) divides the Doña Ana Range complex from the North Training Areas.

Military Land Use. A complex of weapons firing ranges are located to the west of War Highway, with their impact areas located in the foothills of the Organ Mountains. The North Training Areas are used primarily for on- and off-road vehicle maneuvering. Aerial drop zones and artillery firing areas are located in the western part of the North Training Areas. Two range camps, Orogrande Range Camp and Doña Ana Range Camp, provide mission support facilities.

Non-Military Land Uses. War Highway (New Mexico Highway 213 and Ranch Road 3255 in Texas), a public access road, serves as the primary link between the City of El Paso and White Sands Missile Range. Utility easements crossing portions of the Doña Ana Range–North Training Areas include above-ground electric lines and underground gas pipelines. There is limited recreation in the Doña Ana–North Training Areas. The public's recent level of use of the Doña Ana–North Training Areas is low and can only be permitted when the training areas are not being used by military activities.

Visual Resources. Bordering the northwest corner of the Doña Ana Range, the Organ Mountains have outstanding scenic quality. The remaining areas on the Doña Ana Range–North Training Areas are comprised of mesquite coppice dunes that form a homogenous pattern of dark shrubs against a sandy ground plane. The height of the dunes obstructs a viewer's visual field when moving through them. Some of the weapons ranges on the west side of War Highway have visible features from the road, but most are hidden by the terrain. Additionally, Doña Ana Range Camp is visible when traveling along some roadways, but specific qualities of the built environment are not discernible.

3.1.1.4.5 McGregor Range

McGregor Range is approximately 62 percent of the total Fort Bliss land area and contains 26 TAs occupying roughly 2,833 square kilometers (700,000 acres). Approximately 87 percent of McGregor Range (more than 2,428 square kilometers [600,000 acres]) is public land administered by the BLM and co-managed by Fort Bliss and the BLM under a Memorandum of Agreement (MOA), per Congressional withdrawal of public lands for military use (Public Law [PL] 106-65). Per the MOA between BLM and Fort Bliss, Fort Bliss controls construction and maintenance of improvements in hazardous and Army fee-owned areas, to include the boundary fence for McGregor Range. Approximately 10 percent (287 square kilometers or 71,000 acres) is land owned-in-fee by the Department of Army. The remainder of McGregor Range, approximately three percent (73 square kilometers or 18,000 acres), is part of the Lincoln National Forest, which is public land managed by the USFS. (Note that the majority of the Doña Ana–North Training Area is also land withdrawn under Public Land Order 833 [circa 1952]; unlike McGregor Range, however, all management of the surface acreage is under jurisdiction of the Army.)

Military Land Use. McGregor Range is used for a variety of missile testing and training programs, individual and collective training ranges, and unit field maneuver. Two complexes of ranges exist: Orogrande Range Complex east of the town of Orogrande, and Meyer Range Complex adjacent to the McGregor Range Camp north of the Texas/New Mexico border. Wilde Benton, a 2-mile long dirt airstrip, exists slightly north and east of the Orogrande Range Complex. Approximately half of McGregor Range, 1,425 square kilometers (352,000 acres), permits the Off-Road Vehicle Maneuver: Heavy military use. Controlled FTX military activities (allowing concentrations of personnel and vehicles at fixed sites, and digging) are designated in areas where off-road vehicle maneuver is not permitted, except TA 33. Under a

Memorandum of Understanding (MOU) between the USFS and the Army, military uses are permitted on TA 33 with the concurrence of the USFS (US Army 1999). In accordance with the USFS Travel Management Policy, military activities are limited to dismounted maneuvers through-out TA-33 and off-road vehicle use is prohibited off designated routes with the exception of traveling up to 300 feet (90m) from designated routes to access dispersed campsites (USFS 2009).

Holloman Air Force Base uses the Centennial Bombing Range, consisting of approximately 21 square kilometers (5,200 acres) on Otero Mesa South of Highway 506 (occupying portions of TAs 17 and 21), for air-to-ground target training.

Non-Military Land Uses. Non-military uses are allowed on McGregor Range provided they do not conflict with military uses or pose safety risks to the public. The BLM's Record of Decision and Resource Management Plan Amendment (ROD/RMPA) for McGregor Range, May 2006, details the most recent management plan for the 2,453 square kilometers (606,233 acres) of public land now withdrawn from the public domain for military use (BLM 2006). The RMPA details the co-management responsibilities of BLM and Fort Bliss on withdrawn lands and Army-fee owned lands with regard to lands, rangeland management, and recreation, as well as habitat management and special species management, cultural resources, and fire management. In May 2006, Fort Bliss signed a Memorandum of Understanding (MOU) with the BLM regarding the RMPA for McGregor Range. This document includes best management practices (BMPs) that when applied properly, minimize adverse impacts on the McGregor Range ecosystem, and retains the reclamation potential of the disturbed area while accommodating land-user objectives.

Below is a summary of some key BLM/Fort Bliss responsibilities with respect to land use on McGregor Range, inclusive of the RMPA MOU:

- **Public Road Access and Utility Easements.** The BLM authorizes rights-of-way (ROWs) on a case-by-case basis with the concurrence of Fort Bliss (BLM 2006). Fort Bliss is responsible for authorizing right-of-way and short-term leases and permits on the Army fee-owned lands. Highway 506 provides access to the southeastern portion of Otero County and to Dell City, Texas, as well as to communities in the southern part of the Sacramento Mountains. For certain training activities, Fort Bliss closes Highway 506. Smaller range roads provide the only ingress to some grazing allotments in the northern part of McGregor Range on USFS land and in the Culp Canyon Wilderness Study Area (WSA). The RMPA designates two linear corridors to accommodate future utilities (e.g., power line, pipeline, fiber optics) and identifies 171,948 acres to be excluded from consideration for any type of right-of-way unless otherwise mandated by law (right-of-way exclusion areas).

- **Public Recreation.** Fort Bliss and the BLM share responsibilities for access permits on both the withdrawn lands and the Army fee-owned lands. The BLM does not allow recreational off-road vehicle use on McGregor Range. (Per Executive Order [EO] 11644, amended by EO 11989, this prohibition does not apply to combat or combat support vehicles when used for national defense purposes.) The New Mexico Department of Game and Fish (NMDGF), Fort Bliss and the BLM share responsibilities for hunting on McGregor Range. The NMDGF authorizes hunts for deer, antelope, and other big game on McGregor Range in the joint-use areas. The 2007-08 New Mexico Deer Harvest Report shows that 20 hunting permits were issued for NM Game Management Unit 28 (McGregor Range). A total of 23 out of 63 licenses sold in 2007-08 for Antelope Harvest Management Unit No. 29 (which includes McGregor Range from Highway 506 south to the Texas state line) were assigned to McGregor Range (NMDFG 2009).

- **Livestock Grazing.** The BLM is responsible for livestock grazing, including permitting/leasing and overall management on both the withdrawn lands and the Army fee-owned lands. The BLM and Fort Bliss share responsibilities for livestock water maintenance. The maintenance and construction of livestock control fences and water pipelines are the responsibility of the BLM for areas on McGregor Range outside impact areas. Fort Bliss is responsible for maintenance and construction of livestock control fences inside impact areas on McGregor Range.

  Per PL 106-65, the BLM manages livestock grazing on approximately 1,093 square kilometers (270,000 acres) (Figure 3-2). The BLM grazing is limited to 14 grazing units. The USFS manages livestock grazing on TA 33, also known as Grapevine Canyon. The actual number of units available each year for grazing, their season of use, and the livestock use of each grazing unit varies, depending upon ecological conditions. The ROD/RMPA for McGregor Range provides a detailed discussion of livestock grazing activities and responsibilities on Fort Bliss, and is incorporated herein by reference. Table 3-2 provides an update of animal unit months (AUMs) contracted by the BLM by grazing unit since 2004. Due to drought conditions, grazing was significantly reduced in the early 2000s, and no units were contracted in the 2002-03 and 2003-04 seasons. In general, the total number of AUMs contracted in the past three seasons, approximately 20,000 to 24,000 AUMs per season, is lower than the number of AUMs contracted in the late 1990s, which ranged from approximately 24,000 to 27,000 AUMs per season.

  During drought recovery periods, the BLM issues nine-month leases, generally from early/mid October through early/mid July, to lessen activities during the dry, somewhat growth prohibitive, summer months. As conditions improve, leases may be let for up to 36 months (Christensen, J. 2009). In the current year, a combined Unit 4/5 has a 36-month lease, and Units 15, 11-North, and 8 have 19-month leases. In general, the shorter, nine-month leases have been let in the northern Tularosa Basin and the longer leases have been let on Otero Mesa South of Highway 506.

Table 3-2. BLM Animal Unit Months for Grazing Units on McGregor Range.

BLM Grazing Unit	Animal Unit Months Contracted				
	2004-05	2005-06	2006-07	2007-08	2008-09
1	898	1,225	1,351	1,802	1,801
2	0	0	0	0	721
3	0	0	1,351	1,351	1,351
4/5*	0	0	2,701	1,575	2,937
7	1,126	2,402	1,201	2,626	2,626
8	535	594	2,401	1,400	2,400
9	2,285	3,303	1,652	3,594	2,097
10	1,142	1,801	901	2,097	1,223
11N	898#	1,351	1,500	875	1,800
11S	#	450	3,502+	3,501+	3,501+
12	898	676	+	+	+
14	1,126	1,351	+	+	+
13	2,178	3,286	2,464	2,397	1,798
15	450	676	1,500	875	1,500
TOTAL	**11,536**	**17,115**	**20,524**	**19,696**	**23,755**

Source: U.S. Department of Interior, Bureau of Land Management, Las Cruces Field Office, 2008-2009.
Notes: This table represents AUMs contracted by the BLM only. No AUMs were contracted by the BLM for the 2002-03 and 2003-04 seasons due to drought conditions.

* Units 4 and 5 Combined.
\# Includes Units 11-North & 11-South.
\+ Includes Units 11-South, 12 & 14.

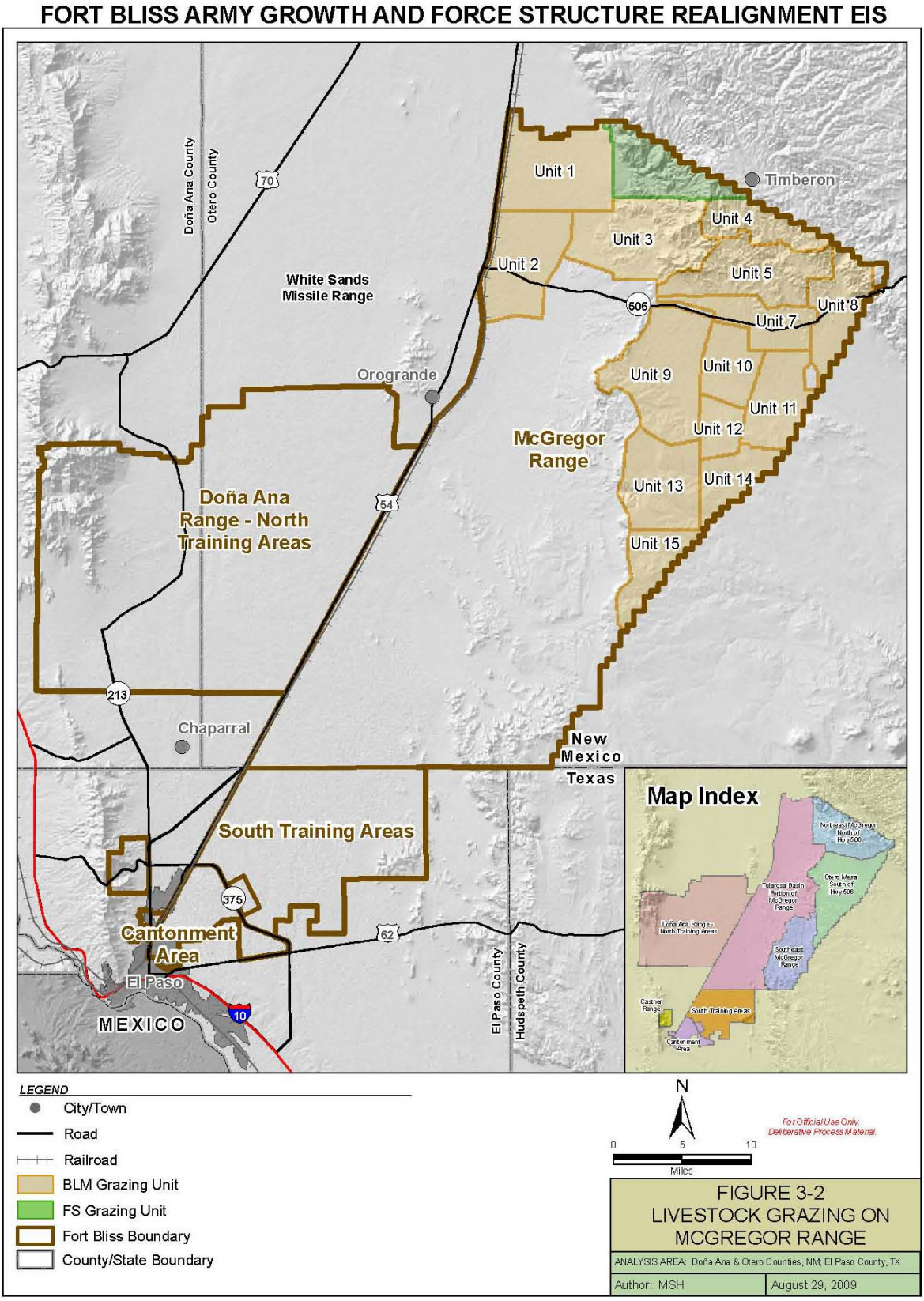


Figure 3-2. Livestock Grazing on McGregor Range.

- **Wilderness Study Areas.** The BLM and Fort Bliss share responsibilities regarding WSA management and compliance on the withdrawn lands. Pursuant to the Federal Land Policy and Management Act and the Wilderness Act of 1964, WSAs are roadless areas that the BLM manages so as not to impair their suitability for preservation as wilderness until Congress acts to either permanently protect them as Wilderness Areas or release them from WSA status to non-wilderness areas. Culp Canyon WSA consists of approximately 45 square kilometers (11,000 acres) in TA 12. While Fort Bliss uses the WSA for military training, activity within the Culp Canyon WSA is limited to dismounted maneuver.

- **Area of Critical Environmental Concern (ACEC).** The 15 square kilometer (3,718-acre) Black Grama Grassland ACEC is situated on four sites in the northeastern portion of McGregor Range. The BLM, Fort Bliss, and New Mexico State University share responsibility for management of the Black Grama Grassland ACEC through a cooperative agreement among the three entities. The Black Grama Grassland ACEC is closed to motorized vehicle use. Refer to Figure 2-2 for the location of BLM-designated environmental stewardship areas on McGregor Range.

- **Future Watershed and Habitat Plans.** The RMPA includes future development of six watershed management plans and two habitat management plans (HMPs) for a total of 830 square kilometers (205,109 acres) in the Sacramento Mountains foothills on grasslands on Otero Mesa.

Visual Resources. McGregor Range is a composite of three landscapes: the Tularosa Basin, which is visually typical of the Chihuahuan Desert landscape; Otero Mesa, which is predominantly grassland; and the foothills of the Sacramento Mountains. The Otero Mesa grasslands provide a distinctive and appealing expanse of vegetation. The southeastern part of McGregor Range is a transition area between the basin and the mesa escarpment that has more varied terrain and vegetation, with a mixture of grasses, shrubs, and cacti, broken up by small drainages along the escarpment edge. The existing landscape has existing dispersed human-made elements which, for the most part, are not visible off the installation except from higher viewing locations along the roadways.

Changes to the general landscape of McGregor Range over the past several years include the construction of Centennial Range on Otero Mesa South of Highway 506 and increased military activities associated with the stationing decisions. From the fence line of the 21 square kilometers (5,200-acre) Centennial Range, several targets are clearly visible. Within the fenced area, the vegetation is natural; creosote bushes and yucca are present. Night training occurs in the complex, with the use of illumination flares; however, the temporary light sources off-post are small and unobtrusive. Off-road vehicle maneuver training occurs in the Tularosa Basin Portion and Southeast McGregor Range. The SEIS projected that over time the land could undergo major changes in the landscape, with more gullies, less vegetation, and increased erosion. The resulting change in character could be perceived as a reduction in the visual quality of the landscape (Fort Bliss 2007). Due to the application of the LUA designations, however, existing protected resources on the FBTC are not directly impacted by training and retain their visual quality.

The BLM has developed a basic tool for the inventory, planning, and management activities for visual resources on BLM-managed land. Under its Visual Resource Management (VRM) guidelines, the BLM has classified land areas on McGregor Range according to the following:

- Scenic quality, defined as a measure of the visual appeal of a tract of land.

- Sensitivity to alteration, which is a measure of public concern for scenic quality.

- Distance zones, that is, the relative visibility from travel routes or observation points (BLM 2006).

Figure 3-3 identifies the Visual Resources on McGregor Range, mapped according to BLM aesthetic value. The four class categories are Classes I and II, the most aesthetically valued; Class III of moderate value; and Class IV, of the least aesthetic value (BLM, Manual H-8410). The majority of McGregor Range holds a Class IV ranking, indicating that the level of change to the characteristic landscape can be high. The BLM objective in a Class IV area is to provide management for activities which require major modifications of the existing character of the landscape. These modification activities may dominate the view and be the major focus of viewer attention. However, careful location, minimal disturbance, and repeating the basic elements would minimize the impact of these activities. The western border of McGregor Range is rated as Class III, indicating that the level of change to the characteristic landscape should be moderate. The BLM's objective in a Class III area is to partially retain the existing character of the landscape. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Only the Culp Canyon WSA on McGregor Range is ranked as Class II, indicating that the level of change to the characteristic landscape should be low. The BLM objective in this area is to retain the existing character of the landscape. No areas within McGregor Range received a Class I ranking.

Similar to the BLM's rating system, the USFS assigns visual classifications to its managed-areas, ranging from Preservation to Maximum Modification. The Lincoln National Forest land adjacent to McGregor Range is classified as a Modification area due to its relatively low visual quality and its alterations, such as roads, signage, and evidence of productive uses.

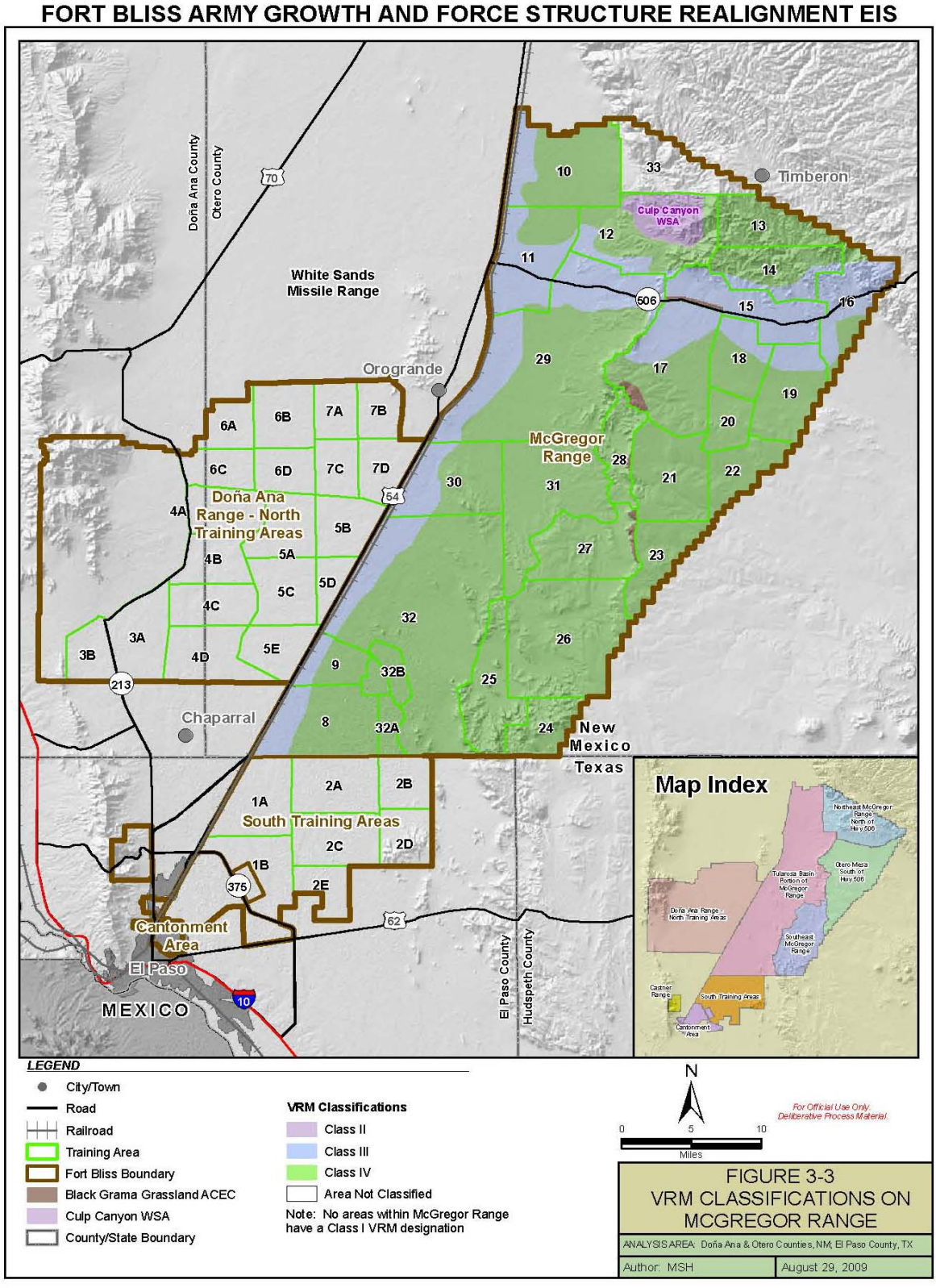


Figure 3-3. VRM Classifications on McGregor Range.

3.1.1.5 Land Uses Surrounding Fort Bliss

The following section addresses existing land uses in the Fort Bliss ROI, including a description of major land owners and their current land use/management plans. Figure 3-4 presents the jurisdictional land ownership in the Fort Bliss region.

City of El Paso, Texas. The population of the El Paso Metropolitan Statistical Area (including the City and County) was 679,622 in 2000, and is estimated to grow to 804,087 people by 2010, and 928,129 people by 2020 (Texas State Data Center 2009).

Since the development of the City of El Paso's Master Plan in 1999, the City has commissioned special area master plans and studies. The City's *Annexation Assessment and Strategy* noted that in both the northeastern, and east and lower valley sections of the City, the increasing military presence at Fort Bliss and the need for increased off-post housing are issues to consider with annexation proposals (City of El Paso 2007).

El Paso Water Utilities Public Service Board (EPWU) has developed a *Smart Growth Plan for the Northeast*, a master plan for the development of 73 square kilometers (18,000 acres) in the northeast portion of El Paso, between U.S. Highway 54 (US-54) and the New Mexico State line, and in proximity to the western border of the South Training Areas (City of El Paso 2007). Phase I plans include a mixed-use development of 16 square kilometers (3,900 acres), with single and multi-family residential development, regional retail, schools, and open space. The City is consulting with Fort Bliss regarding growth management; an official plan, however, such as a Joint Land Use Study, does not yet exist (Christensen 2008).

Doña Ana County, New Mexico. The "Rio Grande Corridor" – the area from El Paso, Texas, in El Paso County, to Las Cruces, New Mexico, in Doña Ana County – has experienced significant economic and population growth. According to the 2000 U.S. Census Bureau, the population of Doña Ana County increased 29 percent between 1990 and 2000, with the most significant growth occurring in the central and southern portions of the county. Population estimates for July 2007 indicate a 14 percent population increase between 2000 and 2007 (University of New Mexico Bureau of Business and Economic Research 2009). By 2020, the City of Las Cruces is expected to increase by over 49 percent compared to 1990 levels, and Doña Ana County is expected to increase by over 38 percent (Doña Ana County 2008). Urbanized and incorporated areas in Doña Ana County, such as Las Cruces, Sunland Park, Mesilla, and Anthony, have been identified as growth centers. In 2000, Doña Ana County developed a comprehensive plan covering the Las Cruces Extraterritorial Zoning jurisdiction, which addresses lands within five miles of the city limits. The goal of the County's current planning effort, *Vision 2040,* is to develop a guide for future land use planning through 2040 and beyond, and will include comprehensive plan updates for Las Cruces and Doña Ana County (Doña Ana County 2008).

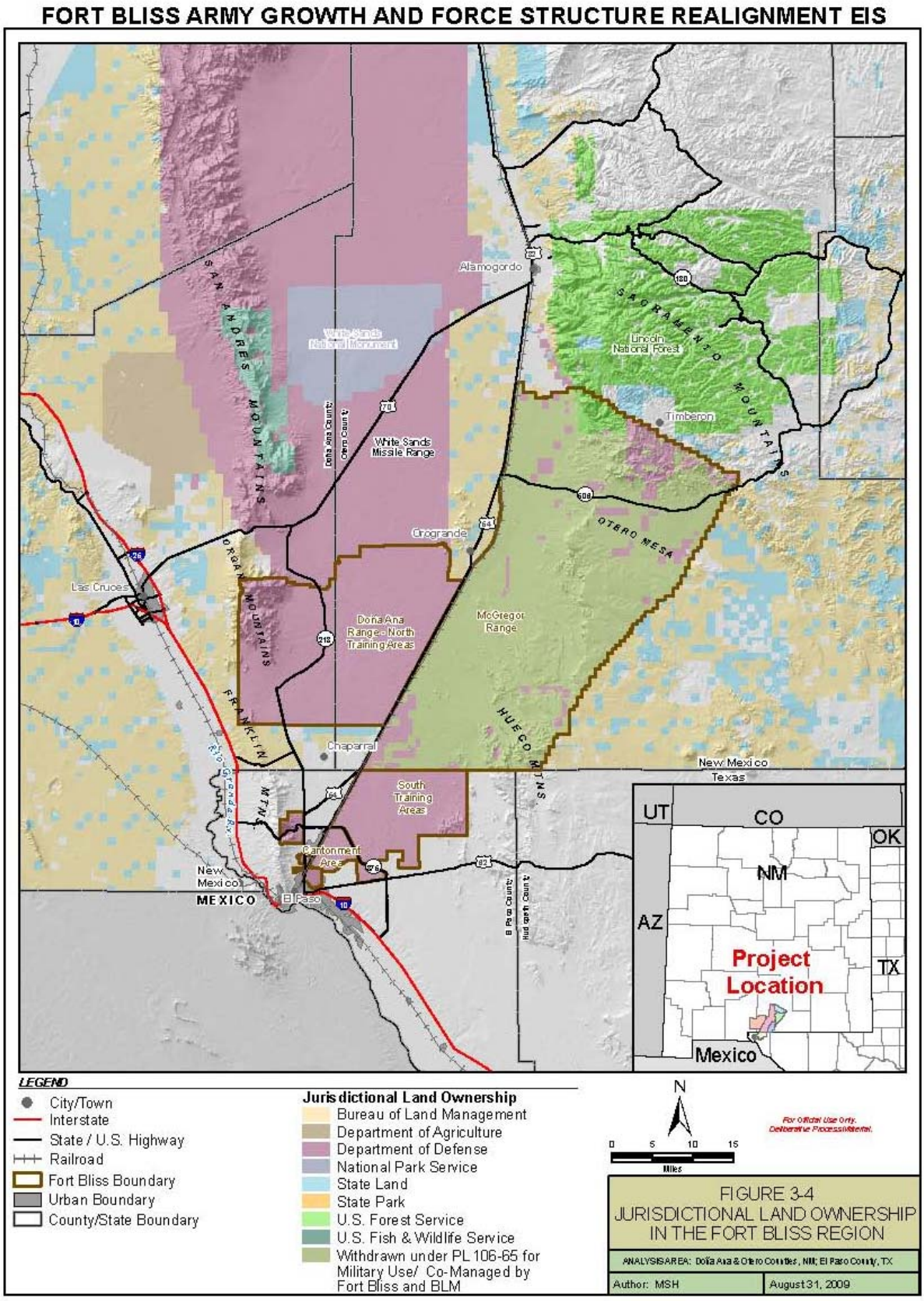


Figure 3-4. Jurisdictional Land Ownership in the Fort Bliss Region.

Otero County, New Mexico. Otero County's population was 62,298 in 2000, with the majority of the population concentrated in and around the Alamogordo and Tularosa corridor, and a low population density in the western half of the county. The population has experienced a steady increase in population since 1990, growing at an annual rate of 1.8 percent between 1990 and 2000. The population growth rate is estimated at four to five percent per decade between 2010 and 2030 (Otero County 2005). Communities adjacent to Fort Bliss include the town of Orogrande with a 2000 population of 1,435, located on US-54 directly west of McGregor Range; and the community of Timberon with a 2000 population of 309, directly northeast of McGregor Range and adjacent to the Lincoln National Forest. A major historical contributor to Otero County economic and population growth has been military spending. It is anticipated that future growth will continue to be tied to military growth (University of New Mexico 2008). Approximately 67 percent of the land area of Otero County is managed by federal agencies, including the DoD (Holloman AFB, WSMR, and Fort Bliss). The Otero County Comprehensive Plan, dated October 2005, identifies a number of land use goals and policies relative to public land use. Particularly relevant to Fort Bliss land use are opportunities for livestock grazing on federal land at sustainable levels, and where conditions justify, increasing AUMs.

Bureau of Land Management. As shown on Figure 3-4, the BLM manages a significant portion of land bordering and surrounding the FBTC in Sierra, Otero, and Doña Ana Counties. Several recently completed and proposed BLM plans address development in the three-county area:

- Tri-County Resource Management Plans/EIS. Due to an increased urban-rural interface in southern New Mexico, the BLM is updating its management of public lands in Otero, Doña Ana, and Sierra Counties through the Tri-County Resource Management Plans (RPMs)/EIS. The Tri-County RMPs/EIS will include a Resource Management Plan Revision (RMPR) for Sierra and Otero Counties; an RMPA for Doña Ana County; and an EIS to address the BLM's management of public lands in Sierra, Otero, and Doña Ana Counties. The Tri-County RMPs/EIS will examine different alternatives for trails and travel management, livestock grazing, recreation, land disposal, and ACEC designations. Although McGregor Range is excluded from the Tri-County RMPs/EIS, lands adjacent to the FBTC will be evaluated; including the Sacramento Escarpment north of McGregor Range, the special management area west of the Doña Ana Range, and the three WSAs which border the Doña Ana Range (BLM 2006) The RPMs/EIS is expected to be released in 2009/2010.

Resources Management Plans for the Organ Mountains. The BLM completed the Mimbres RMP in 1993 that addressed two WSAs bordering the Doña Ana Range: Peña Blanca, totaling 19 square kilometers (4,780 acres) to the west; Organ Needles, totaling 31 square kilometers (7,604 acres) to the northwest. This RMP also designated a portion of the Organ Mountains west of the Doña Ana Range as a scenic ACEC and managed as a Class I area, with the objective of preserving the existing character of the landscape. The BLM has prepared a Coordinated Resources Management Plan (CRMP) that addressed the Organ Mountains WSA, totaling 30 square kilometers (7,283 acres) to the northwest.**White Sands Missile Range.** WSMR, an 8,903 square kilometers (2.2 million) acre tri-service installation, adjoins Fort Bliss and comprises the majority of the north boundary of the Doña Ana Range–North Training Areas. WSMR and Fort Bliss share training resources. Together, WSMR and Fort Bliss comprise more than 12,141 square kilometers (three million acres) of dedicated DoD land and airspace.

States of New Mexico and Texas. Key New Mexico State Trust Lands adjacent to Fort Bliss are located in Doña Ana and Otero Counties, adjacent to the Doña Ana–North Training Areas, and in Otero County in the vicinity of Orogrande. The New Mexico State Trust lands are used primarily for grazing, although some mining leases exist. New Mexico State Land Office manages State Trust lands. Texas Parks and Wildlife manages the Franklin Mountains State Park, adjacent to Castner Range, and the Hueco Tanks

State Historic Site, just east of the City of El Paso and the South Training Areas. All other state lands in Texas in the vicinity of Fort Bliss are managed by the Texas General Land Office.

3.2 Land Use and Visual Resources: Direct and Indirect Effects

Table 3-3 classifies the direct and indirect effects to military and non-military land use and visual resources at Fort Bliss.

Table 3-3. Classification of Direct and Indirect Effects to Land Use and Visual Resources.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST -1	ST- 2	ST- 3	ST- 4	ST- 1	ST- 2	ST- 3	ST- 4	ST- 1	ST- 2	ST- 3	ST- 4	ST- 1	ST- 2	ST- 3	ST- 4	ST- 1	ST- 2	ST- 3	ST-4				
Military Land Uses	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Non-Military Land Uses	#	#	#	#	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Visual Resources	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙

○ No impact
⊙ Less than significant
⦸ Significant but can be mitigated to less than significant
N/A Not Applicable
Refer to the Land Use Change Alternatives for discussion of direct and indirect impacts

This section identifies the land use and visual resource direct and indirect effects of the proposed action and alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, alternatives with various land use changes; and Category 3, alternatives with various training infrastructure improvements.

The evaluation of potential direct and indirect impacts on land use and visual resources is based on the potential for the proposed activities associated with each alternative to conflict with existing or planned land uses in and around the project activities. Factors considered in determining whether an action would result in a significant impact on land use and visual resources included the following:

Military Land Uses. The action would be incompatible with existing military land uses/land use classifications on the installation, except where the action is to specifically change those classifications, or the action conflicts with military land use plans, policies, or Army regulations (specifically including AR 350-19, The Army Sustainable Range Program). In accordance with the HQDA, only in instances of when percent training days scheduled would be over 300 percent would result in military land use being significantly impacted.

Non-Military Land Uses. The action would be incompatible with non-military land uses on the installation, including public access and livestock grazing, or the action would conflict with non-military land use plans or policies.

Visual Resources. The action would be incompatible with existing visual resources on the installation, as they are visible when traveling along public roadways within Fort Bliss and surrounding areas and from publicly-accessible overlooks at higher elevations that are located both within and outside the installation boundaries.

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts identified as significant but mitigable to less than significant are discussed in Chapter 5.

3.2.1 Stationing and Training Alternative 1 (ST-1)

Table 3-4 classifies the direct and indirect impacts to land uses and visual resources under implementation of ST-1.

Table 3-4. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 1.

Land Use VEC	Potential Impacts	
	Cantonment/Construction	FBTC
Military Land Uses	○	#
Non-Military Land Uses	N/A	#
Visual Resources	○	#

○ No impact
NA Not applicable
Refer to the Land Use Change Alternatives for discussion of direct and indirect impacts to the FBTC.

Construction Impacts to Cantonment Area. No additional Cantonment Area construction would be required to implement ST-1. Consequently, there would be no impacts to the Cantonment associated with the Land Use VECs.

Impacts to FBTC.

Military Land Uses. The change in composition of BCTs training from 6 HBCTs proposed in the 2007 SEIS to 4 HBCTs and 2 IBCTs under ST-1 would decrease the annual maneuver space requirement from 801,000 km^2d to 727,000 km^2d. Within a year training period, this would require less than 47 percent or of the total 1,549,060 km^2d maneuver space available on the FBTC. As shown on Table 2-14, however, the percent of maneuver space required under ST-1 would vary among the FBTC subdivisions. Refer to

the Land Use Change Alternatives for a discussion of military land use impacts of ST-1 upon the FBTC subdivisions.

Non-Military Land Uses. Public recreation on the FBTC is prohibited during military training. Public recreation as an allowable non-military use on the FBTC is directly related to the percent training days scheduled on the FBTC. Impacts of ST-1 on public access are therefore discussed under Land Use Change Alternative 1. Livestock grazing as an allowable non-military use on the FBTC is directly related to the intensity of military activities on jointly-used areas on the installation (Figure 3-4). Impacts of ST-1 on livestock grazing are therefore discussed under the Land Use Change Alternatives.

Visual Resources. ST-1 would not result in any impact to visual resources on the Cantonment. Decreased use of the FBTC would generally decrease impacts on visual resources. The potential impacts to visual resources on the FBTC depend upon the specific land use alternative selected. Potential impacts of ST-1 to visual resources are discussed under the Land Use Change Alternatives.

3.2.2 Stationing and Training Alternative 2 (ST-2)

Table 3-5 classifies the direct and indirect impacts to land uses and visual resources under implementation of ST-2.

Table 3-5. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 2.

Land Use VEC	Potential Impacts	
	Cantonment/ Construction	FBTC
Military Land Uses	○	#
Non-Military Land Uses	N/A	#
Visual Resources	○	#

○ No impact
N/A Not Applicable
Refer to the Land Use Change Alternatives for discussion of direct and indirect impacts on the FBTC.

Construction Impacts to Cantonment Area. No additional Cantonment area construction or redevelopment would be required to implement ST-2. Consequently, there would be no impacts to the Cantonment associated with any of the Land Use VECs.

Impacts to FBTC.

Military Land Uses. Under ST-2, the annual maneuver requirement would increase to 836,000 km^2d, which would require 52 percent of the total 1,549,060 km^2d maneuver space available on the FBTC. The percent of maneuver space required under ST-2 would vary among the FBTC subdivisions. Refer to the Land Use Change Alternatives for a discussion of military land use impacts of ST-2 upon the FBTC subdivisions.

Non-Military Land Uses. Public recreation on the FBTC is prohibited during military training. Public recreation as an allowable non-military use on the FBTC is directly related to the percent training days

scheduled on the FBTC. Potential impacts of ST-2 on public access are discussed under the Land Use Change Alternatives.

Livestock grazing as an allowable non-military use on the FBTC is directly related to the intensity of military activities on jointly-used areas on the installation (Figure 3-4). Potential impacts to livestock grazing under ST-2 are discussed under the Land Use Change Alternatives.

Visual Resources. ST-2 would not result in any impact to visual resources on the Cantonment based on the fact that no new construction or redevelopment would alter the physical appearance of this area. Increased use of the FBTC would generally increase impacts on visual resources. The potential impacts to visual resources on the FBTC depend upon the specific land use alternative selected. Potential impacts of ST-2 to visual resources on the FBTC are discussed under the Land Use Change Alternatives.

3.2.3 Stationing and Training Alternative 3 (ST-3)

Table 3-6 classifies the direct and indirect impacts to land uses and visual resources under implementation of ST-3.

Table 3-6. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 3.

Land Use VEC	Potential Impacts		
	Cantonment/ Construction	Cantonment/ Post-Construction	FBTC
Military Land Uses	⊙	⊙	#
Non-Military Land Uses	N/A	N/A	#
Visual Resources	⊙	⊙	#

⊙ Less than significant
N/A Not Applicable
Refer to the Land Use Change Alternatives for discussion of direct and indirect impacts to the FBTC.

Construction Impacts to Cantonment Area. As shown on Table 2-4, building construction and development of additional impervious surface would be required in the Cantonment to accommodate the additional stationed units. The required redevelopment would decrease the existing open space, reserved, and/or buffer land uses within the Cantonment by 1 square kilometers (315 acres) as well as replace some existing structures. New construction in the Cantonment, already a highly developed area would take place within the existing footprint. The redevelopment would be consistent with the land use designation.

Construction impacts, involving noise, dust, and increased construction-related traffic, could negatively impact both adjacent areas as well as visual resources. Construction impacts, however, would be temporary and contractors would be required to follow all Fort Bliss requirements. This would be consistent with construction management procedures on the installation. Therefore, redevelopment impacts under ST-3 would be less than significant.

Impacts to FBTC.

Military Land Uses. Under ST-3, the annual maneuver space requirement would increase to 980,000 km^2d, which would require 63 percent of the total 1,549,060 km^2d maneuver space available on the FBTC. The percent of maneuver space required under ST-3 would vary among the FBTC subdivisions.

Refer to the Land Use Change Alternatives for a discussion of military land use impacts of ST-3 upon the FBTC subdivisions.

Within the Cantonment, ST-3 would require redevelopment, adding to the ongoing redevelopment of the Cantonment by less than 6 percent. Impacts of the redevelopment associated with ST-3 would be less than significant.

Non-Military Land Uses. Public recreation on the FBTC is prohibited during military training. Public recreation as an allowable non-military use on the FBTC is directly related to the percent training days scheduled on the FBTC. Potential impacts of ST-3 on public access are discussed under the Land Use Change Alternatives. Livestock grazing as an allowable non-military use on the FBTC is directly related to the intensity of military activities on jointly-used areas on the installation (Figure 3-4). Potential impacts to livestock grazing under ST-3 are discussed under the Land Use Change Alternatives.

Visual Resources. While ST-3 would contribute to additional in-fill on the Cantonment, it would add less than 6 percent to the ongoing redevelopment of the Cantonment. Consequently, impacts to visual resources on the Cantonment would be less than significant.

Increased use of the FBTC would generally increase impacts on visual resources. The potential impacts to visual resources on the FBTC depend upon the specific land use alternative selected. Potential impacts of ST-3 to visual resources on the FBTC are discussed under the Land Use Change Alternatives.

3.2.4 Stationing and Training Alternative 4 (ST-4)

Table 3-7 classifies the direct and indirect impacts to land uses and visual resources under implementation of ST-4.

Table 3-7. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 4.

Land Use VEC	Potential Impacts		
	Cantonment/ Construction	Cantonment/ Post-Construction	FBTC
Military Land Uses	⊙	⊙	#
Non-Military Land Uses	N/A	N/A	#
Visual Resources	⊙	⊙	#

⊙ Less than significant
N/A Not Applicable
Refer to the Land Use Change Alternatives for discussion of direct and indirect impacts to the FBTC.

Construction Impacts to Cantonment Area. Projected construction impacts of ST-4 would be the same as those of ST-3.

Impacts to FBTC.

Military Land Uses. Under ST-4, the annual maneuver space requirement would increase to 1,304,000 km^2d, which would require approximately 84 percent of the total 1,549,060 km^2d maneuver space available on the FBTC. The percent of maneuver space required under ST-4 would vary among the FBTC

subdivisions, however. Refer to the Land Use Change Alternatives for a discussion of military land use impacts of ST-4 upon the FBTC subdivisions.

Within the Cantonment, impacts under ST-4 would contribute an additional 11 percent to the ongoing redevelopment of the Cantonment. With no change in military land uses, impacts under ST-4 would be less than significant.

Non-Military Land Uses. Public recreation on the FBTC is prohibited during military training. Public recreation as an allowable non-military use on the FBTC is directly related to the percent training days scheduled on the FBTC. Potential impacts of ST-4 on public access are discussed under the Land Use Change Alternatives. Livestock grazing, while an allowable non-military use of land on the FBTC is secondary to military activities on jointly-used areas on the installation (Figure 3-4). Potential impacts to livestock grazing under ST-4 are discussed under the Land Use Change Alternatives.

Visual Resource

Redevelopment under ST-4 would result in less open space and would further contribute to the Cantonment's already dense visual context. From a visual perspective, however, the additional redevelopment would be consistent with its surroundings. Consequently, impacts to visual resources on the Cantonment would be less than significant.

Potential impacts of ST-4 to visual resources on the FBTC are discussed under the Land Use Change Alternatives.

3.2.5 Land Use Change Alternative 1 (LU-1)

This alternative would implement only the land use changes proposed in the 2007 SEIS, as presented in Table 2-13 and on Figure 2-3. No other land use changes are proposed.

Table 3-8 summarizes the potential impacts of the four Stationing and Training Alternatives to land uses and visual resources under implementation of LU-1.

Table 3-8. Classification of Direct and Indirect Impacts from Land Use Change Alternative 1.

Land Use VEC	Potential Impacts: FBTC			
	ST-1	ST-2	ST-3	ST-4
Military Land Uses	⊙	⊙	⊙	⊙
Non-Military Land Uses	⊙	⊙	⊙	⊙
Visual Resources	⊙	⊙	⊙	⊙

⊙ Less than significant

Military Land Uses. Under existing land uses (Table 2-12), limited training would occur in Northeast McGregor Range North of Highway 506, on Otero Mesa South of Highway 506, and in Southeast McGregor Range. Vehicle off-road maneuver is not a permitted activity on the Otero Mesa South of Highway 506 and in Northeast McGregor North of Highway 506, but is allowed in the Southeast McGregor Range. Further, the Grassland LUA that covers Northeast McGregor North of Highway 506, the Otero Mesa South of Highway 506, and Southeast McGregor Range does not permit Controlled FTX military activities. HBCTs and IBCTs in these FBTC subdivisions are limited to off-road roll-through training, and on-road and dismounted maneuvering (with the exception of 15 Controlled FTX sites that

currently exist on Otero Mesa South of Highway 506 and one Controlled FTX site that currently exists in Southeast McGregor Range).

Under LU-1, military training would be concentrated in the South and North Training Areas and in the Tularosa Basin of McGregor Range under all four stationing and training alternatives. While vehicle off-road maneuver would occur in the Southeast McGregor Range, it would occur to a lesser extent due to limited access to the area. Additionally, under all four stationing and training alternatives, training day schedule requirements would be close to, equal, or exceed 100 percent in the South Training Areas. Under LU-1/ST-4, training requirements also would equal or exceed 100 percent in the North Training Ares and in the Tularosa Basin of McGregor Range. Where training requirements reach or exceed 100 percent, concurrent use of the FBTC would occur. According to the HQDA, percent training days scheduled can be up to 300 percent and remain sustainable, and neither maneuver shortfalls nor impediment of the sustainment of training land resources would result from this high percent of maneuver space requirement. In the other FBTC subdivisions, maneuver requirements would be less than 100 percent under the first three stationing and training alternatives, indicating flexibility in the management and planning of maneuver training. Due to the overall lower percentage of training days scheduled in the majority of the FBTC, and the practice of concurrent use in FBTC subdivisions with percent training days scheduled at or over 100 percent, impacts to military land uses under all four stationing and training alternatives would be less than significant.

Non-Military Land Uses. Under LU-1/ST-1, LU-1/ST-2, and LU-1/ST-3 the majority of the installation would continue to be available for public recreation throughout the year when troops would not be training, including most weekends. Public access to the South Training Areas, historically the most utilized subdivision for public recreation, would be limited under LU-1/ST-1 to less than one-third of weekend days throughout the year, and would be unavailable to the public under LU-1/ST-2 and LU-1/ST-3. Under the first three stationing and training alternatives, there would continue to be sufficient alternative areas available for public recreation, however. All subdivisions within McGregor Range would generally be available throughout the year. With coordinated scheduling, the North Training Areas and those portions of the Tularosa Basin open to the public could be made available on either Saturdays or Sundays throughout much of the year. Potential impacts to public access would therefore be less than significant under LU-1/ST-1, LU-1/ST-2 and LU-1/ST-3.

Due to the increased maneuver requirements of LU-1/ST-4, public recreational access on portions of the FBTC would become more limited. Under LU-1/ST-4, the following FBTC subdivisions would not be available for public recreation: the South Training Areas, the North Training Areas, and those portions of the Tularosa Basin currently open to public access. Public access would be limited to McGregor Range. With only 300 recreational passes issued annually for public access (an average of 6 per week) to the FBTC, however, limiting recreational access to McGregor Range would not be a significant impact.

Current land use designations provide for livestock grazing on approximately 20 percent of the installation, located in the Tularosa Basin of McGregor Range, Northeast McGregor Range North of Highway 506, and Otero Mesa portions of McGregor Range. Livestock grazing has previously been limited by drought conditions, but since the late 1990s, annual AUMs contracted in the joint-use areas have steadily increased. No off-road vehicle maneuver is allowed in Northeast McGregor North of Highway 506 and on Otero Mesa South of Highway 506 under LU-1, so annual training requirements under all four stationing and training alternatives would accommodate livestock grazing in these two FBTC subdivisions.

In the current 2008-2009 grazing season, the Tularosa Basin of the McGregor Range accounts for approximately 11 to 13 percent of BLM AUMs (Grazing Units 1 and 2 and a portion of 3). Prior to this current season, the percentage had been lower due to drought conditions impacting Grazing Units 2 and 3.

Annual training requirements under LU-1 in the Tularosa Basin, at 55 percent under LU-1/ST-1 and 65 percent under LU-1/ST-2, would accommodate livestock grazing. Although annual training requirements under LU-1/ST-3 and LU-1/ST-4 would approach and exceed 100 percent, it is anticipated that with coordinated scheduling, the BLM would still be able to access existing water supply pipelines in Grazing Units 1, 2 and 3, which transport water from the Sacramento Mountains to the jointly-used areas of McGregor Range. Additionally, it is anticipated that the USFS grazers would be able to access water for their use in the far northern portion of McGregor Range. Consequently, under LU-1, potential impacts to livestock grazing under all four stationing and training alternatives would be less than significant.

Visual Resources. Except for the South Training Areas, estimated training days scheduled for the FBTC would not reach 100 percent under LU-1/ST-1, LU-1/ST-2 and LU-1/ST-3. Except for the South Training Areas, the annual drive-over factor of off-road vehicles under LU-1/ST-1, LU-1/ST-2 and LU-1/ST-3 would be less than or slightly exceed one time per year, with the majority of those drive-overs occurring from L classification vehicles. Under LU-1/ST-4, while the majority of the FBTC would be at or exceed 100 percent training days scheduled, the percent maneuver requirements in the FBTC subdivisions would be far less than 300 percent, and, per HQDA, would be sustainable. Further, as shown on Tables 2-15 and 2-17, use by L classification vehicles would exceed the combined use of M and H classification vehicles, and as a result, only moderate change to the existing landscape would be expected.

As shown on Figure 3-3, the US-54 and 506 corridors have a Class III ranking under the BLM's guidelines, indicating that the level of aesthetic change to the characteristic landscape may be evident but should remain subordinate to the overall landscape (SEIS, 2007). The remaining portions of McGregor Range have a Class IV ranking, indicating that the level of aesthetic change to the characteristic landscape can be high. In order to complete on-road vehicle training while minimizing interference from civilian traffic along Highways 54 and 506, a majority of the on-road training would likely occur on roads located outside the influence of these two highway corridors and in areas with Class IV rankings. Consequently, under LU-1 in all four training and stationing alternatives, impacts to visual resources along publicly-traveled roads would be less than significant.

3.2.6 Land Use Change Alternative 2 (LU-2)

Table 3-9 classifies the direct and indirect impacts to land uses and visual resources under LU-2.

Table 3-9. Classification of Direct and Indirect Impacts from Land Use Change Alternative 2.

Land Use VEC	Potential Impacts: FBTC			
	ST-1	ST-2	ST-3	ST-4
Military Land Uses	⊙	⊙	⊙	⊙
Non-Military Land Uses	⊙	⊙	⊙	⊙
Visual Resources	⊙	⊙	⊙	⊙

⊙ Less than significant

Military Land Uses. The removal of the Grassland LUA would remove limitations on the underlying land uses (Tables 2-11 and 2-12). This would reduce limitations on dismounted FTX in Northeast McGregor north of Highway 506, and dismounted and vehicular FTX in Southeast McGregor Range.

While the removal of the Grassland LUA designation would not change the percentage of use on the installation, LU-2 would allow for subsequent alternative land uses in the Northeast McGregor North of Highway 506. This alternative would provide for more equitable distribution of training impacts on the FBTC which would beneficially impact military land uses.

As reflected in Table 3-9, impacts to military land uses under LU-2 relative to the four stationing and training alternatives would be the same as those under LU-1.

Non-Military Land Uses. By allowing fixed sites in areas used by dismounted maneuver, implementation of LU-2 would facilitate use of the Sacramento Mountain area by IBCTs. The Sacramento Mountain grasslands represent 106 square kilometers (approximately 43 percent) of the total 247 square kilometers jointly used for livestock grazing in Grazing Units 3, 4, 5, 7, and 8. This would potentially affect 4,005 AUMs in the five grazing units, or 17 percent of total 23,755 AUMs contracted for McGregor Range (Table 3-2). Taking into account that the livestock grazing areas would be limited to minimal impacts associated with dismounted FTX (foot traffic), implementation of LU-2 would have less than significant impacts. The percent of training days scheduled does not increase under LU-2; therefore, impacts to public recreation would be the same as those under LU-1.

Visual Resources. Because they are allowed within 1,000 m of roads in the Southeast McGregor Range, respectively, FTX sites would be visible from public roads. As shown on Figure 3-3, all of Southeast McGregor Range has a Class IV rating under the BLM's guidelines, indicating that the level of change to the characteristic landscape can be high (2006). The proposed modifications would conform to the VRM Class objectives for these areas. Impacts to visual resources resulting from LU-2 would be less than significant. Under LU-2, impacts to visual resources relative to the four stationing and training alternatives would be the same as those under LU-1.

3.2.7 Land Use Change Alternative 3 (LU-3)

Table 3-10 summarizes the potential impacts of LU-3 upon land uses and visual resources.

Table 3-10. Classification of Direct and Indirect Impacts from Land Use Change Alternative 3.

Land Use VEC	Potential Impacts: FBTC			
	ST-1	ST-2	ST-3	ST-4
Military Land Uses	⊙	⊙	⊙	⊙
Non-Military Land Uses	⊙	⊙	⊙	⊙
Visual Resources	⊙	⊙	⊙	⊙

⊙ Less than significant

Military Land Uses. The Sacramento Mountain areas that lie within 500m of roads and on slopes of less than 30 percent, totaling approximately 35 square kilometers, and five square kilometers in Northeast McGregor north of Highway 506 would be opened to Controlled FTX. These changes would shift the IBCT training days scheduled from Otero Mesa South of Highway 506 to Northeast McGregor North of Highway 506. Additionally, there would be the accompanying shift of IBCT support units from Otero Mesa South of Highway 506 to Northeast McGregor North of Highway 506. These comparable shifts in use would include the distribution of vehicle classifications, and would extend through all training and stationing alternatives.

The placement of FTX sites in Southeast McGregor Range (LU-2) and in Northeast McGregor Range North of Highway 506 would beneficially impact the training mission at Fort Bliss. Both areas have terrains and environments that differ from the existing training environment in the North and South Training Areas and the Tularosa Basin of McGregor Range, and replicate various terrain conditions in parts of the world, such as the Middle and Far East, to which units may have to deploy and operate.

Additionally, LU-3 would result in some shift in military uses on the FBTC, leading to a more equitable distribution of land uses. Under LU-3, there would be slight increases in the overall number on-road vehicle trips in the South and North Training Areas, and in the Tularosa Basin of McGregor Range; with a larger increase in the number of on-road vehicle trips in the Northeast Range North of Highway 506 and a larger decrease in the number of on-road vehicle trips on the Otero Mesa South of Highway 506. Because LU-3 would not alter the location where off-road vehicle maneuver is allowed on the FBTC, off-road vehicle maximum ground contact and drive-over rates under LU-3 would not change from those under LU-1.

In addition to the positive mission impact that LU-3 would create, impacts to military land uses under LU-3 for all stationing and training alternatives would be similar to those under LU-1.

Non-Military Land Uses. The Controlled FTX zone in the Sacramento Mountains would add a low density of vehicles and troops (Table 3-28, Section 3.6) in approximately 35 of the 106 square kilometers that would be open to Fixed Sites under LU-2. This would slightly increase impact for 1,321 AUMs in the five grazing units, or 6 percent of total 23,755 AUMs contracted for McGregor Range (Table 3-2). Due to the low density of the company and platoon size units training in this area, impacts to livestock grazing would be less than significant. Locating the Controlled FTX zone, totaling approximately 35 square kilometers, in the Sacramento Mountains, would result in discrete, small impacts due to a low density of vehicles and troops per training area (Table 3-28, Section 3.6). Impacts to livestock grazing would be less than significant. The Controlled FTX sites in Northeast McGregor Range North of Highway 506 would affect 5 square kilometers of livestock grazing area through training by vehicle-equipped battalion and brigade size units (Table 3-28, Section 3.6). As indicated in Table 2-13, however, impacts would be minimal, as only one percent of Northeast McGregor Range North of Highway 506 would be impacted by the Controlled FTX sites associated with LU-3. Live Fire Military Activities would be included with the On-Road Vehicle Maneuver, Off-Road Vehicle Maneuver, Dismounted Maneuver, and Controlled FTX military activities, and in the Fixed Site areas. The Live Fire activities would occur under controlled conditions and in specific areas. Live fire military activities would temporarily preclude non-military access to the specific live-fire area and the safety buffer surrounding that live-fire area. Access to water supplies by BLM and USFS grazers would not be affected by LU-3. Consequently, impacts to livestock grazing under LU-3 would be less than significant.

Under the four stationing and training alternatives of LU-3, impacts to public recreation access resulting from an increase in percent training days scheduled in the Northeast McGregor Range North of Highway 506 would be less than significant. The vast majority of public access is on weekends, and the vast majority of weekends are expected to be available for access if up to 65 percent of the days within a year (237 days) are scheduled for military activities.

Refer to Sections 3.4 and 3.6 for a qualitative assessment of live-fire training in the Northeast McGregor Range North of Highway 506 and its impact upon non-military land uses adjacent to the FBTC.

Visual Resources. The five square kilometers of Controlled FTX sites would be adjacent to existing roads, and could be visible to viewers from Highway 506. The affected TAs would have a Class III rating under the BLM's guidelines, indicating that the level of aesthetic change to the characteristic landscape may be evident but should remain subordinate to the overall landscape. The five square kilometers represent approximately one percent of the total 388 square kilometers of Class III rated landscape along the Highway 506 corridor. Given the small percentage of landscape impacted by the Controlled FTX sites, impacts to visual resources resulting from LU-3 would be less than significant.

Impacts to visual resources specific to the four stationing and training alternatives under LU-3 would be similar to those impacts under LU-1.

3.2.8 Land Use Change Alternative 4 (LU-4)

Table 3-11 summarizes the potential impacts of LU-4 upon land uses and visual resources.

Table 3-11. Classification of Direct and Indirect Impacts from Land Use Change Alternative 4.

Land Use VEC	Potential Impacts: FBTC			
	ST-1	ST-2	ST-3	ST-4
Military Land Uses	⊙	⊙	⊙	⊙
Non-Military Land Uses	⊙	⊙	⊙	⊙
Visual Resources	⊙	⊙	⊙	⊙

⊙ Less than significant

Military Land Uses. Across the four stationing and training alternatives under LU-4, IBCT and IBCT support maneuvering would shift from the South Training Areas to Northeast McGregor North of Highway 506. The overall percent training days scheduled for the North Training Areas, the Tularosa Basin of McGregor Range, Southeast McGregor Range, and Otero Mesa South of Highway 506 in the four stationing and training scenarios would not change from percentages presented for LU-3.

LU-4 would continue the trend toward more equitable distribution of impacts on the FBTC. While under LU-3, training days scheduled would exceed capacity in the South Training Areas for ST-2, ST-3, and ST-4. Under LU-4, only two FBTC subdivisions (South Training Areas and Tularosa Basin of McGregor Range) would exceed would exceed capacity, and would only occur under LU-4/ST-4. Under LU-4, the distribution of on-road vehicle maneuvering would shift to Northeast McGregor Range North of Highway 506, and would decrease in every other subdivision. IBCT off-road vehicle maneuvering would primarily shift to Northeast McGregor Range North of Highway 506. Additionally, LU-4 would further the trend toward segregation of uses on the FBTC. Under LU-4, HBCTs would dominate in the North and South Training Areas and in the southern portions of Tularosa Basin; and IBCTs would be concentrated in the Northeast McGregor Range North of Highway 506, the adjacent Tularosa Basin of McGregor Range TAs, and to a lesser extent in Southeast McGregor Range.

Opportunities for conducting both FTX and off-road maneuvering in Northeast McGregor Range North of Highway 506 would beneficially impact IBCTs training at Fort Bliss. Soldiers would have opportunities to train in a forested, mountainous environment, providing additional experience in environments where Army units may be deployed.

Impacts specific to the four stationing and training alternatives under LU-4 would be similar to the previous land use alternatives.

Non-Military Land Uses. As indicated in Chapter 2, under LU-4, Northeast McGregor Range North of Highway 506 would become an IBCT and IBCT support training destination. LU-4 would open a portion of Northeast McGregor Range North of Highway 506 to off-road vehicle maneuver, and would shift IBCT off-road maneuvering from nearly all subdivisions to Northeast McGregor Range North of Highway 506. Off-road vehicle maneuvering (to include IBCT and SBCT units under LU-4/ST-3 and LU-4/ST-4) would be limited to wheeled, L classification vehicles on approximately 35 square kilometers (within 500 meters of roads and on slopes of less than 30 percent), and would affect approximately 27 percent of the FBTC subdivision.

The Northeast McGregor Range North of Highway 506 grasslands that would be affected by Off-Road Vehicle Maneuver: Light represent slightly more than 10 percent of the total 340 square kilometers jointly used for livestock grazing in Grazing Units 3, 4, 5, 7, and 8. This would potentially directly affect 931AUMs, totaling less than four percent of the total livestock grazing on McGregor Range (Table 3-2). As shown on Table 2-24, under all stationing and training alternatives, there would be sufficient opportunities for the BLM and USFS grazers to access water supply lines. Consequently, under all stationing and training alternatives, potential impacts of LU-4 to livestock grazing are less than significant.

Under the four stationing and training alternatives of LU-4, impacts to public recreation, including McGregor oryx hunts, would be the same as those under LU-1. This is further supported by the 75 percent of training days scheduled in the Northeast McGregor Range North of Highway 506, which would be approximately 274 days per year and the highest level for this area in the Proposed Action. The McGregor oryx hunts only requires two weekends a year. Therefore, if LU-4/ST-4 was selected there would be ample time for the hunting of oryx in addition to other public access activities, which usually occur on the weekends.

Visual Resources. Allowing Off-Road Vehicle Maneuver: Light within 500m of the road and on slopes of 30 percent or less would affect approximately 13 square kilometers or three percent of the total 388 square kilometers of Class III rated landscape in the northern corridor of Highway 506. The remainder of the Northeast McGregor Range North of Highway 506 that would be open to Off-Road Vehicle Maneuver: Light has a Class IV ranking. Limiting off-road vehicle maneuver use to wheeled vehicles and restricting use to areas with slopes less than 30 percent would conform to the BLM's guidelines. Consequently, impacts to visual resources under LU-4 would be less than significant.

Impacts to visual resources specific to the four stationing and training alternatives under LU-4 would be similar to those impacts under LU-1.

3.2.9 Land Use Change Alternative 5 (LU-5)

Table 3-12 classifies the direct and indirect impacts to land uses and visual resources under implementation of LU-5.

Table 3-12. Classification of Direct and Indirect Impacts from Land Use Change Alternative 5.

Land Use VEC	Potential Impacts: FBTC			
	ST-1	ST-2	ST-3	ST-4
Military Land Uses	⊙	⊙	⊙	⊙
Non-Military Land Uses	⊙	⊙	⊙	⊙
Visual Resources	⊙	⊙	⊙	⊙

⊙ Less than significant

Military Land Uses. LU-5 would remove the Grassland LUA designation on three square kilometers of the Otero Mesa South of Highway 506, for the siting of Controlled FTX sites. The removal three square kilometers of the Grassland LUA on Otero Mesa South of Highway 506 would add to the existing 15 square kilometers of FTX locations on Otero Mesa South of Highway 506 in which the Grassland LUA designation has been removed. While the Grassland LUA on the largest contiguous portion of McGregor Range (from south of Highway 506 to the New Mexico border) would remain largely intact, the three square kilometers of Controlled FTX sites would increase the fragmentation of this land use designation.

However, this loss would represent less than a one percent decrease of the Grassland LUA on Otero Mesa South of Highway 506. Impacts of the land use designation change under this alternative would be less than significant.

Impacts of off-road vehicle maneuvering would be the same as those under LU-4. With the three Controlled FTX sites available on Otero Mesa South of Highway 506, IBCT support units would increase use on Otero Mesa South of Highway 506 under LU-4/ST-4, with an associated decrease on the Northeast McGregor Range North of Highway 506 by similar percentages.

The implementation of LU-5 would have a beneficial impact upon the Fort Bliss training mission. Per the RTLA Plan of the ITAM, Fort Bliss has specific training environmental preferences: large maneuver/training areas of varying characteristics with complex terrain. The variable landscapes provided under LU-5 would allow for more diverse training opportunities for the solders.

Under LU-5, there would be an increased level of demarcation of land uses on the FBTC. The North and South Training Areas and the southern portion of Tularosa Basin would be dominated by HBCT activities. As land use restrictions would be lifted, the Northeast McGregor Range North of Highway 506 would be dominated by IBCT activities. As shown on Table 2-29, under LU-5, the Otero Mesa South of Highway 506 would be used increasingly by support units.

Non-Military Land Uses. The additional three square kilometers of Controlled FTX zone would affect approximately 1,118 AUMs in the five grazing units, or 5 percent of total 23,755 AUMs contracted for within McGregor Range (Table 3-2). Due to the low density of the company and platoon size units training in this area, impacts to livestock grazing would be less than significant. Access to water supplies by BLM and USFS grazers would not be affected by LU-5. Further, while the training days scheduled on the Otero Mesa South of Highway 506 would increase from 10 percent under LU-5/ST-1 to 25 percent under LU-5/ST-4, the capacity of the FBTC subdivision would be sufficient to accommodate the requirements. LU-5 should not significantly affect livestock grazing.

In the 2008-09 Season, the BLM authorized 23,755 AUMs on 271,000 acres (1,097 square kilometers) on McGregor Range (Table 3-2). In the 2009 Season, the BLM Las Cruces District Office authorized a total of 638,247 AUMs in its entire district that consists of over four million acres (16,187 square kilometers) (BLM, 2009). The total AUMs on McGregor Range represent less than four percent of all AUMs authorized by the BLM in the region (U.S. Government Accountability Office, 2005).

Under the four stationing and training alternatives of LU-5, impacts to public recreation access would be similar to LU-4, with a slight decrease in military activities in the Northeast McGregor Range North of Highway 506 and a slight increase in the Otero Mesa South of Highway 506. LU-5 should not significantly affect public recreation access.

Visual Resources. Controlled FTX sites would be allowed adjacent to existing roads and would be visible to viewers. Two of the three sites have been determined and are located in areas with a Class III ranking. The location of the third site will be determined on a later date. However, as with the proposed FTX locations in LU-3, additional Controlled FTX sites on the Otero Mesa South of Highway 506 would not result in a significant impact to the overall visual resources along the Highway 506 corridor. Impacts to visual resources would be less than significant.

Impacts to visual resources specific to the four stationing and training alternatives under LU-5 would be similar to those impacts under LU-1.

3.2.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Table 3-13 classifies the direct and indirect impacts to land uses and visual resources under implementation of TI-1.

Table 3-13. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 1.

Land Use VEC	Construction	FBTC
Military Land Uses	N/A	○
Non-Military Land Uses	N/A	○
Visual Resources	N/A	○

○ No impact
N/A Not applicable

TI-1 would meet the training infrastructure requirements of the BRAC/IGPBS stationing decisions. No additional training infrastructure would be constructed in this alternative. All direct and indirect effects upon land use and visual resources associated with TI-1 previously were analyzed in the SEIS.

3.2.11 Training Infrastructure Improvements Alternative 2 (TI-2)

Table 3-14 classifies the direct and indirect impacts to land uses and visual resources under implementation of TI-2.

Table 3-14. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 2.

Land Use VEC	Construction	FBTC
Military Land Uses	⊙	⊙
Non-Military Land Uses	⊙	⊙
Visual Resources	⊙	⊙

⊙ Less than significant

Construction Impacts. Construction of the ranges could impact training schedules for nearby ranges. Additionally, construction would indirectly affect nearby military land uses as a result of increased noise, dust, odors, and activity in the construction sites. Proposed ranges would be located in portions of the installation which are currently closed to the public. However, two of the proposed ranges (Ranges 89 and 90) are in proximity to public access areas in the North Training Areas, and range construction could impact non-military land uses through increased noise and odors. Construction impacts, however, would be localized, temporary, and less than significant. As needed prior to range construction, a UXO survey would be conducted. Section 3.11 discusses BMPs for addressing potential impacts from UXO areas during construction. As indicated in Section 2.2.3.2, final site selection and site-specific impact analysis would be conducted as required.

FBTC Impacts

Military Land Uses. New ranges would be grouped primarily in the existing range complexes, located near the existing range camps on Fort Bliss. While exceptions exist, ranges would be placed into complexes according to the following general concepts:

- McGregor, in the western portion of McGregor Range at the South Meyer Complex, for Individual Qualification and basic task training for crews and squad drills and GWOT Mobilization Task Training.

- Doña Ana, at the foothills of the Organ Mountains, for Crew Qualifications and Platoon Task Training and Collective task training.

- Orogrande, in northwestern McGregor Range, for Platoon Qualifications and Company/Battalion Level collective task training.

Grouping ranges in close proximity to the three range camps would provide units a forward position from which to operate and facilitate land use linkages. It would improve training efficiencies by enhancing opportunities for sharing common support facilities, such as latrines, instruction buildings and parking areas. It would minimize the use of fuel and travel and maximize efficiencies by providing troops with the ability to be temporarily housed in close proximity to their range training sites. Additionally, grouping the ranges would reduce internal encroachment on maneuver space. Expanded weapons firing areas would result in expansion of designated impact areas on the lower slopes of Organ Mountains, maximizing the use of land within existing impact areas. Impacts upon the installation's military land uses would be less than significant.

Non-Military Land Uses. As shown on Figure 2-9, proposed ranges would not be located in the jointly-used areas of the installation, where livestock grazing is allowed. Proposed ranges would not be located in portions of the installation open to public access. Consequently, there would be no impacts to non-military land uses under TI-2.

Visual Resources. The additional ranges could be visible from War Highway in the Doña Ana Range and Route 54 in McGregor Range. However, the ranges would be similar in type, scale, and function to existing structures on the FBTC. The developments would not change the visual quality or character of the range complexes. Additionally, the developments in McGregor Range would be located in the BLM's VRM Class IV areas, indicating that the level of change to the characteristic landscape can be high. Impacts upon visual resources would be less than significant.

3.2.12 Training Infrastructure Improvements Alternative 3 (TI-3)

Table 3-15 classifies the direct and indirect impacts to land uses and visual resources under implementation of TI-3.

Table 3-15. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 3.

Land Use VEC	Construction	FBTC
Military Land Uses	⊙	⊙
Non-Military Land Uses	⊙	⊙
Visual Resources	⊙	⊙

⊙ Less than significant

Construction Impacts. Construction activities associated with the expansion of range camps could affect nearby land uses as a result of increased noise, dust, odors, and activity in the construction sites. During some construction stages, crews training at the ranges could be restricted from using the facilities for billeting and other support services. To minimize impacts to training requirements and reduce training down time, construction scheduling and coordination among the three range camps would be required. Construction impacts to military land uses, would be temporary and therefore would not be significant.

Construction at the McGregor base camp would temporarily impact only military land uses. Noise-related construction impacts at the Doña Ana and Orogrande range camps would not be expected to impact nearby communities (See Section 3.24). Construction impacts would be temporary and contractors would be required to follow all Fort Bliss requirements. This would be consistent with construction management procedures on the installation.

Location of COLs on the Tularosa Basin and in the South and North Training Areas would require clearing of vegetation. Clearing impacts for each COL would be approximately one square kilometer each, totaling 16 square kilometers of clearing. Following the temporary use of the COLs by units, berms would be removed and holes would be backfilled. The same sites would be used again for training exercises.

FBTC Impacts

Military Land Uses. The expansion of the existing range camps and establishment of COLs in the South Training Area, Tularosa Basin and Doña Ana–North Training Area would benefit the training experience of the troops. By providing mission support services, the expanded range camps would enable units to conduct realistic training operations while in more remote locations on Fort Bliss. The location of COLs would not adversely impact the areas required for off-road vehicle maneuvering in any of the stationing and training alternatives. As indicated in 2.2.3.3, the COLs would be sited to avoid LUAs and OLAs. No impacts to military land uses would be anticipated.

Non-Military Land Uses. There would be little impact to non-military land uses located on the installation associated with TI-3: the range camps are not located in proximity to livestock grazing. As a result, the impacts of TI-3 on non-military land uses would be less than significant.

Visual Resources. The range camp expansions would be visible from public roads, including the War Highway in the Doña Ana Range, and Route 54 in McGregor Range. The expansions would be similar in type, scale, and function to the existing range camps. Impacts upon visual resources would be less than significant.

3.2.13 Training Infrastructure Improvements Alternative 4 (TI-4)

Table 3-16 classifies the direct and indirect impacts to land uses and visual resources under implementation of TI-4.

Table 3-16. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 4.

Land Use VEC	Construction	FBTC
Military Land Uses	⊙	⊙
Non-Military Land Uses	⊙	⊙
Visual Resources	⊙	⊙

⊙ Less than significant

The proposed rail network is presented only at a conceptual level and impacts and environmental impacts associated construction and operation cannot be fully assessed. Environmental documentation specific to this project would need to be prepared when and if the project is programmed for design and construction. Direct and indirect effects are discussed below on a programmatic basis to provide some discussion of this alternative.

Construction Impacts. The existing Fort Bliss rail network, originating near Biggs AAF, consists of approximately 15 miles of track located mainly in the western portion of the post. It currently serves the vehicle staging areas on the Cantonment area and Biggs AAF. The proposed conceptual rail network would upgrade an existing service line in the Cantonment. From McGregor Range Camp north to the Orogrande Range Complex, the rail line is conceptualized to be located to the immediate east of and generally parallel to the Union Pacific/Southern Pacific (UP/SP) Railroad, to a location north of the Orogrande Range Complex. Short term construction impacts, including noise, could encroach upon bordering land uses in and around the Town of Orogrande.

FBTC Impacts

Military Land Uses. For most of the west Tularosa Basin portion of McGregor Range, from TA 8 north to the railhead, the rail line would be compatible with the existing transportation use corridor. Scheduling coordination would be required to minimize impacts between existing military uses (maneuvering) and the proposed military support use.

Expanding the rail line to access McGregor Range Camp and Orogrande Range Complex would improve the efficiency of moving soldiers and equipment to training areas. There would be a loss of maneuver training ground from the tracks and associated right of way, depot area, and crossings, particularly in the South Training Areas. The exact loss and detailed impacts and potential mitigation and monitoring would be assessed once the railroad was programmed for design and construction.

Non-Military Land Uses. The railroad tracks currently serving the Cantonment are government-owned. The tracks would connect to the rail facilities owned by the UP/SP at the western and southeastern post boundaries. Coordinating with UP/SP on the development and operation of the railroad would be required. Operation of the rail could increase noise levels in proximity to the Town of Orogrande. Given the fact that the proposed rail line would be located east of the existing railway, and it would be expected to operate less frequently than the existing railway, projected impacts of TI-4 are deemed to be less than significant.

Visual Resources. The conceptual rail line would be viewed from US-54 and would run generally parallel to the existing Union Pacific line and from US-54. Potential visual impacts would be consistent with the existing transportation corridor.

3.3 Earth Resources: Affected Environment

The ROI for geologic and soil impacts of the project is defined as all areas in which project-related activities may occur, including the footprint of each training and construction area and the corridors of the military vehicle roads. It would also include adjacent areas that may be affected by geologic processes in the project area. For example, if a project area roadcut or embankment experiences slope failure, adjacent affected down slope areas become part of the ROI. The ROI for soils is the area that may be affected by proposed changes from facility construction and changes in training or intensity. It includes all Fort Bliss land other than the area within Lincoln National Forest and Castner Range.

The Earth Resources section in the PEIS (U.S. Army 2007) includes extensive descriptions of physiography, geology (including stratigraphy, structure, and mineral and energy resources), seismicity, and soils. The existing descriptions for these resources are descriptive of the entire Fort Bliss project area, and are not specific to facilities or TAs within the project area. Resource data specific to facilities or TAs are presented for the Cantonment area and the FBTC under each general resource type of physiography, geology and soils, as appropriate. There have not been any substantive changes in the condition of the physiography, geology, and seismicity of the project area, and they are not expected to be affected by the Proposed Action and alternatives considered in this EIS. Therefore, this EIS provides a summary of physiography, geology, and seismicity in the project area.

Soils have the greatest potential to be affected by the Proposed Action and the alternatives, and are therefore addressed at a greater level of detail than physiography, geology, and seismicity. The description for each soil type emphasizes soil characteristics that would affect and be affected by construction and ground-disturbing training activities, especially off-road vehicle maneuvers in the FBTC.

3.3.1 Physiography

Fort Bliss lies within the Basin and Range physiographic province. Extension of the crust throughout the province during the past 30 million years has produced characteristic short, linear mountain ranges separated by intervening valleys (Stewart 1978). Superimposed along the eastern side of the Basin and Range is a peculiar physiographic feature that extends from west Texas and northern Mexico northward through central New Mexico. This feature, the Rio Grande Rift Valley, extends northward into the Southern Rocky Mountains physiographic province of southern Colorado and northern New Mexico. From Albuquerque northward, the Rio Grande Rift Valley is a relatively distinct, continuous physiographic feature containing numerous basins. South of Albuquerque, the rift broadens and encompasses several valleys and small, linear mountain ranges. At about the latitude of El Paso, Texas, the Rio Grande Rift Valley turns abruptly to the southeast.

Much of Fort Bliss lies within the Tularosa Basin. The basin is roughly 100 miles long and 60 miles wide, and is one of the largest valleys in the Rio Grande rift. The Tularosa Basin merges with the Hueco Bolson (valley) south of El Paso, Texas. The Hueco Bolson is about 16 miles wide and extends into west Texas and Mexico. From south to north along the east side of Fort Bliss are the Hueco Mountains, Otero Mesa, and Sacramento Mountains. The Hueco Mountains form the western edge of the Diablo Plateau, which extends far into southeast New Mexico and Texas. Otero Mesa is continuous with the Diablo Plateau. Approximately 127,300 acres (515 square kilometers) of the 1.2 million acres (4,856 square kilometers) Otero Mesa (USAF 1998) and 55,845 acres (226 square kilometers) of the Sacramento Mountains are

located within the FBTC. The Sacramento Mountains rise steeply from Otero Mesa and the Tularosa Basin north of Fort Bliss. Along the southwest side of Fort Bliss are the Franklin Mountains. Several miles north of the Franklin Mountains are the narrow, steep-sided Organ Mountains. The Organ Mountains are continuous northward with the San Andres Mountains and, together, form an unbroken 100-mile-long mountain range. A short distance north of the central part of Fort Bliss are the Jarilla Mountains, a small, circular cluster of hills rising from the Tularosa Basin.

3.3.2 Geology

The oldest rocks near Fort Bliss are exposed in the Organ and Franklin mountains. These mostly granite, schist, and gneiss rocks are the deep crustal roots of ranges that extended across much of western North America more than 1.3 billion years ago (Seager 1981). During the next several hundred million years, these mountains were eroded by glaciers, rivers, and storms into a remarkably flat surface close to sea level.

The southern portion of the Tularosa Basin contains more than 6,000 feet (1,829 m) of valley fill, stream sand, and gravel, rock slides, alluvial fans from mountains on either side, and lake deposits rich in salt and gypsum derived from sedimentary rocks of the adjacent ranges. Any rainfall or melted snowfall that occurs in the valley either seeps into the porous valley deposits or evaporates from small pools leaving behind deposits of gypsum, salt, or other minerals.

Five mining districts on Fort Bliss have produced metals; however, none of these districts are currently active (Hatton et al. 1995). Industrial minerals and materials are currently produced from numerous quarries in the Fort Bliss area. The materials produced within the FBTC are mostly sand, gravel, and limestone (U.S. Army 2001).

3.3.3 Seismicity

A large portion of the Fort Bliss region lies inside the Rio Grande Rift, an area considered to be of moderate seismic activity (Sanford et al. 2002). Earthquake data estimate that the strongest earthquakes in a 100-year period lie between a magnitude of 4.5 and 5.8 on the Richter Scale with an area of elevated seismic activity (the Socorro Seismic Anomaly) located roughly 100 miles (161 kilometers) to the north of the installation (Sanford et al. 2002). Fault lines along the edge of the Tularosa Basin may still be active, although no movement has been recorded in recent time (U.S. Army 2000).

3.3.4 Topographic Basin Soils

In general, soils on Fort Bliss are well drained to excessively drained with depth to bedrock ranging from shallow to very deep. Most soils on the North and South Training Areas are highly susceptible to wind erosion, while McGregor Range contains soils that are highly susceptible to both water and wind erosion. The Fort Bliss Soil Survey (USDA 2003) provides descriptions of general soil map units, grouped by landscape position, that are suitable for characterizing soils over a large area. The eight general soil map units are displayed in Figure 3-5. Basic characteristics of each of these general soil map units are shown in Table 3-17. Each soil map unit on Fort Bliss is a soil association, which is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps.

In arid and semi-arid lands throughout the world, vegetation cover is often sparse or absent. Nevertheless, in open spaces between the higher plants, the soil surface is generally not bare of autotrophic life, but covered by a community of highly specialized organisms. These communities are referred to as biological soil crusts, or more specifically, cryptogamic, cryptobiotic, microbiotic, or microphytic soil crusts (Harper and Marble 1988, West 1990). A biological soil crust is a complex mosaic of living organisms—algae,

cyanobacteria (blue-green algae), bacteria, lichens, mosses, liverworts, and fungi—that grow on or just below the soil surface. Biological soil crusts function as living mulch by retaining soil moisture and discouraging annual weed growth. They reduce wind and water erosion, fix atmospheric nitrogen, and contribute to soil organic matter (BLM 2001). These areas are susceptible to becoming either coppice dunes or bare ground resulting in accelerated wind erosion due to surface disturbance, without time for recovery.

The wind erosion hazard on Fort Bliss is high, as shown by the dominance of highly erodible soils in Figure 3-6. The soil surface is dry, sandy, and sparsely vegetated, particularly in areas that have been denuded by military vehicle traffic. These soils are susceptible to dust generation and dune formation. Wind speeds in the El Paso area are relatively moderate, but can raise considerable dust and sand. The annual average wind speed in the El Paso area is 9.0 miles per hour (mph). Sandstorms occur most frequently during March and April, which have the highest average wind speeds, 11.3 mph. Most soils on the North and South Training Areas are highly susceptible to wind erosion, while McGregor Range contains soils that are highly susceptible to both water and wind erosion. Based on soil survey database (USDA 2004), the slight, moderate, and severe limitations for erosion shown in 3-61 correlate to the Not Highly Erodible, Potentially Highly Erodible, and Highly Erodible areas shown in Figure 3-6 and Figure 3-7.

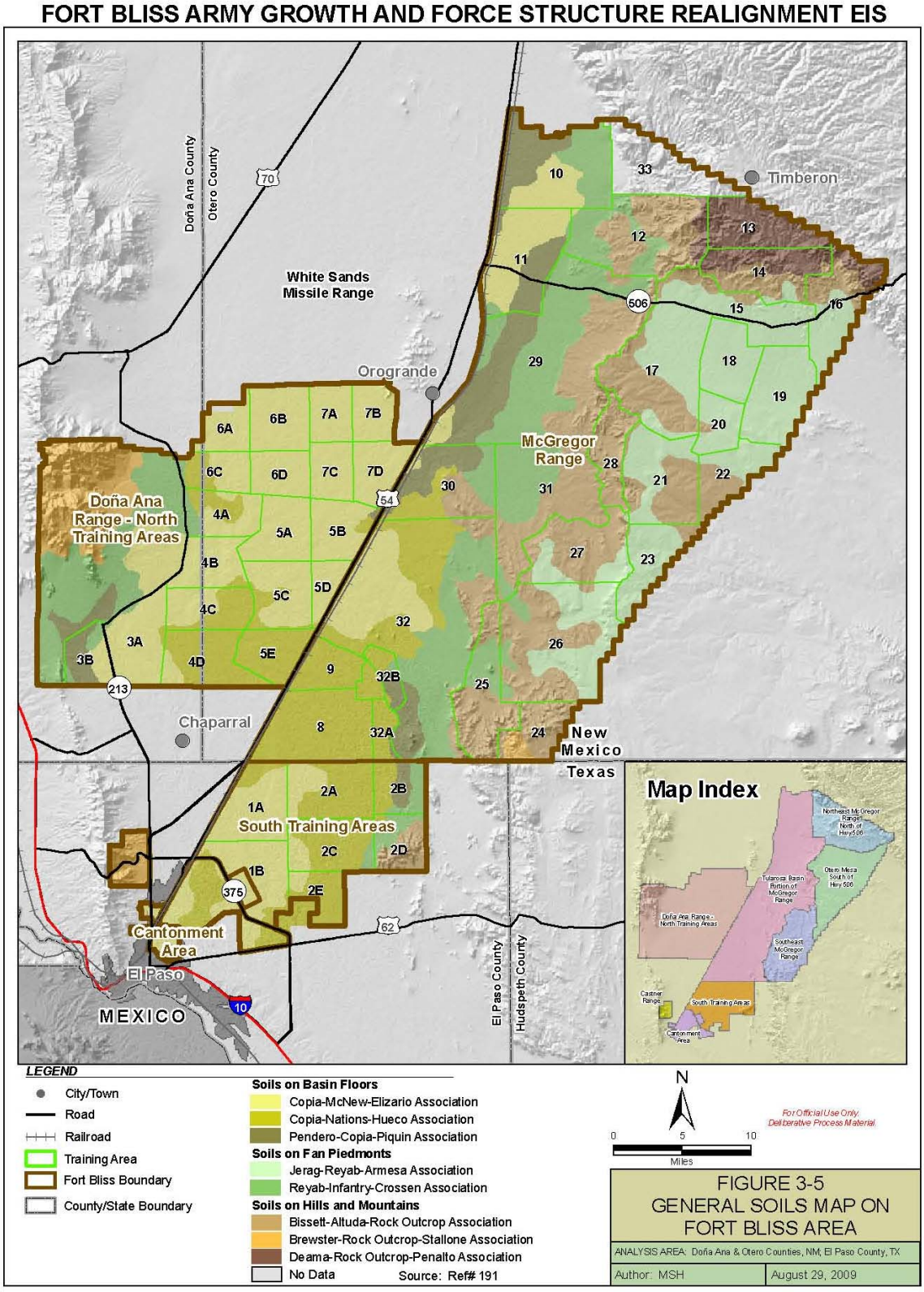


Figure 3-5. General Soils Map Units on Fort Bliss.

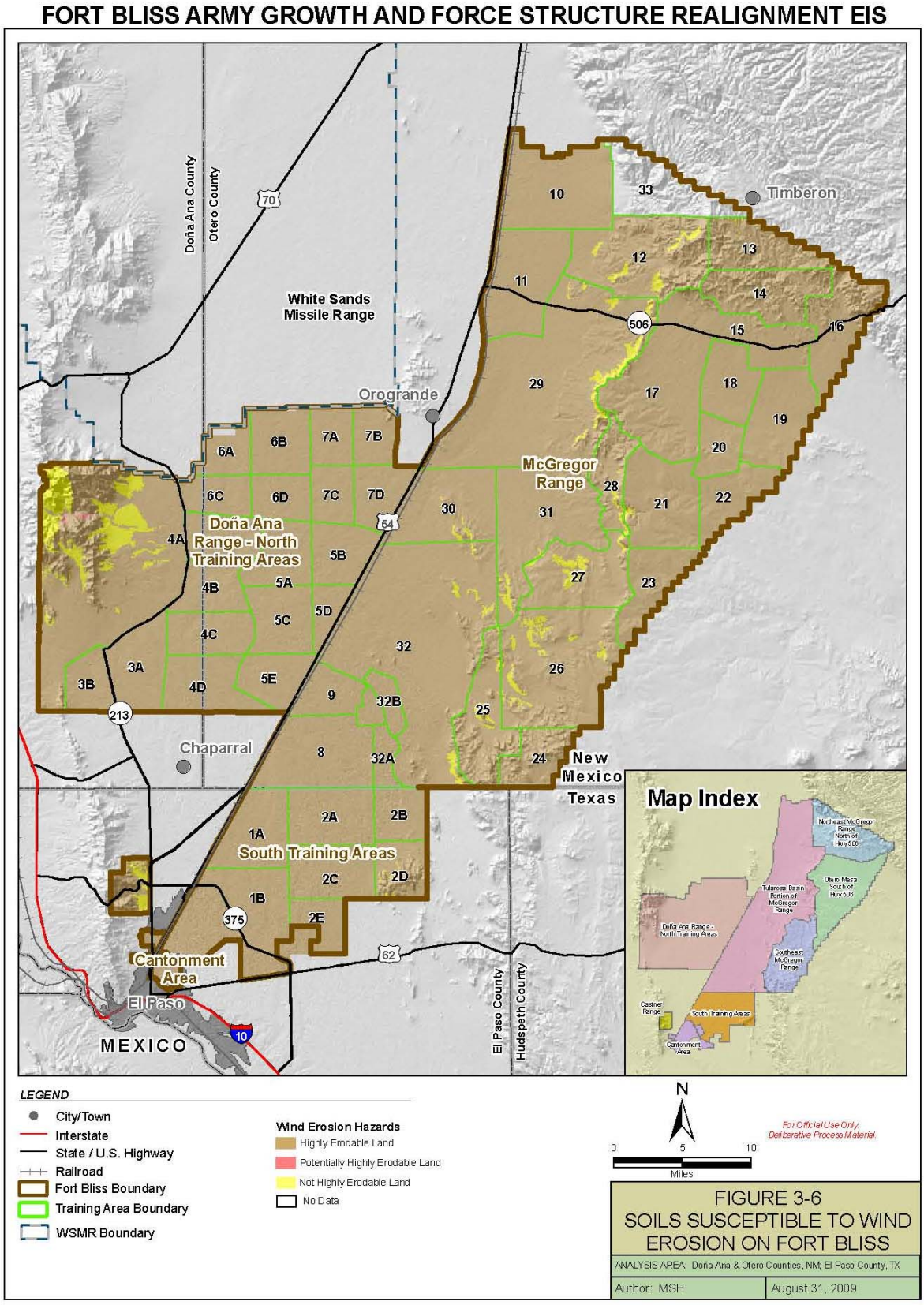


Figure 3-6. Soils Susceptible to Wind Erosion on Fort Bliss.

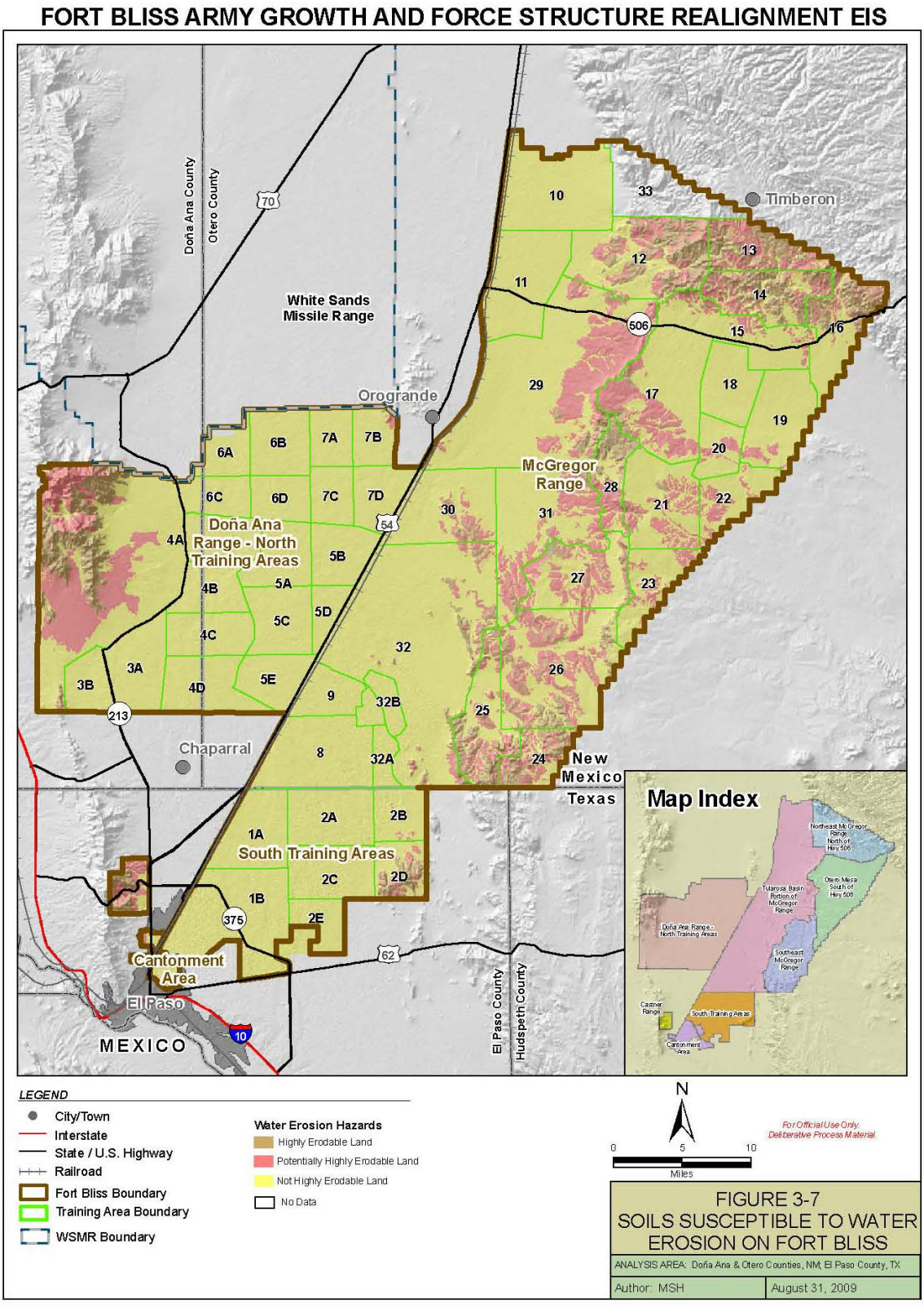


Figure 3-7. Soils Susceptible to Water Erosion on Fort Bliss.

Table 3-17. Characteristics of General Soil Map Units.

Landscape Position	Soil Association Map Name	Percent of Fort Bliss[1]	Physical Properties
Basin Floors	Copia-Mcnew-Elizario Association	22	2–5% slopes, very deep, well drained to excessively drained, high proportion of sand on surface
	Copia-Nations-Hueco Association	15	0–5% slopes, very deep to moderately deep, loamy fine sand surface texture
	Pendero-Copia-Piquin Association	6	2–15% slopes, very deep, excessively drained, loamy fine sand to very gravelly sandy loam surface texture
Subtotal	Basin Floors	43	
Fan Piedmonts	Jerag-Reyab-Armesa Association	14	0–5% slopes, well drained, very deep to shallow, very fine sandy loam and silt loam surface texture
	Reyab-Infantry-Crossen Association	20	0-10% slopes, well drained, very deep to very shallow, surface texture mixed (silt loam, very gravelly loam, gravelly fine sandy loam)
Subtotal	Fan Piedmonts	34	
Hills and Mountains	Bissett-Altuda-Rock Outcrop Association	16	5–65% slopes, well drained, shallow and very shallow, very gravelly or very cobbly loam surface texture
	Brewster-Rock Outcrop-Stallone Association	4	5–90% slopes, well drained, very deep to very shallow, very gravelly loam to extremely bouldery sandy loam surface texture and rock outcrop
	Deama-Rock Outcrop-Penalto Association	3	5–65% slopes, well drained, shallow and very shallow, very cobbly or gravelly loam surface texture
Subtotal	Hills and Mountains	23	

Source: USDA 2003

[1] Excluding Castner Range and TA 33 (Grapevine)

3.3.4.1 Fort Bliss Soil Survey

The Fort Bliss Soil Survey (USDA 2003, 2004) provides interpretations for specific military land uses. These include suitability ratings for construction and maintenance of buildings and roads, erosion hazards, and soil trafficability using a range of vehicles under wet and dry conditions. Table 3-18 summarizes the wind and water erosion and trafficability limitations, based on vehicle classifications, of the soils on Fort Bliss.

Table 3-18. Wind and Water Erosion and Trafficability Ratings of Soils on Fort Bliss.

Soil Erosion and Trafficability		Wind and Water Erosion and Trafficability Ratings of Soils[3]				
		Excellent/ Slight Limitations	Good[1]	Fair/ Moderate Limitations	Poor/ Severe Limitations	Not Rated[2]
Wind Erosion		1 %	N/A	0 %	99 %	0 %
Water Erosion		61 %	N/A	22 %	17 %	0 %
Trafficability, L-Classification	wet	0 %	65 %	0 %	11 %	24 %
	dry	58 %	0 %	9 %	11 %	22 %
Trafficability, M-Classification	wet	0 %	57 %	9 %	11 %	23 %
	dry	57 %	0 %	9 %	11 %	23 %
Trafficability, H-Classification	wet	22 %	58 %	1 %	15 %	1 %
	dry	70 %	10 %	1 %	15 %	1 %

Source: USDA 2004

[1] Applies only to vehicle trafficability ratings.

[2] Includes miscellaneous map units such as rock outcrops, pits, and dumps.

[3] Trafficability ratings are based on 50 vehicle drive-overs.

Trafficability refers to the capacity of soils to support military vehicles. Trafficability is affected by soil strength, slope, stickiness, slipperiness, vegetation, and natural obstacles. The degree of trafficability is determined by vehicle type, which is dependent on the contact pressure of tires or tracks and vehicle weight and the effect to the surface soil layer under wet or dry conditions. The ratings listed in Table 3-18 are for 50 vehicle drive-overs. An excellent rating means that soil features are very favorable for the vehicle to pass; good indicates moderately favorable soil conditions; fair indicates soil limitations that are likely to require adjustments to vehicle spacings or route; poor indicates soil features that cannot be overcome. Areas with fair to poor trafficability may result in more vehicle wear and tear and thus requires greater vehicle maintenance (USDA 2003).

The Fort Bliss Soil Survey also describes ecological sites (ecosites), which are a classification unit that represents an area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. The ecosites can be correlated with soil map units. Each ecosite describes a typical plant community and uses a threshold concept to characterize changes in the system. The standard indicators used to determine thresholds are described in the 2007 SEIS, and are not repeated in this analysis. These indicators primarily include measures of erosion by water and wind, plant community composition and production, and land cover (landscaping, pavement, buildings, gravel).

3.3.4.2 Soil Resources Management

AR 200-3 requires that installation sources of dust, runoff, silt, and erosion debris be controlled to prevent damage to land, water resources, equipment, and facilities, including adjacent properties. An erosion and sediment control plan must be implemented as required by AR 200-3, AR 200-1 (*Environmental Protection and Enhancement*), AR 200-2 (*Environmental Effects of Army Actions*), AR 210-20 (*Master Planning for Army Installations)*, and Title 20.1 Environmental Protection, General; and the Doña Ana County Erosion Control Regulations (Doña Ana County 2001). New Mexico has enacted the Watershed District Act (New Mexico Statute 73-20-1) (State of New Mexico 2008), which authorizes the State conservation agency and the districts to develop and execute soil erosion and sediment control plans or

programs. Texas Commission on Environmental Quality authorizes the General Permit to Discharge Wastes, which includes provision for erosion control from construction activities (TCEQ 2003).

Soil management is coordinated through the Fort Bliss DPW-E and ITAM – DPTMS. Plans to control or mitigate water and/or wind erosion must consider effects on vegetative community, grazing, cultural resources, and natural resources, especially threatened and endangered species. LRAM is one of four components of the ITAM program. The purpose of LRAM is to repair damaged lands to facilitate military activities and to prevent further degradation of resources, including soil, in areas designated for military activities. The primary focus of LRAM includes the roads, impact, and maneuver areas. Areas that need to be rehabilitated have been and will continue to be identified and possible restoration methods assessed. Soil erosion and sediment control is managed in part through the LRAM program projects, which consist of strategies and resource allocations for resting and repairing training lands on a rotational basis as well as repairing damaged TAs as the need arises. LRAM seeks to stabilize soils and provide long-term vegetative cover to support military land use. The program involves using cost-effective technologies, such as revegetation, erosion control structures, site hardening, blockades, and dust palliatives to prevent training site degradation, soil erosion, and excessive road damage.

Fort Bliss resource management objectives for ecosystems include the comprehensive goal to prevent deterioration of highly erodible soil resources (U. S. Army Data, 2008).

3.4 Earth Resources: Direct and Indirect Effects

The environmental consequences address the impacts of the FB GTA EIS alternatives on soils. The proposed alternatives are not expected to affect other earth resources, including physiographic, seismic activities and other geologic hazards, and mineral resources. In each category in this analysis, Alternative 1, the No Action Alternative, involves the same activities and facilities that were described for Alternative 4 – Proposed Action in the March 2007 SEIS. The 2007 SEIS contains a detailed assessment of the types of effects that would be anticipated from implementation of the Proposed Actions. These effects are the same that would occur from Alternative 1 in this analysis, and qualitatively similar to the effects that would occur from Alternatives 2 and 3. The 2007 SEIS also provides considerable detail regarding the recovery of soils from surface-disturbing activities, the exposure of soils to wind and water erosion from earth-disturbing activities and off-road vehicles, and the effects to biological crusts.

The 2007 SEIS Proposed Action implementation effects would include a temporary increase in soil erosion during construction activities in the Cantonment. Because these effects are described in considerable detail in the SEIS, they are not repeated to the same level of detail in this analysis. The 2007 SEIS is, instead, incorporated by reference for descriptions of the types of effects to soils on Fort Bliss from the implementation of various alternatives under Categories 1, 2, and 3. The 2007 SEIS also provides considerable detail regarding the recovery of soils from surface-disturbing activities, the exposure of soils to wind and water erosion from earth-disturbing activities and off-road vehicles, and the effects to physical and biological crusts.

This environmental consequence analysis identifies the direct and indirect effects on soils from alternatives under Categories 1, 2, and 3. Potential effects would occur from training activities as a function of land use or from an increased level of activity on existing TAs. All areas that would experience effects to soils are managed as part of the Fort Bliss ITAM program.

The most critical effect to soils would be the potential for increased soil erosion (water and wind) as a result of increases in vehicle traffic during off-road maneuvering activities. The soils assessment for environmental consequences focuses on the effects of disturbance on soil stability, potential effects of sedimentation and run-off, effects to soil stability and fertility, and potential hazards to the public. Most

of the analysis consists of a summary of the effects to soils from existing Fort Bliss' environmental documents. The 2007 SEIS was the primary source for existing data and analyses. In addition, impacts to soils were evaluated for conformance to applicable regulatory requirements and guidelines.

Direct effects on soils are from the physical disturbance of the upper soil layers (including the biological crusts, where present) and the disruption of soil processes caused by activities that alter the natural soil layers or result in accelerated erosion, increased soil compaction, loss of protective vegetation, and loss of soil productivity.

Soils in the FBTC that are most susceptible to wind erosion occur in the Sandy and Deep Sand ecosites that occur on the Copia-Nations-Hueco, Pendero-Copia-Piquin, and Copia-McNew Elizario soil associations. These soils are found in the north and south training areas and McGregor Range. In addition Bissett-Rock out crop complex areas consist of soil types and inclusions along with alluvial and colluvial sediment. Significant impacts would be identified where biological crusts, vegetative cover, and soil productivity were damaged to the point that their recovery would be lengthy or infeasible. Under good conditions and without further disturbance, damaged biological crusts take at least ten years to recover.

About one-third of the FBTC is coppice dunes, which are small, streamlined dunes that form around brush and clump vegetation (USDA 2004). They present a less desirable landscape for training. Coppice dunes are projected to occur on two different soil map units on McGregor Range: Pendero fine sand, two- to five-percent slopes (Map Unit 6), and Copia loamy fine sand, five- to 15-percent slopes (Map Unit 7) (USDA 2003). There are currently no coppice dunes in the Southeast McGregor Range.

The extent and significance of impacts under both wet and dry conditions would be determined by the frequency, intensity, and total area of disturbance, and ultimately on the amount of bare ground created. The extent and frequency of off-road vehicle maneuvers along with the type of vehicle (based on classification) is used as the primary indicator of impacts on soils within the FBTC. One study conducted at Fort Bliss indicted that soils impacted by at least 5 and up to 20 HMMWV (L-classification) vehicle passes under both dry and wet soil conditions had disappeared after one year (MacKay and Herrick, 1996).

Indirect effects, primarily soil compaction, include reduced surface water infiltration with an associated increase in surface water runoff, increased wind erosion due to loss of vegetative cover, and poor plant growth or seed germination. Indirect effects on other resources from the physical disturbance of soils can include increased loss of habitat, sedimentation in streams, stream turbidity, and effects on aquatic species. The indirect effects, if they are identified, on other resources are evaluated in the appropriate resource sections. The significance of the effects on soils is related to both the areal extent of the impacts and the length of time necessary for the soils to recover following surface disturbance.

The greatest effects to soils are anticipated to occur from off-road vehicle maneuvers, which could compact soils, crush vegetation and biological crusts, and accelerate soil erosion. The effects of vehicle disturbance (whether wheeled or tracked vehicles are used) may be severe but in limited areas where several passes may occur or during sharp turns. Several passes and sharp turns can cause rutting (Table 3-19) which may expose soils to wind/water erosion and also cause some compaction depending on the amount of finer soil particles of the soil. These impacts are associated with the frequency and intensity of training where the vegetative cover may be lost and soil erosion accelerated (Warren et al. 1991). When biological crusts are completely removed, or are damaged over large or continuous areas, the recovery is generally slow, especially in areas with low precipitation and sandy soils.

Tracked and wheeled military vehicles have the potential to cause soil compaction and form ruts in soils on lands used for training maneuvers. The greatest potential for compaction is in loamy soils (Figure 5,

Table 3-19) because they have more cohesive properties and increase erosion potential. Soil compaction results in increased bulk density and soil strength and decreased porosity, infiltration, and hydraulic conductivity of soil. This produces more surface water runoff during storm events. Greater soil compaction occurs as the number of tracked vehicle passes increases, particularly when vehicles are driven on wet soils (Table 3-18).

Wheel ruts are formed when the contact pressure exerted by the vehicle exceeds the structural capacity of the soil. This impact would occur more often in soils that are silty or clayey versus those soils that are composed primarily of sand because sand soils have no cohesion. Ruts concentrate the surface runoff, much like a natural rill or channel, which increases the sediment transport capability of surface water runoff.

Soil disturbance from tracked and wheeled vehicles can reduce the amount of soil cover (plant material and biological crusts) in grassland areas. Studies for military reservations in North Dakota, Colorado, and Idaho identified reductions of vegetation and substantial consequent increases in bare soils of up to 26 percent from vehicle maneuvers (Guretzky et al. 2005). Similar effects of increased sediment loads in surface water runoff and fugitive dust would occur from tracked and wheeled vehicle maneuvers proposed for training maneuvers on many of the soil types within the ROI.

The actual depth and extent of soil disturbance from vehicular passage over the ground at the FBTC will depend on the type of site, the type of impact, soil type, and depth to bedrock, slope, and the intensity and repetition of the impact. Table 3-19 summarizes the results of off-road vehicle rut depth analyses on the sandy loam soils at Fort Riley, Kansas (Liu et al. 2009a), and Fort Lewis, Washington (Liu et al. 2009b), and coarse to medium sand at the Yuma Proving Ground, Arizona (Liu et al. 2009b). It is noted that the course to medium sands and arid environment at Yuma Proving Ground, Arizona are more similar to the soils and environment at the FBTC. In addition, soils in arid environments such as Yuma Proving Ground, Arizona and the FBTC are much more resistant to compaction (rutting) than soils in a temperate environment such as Fort Riley, Kansas or Fort Lewis, Washington (USDA, 1996). No applicable studies on the effects of drive-over from M-classified vehicles were available at the time of this report. However, a rut depth range was determined using the percent reduction of rut depths associated with L-classified vehicles on sandy loam and coarse to medium sand.

Table 3-19. Off-Road Vehicle Soil Disturbance Studies.

Vehicle Classification	Max. Rut Depth Range (cm)*	Max. Rut Depth Range (cm)**
Soil Type/Study Area	Sandy Loam/ Fort Riley and Fort Lewis	Coarse to Medium Sand/ Yuma Proving Ground
L	5.5 – 8.0[a]	1.5 – 2.5[b]
M	0.5 - 14.0[c]	0.3 – 8.5[d]
H	[e]	

* Analysis based on eight passes on sandy loam within a two-day period (Liu et al. 2009a).
** Analysis based on eight passes on coarse to medium sand within a one-day period (Liu 2009b).
a Rut depth range from straight line and sharp turn driving directions using an Armored Personnel Carrier.
b Rut depth range from straight line, smooth turn, and sharp turn driving directions using a HMMWV.
c Rut depth range from straight line and sharp turn driving directions using an LMTV and M1A1 Abrams Tank.
d. Based on correlation of percent reduction of rut depths associated with L-classified vehicles on sandy loam and coarse to medium sand.
e. Stryker vehicles (vehicles with an H classification) are relatively new and studies of compression or other disturbances are extremely limited. However, Shoop et.al, 2005 found that Stryker rut depth was considered severe as a function of soil strength (i.e. soils with low strength (clays, silts), which would have more severe rutting than soils with high strength (sands) where rutting would be minor-moderate. It should be noted, however, that Stryker vehicles are largely used for on-road maneuvers, with little off-road travel (Chapter 2).

A qualitative assessment was used to evaluate the potential for increased soil erosion and other effects to soils from the military land use alternatives in the three Categories. The criteria considered in determining whether the military land use alternatives would have a significant impact on soils were evaluated and distinguished by the degree to which the impact would:

- Result in substantial loss of soil (through increased erosion) or change in soil structure, or loss of access to economically significant mineral deposits. A substantial loss of soil would occur if erosion or soil structural change has occurred to the extent that soil productivity is degraded.

- Adversely affect human health or environmental receptors, such as through exposure to air-borne dust.

- Conflict with existing federal, state, or local statutes or regulations.

- Permanently alter a unique or recognized geologic feature or landscape.

- Substantially alter the existing function of the landscape (such as altering drainage patterns through large scale excavation, filling, or grading).

- Disturb or alter unique, rare, or otherwise important paleontological resources, such that the potential to derive benefits from those resources is reduced (note that paleontological resources are addressed with archaeological resources under the general heading of cultural resources).

Effects to soils that could be eliminated or reduced through mitigation are identified as significant can be mitigated to less than significant. Soil trafficability is the primary factor used in this EIS to evaluate the potential damage to soils caused by off-road military vehicle maneuvers. A classification of direct and indirect impacts is shown in Table 3-20 below. The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5.

Table 3-20. Classification of Direct and Indirect Effects to Earth Resources.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST- 1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST- 4	ST-1	ST-2	ST-3	ST- 4	ST-1	ST-2	ST-3	ST-4				
Military Land Uses	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	○	⊙	⊙	⊗

○ No impact
⊙ Less than significant
⊘ Significant but mitigate to less than significant
⊗ Significant

3.4.1 Stationing and Training Alternative 1 (ST-1)

The implementation of this alternative would consist of those effects described for military uses as discussed in Chapter 2.

Cantonment Area

Stationing of military units under ST-1 would not require construction of additional facilities. The quality of life and garrison facilities would be adequate to meet the needs under this alternative. Since additional construction would not be required in the Cantonment, no additional or new impacts to soils would occur.

Fort Bliss Training Complex

As shown in Table 2-9, total ground contact during annual off-road ground contact under ST-1 is 2,755 square kilometers. A total of four HBCTs and 2 IBCTs would train on the installation, and this equates to less off-road maneuver training on the FBTC than the 3,315 square kilometers from the six HBCTs studied in the 2007 SEIS, resulting in less than significant impacts associated with wind and soil erosion in the off-road areas. The intensity of the off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.4.2 Stationing and Training Alternative 2 (ST-2)

Impacts resulting from this alternative would be similar to the impacts described for ST-1. The primary difference between these two alternatives is that under ST-2, there would be no BCT deployment.

Cantonment Area

Stationing of units at Fort Bliss under this alternative would be the same as described for ST-1. Therefore, the effects of the additional potential construction on soils in the Cantonment are the same as the effects described for ST-1.

Fort Bliss Training Complex

Under ST-2, the seven BCTs training would result in approximately 3,215 square kilometers of off-road ground contact, which would still be less than the significant impacts associated with the six HBCTs training under the 2007 SEIS. The intensity of the off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.4.3 Stationing and Training Alternative 3 (ST-3)

Impacts resulting from this alternative would be higher than the impacts caused by the activities described for ST-1 and ST-2. The primary difference considered in the analysis for this alternative is the addition of one SBCT unit, which completes only 10 percent of annual maneuver training off-road. The number of stationed BCTs would increase from six to seven, while the number of BCTs training would increase from seven to eight.

Cantonment Area

Potential Cantonment construction would result in short term and long term effects. Short-term effects would include limited soil erosion and would occur primarily from excavation and building construction. Long-term effects would result from new impervious surfaces including buildings, roads, and other constructed facilities. Most of the soils within the Cantonment are suitable for construction of roads and buildings. All of the area of additional development is located within the existing Cantonment, a highly developed complex where the new facilities would match the existing urban landscape. This includes the expectation of limited areas where the ground is vegetated. Most of the new construction would be located where there are severe wind erosion hazards. Soils would likely to continue to erode over time without construction or other management practices. Surface disturbance of the estimated 315 acres (1.3 square kilometers) for pavement areas and approximate 240 acres (0.97 square kilometer) for building construction would be phased over approximately five years, so no large areas would be exposed to wind or water erosion at one time.

Temporary erosion controls and permanent landscaping or other earth cover (pavement, buildings, and gravel) would further minimize indirect and offsite to less than significant.

Fort Bliss Training Complex

Off-road maneuvering by wheeled and tracked vehicles is expected to have a total ground contact of approximately 3,305square kilometers, which would nearly equal the significant wind erosion and water erosion impacts in the Tularosa Basin of McGregor Range and the Southeast McGregor Range that were identified in the 2007 SEIS. However, the impacts would be less than significant due to the soil stability, erosion surveys, and other actions in the ITAM RTLA plan, which was approved on December 2007. The intensity of the off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.4.4 Stationing and Training Alternative 4 (ST-4)

The primary difference considered in the analysis for this alternative is that the stationed BCTs would increase from seven to eight with the addition of a second SBCT. ST-4 would also add an additional HBCT training unit for a total of 10 BCTs training on the FBTC. Additional support units and an increase in the number of soldiers from ST-3 would also occur.

Cantonment Area

The impacts of the additional potential construction in the Cantonment would be the same as for ST-3. Short-term effects would include limited soil erosion and would primarily occur through excavation and construction. Long-term effects would match those described for ST-3. As with ST-3, under ST-4, most of the soils within the Cantonment are suitable for construction of roads and buildings. The area where most of the new construction would be located has severe wind erosion hazards. Surface disturbance of the estimated 630 acres (2.5 square kilometers) for pavement areas and approximate 480 acres (1.9 square kilometers) for building construction would be phased over approximately five years, so no large areas would be exposed to wind or water erosion at one time.

Temporary erosion controls and permanent landscaping or other earth cover (pavement, buildings, and gravel) would further minimize indirect and offsite significant impacts to less than significant.

Fort Bliss Training Complex

Under this alternative, the 10 BCTs training would distribute 4,080 square kilometers of ground contact across the FBTC, which exceeds significant impacts assessed in the 2007 SEIS. However, as in ST-3, the impacts would be less than significant due to the on-going actions in the ITAM RTLA plan. The intensity of the off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.4.5 Land Use Changes Alternative 1 (LU-1)

Under LU-1, the off-road vehicle maneuvers would be limited to the North Training Areas, South Training Areas, Tularosa Basin of McGregor Range, and Southeast McGregor Range.

LU-1/ST-1: The area of ground contact for the HBCTs would be greater than the IBCTs, because the HBCTs perform more off-road vehicle maneuvers. Assuming equal distribution of maneuver, the number of times the ground would be driven over is highest (approximately 1.5 times annually) in the South Training Areas, with 0.96 times attributed to vehicles with L classifications. The approximate 1.5 drive-over rate, with a majority L classification vehicles, in an area composed primarily of coppice dunes would not be considered significant. The FBTC subdivisions that contain vegetative covers other than coppice

dunes would be driven over less than to nearly one time annually, with L classification vehicles comprising nearly two-thirds of the drive-over rates. This would also not be considered significant as the land management practices in the ITAM plan, would offset the impacts. Additionally, the no change in land use would limit the extent of off-road vehicle maneuver to portions of the FBTC analyzed in the 2007 SEIS. As previously stated, the impacts to this area of the FBTC would be less than significant due to a decrease in off-road vehicle maneuver from the 2007 SEIS levels.

LU-1/ST-2: The additional HBCT would increase the total HBCT ground contact area, while the IBCT ground contact area would remain the same as LU-1/ST-1. The number of times ground would be driven over by the HBCTs increases very slightly and IBCTs would remain the same as LU-1/ST-1. The intensity of use would slightly increase but would still be less than significant through the on-going land management practices established in the ITAM plan.

LU-1/ST-3: The number of times ground would be driven over by HBCTs and IBCTs would increase slightly throughout the FBTC, except for the South Training Area due to SBCT training preference. This slight increase in the number of times of drive-over would be considered less than significant under the same premise of LU-1/ST-2.

LU-1/ST-4: The number of times the ground would be driven over is the highest under this LU-1 alternative. Although this alternative has the highest number of drive-over, the majority of the vehicles conducting this off-road training would consist of vehicles with L and M classifications. The number of times the ground would be driven over does not increase substantially from LU-1/ST-3, with the exception of Southeast McGregor Range. This increase in the Southeast McGregor Range is from the same number of HBCTs training on the FBTC (six total) as was analyzed in the 2007 SEIS. However, as stated in LU-1/ST-2, the on-going actions in the ITAM RTLA plan would minimize impacts to less than significant.

3.4.6 Land Use Changes Alternative 2 (LU-2)

LU-2 proposes changes in land use designations in two primary areas of the FBTC. The Army would allow four square kilometers of fixed sites in the Southeast McGregor Range by removing the Grassland LUA designation in these areas. Secondly, fixed sites would be allowed in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 by removal of the Grassland LUA designation in this area. Under this alternative, the percent of training days scheduled in these areas would not change; therefore, the effects on soils due to off-road vehicle maneuvers would be similar to the impacts discussed under LU-1.

The areas under this alternative would be impacted by activities such as digging with hand tools and mechanical digging activities on a case-by-case basis. The soils in the affect Southeast McGregor Range areas are rated as somewhat limited, which indicates that the soil has features that are moderately favorable for a specified use. The limitations would be overcome or minimized by special planning, design, or installation (USDA 2004). Potential loss of grassland could increase wind erosion; however, erosion would be minimized by erosion control projects that are part of the LRAM program.

The Sacramento Mountain zone in the Northeast McGregor Range North of Highway 506 consist of mostly of steep, rocky slopes with shallow to very shallow cobble to gravelly loamy soils. Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is slight. These areas support little if any vegetation, and surface runoff is rapid.

The changing of land use designations under LU-2 would not result in impacts to the existing soil conditions.

3.4.7 Land Use Changes Alternative 3 (LU-3)

This alternative includes the establishment of five Controlled FTX sites in the Northeast McGregor Range North of Highway 506 and a Controlled FTX zone in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 in the grassland areas assessed under LU-2. The Controlled FTX sites would be limited to within 500m of existing roads and areas with a slope of less than 30 percent (15 degrees). The effects to soils associated with this alternative would be very similar to those described for LU-1 and LU-2. The type of soil impacts from the construction and use of the Controlled FTXs could increase erosion potential, as described for LU-2. Under this alternative HBCT and SBCT road use would remain the same as LU-1 and LU-2, with a slight increase in IBCT road use. The number of times ground is driven over remains nearly identical as LU-1 and LU-2.

LU-3 would differ from the previous land use alternatives by the increased presence of IBCTs training at the five Controlled FTX sites and the Sacramento Mountain Controlled FTX zone established in the Northeast McGregor Range North of Highway 506. The soils in the proposed grassland locations of the five Controlled FTX sites consist of well drained, very deep to shallow, very fine sandy loam and silt loam. The soils are rated as somewhat limited, which indicates that the soil has features that are moderately favorable for a specified use. As with LU-2, the potential impacts to soils in these areas would be less than significant through on-going LRAM program projects.

The increased presence of IBCTs performing Controlled FTX activities in the Sacramento Mountain zone in the Northeast McGregor Range North of Highway 506 would not increase impacts to existing soil conditions.

3.4.8 Land Use Changes Alternative 4 (LU-4)

This alternative includes the areas assessed for LU-2 and LU-3, with the addition of off-road vehicle maneuver: light activities in the Northeast McGregor Range North of Highway 506. Such use would be limited to HMMWVs or wheeled vehicles with L classification, and would be allowed within areas 500m of a road with a slope of less than 30 percent (15 degrees).

The effects on soil under this alternative are based on an increase in total off-road vehicle maneuver area available and a shift of IBCT off-road maneuver training from the North and South Training Areas, Tularosa Basin, and Southeast McGregor Range to the Northeast McGregor Range North of Highway 506. This would slightly decrease drive-over rates in the FBTC subdivisions that allowed off-road vehicle maneuver under the previous land use alternatives. Soils within the Northeast McGregor Range North of Highway 506 would be impacted in areas within 500m of roadways by wheeled vehicles with L classification. These light wheeled vehicles can compact and disturb soil but compaction is dependent on the frequency and intensity of use of the area. Impacts would also be to the off road limitations of the wheeled vehicle in this mountainous environment.

Under this alternative, the IBCTs would increasingly use the Northeast McGregor Range North of Highway 506 area. The drive-over rates under LU-4 for the wheeled vehicles with L classifications would range from 1.25 to 1.53 times annually in the Northeast McGregor Range North of Highway 506 and would be limited to areas within 500m of existing roadways. The use and limitations of wheeled vehicles along with a low annual drive–over rate and on-going LRAM program projects would result in less than significant impacts to soils in the Northeast McGregor Range North of Highway 506.

The Northeast McGregor Range North of Highway 506 would also experience the highest level of on-road vehicle trips annually compared to other FBTC subdivisions. The vehicle trafficability ratings for soil in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 on

slopes less that 30 percent (Bissett – Rock Outcrop complexes) are rated as good for most vehicle types. The soils outside of the Sacramento Mountains are fine grained and thus more susceptible to erosion and are in proximity to the existing roadways (unvegetated). These effects could lead to increased erosion and channelizing, and indirectly to downstream sedimentation. Damage to the road areas could also be substantial from increased on-road maneuver activities because vehicle use would be concentrated onto a smaller area. While this disturbance would not destroy as much vegetative cover as disturbance to off-road areas would, it could disturb the soils underlying the roads, causing ruts and gullies to form, which in turn could lead to the indirect effect of increased surface water runoff and soil erosion off of the road surface. The inclusion of the Northeast McGregor Range North of Highway 506 as part of the ITAM RTLA plan to characterize gullies and assess and mitigate combat/tank trail erosion would mitigate impacts to less than significant.

3.4.9 Land Use Changes Alternative 5 (LU-5)

LU-5 adds to the previous alternatives the placement of three additional Controlled FTX sites in Otero Mesa South of Highway 506. The effects to soils would be very similar to those described for LU-4. The type of soil impacts from the use of the Controlled FTX areas could increase erosion potential, as described for LU-2. Under this alternative, the Other Unit use of the Otero Mesa South of Highway 506 would slightly increase, resulting in a slight overall increase in on-road vehicle trips in this area while reducing the on-road vehicle trips in the Northeast McGregor Range North of Highway 506. The number of times ground would be driven over remains nearly identical as LU-4.

LU-5 would differ from the previous land use alternatives by the increased presence of Other Units training at the three Controlled FTX sites. Soils on Otero Mesa plain South of Highway 506 have somewhat limited suitability for Controlled FTX uses, requiring aggressive sediment and erosion controls to minimize impacts. Most soils on the Otero Mesa escarpment are located on the steep slopes, and are rated as very limited for the construction and use of bivouac areas. The very limited rating indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance associated Controlled FTX sites located on the Otero Mesa escarpment would be expected. By locating the proposed Controlled FTX sites on the Otero Mesa plain and on-going LRAM program projects impacts to soils would be less than significant.

3.4.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Effects to soils from the implementation of this alternative consist of those effects described for Alternative 4 – Proposed Action evaluated in the 2007 SEIS, and do not involve improvements to training infrastructure. There would be no impact to soils associated with this alternative.

3.4.11 Training Infrastructure Improvements Alternative 2 (TI-2)

This alternative analyzes construction of additional ranges to support the stationing and training alternative selected. Construction of these ranges would use a phased approach, the first phase would include approximately 26 ranges constructed in the FY2010 to 2016 period, with the additional ranges constructed as funds are available and depending upon the stationing and training alternative selected. Each range is described in Appendix A and shown on Figure 2-9.

Additional ranges are proposed for the southern portion of the Tularosa basin of McGregor Range, the Doña Ana Range, and the South Training Areas. Most of the soils within the South Training Areas have few limitations for road and building construction, so few adverse impacts would be expected as a result of new construction. The soils in the Doña Ana Range and the southern portion of the Tularosa Basin of

McGregor Range have more moderate to severe limitations for building construction than in the South Training Areas, requiring aggressive sediment and erosion controls to minimize impacts. The southern portion of the Tularosa Basin also has the highest percentage of severe limitations for road construction and would require the most maintenance for roads. The soils at McGregor Range Camp have slight limitations for building construction.

Most soils in the Fort Bliss ROI are highly erodible soils that are susceptible to wind erosion. The highly erodible soils on Fort Bliss that are susceptible to water erosion occur primarily on steep slopes in the Southeast McGregor Range. Construction of roads would remove existing vegetation and disturb soils, increasing the erosion potential. The largest impacts are likely to be in steep slope areas that are more vulnerable to wind and water erosion. This impact would be less than significant during construction with implementation of standard road construction BMPs.

Standard road construction BMPs generally consist of practices for planning, construction activities, and road drainage. These may include, but not necessarily be limited, to the following practices:

- Plan the location and the desired drainage features before construction, using soil survey maps, topographic maps and aerial photographs.
- Minimize stream and wetland crossings.
- Avoid construction operations during wet conditions to reduce surface scour and decrease sediment transport.
- Stabilize road banks to minimize erosion of soil using mulch, seed and fertilizer, or other methods.
- Use culverts, cross ditches, turnouts and other drainage structures to drain roads to encourage long term stability, reduce maintenance, and protect water quality.

Construction of ranges could result in direct, short-term, localized soil erosion impacts when ground surfaces are disturbed to construct infantry targets, armor targets, firing stations, shelters, berms, roads, and other typical features described for each proposed range. Potential increases in soil erosion caused by range construction would be temporary because construction of the structures and other features associated with ranges would create bare land only periodically. Standard BMPs include stormwater runoff control structures, which would divert water from the construction sites. Other standard range maintenance BMPs, such as road grading, target repair, and berm recontouring, would also reduce erosion. Compared to existing conditions, increased soil erosion resulting from range construction activities is expected to be short-term, local, and less than significant with implementation of standard construction BMPs.

While excavated soils would be altered, the impacts from construction would be less than significant with implementation of standard construction BMPs, erosion and sediment control, and stormwater management measures.

Impacts from Live Fire Training

Live-fire ranges are being upgraded and new live-fire ranges constructed, within current land use designations and/or on existing range footprints. Live-fire training would occur at ranges in the McGregor Range and Doña Ana – North Training Areas. A majority of the ranges would be small caliber weapons ranges that would not significantly impact soils. Surface disturbance caused by larger ordinance

explosions (mortar, grenade, and light demolition [plastic explosives] munitions) impact would result in areas of bare ground. The area impacted by the 20 large ordinance ranges proposed for construction under TI-2 would be less than 40 square kilometers, which represents less than 1 percent of the FBTC area and would be within mesquite coppice dune areas that are already disturbed by human influences. Therefore, impacts from live fire training would be less than significant.

Detonation of munitions, smoking, use of welding torches, vehicle engines, and other training-related activities could initiate wildland fires. Wildland fire caused by live-fire training activities could remove large areas of vegetation that normally protect soil from erosion by slowing surface runoff, intercepting raindrops before they reach the soil surface, and anchoring the soil with roots. Vegetation removal resulting from wildland fires could result in increased soil erosion by water and wind, indirectly causing large-scale removal and redeposition of soils, gullying, or unstable slopes in areas of steep slopes and rapid runoff. The impact would be directly proportional to the size of the fire.

The Fort Bliss Fire Department responds to all fires within the installation. They work cooperatively with BLM to fight fires on McGregor Range. Wildland fire management practices are included in the INRMP. Any fires that are a potential hazard to the installation, surrounding communities, and natural and cultural resources are to be controlled. Blading, discing, or applying herbicides to firebreaks may increase soil erosion through creating unvegetated areas, so these measures should be avoided if possible.

The potential for contamination of soils would increase under this alternative, as the quantities of hazardous chemicals used in the range areas would increase and larger quantities of wastes would be generated. These hazardous chemicals are evaluated in the environmental consequences section for Solid Waste and Hazardous Materials/Waste, which concludes that less than significant impacts would be associated with the additional ammunition and explosives of concern (MEC) generated during live-fire training. MECs consist of UXO and Discarded Military Munitions (DMM), which is unfired military munitions that have been abandoned, discarded, or improperly disposed of and are still capable of functioning. Current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with UXO and would minimize the potential for human or environmental exposure to UXO or lead.

3.4.12 Training Infrastructure Improvements Alternative 3 (TI-3)

This alternative includes the impacts associated with TI-2. This alternative analyzes the expansion of existing range camps and construction of COLs in the FBTC. This alternative includes expansion of existing range camps and construction of COLs in the FBTC. Billet space is projected to increase from 3,121 to 5,000 at the McGregor Range Camp; decrease from 1,783 to 1,750 at Doña Ana Range Camp; and increase from 364 to 1,750 at Orogrande Range Camp. Impacts from training area infrastructure are primarily related to changes in the use of range camps, the most developed areas in the FBTC. While some new range facilities would be constructed, the effect of their operation on infrastructure would be less than significant.

The three existing range camps on the FBTC, including Doña Ana, McGregor and Orogrande Range Camps, provide temporary housing, maintenance, operational, and command facilities for units training in the field and serve as staging areas for movement to the TAs. The addition of personnel and equipment would require significant expansion of the infrastructure. Improvements would be made to support the increased range use, and new living quarters built to increase the support capability. Potential new facilities would include command and control, operational facilities, roads, parking, staging, ammunition storage, communication lines, utilities, and vehicle and ammunition staging areas.

COLs are used to support tactical operations. A COL may require the construction of facilities to support operations over an extended period of time. Soil suitability in the TAs was discussed in the previous section.

While excavated soils would be altered, the impacts from construction would be less than significant because best management practices, erosion and sediment control, and stormwater management measures would be implemented. Temporary erosion controls and permanent landscaping or other earth cover (pavement, buildings, or gravel) would minimize indirect and offsite impacts from surface disturbance.

3.4.13 Training Infrastructure Improvements Alternative 4 (TI-4)

This alternative includes the impacts from the previous training infrastructure improvements alternatives. This alternative consists of the construction of a rail line connecting the Fort Bliss Cantonment to the FBTC. In general, the rail line would run from the Fort Bliss Cantonment area north-northeast, to the east of and paralleling US-54 and the existing Union Pacific line, to a location north of the Orogrande Range Complex (Figure 2-10).

Construction of the rail line is expected to lead to potentially significant short-term increased surface disturbance, soil erosion and compaction, and potential for slope failure in steep areas, but the impacts could be reduced to less than significant with implementation of standard road construction BMPs. After construction, however, the roads could affect surface drainage in the long-term, both by focusing drainage collected from impermeable surfaces onto adjacent lands and by interfering with natural drainage patterns. These impacts could be reduced with mitigation, but not to less than significant levels.

A potential effect to soils from the railroad construction could result from treated railroad ties, which could introduce contaminants to soils. Railroad ties are treated with a wood preservative, typically creosote, penta, copper naphthenate (Pacific Wood Preserving Companies 2008). Coal tar creosote is the most widely used wood preservative in the United States (ATSDR 2008). Coal tar creosote components may be found in the soil as a result of leaking or seeping from treated timber products such as railroad ties. Plants and animals can absorb parts of the creosote mixture from contaminated soils. EPA has determined that coal tar creosote is a probable human carcinogen (ATSDR 2008). Creosote contaminated soils could be removed, treated and stored in solid-waste facilities. However, the on-going potential to introduce creosote contamination to the environment would be significant as it would occur over the life of the railroad.

3.5 Natural Resources: Affected Environment

3.5.1 General Background

The ROI for this analysis encompasses Fort Bliss and the surrounding area, including the Franklin and Organ Mountains to the west, Sacramento Mountains to the northeast, Hueco Mountains to the southeast, Otero Mesa to the east, and Tularosa Basin. Important habitats within the region include grasslands and woodlands that cross ecoregions[1] or watershed boundaries, such as the Chihuahuan Desert, Arizona-New Mexico Mountains, and Southern Shortgrass Prairie Ecoregions. Natural resources discussed in this section include Fort Bliss EMU, flora, fauna, and habitats. Biological resources, including threatened and endangered species, wetlands, and locally important natural resources (LINR) are identified as VECs. The LINRs are considered to be the grasslands (more specifically mesa grasslands), shinnery oak islands, sand

[1] Ecoregion - a geographically distinct area of land that is characterized by a distinctive climate, ecological features, and plant and animal communities.

sagebrush communities, and arroyo-riparian drainage areas (inclusive of playas). Other resources, such as water or soil, are described in more detail in other sections of this document.

This section summarizes both the natural resources present within the installation and potential impacts to these natural resources.

3.5.2 Ecological Management Units

Fort Bliss has developed EMUs as an ecosystem management tool for maintaining ecological connectivity between Fort Bliss and the surrounding lands and to help with developing goals for ecosystem management (Figure 3-8). These EMUs have similar vegetation, fauna, topography, soils, and climate, and represent manageable systems for several reasons, including:

- EMUs are primarily based on soils and topography; most vegetation on Fort Bliss follows a topographic gradient.
- Some EMUs contain endemic species resulting in unique systems.
- EMUs encompass areas large enough to warrant specific management objectives.
- Plant assemblages characterizing the ecosystem units are easily distinguished.

There are eight EMUs at Fort Bliss. The Tularosa Basin is comprised of two EMUs, Basin Aeolian and Basin Alluvial, and encompasses approximately 50 percent of Fort Bliss. The Foothill-Bajada Complex occupies about 25 percent of Fort Bliss and is the interface between the Tularosa Basin and the four mountain ranges that occur on Fort Bliss. The mountain ranges are important from both the military mission and ecological viewpoints, but together occupy slightly less than one-tenth of the installation. Otero Mesa occupies only 11.5 percent of the installation, but it is dominated with mesa grasslands, which makes the Otero Mesa more significant than its relative size might otherwise indicate. Each EMU is depicted in Figure 3-8 and described below:

3.5.2.1 Basin Aeolian

Major landforms of the Basin Aeolian EMU are wind-driven coppice dune, shifting sands, and sandsheets. Elevation ranges from 1,190 to 1,585 meters (3,900 to 5,200 feet). Coppice dunes of heights from two to three meters (6.5 to 10 feet) occupy the majority of this EMU. Areas between the coppice dunes may be completely devoid of perennial vegetation or sparsely populated with small shrub species including broom snakeweed and four-winged saltbush. However, these areas may become densely vegetated with desert grass and forb species following significant rain events. Vegetation within other areas of this EMU is dominated by mesquite on the coppice dunes, and creosote bush, four-wing saltbush, sandsage, and mesa dropseed more numerous as depth of the shifting sands increase. Sandy soils on the piedmont to basin-bottom transition support sandscrub, mesquite, and a mix of mesa dropseed, four-wing saltbush, and creosote bush. Small depressions are scattered and infrequent. Sparse desert grasslands occupy sandy flats.

Within the Basin Aeolian EMU are older, large-scale dunes, which occupy areas as large as 10 square kilometers (2,470 acres) and range from one to three meters (3.3 to 10 feet) in height. Large-scale dunes are characterized by a unique assemblage of sand-obligate species, including sensitive briar, pink plains penstemon, sand reverchonia, bindweed heliotropium, hoary rosemarymint, and shinnery oak. Shinnery oak occurs in the northern portions of McGregor Range and represents one of the westernmost outlier stands for the species' geographic distribution (Peterson and Boyd 1998).

3.5.2.2 Basin Alluvial

Major landforms of the Basin Alluvial EMU are alluvial fans (material deposited by flowing water) with broad interfan and intermountain depressions that drain into the basin bottom along with the ecologically important playa lakes. Elevation ranges from 1,190 to 1,585 meters (3,900 to 5,200 feet). Desert scrub, with scattered inclusions of desert grassland, occurs on the shallow, rocky soils, and tarbush is found on the lower, gently grading to flat-bottom areas with siltier soils. Sandy soils support mesquite, sandsage, and a mix of mesa dropseed, four-wing saltbush, and creosote bush.

3.5.2.3 Foothill – Bajada Complex

The Foothill-Bajada Complex EMU is located in the following separate areas of Fort Bliss (Figure 3-8):

- East and south slopes of the Organ Mountains near the installation's western boundary in Doña Ana Range–North Training Areas

- North to south along the western edge of the Sacramento Mountains, Hueco Mountains, and Otero Mesa on McGregor Range

Elevation of the Doña Ana area ranges from 1,220 to 1,680 meters (4,000 to 5,500 feet). This gently sloping piedmont is dissected by drainages originating from the Organ, Franklin, Sacramento, and Hueco Mountains and Otero Mesa. This unit grades into the Basin Alluvial and Basin Aeolian EMUs. Soils are derived from granite, rhyolite, limestone, and sandstone alluvium, and support a mix of desert scrub and grassland. Sandier soils near the basins support increasing numbers of mesquite in transitional communities mixed with creosote bush and grama grasses.

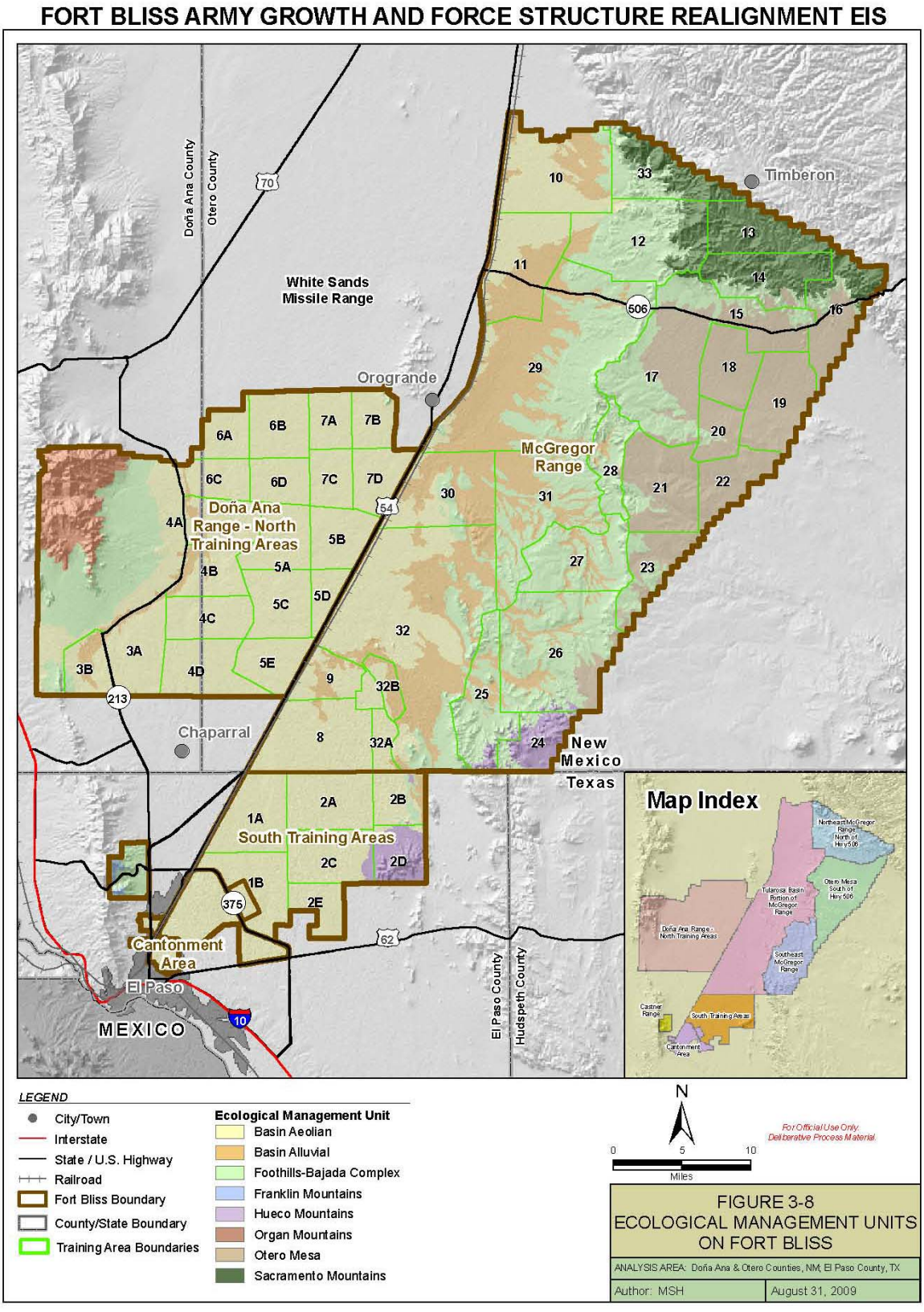


Figure 3-8. Ecological Management Units on Fort Bliss

There are relatively undisturbed grama grasslands in portions of the Foothill-Bajada EMU. These grama grasslands are mapped as "mesa grasslands" or Foothills Grasslands and are not grazing areas. These grama grasslands contain black grama grasslands, which have been determined to be globally important by The Nature Conservancy (Leslie et.al. 1996).

3.5.2.4 Franklin Mountains

The relatively small Franklin Mountain EMU contains Castner Range (Figure 3-8). Elevation ranges from 1,310 to 1,680 meters (4,300 to 5,500 feet). Vegetation is a mix of desert scrub with some riparian vegetation (Pidgeon and Matthews 1996).

3.5.2.5 Hueco Mountains

The Hueco Mountains EMU is at the southeastern border of Fort Bliss (Figure 3-8). Elevation is from 1,370 to 1,830 meters (4,500 to 6,000 feet). Steep, limestone mountain and hill slopes with shallow soils alternate with narrow to broad mountain valleys that drain northwest through alluvial piedmonts to the basin floor. Succulent communities with agave, sotol, yucca, beargrass, and cacti populate the lower elevations; juniper grows sparsely on the higher slopes and in canyons. Although there are mesic canyons, there is no montane riparian vegetation or perennial water. In addition, lechugilla, creosote bush, and mariola dominate the shallow soils on the steep, rocky limestone slopes. Sideoats, and occasionally black grama grasslands, occupy gentler slopes as well as gravelly, somewhat deeper soils on the footslopes of the upper piedmont. The lower piedmont often supports creosote communities (Pidgeon and Matthews 1996).

3.5.2.6 Organ Mountains

The Organ Mountains EMU encompasses the slopes and peaks of the Organ Mountains, which are at the west border of Fort Bliss (Figure 3-8). Elevation ranges from 1,370 to 2,620 meters (4,500 to 8,600 feet). Topographic relief is high with steep, precipitous slopes alternating with deep canyons. Steep elevation gradients combine with diverse geologic substrates to support the highest vegetation diversity of any EMU on Fort Bliss. The mountains support Rocky Mountain coniferous forest and woodlands, montane scrub, and meadows. Canyons support diverse woodland and grassland riparian communities, while Chihuahuan Desert grassland and scrub are at lower elevations (Pidgeon and Matthews 1996).

3.5.2.7 Sacramento Mountains

This EMU comprises the southern end of the Sacramento Mountains, which occur at the northeastern border of Fort Bliss (Figure 3-8). This area is characterized by a complex of limestone foothills of diverse aspects alternating with steep-sided canyons and narrow to moderately wide valleys. Elevations range from 1,360 to 2,350 meters (4,450 to 7,700 feet). The entire mountain range includes coniferous forest, riparian zones and springs. However, Fort Bliss occupies only a small portion of this mountain range, and is primarily piñon-juniper, mountain mahogany, and Chihuahuan Desert scrub at lower elevations. There is no montane riparian forest and very little ponderosa pine forest on McGregor Range.

3.5.2.8 Otero Mesa

The Otero Mesa EMU is located adjacent to the Sacramento Mountains and the Foothill-Bajada Complex EMUs (Figure 3-8). Elevation is between 1,450 to 1,600 meters (4,550 to 5,950 feet). This area is tableland with a broad drainage system that originates in the Sacramento Mountains to the east and north and the higher area near the McGregor escarpment to the west (Pidgeon and Matthews 1996). The Otero Mesa EMU is comprised of swales, gentle hills, shallow drainages and expanses of relatively intact

grasslands, including the black grama grasslands that are rated as globally important (Leslie, et a1. 1996). Otero Mesa is an uplifted fault block primarily covered by grasslands, including grama, muhly, and three-awn. Swale areas have coarser grasses, such as tobosa, while yucca species are common in certain areas. Average temperatures are cooler and rainfall several inches higher than adjacent lowlands. The Otero Mesa EMU is part of a grassland ecosystem that extends east past the Fort Bliss boundaries. Fort Bliss encompasses approximately ten percent of this ecosystem. Grasslands are considered one of the most endangered terrestrial ecosystems in the United States, historically and currently major impacts from agricultural activities (including grazing), fire suppression, and invasion of exotic species have occurred and some still do occur (Noss and Cooperrider 1994). Many historic types of grassland in New Mexico have been heavily grazed and are now dominated by desert shrubs (Dick-Peddie 1993).

The area north of the mid-mesa uplift consists of gently rolling hills with deep, medium- to fine-textured soils. Piedmont is a minor landform limited to the northern boundary of the site near the Sacramento Mountains. Vegetation is predominately grama grasses that occur in a transitional zone between Chihuahuan Desert and basin grasslands. Swale grasslands with tobosa and burro grass occur in depressions and broad drainage systems near the piedmont, often with a tarbush component (Pidgeon and Matthews 1996).

The area south of the mid-mesa uplift consists of rocky, rolling limestone hills with shallow soils and shallow upland valleys. Grama grasses dominate here also. The shallower soils, however, favor a slightly different mix of species. New Mexico needle grass frequently occurs on rocky slope ridges, whereas blue grama and tobosa grasses are often restricted to mesic areas in depressions (Pidgeon and Matthews 1996).

3.5.3 Flora

Plant communities on the installation range from Chihuahuan Desert in the Tularosa Basin to Rocky Mountain conifer forests in the Organ Mountains (SEIS U.S. Army 2007). Fort Bliss' large size and varied topography (which spans from desert basins to montane peaks) allows for a high degree of biodiversity. There are estimated to be 300 nonvascular and 1,200 vascular plant species that occur on Fort Bliss, with more than 800 species in the Organ Mountains alone. Additional forest and woodland communities of ponderosa pine and piñon-juniper are found in the Sacramento Mountains, and are described and discussed in detail in the 2001 FEIS and 2007 SEIS (U.S. Army 2001, 2007).

The land cover on Fort Bliss has recently been re-mapped using a geographic information system (GIS) and new information (U.S. Army Data 2008). This newer approach shows 16 land cover mapping units consisting of 14 vegetation categories and two other, non-flora land cover types. These mapping units are divided into four categories: shrubland, grassland, woodlands, and other, non-flora. Major vegetation categories and other non-flora land cover types are summarized in Table 3-21 and mapped on Figure 3-9 for the South Training Areas, Figure 3-10 for the Doña Anna Range - North Training Areas, and Figure 3-11 for the McGregor Range.

Table 3-21. Distribution of Vegetation Categories and Other Non-Flora Land Cover across Fort Bliss.

General Land Cover Category	Percent of Vegetation Category in Each FBTC subdivision						
Name of Vegetation Category[1]	Fort Bliss	South Training Areas	Doña Ana Range - North Training Areas	Tularosa Basin of McGregor Range	Southeast McGregor Range	Northeast McGregor Range North of Highway 506	Otero Mesa South of Highway 506
Shrublands							
Basin Desert Shrubland (Coppice Dunes)	31	79	65	21	0	<1	0
Basin Sandshrub	7	3	<1	20	0	<1	0
Basin Desert Lowland Shrubland	4	2	5	6	2	<1	4
Creosote Piedmont Shrublands	11	3	7	26	25	<1	<1
Foothill Desert Shrublands	6	6	6	5	<1	9	0
Foothills Desert Scrub	8	3	6	10	32	2	1
Grasslands							
Sandy Plains Desert Grassland	<1	2	<1	<1	0	0	0
Basin Lowland Grassland	4	<1	<1	2	1	<1	12
Mesa Grassland	11	0	0	<1	23	10	66
Foothill Desert Grassland	11	<1	6	5	17	59	15
Woodlands							
Montane Riparian	<1	0	<1	0	0	0	0
Montane Shrublands	2	0	22	0	0	13	<1
Montane Woodland	<1	0	20	<1	0	5	0
Montane Forest	<1	0	2	0	0	<1	0
Other, Non-Flora							
Military Facilities	<1	<1	<1	<1	0	0	0
No Data	<1	<1	<1	<1	<1	<1	<1

Source: U. S. Army 2006 (SEIS 2007)

Shrubland makes up 67 percent of the land cover, while approximately 31 percent is grassland, and 0.94 percent is montane woodland and riparian. Approximately 0.3 percent of Fort Bliss consists of military facilities (SEIS U.S. Army 2007). Each general vegetation category is composed of a diverse list of plant species. Generally, alluvial fan, piedmont, desert shrub, and grassland plant communities dominate the Tularosa Basin. In the Organ and Sacramento Mountains, forest and woodland communities of ponderosa pine, mixed conifer, and piñon-juniper are the predominate vegetative categories present. Otero Mesa is dominated by grassland communities.

A complete list of the plants making up the vegetative categories found on Fort Bliss can be found in the Fort Bliss INRMP (U.S. Army 2001).

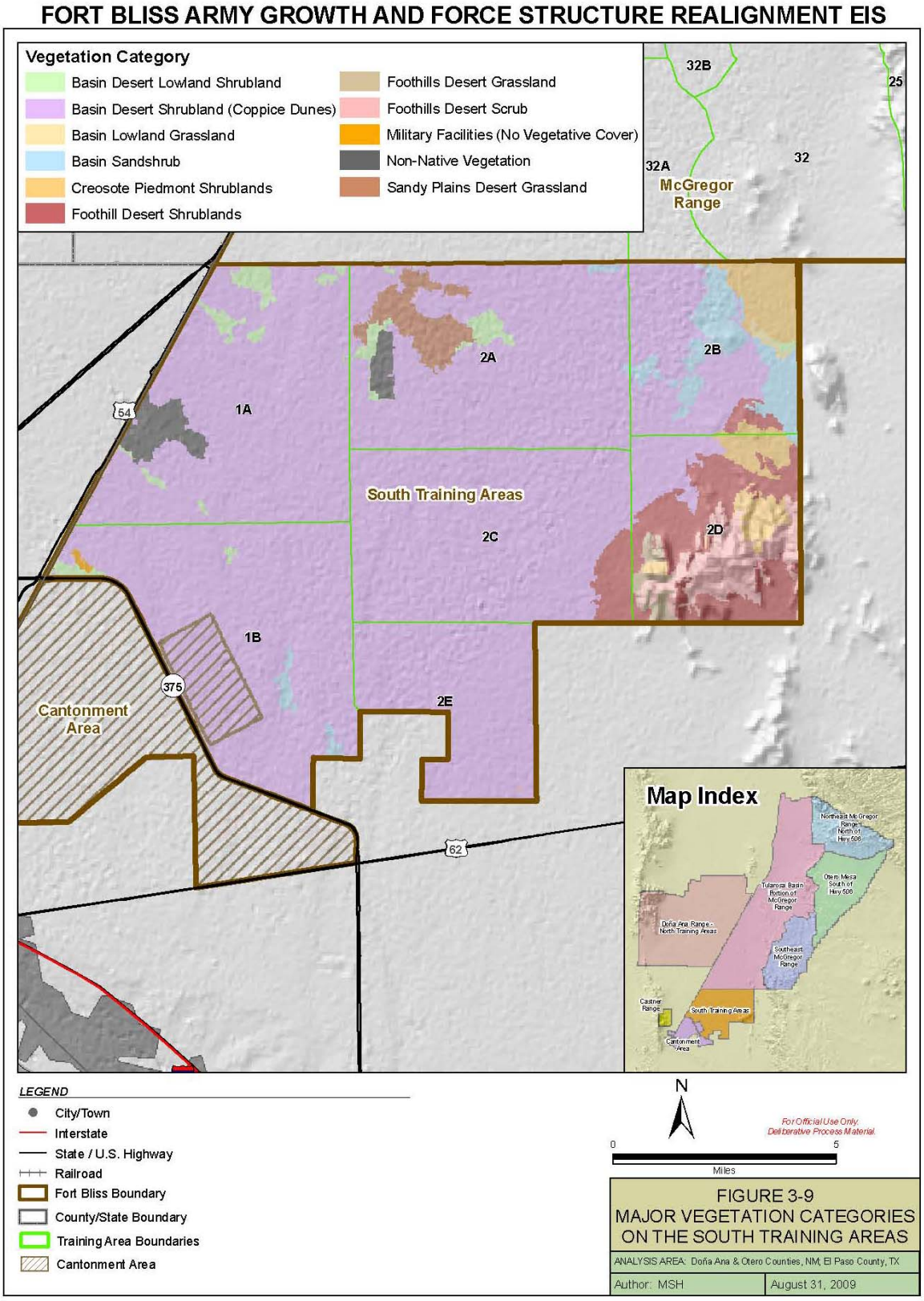


Figure 3-9. Major Vegetation Categories on the South Training Areas.

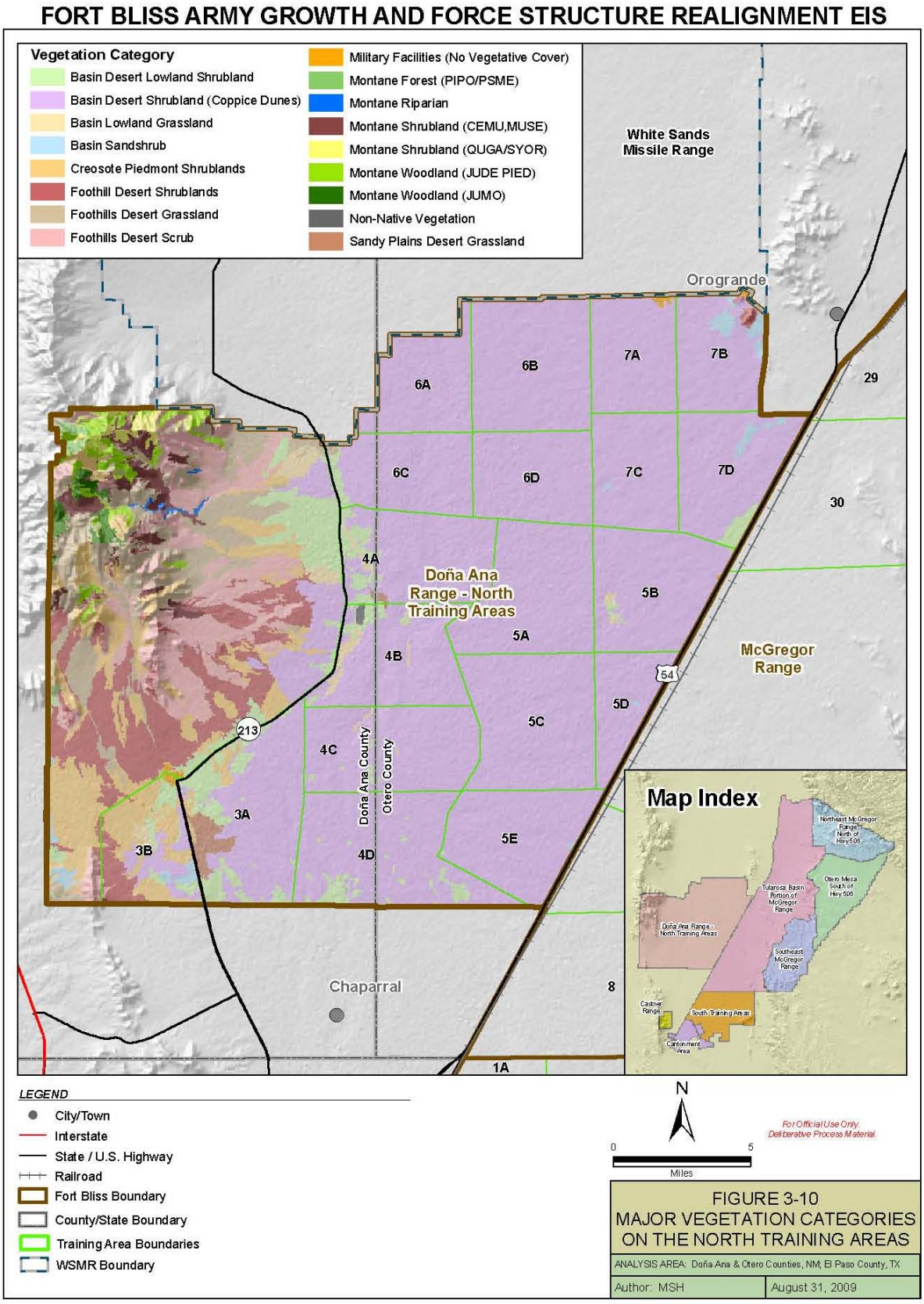


Figure 3-10. Major Vegetation Categories on the Doña Ana Range–North Training.

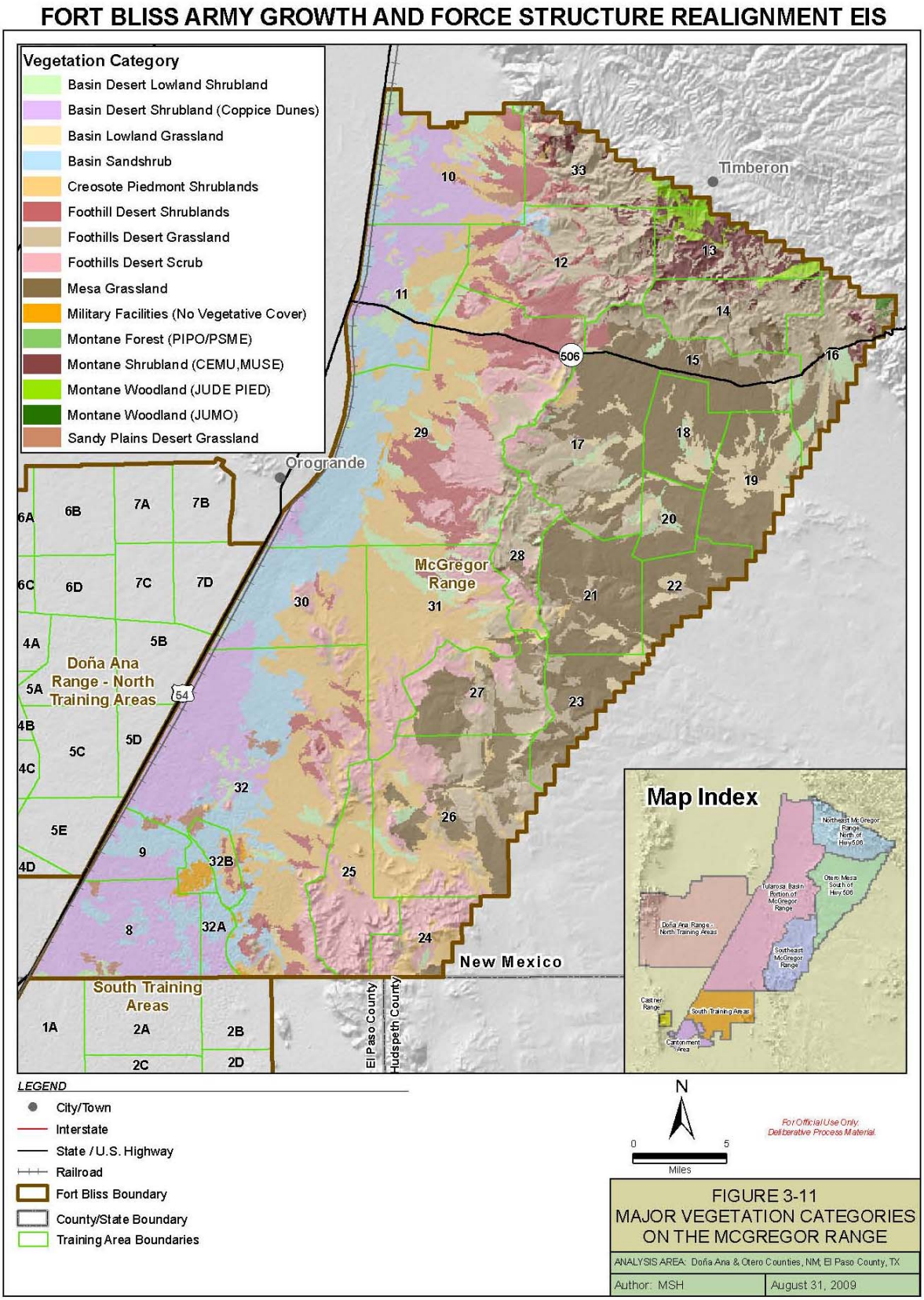


Figure 3-11. Major Vegetation Categories on the McGregor Range.

3.5.3.1 Shrubland

Shrubland communities are composed of a variety of shrubs, including honey mesquite, creosote bush, sandsage, four-winged saltbush, tarbush, bush muhly, acacia, mimosa, ocotillo, and mariola. These shrub species are associated with various soils, elevations, and climatic conditions on the installation and can be the dominants or associated with other shrub and/or grasses or trees (INRMP U.S. Army 2001). The majority of the vegetation in these areas is mesquite-snakeweed-saltbush-dropseed grass and dropseed grass-sand sagebrush according to a survey done by Satterwhite and Ehlen in 1982.

Fort Bliss contains mostly shrublands, with about 31 percent comprised of mesquite-dominated plant communities, which are mostly coppice dunes. It is believed that the formation of mesquite coppice dunes is related to cattle grazing and drought. However, there is little evidence that grasslands ever dominated large portions of the Fort Bliss.

Where conversion from grasslands to coppice dunes did occur under heavy livestock grazing and/or drought, grass cover was reduced. In addition, cattle feed on mesquite seeds and the resulting dispersal of these seeds is of "great importance in the spread of mesquite to adjacent areas" (Buffington and Herbal 1965). Openings created by the reduction in grass cover were occupied by mesquite. The establishment of this species altered the site and extensive soil movement occurred, forming coppice dunes. Once the land has reached a mesquite coppice dune state, there is little chance of reverting back to the historic grassland conditions (Whitford 2002, SEIS U.S. Army 2007). Over the last century, these shrub-dominated plant communities have replaced grassland plant communities (including black grama grasslands) over large areas in southern New Mexico (Buffington and Hermel 1965, Whitford 1997, Pidgeon et. al. 2001).

Wind erosion is a significant issue in the region occurring mostly between January and June (Goran et. al. 1983). Wind erosion has been associated with both degrading grasslands and shrub dominated areas, particularly on sandy soils (Okin, et. al. 2006).

3.5.3.2 Grasslands

Grassland communities follow patterns determined by soils and topography. Basin Aeolian areas support Sand Dropseed and Mesa Dropseed grasslands. Basin alluvial sites support Tobosa and Burro Grass grasslands. The Foothill Bajada complex is characterized mixtures of Sideoats Grama, Black Grama and Sand Muhly. Mesa Grasslands are mixtures of Blue grama and Black Grama on fine textured soils with patches of New Mexico Needlegrass on coarse textured soils. Riparian swales support dense stands of Wright's Sacaton and Tobosa.

Grassland communities cover about 1,200 square kilometers, or 27 percent of Fort Bliss. Approximately five percent of the grasslands are sandy plains desert and basin lowland grasslands, 22 percent is mesa grasslands and foothill grasslands associated with the Organ Mountains. Mesa grasslands, which contain a large component of black grama grass (*Bouteloua eriopoda*), are a regionally important and relatively rare desert grassland system. The system is important to a wide variety of wildlife species, especially birds, and is an important grazing resource.

3.5.3.3 Woodlands

Approximately one percent of Fort Bliss contains woodland plant communities. They are found at the higher elevations in the Organ Mountains and Sacramento Mountains. Piñon-juniper woodlands, consisting of Rocky Mountain Pinon, Alligator Juniper and One-seed Juniper, occur in both mountain ranges, but montane riparian woodlands, montane coniferous forests, occur only in the Organ Mountains on Fort Bliss (U.S. Army 2000, 2007). In the Organ Mountains, steep elevation gradients and diverse

geological substrate combine to support the highest vegetation diversity on Fort Bliss. The mountains support Rocky Mountain conifer forests and woodlands.

3.5.3.4 Locally Important Natural Resources- Flora Communities

Black Grama Grasslands

The black grama grasslands occurring on the Otero Mesa represent some relatively rare communities still existing in the Chihuahuan Desert. Documented field observations have indicated that if a predominant area of black grama grassland was driven-over by a vehicle, it appeared that portions of the black grama grassland converted into a predominant blue-grama grassland area (Locke, 2009).

Chihuahuan Desert grasslands are the most endangered ecosystem or plant community type in North America (Hoyt, 2002). Once widespread in southwest Texas, southern New Mexico, Arizona, and the state of Chihuahua in Mexico, almost all of the Chihuahuan Desert grasslands have been converted to desert scrub, or grassland with a high cover of shrubs, such as mesquite and creosote bush (McClaran 1995). The importance of black grama grassland to the Chihuahuan Desert ecoregion has been documented in previous EISs (U.S. Army 2001, 2007) and related documents and is discussed in the Land Use section.

Sand Sagebrush Communities

Three unique, relatively undisturbed, and high quality areas of sand sagebrush vegetation occur on Fort Bliss: one on the east side of the Jarilla Mountains in the central Tularosa Basin, one in the Culp Canyon WSA, and another on portions of the northern Otero Mesa. The nearest known sand sagebrush plant community of similarly high quality to that found on northern Otero Mesa is 150 miles (241 km) north of Fort Bliss (U.S. Army 1996). Of these three unique areas, the community east of the Jarilla Mountains would be impacted by off-road vehicle maneuver training activities proposed in this EIS.

Shinnery Oak Islands

At the entrance of Culp Canyon, in the Tularosa Basin north of Highway 506, and in the Aeolian Basin there are unique isolated islands of shinnery oak growing in deep sand dunes. Shinnery oak is adapted to sand dune habitats and the species is not found in other situations. Those shinnery oak habitat islands are approximately one-square-mile in size (US Army Data 2008).

3.5.3.5 Invasive Species

Several exotic plant species are established within some areas of Fort Bliss and within the ROI. The Army has implemented measures to control the presence and spread of these undesirables, but certain species still persist. African rue has become established on Otero Mesa, where it invades disturbed sites. The Malta thistle has been found along Highway 213, US-54, and some other roadways within Fort Bliss. The highly invasive salt cedar is located on Fort Bliss at some stock tanks and other widely scattered locations within the installation. Russian thistle has become established over wide areas of the ROI and is found scattered throughout Fort Bliss. Johnson grass, which occurs in some drainages and stock tanks on Fort Bliss, has also become an exotic species of concern. To help control the growth and spread of these exotic plant species, Fort Bliss completes annual monitoring and does targeted weed control. Preventive and control measures are presented in the INRMP to reduce the possibility of exotic species invasions and the detrimental effects caused by those species. Surveys to detect and control exotic and noxious weed species on Fort Bliss are ongoing at selected localities (INRMP U. S. Army 2001).

3.5.3.6 Locally Important Natural Resources – Riparian and Wetland Areas

All of the wetland habitats on Fort Bliss are regarded as important habitats for wildlife and protected accordingly, and are identified as a VEC.

Federally Regulated Wetlands

Very few of the arroyo-riparian drainages and none of the playa lakes on Fort Bliss are regulated as jurisdictional wetlands as defined by the Army Corps of Engineers (USACE). The only known Waters of the U.S. are on the west side of the Organ Mountains (part of the Rio Grande drainage), and some arroyos on McGregor Range that originate in New Mexico and cross into Texas and the Rio Grande drainage. One storm water retention pond in the Cantonment has been identified as a jurisdictional wetland by USACE (Locke, personal communication). Whether federally regulated or not, Fort Bliss recognizes all arroyo-riparian drainages and playa lakes as LINR.

Arroyo-Riparian Drainages

Fort Bliss studies have identified 291 square kilometers of arroyo-riparian drainage areas on the facility (U.S. Army 2000, 2007) (Figure 2-2). They were designated as LUAs in the ROD for the 2007 SEIS. These drainages are characterized by shrub, tree, and forb cover that is more diverse and dense than in the surrounding area. The highest species density and variety of shrubs, trees, grasses, and forbs is in the main channel rather than in adjacent areas. Montane riparian plant communities have a distinct mix of species, while the ephemeral drainages or dry arroyos that cross each of the other communities are less distinct. Canyons support diverse woodland and grassland riparian plant communities (U.S. Army 1996). These areas were mapped (USGS 1997) and tend to be inhabited more extensively by wildlife, particularly avian species (Kozma and Mathews 1997), than adjacent upland areas (Kozma and Mathews 1997).

Playa Lakes

Playa lakes are natural depressions that are ephemeral (seasonally flooded) and are typically wet in the summer and fall. These wetlands are usually ringed with vegetation and may be completely vegetated in the bottoms, or not vegetated at all. As with other wetland types, playa wetlands provide unique flora and fauna assemblages, important to the overall diversity and uniqueness of wildlife on the installation. The majority of the wetlands within Fort Bliss is playas, and occurs mostly in the Basin Aeolian and Basin Alluvial areas of the Tularosa Basin of McGregor Range. A few widely distributed playas exist in the Foothill-Bajada and Otero Mesa EMUs. Playas are designated as LUAs, where concentrations of vehicles or personnel, fixed sites, and digging are not permitted.

There are a few springs in the Organ Mountains EMU, and at least one in the Foothill-Bajada EMU on McGregor Range. The springs are in locations where off-road maneuvers do not occur. The vast majority of these wetland habitats are in the watershed of the Tularosa Basin of McGregor Range, a closed basin with no connection to jurisdictional waters of the United States.

3.5.4 Fauna

3.5.4.1 General

The borderlands region of New Mexico/Texas is a center of biodiversity in temperate North America for birds, mammals, amphibians and reptiles (Parmenter et al. 1995, Parmenter and Van Devender 1995), so

the diversity of terrestrial vertebrates on Fort Bliss is high. This section summarizes the invertebrates, herpetofauna (amphibians and reptiles), avifauna, and mammals, including game and exotic species that occur in the ROI. Detailed lists of species are available in previous Fort Bliss environmental documentation (PEIS U.S. Army 2000, U.S. Army 2005, Standard Operating Procedures for Weapons Firing and Training Area Use at FBTC, U.S. Army 2001) and in a Resource Management Plan Amendment prepared by BLM (2005).

3.5.4.2 Invertebrates

Invertebrates are abundant and diverse and play a crucial role in the food chain structure of desert ecosystems. Even though there has not been a complete inventory of all invertebrates on Fort Bliss, there are a number of species that have been identified as being of special interest for various reasons (such as endemic species or species prized by collectors), including but not limited to a number of grasshoppers (Lightfoot 1997), beetles, flies, and butterflies (Forbes 1997). Recent studies of woodland snails in the Organ Mountains have determined that potentially up to eight endemic snail species exist in the Organ Mountains; however, only four are classified to date (U. S Army data 2008). In addition to terrestrial invertebrates, during the monsoon season in the Chihuahuan Desert an assortment of ephemeral invertebrates (primarily larvae and small shrimp-like crustaceans) hatch in the playas, and reproduce before the water dries up. In turn, this invertebrate fauna provides important food for adult and larval toads, salamanders, and some birds (MacKay et al. 1990).

3.5.4.3 Amphibians and Reptiles

Fauna lists and details of all Fort Bliss reptile and amphibian species can be found in the prior PEIS (U.S. Army 2000) and the 2001 INRMP (U.S. Army 2001). Fort Bliss supports a relatively high diversity of reptiles and amphibians and has documented the occurrence of 54 species. Eleven additional species of amphibians and reptiles have the potential to occur on Fort Bliss, but have not yet been confirmed (SEIS U.S. Army 2007). As part of Fort Bliss's efforts to monitor and delineate its natural resources, amphibian and reptile surveys were conducted on Otero Mesa and in the Tularosa Basin of McGregor Range, during 1996 and 1997. Additional surveys were conducted in 2003, 2004, and 2005. Surveys were located in the Hueco Mountains; in the dunes west of the Culp Canyon and Otero Mesa areas; and in mixed dune, mesquite dune, and shinnery oak areas found at the mouth of Culp Canyon (Fort Bliss 2006). The greatest number of reptile and amphibian species was found in the Hueco Mountains, followed by the grasslands, shrublands and then the Sacramento Mountain and Organ Mountain areas.

3.5.4.4 Birds

Fort Bliss has had 334 species of birds recorded on the installation (INRMP, 2001). Eighty bird species are year-around residents of Fort Bliss and much of the ROI, 129 species are seen only during the spring and/or fall migration, 42 species are spring and summer residents, and the remaining 83 species occur principally during the winter (PEIS U. S. Army 2000, and INRMP 2001). One hundred and forty-one species are rare to very rare, 72 are uncommon, 89 are fairly common, and 32 species are common. Many species of the water birds have been observed on playa lakes and stock tanks in the South Training Areas, the Doña Ana Range–North Training Areas, and McGregor Range as well as the El Paso Oxidation Ponds near the Cantonment, and many of the 101 species of diving birds, wading birds, waterfowl, shorebirds, gulls, and terns observed on Fort Bliss have been observed at these ponds.

Most of the birds on Fort Bliss are migratory and are protected primarily by the Migratory Bird Treaty Act (USFWS 2008, *www.fws.gov/**migratorybird**s/intrnltr/treatlaw.html)*. A partial list of migratory birds found on Fort Bliss, not listed by the ESA as threatened or endangered, are winter residents Sprague's pipit (*Anthus spragueii*), Baird's sparrow (***Ammodramus bairdii****)*, McCown's longspur (***Calcarius***

mccownii), American bald eagle (*Haliaeetus leucocephalus*) (occasional visitor foraging in the Sacramento Mountains), ferruginous hawk (***Buteo regalis***), golden eagle (*Aquila chrysaetos*) and chestnut-collared longspur (*Calcarius ornatus)*. Year around residents include loggerhead shrike (*Lanius ludovicianus*) and black-chinned sparrows (*Spizella atrogularis*) in the mountainous terrains. Some of the migratory birds on Fort Bliss spend a portion of each year in the tropics of Mexico, Central and South America such as lark buntings (*Calomospiza melanocorys*) and yellow warblers (*Dendroica petechia*). On the Otero Mesa sensitive migrant birds include white-faced ibis (*Plegadis chichi*), ferruginous hawk, burrowing owl (*Athene cunicularia*), loggerhead shrike, golden eagle, Sprague's pipit, Cassin's sparrow (*Aimophila cassinii*), McCown's Longspur, chestnut-collared longspur and Baird's sparrow. More than 60 percent of those Neotropical migrants use riparian areas for stop-over habitat during migration or for breeding (Bystrak 1981, Krueper 1993, Robbins et. al. 1993) and many are attracted to drainages containing arroyo-riparian vegetation on Fort Bliss (Kozma 1995, Kozma and Mathews 1997, U.S. Army 2000, 2001). Threatened and endangered species are addressed in the Sensitive Species section.

3.5.4.5 Mammals

A total of 58 species of native and introduced mammals have been documented on Fort Bliss and an additional 20 species have the potential to occur thereon, including 17 species of bats (SEIS U. S. Army 2007). Within the ROI, predators and prey species occur across Fort Bliss. Predators include black bear, coyote, fox, badger, bobcat, and cougars. Prey species include grazers like elk, deer, pronghorn, the introduced oryx, and numerous species of rodents and rabbits. Specifically, the mesa grasslands are important pronghorn habitat. Therefore, the pronghorn are primarily found on the Otero Mesa South of Highway 506, the Southeast McGregor Range, and the southern boundary of the Northeast McGregor Range North of Highway 506 (part of the Otero Mesa EMU). Rodent surveys completed in 1997 and 1998 in the McGregor Range show the largest number of individuals and species in the swale and the acacia scrub habitat and the lowest number was in the mesquite dunes. The montane habitats of the Huecos, Organs, and Sacramento Foothills, are significant as they provide different rodent species than are found in the grasslands and basin, including Organ Mountain and gray footed chipmunks.

3.5.4.6 Game Species

Under the auspices of the New Mexico Department of Game and Fish (NMDGF) and Texas Parks and Wildlife, Fort Bliss supports hunting of both large and small game species. The primary small game animals include dove, quail, and various waterfowl. Big game species include mule deer, elk, pronghorn, javelina, Barbary sheep and oryx. Descriptions of the game species and hunt seasons on Fort Bliss can be found at the NMDGF and the Texas Parks and Wildlife websites.

Exotic Species

The oryx is an African antelope species initially introduced to WSMR in 1969 by the NMDGF. Oryx have spread and populations have grown extensively across southern New Mexico and into western Texas. The oryx population has been growing in southern New Mexico over the past several decades and now occurs within the FBTC in desert shrubland communities. Continued population growth has allowed them to become common in Doña Ana Range-North Training Areas and in the Tularosa Basin of McGregor Range. Their range has also reached Mack Tanks in the Tularosa Basin of McGregor Range and evidence of oryx is common at New Tank in the Hueco Mountains (U.S. Army 1997, USAF 1997). To control the population growth, hunts occur on Doña Ana Range-North Training Areas and on McGregor Range for Fort Bliss active duty military personnel and the general public.

Barbary sheep, also a native to Africa, have also expanded their range onto Fort Bliss after their introduction into New Mexico in 1950 and in Texas in 1957 (Harding County 2007). Their habitat includes mountainous scrub and woodlands of piñon-juniper with barren rock outcrops.

Some ponds in the Cantonment, primarily on the golf course, contain bullfrogs. The bullfrog is a large predatory frog that has the potential to negatively affect populations of native frogs. Surveys have failed to find bullfrogs in the limited aquatic habitats throughout the FBTC.

3.5.5 Sensitive Species

Various species of flora and fauna known to occur, or having the potential to occur, on Fort Bliss are listed as threatened, endangered, or species of concern by the U.S. Fish and Wildlife Service (USFWS) and listed as sensitive species by the states of New Mexico and Texas (Table 3-22). The following sections present brief summaries of these listed species known to occur or having the potential to occur on Fort Bliss. Threatened and Endangered and LINR species are identified as VECs. Threatened, endangered, and sensitive species of plants and wildlife that occur on Fort Bliss are protected under one or more of the following three listing categories.

3.5.5.1 Federally Listed Threatened and Endangered Species

Under the Endangered Species Act of 1973 (ESA), an endangered listing provides protection for any species in danger of extinction throughout all or a significant portion of their range. A threatened listing provides protection for species which are likely to become endangered within the foreseeable future through all or a significant portion of their range. USFWS administers and oversees the ESA.

3.5.5.2 State Listed Threatened and Endangered Species

Under the New Mexico Wildlife Conservation Act of 1978, and the Texas Parks and Wildlife Code, the states of New Mexico and Texas, respectively, maintain their own lists and protections for endangered, threatened and sensitive plant and animal species, which may differ from the Federal lists.

3.5.5.3 Locally Important Natural Resources – Sensitive Species

Sensitive species are those for which an agency (NMDGF, Texas Parks and Wildlife Division, USFS, USFWS) and the Army at Fort Bliss have conservation concerns. Candidate species are those for which data has been presented to the USFWS in support of their being listed as threatened or endangered, but the process of listing has not yet gone to completion or is on hold for various reasons.

Table 3-22 contains a list of 57 protected plant and animal species known to occur or to potentially occur on Fort Bliss. The table describes the species' protection status and includes a brief statement of their location on Fort Bliss. Potential species are listed due to the occurrence of habitat that could sustain them or because there has been a historical occurrence of that species in that particular location. Fort Bliss continues to monitor and improve documentation to ensure that sensitive species receive adequate protection in the event a new population is discovered (SEIS U.S. Army 2007).

Table 3-22. Protected Species Known or Having the Potential to Occur on Fort Bliss.

Species	Status			Location on Fort Bliss
	Federal	New Mexico	Texas	
Plants				
Sneed pincushion cactus (*Escobaria sneedii* var. *sneedii*)	E	E	E	Limestone Hills, Doña Ana Range– North Training Areas. Known populations are currently protected from military operations by steep terrain and/or environmental restrictions regarding access.
Kuenzler's hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*)	E	E	–	Not known to occur on Fort Bliss. Potential habitat on extreme -northern McGregor Range in the Sacramento Mountains.
Alamo beardtongue (*Penstemon alamosensis*)	SC	SC	–	Hueco Mountains, South Training Areas
Organ Mountains evening primrose *(Oenothera organensis)*	SC	SC	–	Organ Mountains, Doña Ana Range–North Training Areas.
Organ Mountains figwort (*Scrophularia laevis*)	SC	SC	–	Organ Mountains, Doña Ana Range–North Training Areas
Standley whitlowgrass (*Draba standleyi*)	SC	SC	–	Organ Mountains, Doña Ana Range–North Training Areas
Desert night blooming cereus (*Peniocereus greggii* var. *greggii*)	SC	E	–	Desert shrublands, Doña Ana Range–North Training Areas
Sacramento Mountains Prickly Poppy (*Argemone pleiacantha* var. *pinnatisecta*)	E	E	-	In loose, gravelly soils of open disturbed sites, in canyons on the western slope of the Sacramento Mountains. Extensive surveys and examination of specimens from the area have failed to substantiate the species' occurrence
Nodding cliff daisy (*Perityle cernua*)	SC	SC	–	Organ Mountains, Doña Ana Range–North Training Areas. Found in inaccessible areas of cliffs in higher elevations.
Organ Mountains pincushion cactus (*Escobaria organensis*)	–	E	–	Organ Mountains, Doña Ana Range–North Training Areas. Found in rugged and inaccessible areas to humans.
Crested coral-root (*Hexalectris spicata* var. *arizonica*)	–	E	–	Organ Mountains, Doña Ana Range–North Training Areas
Invertebrates				
Franklin Mountain talus snail (*Sonorella metcalfi*)	SC		–	Rock talus slopes in the Franklin Mountains
Anthony blister beetle (*Lytta mirifica*)	SC		–	Not known to occur on Fort Bliss, but habitat occurs in sand dunes
Los Olmos tiger beetle (*Cicindela nevadica*)	SC		–	Not known to occur on Fort Bliss, could occur in areas of limestone soil

Species	Status			Location on Fort Bliss
	Federal	New Mexico	Texas	
Boulder woodland snail (*Ashmunella auriculata*)	FB	–	–	Organ Mountains, Doña Ana Range–North Training Areas
Maple Canyon woodland snail (*Ashmunella todseni*)	FB	–	–	Organ Mountains, Doña Ana Range–North Training Areas
Organ Mountains woodland snail (*Ashmunella organesis*)	FB	–	–	Organ Mountains, Doña Ana Range–North Training Areas
Reptiles				
Texas horned lizard (*Phrynosoma cornutum*)	SC	–	T	Widespread throughout Fort Bliss
Mountain short-horned lizard (*Phrynosoma hernandezii*)	–	–	T	Species occurs on McGregor Range and Otero Mesa Surveys in South Training areas have not detected (no likely habitat).
Gray-banded kingsnake (*Lampropeltis alterna*)	–	E,	–	Known from Hueco Tanks State Park. Possible in Hueco Mountains of South Training Areas and on McGregor Range. Extensive searches have not verified the species on McGregor Range or South Training Areas.
Texas lyre snake (*Trimorphodon biscutatus vilkinsoni*)	–	–	T	Castner Range in Texas
Birds				
Interior least tern (*Sterna antillarum athalassos*)	E	E,	E	Not known to occur on Fort Bliss; could occur as very rare migrant
Northern aplomado falcon (*Falco femoralis septentrionalis*)	E*	E,	E	Several sightings of transient birds on or very close to Otero Mesa, McGregor Range
Southwestern willow flycatcher (*Empidonax trailii extimus*)	E	E,	–	Occasional migrant on McGregor Range
Bald eagle (*Haliaeetus leucocephalus*)	Delisted	T,	E	Winter visitor. Forages in Sacramento Mountains, McGregor Range; roosts on Lincoln National Forest
Piping plover (*Charadrius melodus*)	T	T	T	Extremely rare migrant on McGregor Range; observed once in 1987 at sewage lagoon on Fort Bliss main post
Mexican spotted owl (*Strix occidentalis lucida*)	T	S,	T	Lack of appropriate breeding habitat. Nearly uncommon, only two sightings on Fort Bliss.
Yellow-billed cuckoo (*Coccyzus americanus*)	C	C	–	Uncommon migrant on Fort Bliss; lack of suitable riparian habitat

Species	Status			Location on Fort Bliss
	Federal	New Mexico	Texas	
Peregrine falcon (*Falco peregrinus anatum*)	SC	T,	E	Migrant and occasionally found nesting in Hueco, Franklin, Organ, and Sacramento mountains of Fort Bliss
Mountain plover (*Charadrius montanus*)	SC	S	–	Occasional migrant. Several sightings on Otero Mesa, McGregor Range some recent.
Black tern (*Chlidonias niger*)	SC	S	–	Regular migrant throughout Fort Bliss at available water sources
White-faced ibis (*Plegadis chihi*)	SC		T	Regular migrant at sewage lagoons on McGregor Range and playas or earthen tanks
Northern goshawk (*Accipiter gentilis*)	SC	S	-	Uncommon migrant on Fort Bliss
Zone-tailed hawk (*Buteo albonotatus*)	FS/S	–	T	Uncommon migrant on Fort Bliss
Ferruginous hawk (*Buteo regalis*)	FS/S	–	–	Wintering and migrant species; mostly on Otero Mesa South of Hwy 506
Western burrowing owl (*Athene cunicularia*)	SC	–	–	Occurs throughout Fort Bliss except the mountain areas; occurs in all desert shrubland and grassland vegetative communities on Fort Bliss
Costa's hummingbird (*Calypte costae*)	FS/S	T	–	Uncommon migrant in arroyo-riparian habitat on Fort Bliss
Loggerhead shrike (*Lanius ludovicianus*)	SC	S	–	Wintering and breeding bird on Otero Mesa and throughout Tularosa Basin
Baird's sparrow (*Ammodramus bairdii*)	SC	T	–	Migrates through and winters in dense grasslands primarily on Otero Mesa
Varied bunting (*Passerina versicolor*)	FS/S	T	–	Very rare on Fort Bliss
Bell's vireo (*Vireo bellii*)	FS/S	T	–	Occasional on Fort Bliss in heavy mesquite thickets in arroyo-riparian drainage habitats
Gray vireo (*Vireo vicinior*)	FS/S	T	–	Nests in the Organ Mountains, Doña Ana Range–North Training Areas; and documented in the Sacramento Mountains - Northern McGregor Range

Species	Status			Location on Fort Bliss
	Federal	New Mexico	Texas	
Mammals				
Western red bat (*Lasiurus blossevillii*)		T	?	Documented as occurring in the Organ Mountains, portion of the Dona Ana Ranges-North Training Areas
Small-footed myotis (*Myotis ciliolabrum*)	SC	S	–	Distribution unknown. Surveys currently underway to determine distribution and abundance.
Occult little brown bat (*Myotis occultus*)	SC	–	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Fringed myotis (*Myotis thysanodes*)	SC	S	–	Reported from the Northeast McGregor Range North of Hwy 506. Surveys currently underway to determine distribution and abundance.
Cave myotis (*Myotis velifera*)	SC	S	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Long-legged myotis (*Myotis volans*)	SC	S	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Yuma myotis (*Myotis yumanensis*)	SC	S	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Townsend's pale big-eared bat (*Corynorhinus townsendii pallescens*)	SC	S	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Big free-tailed bat (*Nyctinomops macrotis*)	SC	S	–	Distribution unknown Surveys currently underway to determine distribution and abundance.
Spotted bat (*Euderma maculatum*)	SC	T	T	Distribution unknown Surveys currently underway to determine distribution and abundance.
Gray-footed chipmunk (*Neotamias canipes sacramentoensis*)	SC	S	–	Recently documented, but very rare in woodland and forest habitats in the Northeast McGregor Range North of Hwy 506
Arizona black-tailed prairie dog (*Cynomys ludovicianus arizonensis*)	SC	S	–	Occurs on Otero Mesa, McGregor Range.

Species	Status			Location on Fort Bliss
	Federal	New Mexico	Texas	
Desert bighorn sheep (*Ovis canadensis mexicana*)	FS/S	E	–	Unoccupied; known historically in Organ Mountains on Doña Ana Range–North Training Areas

* This species has been designated as a Nonessential Experimental Population within the states of NM and AZ, carrying 10(j) status under ESA. Thus, the species is designated as threatened within these designated geographic confines and is separated from other populations' federal listing status.

— Without status.
C Candidate
E Endangered species
FB Fort Bliss sensitive species
FS/S US Forest Service sensitive
SC/S Species of concern is not a formal category defined under the Endangered Species Act
T Threatened species

Source: U.S. Army 2000 - MMPPEIS, NMRTC 1999, USFWS 2005, TPWD 2005.

3.5.5.4 Additonal Considerations of Federal and State Listed Threatened or Endangered Species on Fort Bliss

Federally or state-listed endangered or threatened species that are identified as only very rarely found on McGregor Range include the southwestern willow flycatcher and the bald eagle. Observations indicate that bald eagles using the northern portion of McGregor Range roost at a known roost site within the Lincoln National Forest, about five miles north of the FBTC boundary (INRMP 2001). Bald eagles will forage in winter within the Sacramento Mountains and occasionally occur on Ft Bliss. Appropriate nesting habitat for the southwestern willow flycatcher does not exist on Fort Bliss. Based on this information, these species are not further analyzed in this section.

Federal or state threatened or endangered species of the ROI likely to be of concern are described in more detail in the following paragraphs.

Sneed Pincushion Cactus

This species is both a federal and States of New Mexico and Texas endangered species. The Sneed pincushion cactus populations are located on specific limestone habitats in the Doña Ana Range–North Training Area. The areas are off-limits to all entry and military use.

Kuenzler Cactus

The Kuenzler cactus is listed as both a federal and State of New Mexico endangered species. A large survey within Fort Bliss is underway but no cacti have been found. Habitat that appears to be the most suitable is in the Northeast McGregor.

Desert Night Blooming Cereus

This species is a federal SOC and a State of New Mexico sensitive species. There have been more than 80 individuals documented within shrubland communities on Fort Bliss. It generally occurs in Chihuahuan Desert shrublands communities. Populations on Fort Bliss are documented on Doña Ana Range but are not documented in the Doña Ana Range–North Training Area. Fort Bliss has developed threatened and endangered species management plan for the desert night-blooming cereus (Corral and Bill 2000, Corral et al. 2000b-e). Areas with known populations of this species are restricted from Fort Bliss maneuver

activities. Additional populations may occur outside of firing ranges and buffers but that is unlikely due to lack of suitable habitat.

Texas Horned Lizard

This species is a federal SOC and a State of Texas threatened species. Texas horned lizards are widespread across Fort Bliss in grassland and shrubland communities.

Gray Vireo

The New Mexico state threatened gray vireo has been confirmed during surveys on the McGregor Range and in the Organ Mountains in 2007 and 2008 (U.S. Army Data 2008). The breeding habitat of this species is generally open woodlands/shrublands featuring evergreen trees and shrubs of various kinds. Nests found in the Northeast McGregor Range North of Highway 506 were in piñon pine, one-seed juniper, mountain mahogany, fragrant ash, evergreen sumac, and Wright's silk tassel (Burkett, personal communication). The bird's territories and nests, even though being near the canyon bottoms, are not necessarily tied to obligate riparian habitat (Burkett, personal communication).

Northern Aplomado Falcon

Of all the birds listed in Table 3-22, the northern aplomado falcon has significant local interest. The species status was designated as 10(j) in 2006, resulting in experimental releases of captive-reared birds within the states of New Mexico and Arizona. Currently, the northern aplomado falcon is a transient species on Fort Bliss (Table 3-23**,** U. S Army 2000, Young et. al. 2002); however, Figure 3-12 shows that potential aplomado habitat does occur on Fort Bliss.

Table 3-23. Northern Aplomado Falcon Observations and Survey Summary on Fort Bliss.

Date	Action	Comments
1994 – 2009	Surveys completed on Fort Bliss in 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, and 2005-08.	Two birds observed in 2008, one bird in 2005, one in 1999, one in 1997 (all mentioned below).
July 2008	Two birds observed on Otero Mesa; birds observed repeatedly into September; no nesting attempted.	Surveys conducted during breeding season in same area did not detect birds.
3 October 2005	Northern aplomado falcon observed on Fort Bliss.	Area was checked twice prior to observation and five times post sighting with no additional observations.
11 & 18 September 1999	Northern aplomado falcon observed on Otero Mesa portion of McGregor Range. Bird was a juvenile, banded before fledging earlier in the year.	Bird hatched in Mexico and moved 186 miles north as part of post-hatch wandering. Follow-up surveys failed to observe bird again.
23 May 1997	Northern aplomado falcon sighting as part of Air Force study on Fort Bliss.	Follow-up survey failed to observe bird again.
June 1917	Female northern aplomado falcon shot at nest 45 miles south of Alamogordo.	Nest apparently on Otero Mesa portion of McGregor Range because elevation listed as 5,500 feet.

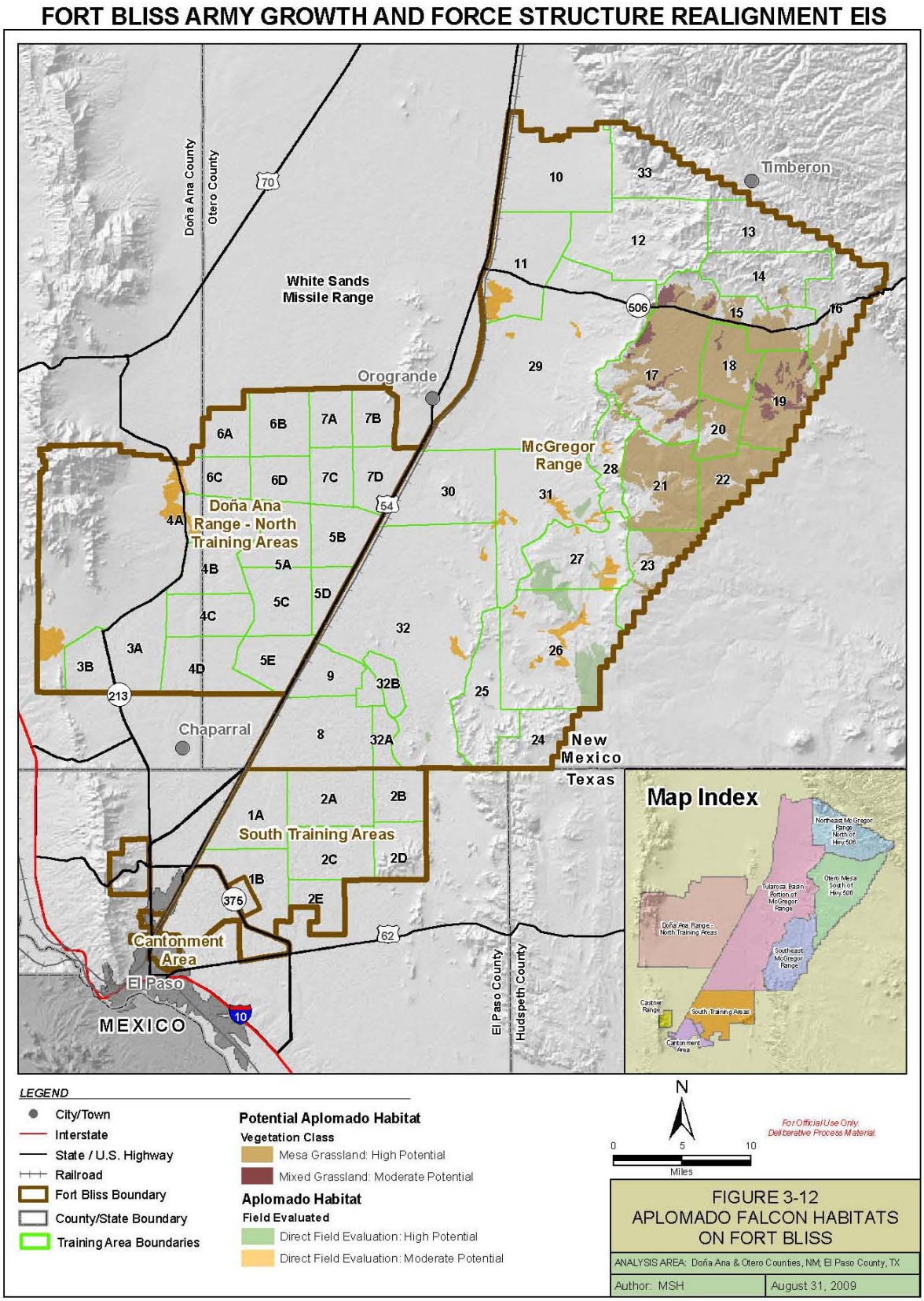


Figure 3-12. Aplomado Falcon Habitats on Fort Bliss.

Fort Bliss Special Protection Species

Fort Bliss has designated three species of invertebrates as deserving special attention (U.S. Army Data 2008). They are the Boulder woodland snail, Maple Canyon woodland snail, and the Organ Mountains woodland snail. These snails are known to occur in the Organ Mountains and Doña Ana Range in the Doña Ana Range–North Training Area of Fort Bliss (NM Coop 2001). Recent studies have refined the understanding of the species' distribution, but several questions regarding their taxonomy remain.

3.6 Natural Resources: Direct and Indirect Impacts

This section identifies the natural resources direct and indirect impacts of the proposed alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, land use change alternatives; and Category 3, training infrastructure improvements alternatives.

The potential for proposed actions to have direct and indirect impacts on natural resources was analyzed on the basis of military activities within the FBTC subdivisions. In most cases, off-road vehicle maneuver would be more disruptive to soils, vegetation, and habitats than dismounted maneuver. Off-road vehicle maneuver can crush and uproot vegetation and can cause impacts to surface soil, which generally consist but are not limited to disturbance and compaction. The extent, frequency, and intensity of off-road vehicle maneuvers were used as the primary indicators of impacts on soils and consequently vegetation and wildlife within the FBTC subdivisions where off-road vehicle maneuvers would occur. This was evaluated using the percent of training days scheduled, percent of vehicles with L, M, and H classifications completing the off-road maneuvers, and the number of times the ground is driven-over, which were presented in Chapter 2. The FBTC subdivisions with restrictions and/or limitations on off-road vehicle maneuvers were evaluated using other military activities (including on-road maneuver, dismounted maneuver, live-fire, Controlled FTX) based on military usage allowed by land use alternatives.

Noise and potential fires from training activities would be impacts to wildlife receptors, potentially affecting breeding, feeding, and habitat (vegetation) loss. Indirect impacts would also occur and include soil erosion and textural changes, invasion of non-native and exotic species, and introduction of pollutants (e.g., particulates, smoke).

Classification of the direct and indirect impacts to natural resources in the Cantonment and the FBTC is provided in Tables 3-24 and 3-25, respectively. Beneficial impacts provide some positive level of effect on natural resources. Impacts that are less than significant pose no long-term threat to the natural resource. Activities that have neutral effects (neither positive nor negative) or that have no effects on natural resources are represented as "No Impact." Impacts that are significant but mitigable to less than significant, would, if unaddressed, result in damaging or destructive consequences to one or more components of an existing natural resource Significant impacts are those that are known to either directly or indirectly harm sensitive species, vegetation, or wildlife or known to destroy, degrade, fragment, or encroach on habitat, and which cannot be mitigated to less than a significant impact. .

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5.

Table 3-24 Classification of Direct and Indirect Effects to Natural Resources in the Cantonment.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST- 3	ST -4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Threatened and Endangered Species	○	○	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wetlands	○	○	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LINR	○	○	○	○	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

○ No impact
N/A Not Applicable

Table 3-25. Classification of Direct and Indirect Effects to Natural Resources in the FBTC.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST- 3	ST -4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Threatened and Endangered Species	#	#	#	#	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Wetlands	#	#	#	#	○	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
LINR	#	#	#	#	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙

\# Refer to Land Use Changes Alternatives for further discussion of impacts.
⊙ Less than significant
○ No impact

3.6.1 Stationing and Training

The four Stationing and Training Alternatives under consideration were presented in Chapter 2 and are briefly summarized here. Stationing and Training Alternatives address the number of BCTs and the number of Soldiers that will either be stationed or training, but do not include the training activities themselves. This section presents the potential impacts associated with additional development within the Cantonment to accommodate the numbers of BCTs and Soldiers under the alternative. The discussion of environmental impacts associated with the training activity itself is addressed in the section on Land Use Alternatives.

3.6.1.1 Stationing and Training Alternative 1 (ST-1)

This "No Action" alternative would consist of stationing of the four HBCTs and two IBCTs, with one HBCT deployed and one TDY HBCT training as discussed in Chapter 2.

Cantonment

This alternative would not require construction of additional facilities beyond those previously analyzed in other documents. Because additional construction would not be required in the Cantonment, there would be no impacts to natural resources that have not previously been analyzed in the 2007 SEIS (Table 3-24).

Fort Bliss Training Complex

Table 2-1 provides the description of units under ST-1. This alternative involves a total of six BCTs training at the FBTC, which was analyzed previously in the SEIS (U.S. Army 2007). However, the SEIS looked at six HBCTs and ST-1 under this Proposed Action has only four HBCTs and two IBCTs, whose activities have less direct and indirect impacts to natural resources than the HBCT. The total on-road distance driven by BCT vehicles would be 2,654,000 km annually (Table 2-8). As shown in Table 2-9, total ground contacted during annual off- road ground contact is 2,755 square kilometers. The intensity of the on-road and off-road maneuver training on FBTC is further discussed in the Land Use alternatives.

3.6.1.2 Stationing and Training Alternative 2 (ST-2)

ST-2 differs from ST-1 in that no BCTs would deploy; all six BCTs stationed at Fort Bliss would also train at Fort Bliss, along with 1 TDY BCT.

Cantonment

Stationing of units at Fort Bliss under this alternative would be the same as that described for ST-1. Since additional construction beyond that previously analyzed in other documents would not be required, there would be no impacts to natural resources that have not previously been analyzed in the 2007 SEIS (Table 3-24).

Fort Bliss Training Complex

No deployment would result in one additional HBCT unit training on the FBTC. This would still be one fewer HBCT than the numbers of HBCTs training that were analyzed under the 2007 SEIS. The two IBCTs training whose activities have less off-road impacts to natural resources than the one HBCT. The seven BCT's training would result in a total on-road vehicle distance driven of 3,012,100 km (Table 2-8) and approximately 3,215 square kilometers of off-road ground contact (Table 2-9). This would increase

the intensity of use across the FBTC. The intensity of on-road and off-road maneuver use is further discussed in the Land Use alternatives.

3.6.1.3 Stationing and Training Alternative 3 (ST-3)

Under ST-3, an SBCT would be added to the units stationed and training at Fort Bliss. The number of stationed BCTs would increase from six to seven, while the number of BCTs training would increase from seven to eight.

Cantonment

The addition of another BCT would require construction of facilities in the Cantonment to accommodate the new unit. The impacts of the additional construction in the Cantonment would have impacts to localized vegetation and animals that have adapted to urban settings. The loss of vegetation would be permanent by placement of impervious surfaces such as buildings, constructed facilities and pavement. Animal species adapted to urbanized settings would likely find a suitable environment within the surrounding Cantonment. Surface disturbance of the estimated 315 acres (1.3 square kilometers) for pavement areas and approximate 240 acres (0.97 square kilometer) for building construction would be phased over approximately five years, so no large areas would be exposed to wind or water erosion at one time.

Currently, approximately 50 percent of the Cantonment surface consists of buildings, constructed facilities and pavement. Approximately 36 percent or 34.5 square kilometers consist of coppice dunes, followed by 11 percent or 10.6 square kilometers sandy plain desert grassland cover, and 3 percent or 2.9 square kilometers of various shrub cover. It is noted that the potential impact to coppice dunes and grasslands in the Cantonment represents approximately 2 percent and approximately 0.85 percent of the total coppice dune and grassland areas, respectively, on Fort Bliss. The potential for loss of localized vegetation and displacement of some animal species from a small percentage of habitat within Fort Bliss would be less than significant.

Fort Bliss Training Complex

The addition of the SBCT with 90 percent of its maneuver training confined to on-road maneuver, would limit direct and indirect impacts to natural resources. On-road and off-road vehicle maneuvering is expected to result in a total of 4,166,100 km driven (Table 2-8) and 3,305 square kilometers of ground contact (Table 2-9), respectively, across the FBTC. The intensity of the on-road and off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.6.1.4 Stationing and Training Alternative 4 (ST-4)

Under ST-4, a second SBCT would be stationed and trained at Fort Bliss and a second TDY HBCT would be added to those training at Fort Bliss. Thus, stationed BCTs would increase from seven to eight, and training BCTs would increase from eight to ten. To accommodate the additional BCTs, additional support units would be stationed at Fort Bliss. These support units would also train on the FBTC.

Cantonment

Because the Cantonment footprint would not be expanded under ST-4, the impacts of the additional potential construction within the Cantonment would be similar to those under ST-3. As in ST-3, minimal loss of grassland vegetation would occur along with the displacement of some animal species. Surface disturbance of the estimated 630 acres (2.5 square kilometers) for pavement areas and approximate 480

acres (1.9 square kilometers) for building construction would be phased over approximately five years, so impacts to vegetation and animals that may occur would not be concentrated during a single event. This would potentially allow for animal species to gradually relocate over the five year period to areas following the construction activities. As with ST-3, the impacts would be less than significant.

Fort Bliss Training Complex

The addition of a second SBCT, a second TDY HBCT, and the additional support units would increase in intensity of use with the potential to increase impacts to natural resources. However, the level of impacts associated with the six HBCTs training would be the same as the impacts analyzed in the 2007 SEIS. The intensity of the on-road and off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

3.6.2 Land Use Changes

The environmental impacts on the FBTC occur as functions of both the Stationing and Training Alternatives and the various Land Use Alternatives. Each Land Use Alternative is discussed in the context of each of the four Stationing and Training Alternatives under consideration.

An important consideration in assessing potential training impacts is the area occupied by the natural resource within each of the FBTC subdivisions. The primary natural resource that will be directly impacted by maneuver training on most FBTC subdivisions is vegetative cover. The following discussion will be the basis of the impact analysis to vegetative cover:

- Number of times that ground would be driven-over during off-road vehicle maneuver.
- L, M, and H classification of the vehicle completing the maneuver (Table 2-2) during Off-Road Vehicle Maneuvers.

By extension of the impacts to vegetative cover, impacts, mostly indirect, to threatened and endangered species and LINR will also be assessed.

In general, the ground contact of the HBCTs would be greater than the IBCTs, and the HBCTs would have potentially more impacts to the vegetation because they are completing a higher percent of off-road vehicle maneuver. The IBCTs consist of more vehicles with M classifications; however, the vehicles complete 60 percent of maneuver training on-road. The higher number of times a vehicle drives over an area, the more potential impacts it causes. It is assumed that impacts would occur uniformly across the FBTC subdivision and more or less in proportion to the availability of the vegetation within the area. Impacts from vehicle maneuvers would include crushing, uprooting, and destruction of vegetation with primarily indirect impacts on the fauna using these areas. A limited amount of direct impacts to some fauna, such as reptiles, may occur.

The assessment of the impacts of off-road vehicle maneuvers will be focused on the soil contact pressure and associated classification along with the number of times the ground is driven over. For example a vehicle with an H classification would have more of an impact than one with an L classification. However, even a vehicle with an L classification may have some impact if the ground is driven over numerous times. LINRs will be the focus of impact analysis because these resources would incur the most significant impacts due to their limited extent or scarcity and the potential impacts that may occur due to the location in specific training areas. Overall, TAs dominated by mesquite coppice dunes and the various shrubland and scrub cover types would receive the largest percent of off road vehicle military use.

The impacts to wildlife are generally assessed by using the number of times of drive-over and number of vehicle trips as a noise variable associated with live-fire and maneuver training activities. Studies have shown that in general, mammals will alter their movements for periods of up to one or two days after exposure to noisy disturbances. Sometimes, these results in short-term changes in habitat use, but mammals are clearly able to learn to adjust to these changes to a large degree. In addition, if exposure is brief or if mammals have good cover, differences in home-range size are not detectable. Lastly, if mammals are exposed repeatedly to the same noisy stimulus without harassment, responses to future noise events decline rapidly. The few studies that have tracked bird movements in the presence of noisy disturbances show similar flexibility. Noisy human activity can cause raptors to expand their home ranges, but the birds return to normal usage patterns when humans are not present. The most effective noisy disturbances are those that haze or harass, such as low-flying aircraft and boats that approach closely (Bowles 1995).

3.6.2.1 Land Use Changes Alternative 1 (LU-1)

Under the LU-1, the No Action alternative (Figure 2-3), the land use would remain the same as the Alternative 4- Proposed Action from the 2007 SEIS (U.S. Army). Under this alternative, the South Training Areas, Doña Ana Range–North Training, and Tularosa Basin of McGregor Range would receive the greatest proportion of the BCT maneuver training (Table 2-14). Training use by Other Units would occur approximately in proportion to use by the four HBCTs and two IBCTs, but generally at lower intensities, and frequently concurrent with the HBCTs and/or IBCTs. Since Soldiers are instructed to avoid encounters with wildlife, dismounted maneuver training would be expected to have little or no direct impact on wildlife under LU-1.

Table 3-26 summarizes the number of times LINRs would be driven-over annually under LU-1 by L, M, and H classified vehicles. There would be no Off-Road Vehicle Maneuver training impacts to the Northeast McGregor Range North of Highway 506, or on the Otero Mesa South of Highway 506 under any of the stationing and training alternatives within LU-1 (Table 3-26).

Table 3-26. Number of Times Locally Important Natural Resources would be Driven-Over Annually under Land Use Change Alternative 1.

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-1															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
Grasslands[2]	South Training Areas	0.5%	5.5	95%	5	0.96	0.39	0.12	**1.50**	1.07	0.44	0.13	**1.60**	1.03	0.40	0.09	**1.50**	1.16	0.45	0.11	**1.70**
	Doña Ana Range– North Training	7%	82	94%	77	0.60	0.24	0.07	**0.91**	0.72	0.29	0.07	**1.08**	0.72	0.29	0.08	**1.10**	0.88	0.36	0.12	**1.40**
	Tularosa Basin of McGregor Range	10%	114	83%	94	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	14%	165	99%	162	0.15	0.07	0.03	**0.24**	0.15	0.07	0.03	**0.24**	0.20	0.10	0.04	**0.27**	0.26	0.13	0.06	**0.45**
	Northeast McGregor Range North of Highway 506	25%	292	0%	0	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
	Otero Mesa South of Hwy 506	44%	525	0%	0	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
	TOTAL	--	**1,182**	--	**339.0**	**2.39**	**0.98**	**0.30**	**3.68**	**2.75**	**1.13**	**0.31**	**4.12**	**2.79**	**1.14**	**0.33**	**4.17**	**3.33**	**1.37**	**0.45**	**5.15**
Mesa Grasslands	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range– North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	11	83%	9	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	18%	91	99%	90	0.15	0.07	0.03	**0.24**	0.15	0.07	0.03	**0.24**	0.20	0.10	0.04	**0.27**	0.26	0.13	0.06	**0.45**
	Northeast McGregor Range North of Highway 506	8%	42	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Hwy 506	72%	370	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**514**	--	**99.0**	**0.83**	**0.35**	**0.11**	**1.27**	**0.96**	**0.40**	**0.11**	**1.44**	**1.04**	**0.45**	**0.16**	**1.57**	**1.29**	**0.56**	**0.22**	**2.05**

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-1															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
Shinnery Oak	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range– North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	58%	1.12	83%	0.93	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	0%	0	99%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Northeast McGregor Range North of Highway 506	42%	0.81	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Hwy 506	0%	0	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**1.93**	--	**0.93**	**0.68**	**0.28**	**0.08**	**1.03**	**0.81**	**0.33**	**0.08**	**1.20**	**0.84**	**0.35**	**0.12**	**1.30**	**1.03**	**0.43**	**0.16**	**1.60**
Arroyo-Riparian	South Training Areas	2%	6.95	95%	6.6	0.96	0.39	0.12	**1.50**	1.07	0.44	0.13	**1.60**	1.03	0.40	0.09	**1.50**	1.16	0.45	0.11	**1.70**
	Doña Ana Range– North Training	14%	40	94%	38	0.60	0.24	0.07	**0.91**	0.72	0.29	0.07	**1.08**	0.72	0.29	0.08	**1.10**	0.88	0.36	0.12	**1.40**
	Tularosa Basin of McGregor Range	28%	82	83%	68	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	16%	46	99%	45	0.15	0.07	0.03	**0.24**	0.15	0.07	0.03	**0.24**	0.20	0.10	0.04	**0.27**	0.26	0.13	0.06	**0.45**
	Northeast McGregor Range North of Highway 506	26%	77	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Hwy 506	14%	39	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**291**	--	**157.7**	**2.39**	**0.98**	**0.30**	**3.68**	**2.75**	**1.13**	**0.31**	**4.12**	**2.79**	**1.14**	**0.33**	**4.17**	**3.33**	**1.37**	**0.45**	**5.15**

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-1															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	Total	L	M	H	Total	L	M	H	Total
Northern Aplomado Falcon Habitat - Moderate	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range– North Training	25%	26	94%	24	0.60	0.24	0.07	**0.91**	0.72	0.29	0.07	**1.08**	0.72	0.29	0.08	**1.10**	0.88	0.36	0.12	**1.40**
	Tularosa Basin of McGregor Range	22%	23	83%	19	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	15%	16	99%	16	0.15	0.07	0.03	**0.24**	0.15	0.07	0.03	**0.24**	0.20	0.10	0.04	**0.27**	0.26	0.13	0.06	**0.45**
	Northeast McGregor Range North of Highway 506	5%	5.6	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Hwy 506	33%	35	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**105**	--	**59.2**	**1.43**	**0.59**	**0.18**	**2.18**	**1.68**	**0.69**	**0.18**	**2.52**	**1.76**	**0.74**	**0.24**	**2.67**	**2.17**	**0.92**	**0.34**	**3.45**
Northern Aplomado Falcon Habitat - High	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range– North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	9	83%	8	0.68	0.28	0.08	**1.03**	0.81	0.33	0.08	**1.20**	0.84	0.35	0.12	**1.30**	1.03	0.43	0.16	**1.60**
	Southeast McGregor Range	7%	38	99%	38	0.15	0.07	0.03	**0.24**	0.15	0.07	0.03	**0.24**	0.20	0.10	0.04	**0.27**	0.26	0.13	0.06	**0.45**
	Northeast McGregor Range North of Highway 506	6%	34.6	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Hwy 506	85%	480	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**562**	--	**45.5**	**0.83**	**0.35**	**0.11**	**1.27**	**0.96**	**0.40**	**0.11**	**1.44**	**1.04**	**0.45**	**0.16**	**1.57**	**1.29**	**0.56**	**0.22**	**2.05**

1 1 Assumes uniform distribution of off-road vehicle maneuver throughout the FBTC subdivision; however, in practice, some areas would be driven over more often than others. This would be influenced by such factors as terrain, management areas, and the location of range facilities, among others.
2 2 Includes all grasslands, including mesa grassland.
3

Grasslands and Vegetative Cover

Stationing and Training – 1 (LU-1/ST-1). The number of times the ground would be driven over within the grasslands would be highest (approximately 1.5 times annually) in the South Training Areas, with a majority of the drive-over rate (approximately once annually) attributed to vehicles with L classifications (Table 3-26). Only 0.5 percent of the LINR is located within this FBTC Subdivision. An approximate 1.5 annual drive-over rate, with a majority of that being by L classification vehicles, in an area composed primarily of coppice dunes, would be considered less than significant. The FBTC subdivisions that contain vegetative covers other than coppice dunes would be driven over less than to nearly one time annually, with L classification vehicles comprising nearly two-thirds of the drive-over rates. This would also be considered less than significant, since even if vegetation damage occurs, the percent of training days scheduled for the BCTs is low enough (ranging from 15 to 55 percent) to offset the impacts. Additionally, in areas of coppice dunes, historic vegetative impacts (conversion) have occurred, resulting in preferred vehicle pathways around the dunes. Therefore, LU-1/ST-1 would result in no further impacts from training in these areas.

Stationing and Training – 2 (LU-1/ST-2). The additional training HBCT would slightly increase the number of drive-over by L and M classification vehicles, with H classification rates generally remaining the same (Table 3-26). The second highest rate of drive-over would occur on the Tularosa Basin of McGregor Range, which contains 10 percent of the grassland LINR. Although this intensity of use within the Tularosa Basin of McGregor Range would increase, the low percent of training days scheduled (65 percent) would offset the impacts as stated for LU-1/ST-1. As with LU-1/ST-1, the impacts would be considered less than significant.

Stationing and Training – 3 (LU-1/ST-3). The total number of times the ground would be driven over would increase slightly over LU-1/ST-1 and LU-1/ST-2 throughout the FBTC, except for the South Training Area due to SBCT training preference for the Tularosa Basin of McGregor Range and the Dona-Ana Range- North Training Areas (Table 3-26). This slight increase in the number of times ground is driven over would be considered less than significant under the same premise of LU-1/ST-1.

Stationing and Training – 4 (LU-1/ST-4). The number of times the ground is driven over under this alternative is the highest for LU-1. Although this alternative has the highest number of times the ground is driven over, the majority of the vehicles conducting this off-road training are primarily L and M classifications (Table 2-15). As shown in Table 3-26, nearly 50 percent of the grassland LINR subject to drive-over under LU-1 is located in the Southeast McGregor Range, which would be driven over 0.45 times per year. The remaining 50 percent of grassland LINR subject to drive-over under LU-1 (approximately 176 square kilometers) would be driven over approximately 1.5 times per year. The Southeast McGregor area represents approximately 15 percent of the grassland LINR on the FBTC. The low drive-over rate on the FBTC subdivision with a majority of the grassland LINR, combined with the small percentage of total grassland LINR incurring a 1.5 drive-over rate, would be considered less than significant.

Wildfire - Wildfire, especially during periods of drought, is a direct impact to vegetation and habitats. Wildfires may result from training exercises that include live weapons firing or pyrotechnics and from human carelessness or vehicle exhaust pipes. Fires generally occur when fine fuel loads are high. Most of the desert scrub and shrubland cover types are not very susceptible to fire, except when unusual weather conditions result in high fuel loads. Such a situation has recently occurred on Range 91 in the Tularosa Basin subdivision. Grasslands tend to be most susceptible to wildfire because the grasses, when cured, provide a fine fuel source. Training units doing live fire exercises include an on-site fire control group that is responsible for dealing with wildfires. Historically on FBTC, wildfires have had minimal impacts and the frequency has remained low. Sources and impacts of wildfires on Fort Bliss have been

analyzed in the 2000 PEIS and 2007 SEIS (U.S. Army 2000, 2007) and are unlikely to change appreciably under LU-1, since the live fire areas would not expand to other portions of the FBTC.

Wildlife - Indirect impacts would be expected to result from the limited loss or reduction of habitat for wildlife such as pronghorn and grassland birds. Wildlife inhabiting the grasslands in the area such as pronghorn, small mammals, reptiles, and grassland birds and their predators would be not be significantly impacted, since the highest number of times the ground is driven over in any FBTC subdivision is 1.7 times per year in the South Training Areas (LU-1/ST-4), the majority of which is by L or M classification vehicles. There may be some direct incidental loss of individuals from being struck and/or run over.

Sensitive Species

Forty percent of migratory birds of conservation concern (Baird's sparrow, ferruginous hawk, Sprague's pipit, black-chinned sparrow, lark bunting, McCown's longspur and chestnut-collared longspur) that are known to occur on FBTC depend on the grasslands, especially on Otero Mesa, during their migrations or as winter habitat (USFWS 2008). Training under LU-1 would have no impact on migratory grassland birds beyond those analyzed in the 2007 SEIS (U.S. Army 2007).

Of the 33 sensitive plant and wildlife species that occur or probably occur on Fort Bliss (Table 3-42), 33 percent (11 species) occur in the Organ Mountains on the Doña Ana Range-North Training Area. Ten of those species occupy isolated and steep mountainous habitat that is unlikely to be impacted by any of the training scheduled for this FBTC subdivision. One, the night-blooming cereus cactus, occurs in desert shrubland and scrub vegetation. The night-blooming cereus cactus typically grows within a shrub, often a creosote bush (*Larrea tridentata*) or a honey mesquite (*Prosopis glandulosa*), both of which are common components of the desert shrublands. The cactus seems to prefer somewhat gravelly soils, so it is unlikely to occur in coppice dunes. Individual cactus are scattered within suitable habitat where off-road maneuver does not occur (Locke 2009a). Known population areas are restricted from vehicle maneuvers (SEIS U.S. Army 2007); therefore, training under LU-1 would have no impact.

The Otero Mesa South of Highway 506, Northeast McGregor Range North of Highway 506, Doña Ana Range–North Training Area, Tularosa Basin of McGregor Range, and Southeast McGregor Range contain habitat suitable for breeding and foraging by northern aplomado falcon; however, the northern aplomado falcon is transient and has only been spotted on or adjacent to the Otero Mesa South of Highway 506 (Table 3-23, Figure 3-13). Impacts would include temporary noise, vegetative damage, and human activity. These impacts would be expected to be indirect and would result primarily from the increased number of vehicles on the roads and dismounted maneuver within the habitat.

On the Doña Ana Range-North Training Area, Tularosa Basin of McGregor Range, and Southeast McGregor Range, aplomado moderate or high potential habitats would be impacted by vehicle maneuver training. Approximately 60 percent of the aplomado moderate potential habitat on these FBTC subdivisions would have on-road vehicle maneuver training. There would also be Off-Road Vehicle Maneuver training in these areas; however, the off-road drive-over rate would range from 0.24 to 1.6 times per year, resulting in limited impacts to the moderate potential habitat (Table 3-26). The highest off-road drive-over rate would be 1.6 times annually under LU-1/ST-4 for the 2 percent of the high potential habitat located on the Tularosa Basin of McGregor Range, while 7 percent (approximately 38 square kilometers) of the aplomado high potential habitat located on the Southeast McGregor Range would be driven over only 0.45 times annually (Table 3-26). The low drive-over rates along with small percentages of high potential habitats would result in less than significant impacts.

Relatively low levels of impact, not appreciably different from the analysis in the 2007 SEIS (U.S. Army 2007) would result from IBCT live-fire training under LU-1/ST-1 through LU-1/ST-4 (Table 2-14). The

addition of SBCTs training under LU-1/ST-3 and LU-1/ST-4 would increase impacts similar to IBCT live-fire training in areas that are not used for off-road vehicle maneuver. LU-1 would result in some impacts to northern aplomado falcon habitat on the Doña Ana Range–North Training, Tularosa Basin of McGregor Range, and Southeast McGregor Range. The portion of moderate and high potential aplomado habitat on those ranges is approximately 16 percent of the total moderate and high potential aplomado habitat on the FBTC. Therefore, the overall impact to northern aplomado falcon habitat would be less than significant.

The gray-footed chipmunk is known to occur in the Northeast McGregor Range North of Highway 506, while the gray vireo has been known to nest in the Sacramento Mountains and the Organ Mountains. The increase in IBCT training that would occur on the Northeast McGregor Range North of Highway 506 under LU-1 would not have an increased indirect impact on these two sensitive species, when compared to the analysis in the 2007 SEIS (U.S. Army). It is known that many species of wildlife readily acclimate to human disturbance. The significance of potential training maneuver impacts on the gray-footed chipmunk is less than significant since the gray-footed chipmunk inhabits rock piles in the basins of canyons that would not experience vehicle drive-over under LU-1.

Gray vireos nest in riparian scrub and adjacent tree and scrub species of vegetation typically in close proximity to main arroyos (arroyo-riparian vegetation) in several of the canyons in the Northeast McGregor Range North of Highway 506 (Figure 3-12). Minimal impacts would include interference with nesting by human presence and on-road vehicular activity. The species is likely to acclimate to the minimal training activities (30 to 55 percent of training days scheduled) in the Northeast McGregor Range North of Highway 506. Habituation to human disturbance does occur in many species, but not all (Bowles 1995). Bisson et. al 2008, Bisson et. al 2009 , and Doresky et. al 2001 present evidence for minimal impacts by the types of military training this EIS evaluates. The negligible percent of habitat that would be indirectly impacted by human presence and on-road vehicular activity occurring less than half of the year would result in less than significant impacts to the gray vireo under LU-1.

Kuenzler cactus potential habitat that appears to be the most suitable is in the Northeast McGregor Range North of Highway 506. A large survey within Fort Bliss is underway but no cacti have been found. The Doña Ana Range contains known populations of desert night blooming cereus; however, these areas are restricted from Fort Bliss maneuver activities. Additional populations may occur outside of firing ranges and buffers but that is unlikely due to lack of suitable habitat. Therefore, LU-1 would not result in any known impacts to the Kuenzler cactus and desert night blooming cereus.

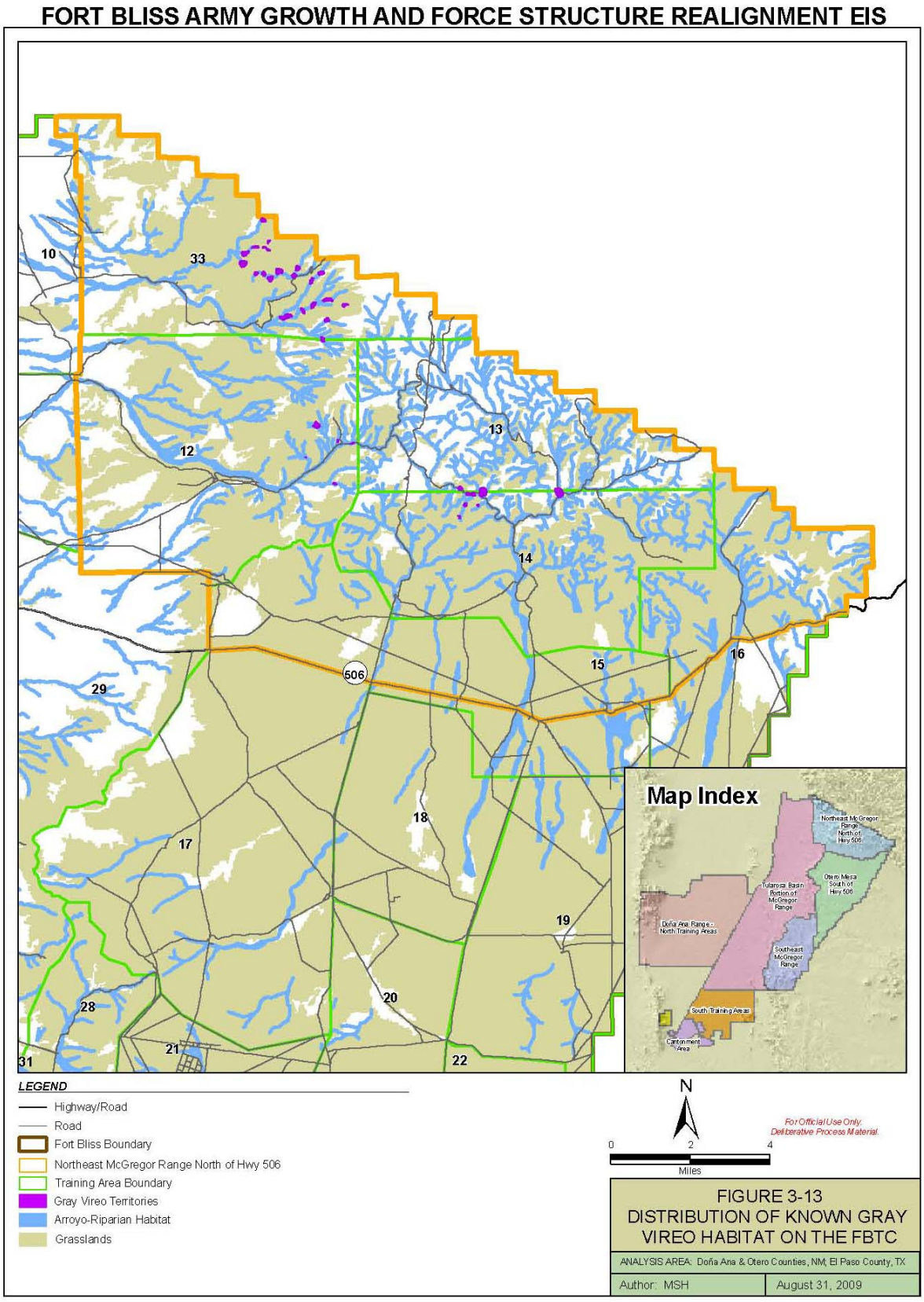


Figure 3-13. Distribution of Known Gray Vireo Nesting Habitat on FBTC.

Eleven percent (three species, Table 3-42) of the sensitive species that occur or may occur on FBTC is found in the South Training Areas (including the Hueco Mountains) and in the Tularosa Basin Ranges. The Sneed pincushion cactus habitat consists of canyon, stony ledge, and rock outcrop areas. Along with the steep terrain habitat, this species is protected from dismounted and vehicle maneuvers by designated OLAs. The gray-banded king snake has not been verified on FBTC, but occurs in the Hueco Mountains State Park and is unlikely to be impacted by training under any of the stationing and training alternatives within LU-1 because it inhabits areas that are steep and rugged and not amenable to off-road vehicle use. The loggerhead shrike is widespread within the Tularosa Basin of the McGregor Range. The species is relatively common and nests within grassland and desert shrub habitats. The Off-Road Vehicle Maneuver training under LU-1 is unlikely to increase impacts to the species beyond those analyzed in the PEIS and SEIS (U.S. Army 2000, 2007). As previously stated, the drive-over rates assume uniform distribution; however, to avoid vehicle damage and wear, areas between the coppice dune and desert shrub habitats would likely be driven over more than the actual vegetated shrub and brush areas. In addition, vehicles in coppice dune areas generally drive between the dunes and not over them. A majority of the IBCT dismounted training would occur in the Northeast McGregor Range North of Highway 506; therefore, the overall impact to the loggerhead shrike under LU-1 would be less than significant.

Two sensitive species (six percent of those that are or may be found on FBTC, Table 3-42) occur widely and in most of the vegetative communities on FBTC (SEIS U.S. Army 2007). Burrowing owls utilize abandoned burrows of a variety of other species, including prairie dogs and banner-tailed kangaroo rats. Burrowing owls occupying burrows of prairie dogs, which are designated OLAs, on Otero Mesa South of Highway 506 that does not allow off-road vehicle maneuvers. There would be no impact to the burrowing owls.

Increased Off-Road Vehicle Maneuver training throughout the FBTC would result in increased mortality to Texas horned lizards, which are relatively common in habitats from grassland to the lower limits of montane scrub elevational distribution. The species is widespread and relatively abundant on FBTC and in the ROI and should not be appreciably impacted by Off-Road Vehicle Maneuver training under LU-1. The relative commonness and wide distribution of the Texas horned lizards lead to a conclusion that impacts to their populations would be less than significant.

Locally Important Natural Resources – In addition to the natural resources already discussed, arroyo-riparian, sand sagebrush, and mesa grasslands areas are considered LINRs. The off-road vehicle maneuvers in LU-1 would include FBTC subdivisions where arroyo-riparian features occur (Table 3-26). The FBTC SOP prohibits placement of concentrated activities within 50 meters of the high water mark of all arroyos in order to provide a protective buffer to riparian areas. There would be no direct impact to arroyos and associated riparian areas resulting from concentrated activities; however, these areas may incur direct impacts from crossing by off-road vehicles.

A majority of the vehicles completing the off-road drive-over activities consist of L and M classification vehicles. Under LU-1, approximately 50 percent of the total arroyo-riparian areas on the FBTC would be driven-over (crossed-over) approximately 3.5 to 5 times per year (Table 3-26). Indirect impacts including sedimentation, erosion, noise, and human activity, to arroyo-riparian habitats resulting from increased personnel and vehicle presence would likely increase; however, it would be limited since concentrated training activities would occur outside the arroyo-riparian areas. The impacts are not considered significant considering the low drive over rates and that these areas would be crossed infrequently at best.

Three high-quality sand sagebrush communities are found within Fort Bliss, two of which are located in the Culp Canyon WSA and Otero Mesa South of Highway 506, which are not used for off-road vehicle maneuvers. The activities under LU-1 would not result in additional disturbance of these two communities. The third community is located, just east of the Town of Orogrande on the Tularosa Basin

of McGregor Range. The Off-Road Vehicle Maneuver training under LU-1 would result in drive-over rates ranging from 1.03 to 1.6 in the Tularosa Basin of McGregor Range, which would not likely increase impacts to this sand sagebrush community beyond those analyzed in the PEIS and SEIS (U.S. Army 2000, 2007). Therefore, the impact to sand sagebrush communities under LU-1 would be less than significant.

As shown in Table 3-26, 58 percent of the shinnery oak islands on the FBTC would be impacted by vehicle drive-over under LU-1. The Off-Road Vehicle Maneuver training under LU-1 is unlikely to increase impacts to the shinnery oak island areas beyond those analyzed in the PEIS and SEIS (U.S. Army 2000, 2007). Additionally, the vehicles in the area would not likely experience the 1.03 to 1.6 drive-over rate, due to their habitat location on the deep sand dunes. Vehicle drive-over would likely occur between the deep sand dunes, rather than over them. Therefore, the impact to the shinnery oak islands under LU-1 would be less than significant.

Under LU-1, the off-road vehicle maneuvers would impact approximately 20 percent of the mesa grasslands located on the FBTC, with drive over rates ranging from 0.24 to 1.6 times annually. Approximately 18 percent (90 square kilometers) of this mesa grassland area is located in the Southeast McGregor Range, which at most would be driven over 0.45 times annually (LU-1/ST-4). Approximately 18 percent (16 square kilometers) of the mesa grassland on Southeast McGregor Range is black grama grassland. Given the low drive-over rate, approximately 65 percent (10 square kilometers) of the black grama grassland may convert to blue grama grassland as a result of off-road vehicle maneuver. This conversion would represent only 12 percent of the total black grama grassland on the FBTC. This conversion is expected to occur as a result of the proposed actions of the 2007 SEIS and will occur regardless of this action. The low drive-over rates along with the small percentage impacted, would result in impacts being be less than significant.

3.6.3 Land Use Changes Alternative 2 (LU-2)

LU-2 proposes changes in land use designations in two primary areas of the FBTC. The Army would allow four square kilometers of fixed sites in the Southeast McGregor Range by removing the Grassland LUA designation in these areas. Second, fixed sites would be allowed in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 (not including the Culp Canyon WSA) by removal of the Grassland LUA designation in this area. For impact analysis purposes, the fixed sites are assumed to be in grasslands. Under this alternative, the off-road vehicle maneuvers and the effects on soils would be similar to the impacts discussed under LU-1. Table 3-27 summarizes the percent of LINR areas opened to fixed sites by Grassland LUA removal under LU-2.

Table 3-27. Portion of Locally Important Natural Resources Opened to Fixed Sites by Grassland LUA Removal Under Land Use Alternative 2.

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Grassland LUA Removed	Resource within Fixed Sites (km2)
Grasslands	South Training Areas	0.5%	5.5	0%	0
	Doña Ana Range–North Training	7%	82	0%	0
	Tularosa Basin of McGregor Range	10%	114	0%	0
	Southeast McGregor Range	14%	165	2.4%	4
	Northeast McGregor Range North of Highway 506	25%	292	31%	90.5
	Otero Mesa South of Highway 506	44%	525	0%	0
	TOTAL	**--**	**1,182**	**--**	**94.5**
Mesa Grasslands	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	11	0%	0
	Southeast McGregor Range	18%	91	1.4%	1.3
	Northeast McGregor Range North of Highway 506	8%	42	4.3%	1.8
	Otero Mesa South of Highway 506	72%	370	0%	0
	TOTAL	**--**	**514**	**--**	**3.1**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Grassland LUA Removed	Resource within Fixed Sites (km2)
Shinnery Oak	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	0%	1.12	0%	0
	Southeast McGregor Range	0%	0	0%	0
	Northeast McGregor Range North of Highway 506	0%	0.81	0%	0
	Otero Mesa South of Highway 506	0%	0	0%	0
	TOTAL	**--**	**1.93**	**--**	**0.0**
Arroyo-Riparian	South Training Areas	2%	6.95	0%	0.0
	Doña Ana Range–North Training	14%	40	0%	0
	Tularosa Basin of McGregor Range	28%	82	0%	0
	Southeast McGregor Range	16%	46	0%	0
	Northeast McGregor Range North of Highway 506	26%	77	23.4%	18
	Otero Mesa South of Highway 506	14%	39	0%	0
	TOTAL	**--**	**291**	**--**	**18.0**
Aplomado Falcon Habitat – Moderate	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	25%	26	0%	0
	Tularosa Basin of McGregor Range	22%	23	0%	0
	Southeast McGregor Range	15%	16	0%	0

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Grassland LUA Removed	Resource within Fixed Sites (km2)
	Northeast McGregor Range North of Highway 506	5%	5.6	100%	5.60
	Otero Mesa South of Highway 506	33%	35	0%	0
	TOTAL	**--**	**105**	**--**	**5.60**
Aplomado Falcon Habitat – High	South Training Areas	0%	0	0%	0
	Doña Ana Range– North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	9	0%	0
	Southeast McGregor Range	7%	38	0%	0
	Northeast McGregor Range North of Highway 506	6%	34.6	100%	34.60
	Otero Mesa South of Highway 506	85%	480	0%	0
	TOTAL	**--**	**562**	**--**	**34.60**

Direct impacts from each of the stationing and training alternatives would be the same as under LU-1. The areas under this alternative would be impacted by activities such as digging with hand tools and mechanical digging activities on a case-by-case basis. In the Southeast McGregor Range, the vegetation where the Grassland LUA has been lifted may be impacted by concentrated maneuvers. Approximately 31 percent of the Northeast McGregor Range North of Highway 506 would be open; however, no off-road vehicle maneuver would be allowed in this area (Table 3-27).

The Grassland LUA removal under this alternative affects less than 10 percent of the total grassland of Fort Bliss. Additionally, the number of times the ground would be driven over throughout the FBTC would not differ from LU-1, which means that the grasslands in the Southeast McGregor Range would be driven over 0.45 times per year at most. The low drive-over rates along with the small percentage impacted, would result in impacts being be less than significant.

Wildfire - Live fire activities would not be allowed in the Northeast McGregor Range North of Highway 506 under LU-2. Therefore, the sources and impacts of wildfires are unlikely to change appreciably under LU-2.

Wildlife - Indirect impacts would be expected to result from the loss or reduction of habitat for wildlife. Wildlife, such as pronghorn, small mammals, reptiles, and grassland birds and their predators, inhabiting

the grasslands in the immediate area of the fixed sites would be not be significantly impacted. The lifted Grassland LUA areas would represent approximately 33 percent of the grassland habitat available on the Southeast McGregor Range and the Northeast McGregor Range North of Highway 506 and only 8 percent of the total grassland habitat available on the FBTC. The small proportion of the potentially impacted species of wildlife would be able to relocate to areas away from the available fixed sites, but there would be some loss of individuals such as ground dwelling rodents, herps, and ground nesting birds as discussed under LU-1. The minimum impact to the grassland habitat of the FBTC would be considered less than significant under LU-2. The direct impacts to wildlife would be similar to LU-1 because training would generally remain the same.

Sensitive Species - Sensitive species that would potentially be impacted in the Southeast McGregor Range are burrowing owls, loggerhead shrikes, and Baird's sparrows, with gray vireo and a small percentage of northern aplomado falcon habitats impacted in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506. As previously noted, the northern aplomado falcon is transient and has only been spotted on or adjacent to the Otero Mesa South of Highway 506 (Table 3-23, Figure 3-13).

Training activities in the Southeast McGregor Range, including off-road vehicle maneuvers, would not be expected to significantly impact potential nesting, yucca plants, trees, or large shrubs since vehicles generally do not run over these larger vegetation types. Impacts associated with noise from the closer proximity of personnel and off-road vehicle maneuver to sensitive species would be less than significant.

As previously discussed, the fixed sites proposed in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 are small and there is sufficient habitat in the surrounding areas for the sensitive species. Most of the sensitive bird species that occur in the area would acclimate to the increased disturbance. As with LU-1, LU-2 would not result in any known impacts to the Kuenzler cactus, Sneed pincushion cactus, and desert night blooming cereus. The impacts from this LU-2 would be expected to be similar to LU-1 for sensitive species.

Locally Important Natural Resources – Placement of fixed sites would occur on locations away from arroyos-riparian LUAs, which would not be lifted under LU-2. The FBTC SOP prohibits maneuvers and placement of concentrated activities within 50 meters of the high water mark of all arroyos in order to provide a protective buffer to riparian areas. There would be no direct impact to arroyos and associated riparian areas resulting from the fixed site placement. Indirect impacts including sedimentation, erosion, noise, and human activity, to arroyo-riparian habitats resulting from increased personnel and vehicle presence would likely increase to all habitats within the FBTC subdivision. Since the arroyo-riparian LUA would not be lifted, these habitats would not be directly impacted. The impacts would be similar to LU-1 and would be less than significant. No additional impacts to sand sagebrush would occur over those discussed in LU-1. The shinnery oak islands in the Northeast McGregor Range North of Highway 506 are not located in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 that would be part of the lifted grassland LUA. Therefore, additional impacts to sand sagebrush would occur over those discussed in LU-1.

Under LU-2, no off-road vehicle maneuver would be allowed on the mesa grasslands in the Northeast McGregor Range North of Highway 506. Approximately one percent (1.3 square kilometers) of the mesa grassland in the Southeast McGregor Range would be exposed to a concentration of vehicles rolling through the Controlled FTX area. Under the assumption that these areas are a mixture of blue and black grama grasslands, approximately 0.65 square kilometer of black grama grassland could be converted to blue grama grassland. Drive-over rates would remain the same as LU-1 and the small area of potential black grama grassland conversion would be less than significant under LU-2.

3.6.4 Land Use Changes Alternative 3 (LU-3)

This alternative includes the establishment of five square kilometers of Controlled FTX sites in the Northeast McGregor Range North of Highway 506 and a Controlled FTX zone in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 (the Sacramento Mountain Controlled FTX Zone). In addition, live fire military uses would be allowed in the Northeast McGregor Range North of Highway 506 (not including the Culp Canyon WSA and Black Grama Grassland ACEC). The Controlled FTX sites would be limited to within 500m of existing roads and areas with a slope of less than 30 percent (15 degrees).

The effects to vegetation and habitat associated with this alternative would be very similar to those described for LU-1 and LU-2. Under this alternative on-road vehicle maneuver would remain the same as LU-1 and LU-2, with a slight increase IBCT on-road vehicle maneuver in the Northeast McGregor Range North of Highway 506. The number of times ground is driven over remains nearly identical as LU-1 and LU-2.

LU-3 would differ from the previous land use alternatives by the increased presence of IBCTs training at the five Controlled FTX sites and the Sacramento Mountain Controlled FTX zone. Table 3-28 summarizes the density of Soldiers and vehicles associated IBCT training in the Northeast McGregor Range North of Highway 506. Typical use of the Sacramento Mountain Controlled FTX zone would be by the infantry (e.g., rifle) platoons and companies, often operating in squads of nine soldiers, resulting in an average use of 2 to 3 soldiers per square kilometer and a total of 2 vehicles with L-classification, which is an average of less than one per square kilometer. Larger unit exercises (battalion and brigade) would be located on the five Controlled FTX sites south of the Sacramento Mountains, primarily using on-road travel to deliver supplies and other services to the forward rifle elements, resulting in an average of 7 to 18 soldiers and 1 to 5 vehicles per square kilometer.

Table 3-28. Soldier and Vehicle Density in the Northeast McGregor Range North of Highway 506.

Unit[1]	Soldiers[1]	Vehicles[1]	Required Maneuver Space[1] (km^2)	Soldiers per Km^2	Vehicles per Km^2
Rifle Platoon	39	0	19	2	0
Rifle Company	133	2	48	3	< 1
Battalion	690	139	96	7	1
IBCT	3,500	932	192	18	5

1 Unit, Soldier, Vehicle, and Maneuver space requirements obtained from TC 25-1.

The Sacramento Mountains consists of mostly of steep slopes. A total of 35 square kilometers (or 15 percent) of this EMU contain slopes of less than 30 percent, which would be open to Controlled FTX use. Given the required maneuver space for a rifle platoon, two rifle platoons could concurrently train in the Sacramento Mountain Controlled FTX zone. This would result in an average of 4 Soldiers per square kilometer for a total of 140 Soldiers within the Sacramento Mountain Controlled FTX zone. The low density of Soldiers in the Sacramento Mountain Controlled FTX zone, in addition to no off-road vehicle traffic would result in less than significant impacts to vegetation.

The five Controlled FTX sites would have concentrations of up to 90 Soldiers and 25 vehicles which would result in damage to some vegetation. However, the effects to vegetation would be less than significant since the five square kilometers of Controlled FTXs would occupy only 3 percent of the

Northeast McGregor Range North of Highway 506 outside of the Sacramento Mountain Controlled FTX zone.

Table 3-29 summarizes the percent of LINR areas opened to Controlled FTX sites under LU-3. The addition of the Controlled FTX sites and zone in the Northeast McGregor Range North of Highway 506 would impact approximately 40 square kilometers of grassland vegetation (Table 3-29), most of which would be Foothills Desert Grassland. Use of the Controlled FTX sites will likely result in some impacts to the grassland vegetation. With about 293 square kilometers of total grassland in Northeast McGregor Range North of Highway 506, 40 square kilometers represents approximately 14 percent of the grasslands in this subdivision and 3 percent of the total grasslands on the FBTC. Therefore, this action would represent a rather small impact (by size) and less than significant to total grasslands in the FBTC subdivision or on the FBTC.

The addition of live fire and pyrotechnics to the Northeast McGregor Range North of Highway 506 would increase the potential for wildfires, which could have adverse impacts to vegetation and habitats. Live fire events and the fine fuels of the grasslands could result in wildfires. Fire suppression crews, which are required to be available for live fire exercises, would suppress such fires quickly, making it unlikely that the fires would spread and endanger the nearby montane vegetation and habitats or the community of Timberon. In addition, forest management practices under INRMP include the thinning of dead brush and trees in montane vegetation areas to reduce the potential fuel capacity have occurred and would continue.

Table 3-29. Portion of Locally Important Natural Resources Opened to Controlled FTX Use Under Land Use Alternative 3.

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Controlled FTX	Resource within Controlled FTX (km2)
Grasslands	South Training Areas	0.5%	5.5	0%	0
	Doña Ana Range–North Training	7%	82	0%	0
	Tularosa Basin of McGregor Range	10%	114	0%	0
	Southeast McGregor Range	14%	165	0%	0
	Northeast McGregor Range North of Highway 506	25%	292	14%	40
	Otero Mesa South of Highway 506	44%	525	0%	0
	TOTAL	**--**	**1,182**	**--**	**40.0**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Controlled FTX	Resource within Controlled FTX (km2)
Mesa Grasslands	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	11	0%	0
	Southeast McGregor Range	18%	91	0%	0
	Northeast McGregor Range North of Highway 506	8%	42	1.2%	0.5
	Otero Mesa South of Highway 506	72%	370	0%	0
	TOTAL	**--**	**514**	**--**	**0.5**
Shinnery Oak	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	0%	1.12	0%	0
	Southeast McGregor Range	0%	0	0%	0
	Northeast McGregor Range North of Highway 506	0%	0.81	0%	0
	Otero Mesa South of Highway 506	0%	0	0%	0
	TOTAL	**--**	**1.93**	**--**	**0.0**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Controlled FTX	Resource within Controlled FTX (km2)
Arroyo-Riparian	South Training Areas	2%	6.95	0%	0.0
	Doña Ana Range–North Training	14%	40	0%	0
	Tularosa Basin of McGregor Range	28%	82	0%	0
	Southeast McGregor Range	16%	46	0%	0
	Northeast McGregor Range North of Highway 506	26%	77	23%	18
	Otero Mesa South of Highway 506	14%	39	0%	0
	TOTAL	**--**	**291**	**--**	**18.0**
Northern Aplomado Falcon Habitat - Moderate	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	25%	26	0%	0
	Tularosa Basin of McGregor Range	22%	23	0%	0
	Southeast McGregor Range	15%	16	0%	0
	Northeast McGregor Range North of Highway 506	5%	5.6	3.3%	0.2
	Otero Mesa South of Highway 506	33%	35	0%	0
	TOTAL	**--**	**105**	**--**	**0.2**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km2)	Percent in Controlled FTX	Resource within Controlled FTX (km2)
Northern Aplomado Falcon Habitat - High	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	9	0%	0
	Southeast McGregor Range	7%	38	0%	0
	Northeast McGregor Range North of Highway 506	6%	34.6	1.1%	0.39
	Otero Mesa South of Hwy 506	85%	480	0%	0
	TOTAL	**--**	**562**	**--**	**0.39**

Wildfire - An increased potential of wildfires due to live fire training would be minimal based on the density of 2 to 3 Soldiers training per square kilometer in the Controlled FTX zone. Under the remote possibility of a large wildfire, loss of trees, shrubs and grass would be detrimental to species dependent on those structural vegetation features for forage, cover, and breeding. Removal of shrub cover and the resulting increase in forbs and grasses would be a positive change for some species, including elk that forage in open post-burn meadow-like habitats.

Fort Bliss may carry out a "let burn" policy for fires in the Northeast McGregor Range North of Highway 506 that have less probability of burning into areas outside of the installation boundaries or interfering with the mission and burning in a way that is beneficial to the ecosystem (also called Wildland Fire Use fires). Overall, the wildfires resulting from the low density of live fire exercises and pyrotechnics per square kilometer would be less than significant.

Wildlife - Establishment of 5 square kilometers of Controlled FTX sites in grasslands would impact the same wildlife species that were discussed for LU-2. As shown in Table 3-28, the usage of this area would be low to moderate and habitat would be slightly damaged in scattered areas, wildlife would continue to utilize the areas between training exercises. Based on the Soldier density per square kilometer, grassland birds and other wildlife utilizing the areas would temporarily lose some foraging and potential nesting/breeding habitat and would temporarily move into nearby areas during training exercises.

Establishment of Controlled FTX zones within 500 meters of roads would open more wildlife habitat; however, with lower Soldier densities and lesser vehicles present when compared to the 5 square kilometers of Controlled FTX sites, the overall impact to wildlife in the Sacramento Mountain Controlled FTX zone would be less. In cases where wildlife that are responsive to disturbance, such as elk, encounter repetitive presence of vehicles and Soldiers, they may abandon the area near roads with the possibility of some moving north and east into habitats outside FBTC. Mule deer, pronghorn, and other wildlife would be likely to acclimate to the increased repetitive presence of Soldiers and vehicles. They would likely avoid areas during training exercises, but would return when training activities were completed. Overall,

the low density of Soldiers and on-road vehicle maneuvers in the Northeast McGregor Range North of Highway 506 under LU-3 would have a less than significant impact for wildlife species.

Sensitive Species – Several sensitive species are known to occur in the Northeast McGregor Range North of Highway 506 (Table 3-42). Many of those species are transient or occasional visitors to the area. The gray vireo nests in the arroyo-riparian vegetation of the numerous canyons in the Northeast McGregor Range North of Highway 506. Nesting survey data from 2008 (Figure 3-13, WTS Draft Survey Reports) show that the Sacramento Mountain Controlled FTX zone would use approximately 0.37 square kilometers or approximately 20 percent of known gray vireo nesting habitat. However, approximately 60 square kilometers of arroyo-riparian vegetation and potential gray vireo habitat in the Northeast McGregor Range North of Highway 506 would not be disturbed by activities in the Sacramento Mountain Controlled FTX zone.

Level of use and repetitiveness of use are important in understanding the potential impacts to gray vireo. As shown in Table 3-28, LU-3 would result in a low density of Soldiers with a few on-road vehicle maneuvers in the Northeast McGregor Range North of Highway 506 (Table 3-28). Over time the gray vireo would become more accustomed to the low density, repetitive activities (Bisson et. al 2008, Bisson et. al 2009). Studies have shown that the nesting behavior of birds was not affected by the continuous noise of an operating air compressor (65 to 80 decibels) (Bowles 1995). Given typical live fire weapons in the area may average as high as 130 decibels, this increase would likely be offset by the low density Soldiers over a square kilometer area (Table 3-28). The SOP for use of the training areas requires that birds nest would not be disturbed or destroyed, and if nests are encountered in work areas, the DOD would be contacted for assistance (U.S. Army, 1996p). Overall, LU-3 would have a less than significant impact for the gray vireo.

The gray-footed chipmunk has been found in this area (Burkett, personal communication). Impacts to this species would be less than significant since they tend to occupy rock piles in canyon bottoms and these areas are not typically used for Controlled FTX activities.

As stated in LU-1, the Kuenzler cactus potential habitat that appears to be the most suitable is in the Northeast McGregor Range North of Highway 506. A large survey within Fort Bliss is underway but no cacti have been found. Therefore, LU-3 would result in no known impacts to this sensitive species in the Northeast McGregor Range North of Highway 506.

No Sneed pincushion cactus nor desert night blooming cereus populations would be affected by the change in military land use as a result of LU-3; therefore, impacts to these species would remain less than significant.

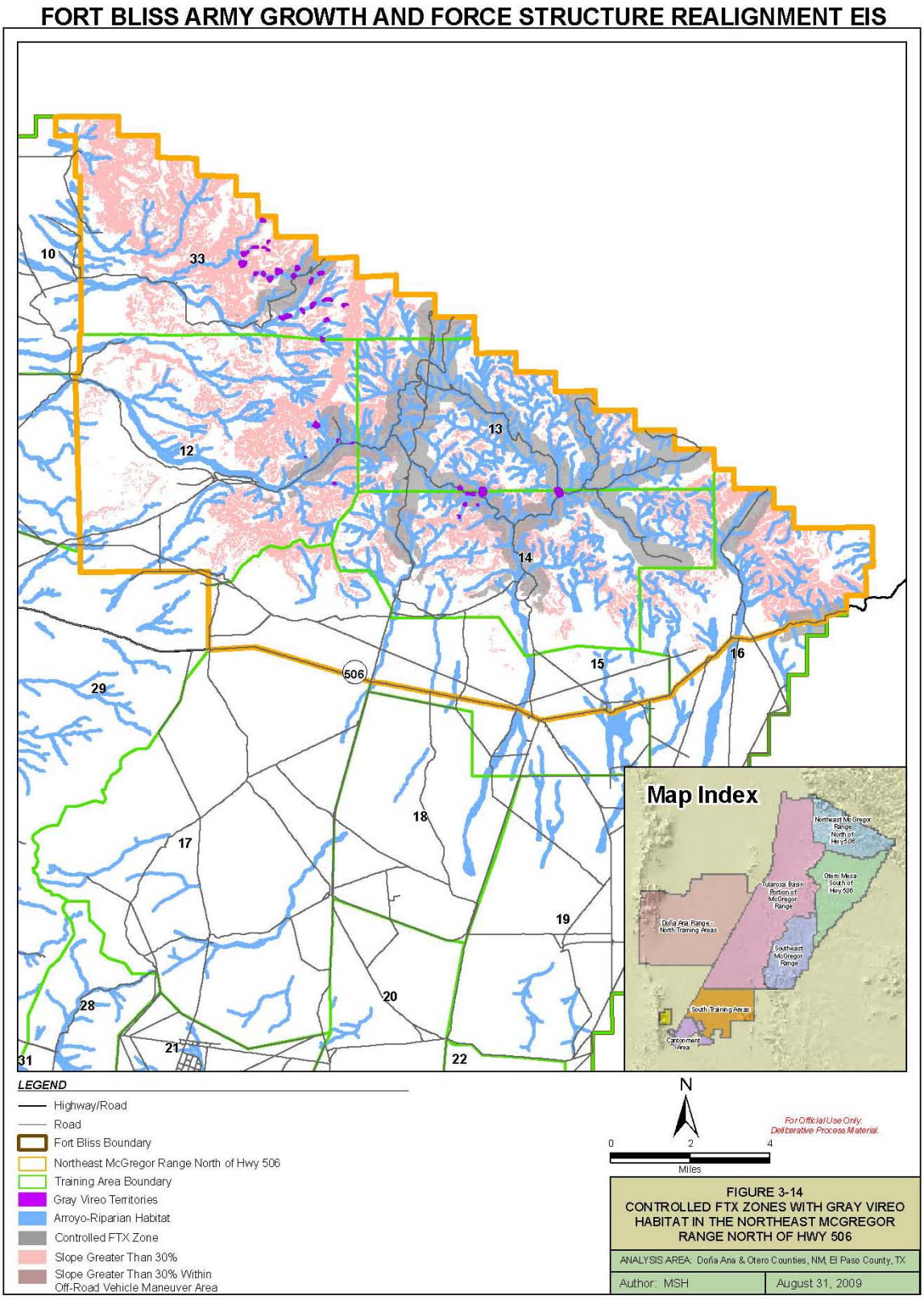


Figure 3-14. Controlled FTX Zones with Gray Vireos Habitat in the Northeast McGregor Range North of Highway 506.

Approximately 3.3 percent (0.2 square kilometers) of moderate and about 1.1 percent (0.4 square kilometers) of high potential northern aplomado falcon habitat found in the Northeast McGregor Range North of Highway 506 occurs within the grassland areas proposed for placement of Controlled FTX sites (Table 3-29). The potential area of impact is small compared to total habitat on FBTC. Overall, the impacts to sensitive species under LU-3 would be less than significant. As previously noted, the northern aplomado falcon is transient and has only been spotted on or adjacent to the Otero Mesa South of Highway 506 (Table 3-23, Figure 3-13).

Locally Important Natural Resources – Impacts to LINRs resulting from impacts of off-road maneuver training under LU-3 would be much the same as under LU-1 and LU-2 and as described above. Approximately 23 percent (18 square kilometers, Table 3-29) of the arroyo riparian habitat within the Northeast McGregor Range North of Highway 506 would be located within the Controlled FTX sites and zone. Since arroyo-riparian habitat is covered by an LUA, vehicle and personnel concentrations would not occur within this habitat. Vehicles and personnel could enter and cross the habitat, but would not be allowed to camp or bivouac within it. Impacts to arroyo-riparian habitat under LU-3 would be less than significant when considered that it would represent only 6 percent of the total across the FBTC.

As discussed in LU-2, the sand sagebrush and shinnery oak islands areas are not located in the proposed Controlled FTX zone. They are also not located in the five square kilometers of Controlled FTX sites. Therefore, the impacts would be the same as LU-1 and LU-2, less than significant.

The Controlled FTX sites and zone would impact approximately one percent (0.5 square kilometers, Table 3-29) of the mesa grassland vegetation within the Northeast McGregor Range North of Highway 506, which is approximately 0.1 percent of the total resource on FBTC. As previously noted, the mesa grassland is a mix of blue and black grama grasslands. Therefore, the potential conversion of black grama to blue grama grassland under LU-3 would be insignificant. The small proportion of these grassland resources that would be impacted would be less than significant.

3.6.5 Land Use Changes Alternative 4 (LU-4)

This alternative includes LU-2 and LU-3, with the addition of off-road vehicle maneuver: light activities in the Northeast McGregor Range North of Highway 506. Such use would be limited to wheeled vehicles with L classification (e.g., HMMWVs) and would be allowed within areas 500m of a road with a slope of less than 30 percent (15 degrees).

The effects on vegetation under this alternative are based on an increase in total off-road vehicle maneuver area available and a shift of IBCT off-road maneuver training from the North and South Training Areas, Tularosa Basin, and Southeast McGregor Range to the Northeast McGregor Range North of Highway 506. This would slightly decrease drive-over rates in the FBTC subdivisions that allowed off-road vehicle maneuver under the previous land use alternatives. Vegetation within the Northeast McGregor Range North of Highway 506 would be impacted in areas within 500m of roadways by wheeled vehicles with L classification. These light wheeled vehicles can compact and disturb soil and crush or uproot vegetation. These impacts would be limited to 27 percent of the grassland vegetation within the Northeast McGregor Range North of Highway 506, which would be driven over 1.25 to 1.53 times per year. Impacts would also be further limited to the off road limitations of the wheeled vehicle in this mountainous environment. Table 3-30 summarizes the number of times LINRs would be driven-over annually under LU-4 by L, M, and H classified vehicles.

Under this alternative, the IBCTs would increasingly use the Northeast McGregor Range North of Highway 506 area. The drive-over rates under LU-4/ST-1, LU-4/ST-2, and LU-4/ST-3 for the wheeled vehicles with L classifications would generally be 1.25 times annually in the Northeast McGregor Range

North of Highway 506, but would be limited to areas within 500m of existing roadways. Because both the vehicle classification and drive–over rate is low, damage to vegetation in the area would not be considered significant.

Under LU-4/ST-4, the drive-over rate for vehicles with L classifications would increase to 1.53 times annually. As shown in Table 3-30, approximately 27 percent of the grasslands in this FBTC subdivision would be impacted with the L classification vehicle drive-over rates. The total impacted grassland area in the Northeast McGregor Range North of Highway 506 is not a substantial amount, approximately 79 square kilometers of the 1,182 square kilometers or approximately 7 percent of the total grassland area on the FBTC. The soils outside of the Sacramento Mountains are fine grained and thus more susceptible to erosion and compaction; however, this totals only five square kilometers in area. The limited area and vehicle types would result in impacts being less than significant for the grasslands in the Northeast McGregor Range North of Highway 506.

Since the land use alternatives are cumulative, under LU-4 approximately 418 square kilometers or 35 percent of the grasslands on the FBTC would be subject to off-road vehicle maneuver. However, the Southeast McGregor Range would continue to contain the largest grassland area (approximately 162 square kilometers or 14 percent of the total FBTC grassland area) subject to off-road vehicle maneuver. As previously stated, the number of times of drive-over in the Southeast McGregor Range would slightly decrease, with a maximum drive-over rate of 0.43 times annually (LU-4/ST-4) (Table 3-30). The lower drive-over rates throughout the FBTC would result in lesser impacts to these grasslands when compared to LU-1 through LU-3.

Table 3-30. Number of Times Locally Important Natural Resources would be Driven-Over Annually under Land Use Change Alternative 4.

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-4															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	L	L	M	H	Total	L	M	L	Total
Grasslands[2]	South Training Areas	0.5%	5.5	95%	5	0.82	0.38	0.12	**1.30**	0.94	0.42	0.12	**1.50**	0.90	0.39	0.09	**1.40**	1.00	0.43	0.10	**1.60**
	Doña Ana Range–North Training	7%	82	94%	77	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.81	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	10%	114	83%	94	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	14%	165	99%	162	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	25%	292	27%	79	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.53	0.00	0.00	**1.53**
	Otero Mesa South of Highway 506	44%	525	0%	0	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
	TOTAL	--	**1,182**	--	**417.9**	**3.36**	**0.98**	**0.30**	**4.61**	**3.76**	**1.11**	**0.30**	**5.24**	**3.75**	**1.11**	**0.33**	**5.26**	**4.48**	**1.35**	**0.45**	**6.36**
Mesa Grasslands	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	11	83%	9	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	18%	91	99%	90	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	8%	42	27%	11	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.53	0.00	0.00	**1.53**
	Otero Mesa South of Highway 506	72%	370	0.00%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**514**	--	**110.2**	**2.00**	**0.35**	**0.11**	**2.45**	**2.16**	**0.40**	**0.11**	**2.71**	**2.19**	**0.43**	**0.16**	**2.82**	**2.67**	**0.56**	**0.23**	**3.46**

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-4															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	L	L	M	H	Total	L	M	L	Total
Shinnery Oak	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	58%	1.12	83%	0.93	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	0%	0	99%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Northeast McGregor Range North of Highway 506	42%	0.81	27%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Highway 506	0%	0	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**1.93**	--	**0.93**	**0.62**	**0.28**	**0.08**	**0.97**	**0.75**	**0.33**	**0.08**	**1.20**	**0.78**	**0.35**	**0.12**	**1.30**	**0.90**	**0.43**	**0.17**	**1.50**
Arroyo-Riparian	South Training Areas	2%	6.95	95%	6.6	0.82	0.38	0.12	**1.30**	0.94	0.42	0.12	**1.50**	0.90	0.39	0.09	**1.40**	1.00	0.43	0.10	**1.60**
	Doña Ana Range–North Training	14%	40	94%	38	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.81	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	28%	82	83%	68	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	16%	46	99%	45	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	26%	77	27%	21	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.53	0.00	0.00	**1.53**
	Otero Mesa South of Highway 506	14%	39	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**291**	--	**178.4**	**2.11**	**0.98**	**0.30**	**3.36**	**2.48**	**1.11**	**0.30**	**3.96**	**2.49**	**1.11**	**0.33**	**4.00**	**2.95**	**1.35**	**0.45**	**4.83**

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of Subdivision Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-4															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	L	L	M	H	Total	L	M	L	Total
Northern Aplomado Falcon Habitat - Moderate	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	25%	26	94%	24	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.81	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	22%	23	83%	19	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	15%	16	99%	16	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	5%	5.6	27%	2	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.53	0.00	0.00	**1.53**
	Otero Mesa South of Highway 506	33%	35	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**105**	--	**60.7**	**1.29**	**0.60**	**0.18**	**2.06**	**1.54**	**0.69**	**0.18**	**2.46**	**1.59**	**0.72**	**0.24**	**2.60**	**1.95**	**0.92**	**0.35**	**3.23**
Northern Aplomado Falcon Habitat - High	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	9	83%	8	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	0.90	0.43	0.17	**1.50**
	Southeast McGregor Range	7%	38	99%	38	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	6%	34.6	27%	9	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.53	0.00	0.00	**1.53**
	Otero Mesa South of Highway 506	85%	480	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**562**	--	**54.8**	**2.00**	**0.35**	**0.11**	**2.45**	**2.16**	**0.40**	**0.11**	**2.71**	**2.19**	**0.43**	**0.16**	**2.82**	**2.67**	**0.56**	**0.23**	**3.46**

1 1 Assumes uniform distribution of off-road vehicle maneuver.
2 2 Includes all grasslands, including mesa grassland.
3

Wildlife –The presence of off-road vehicles would be at most one vehicle per square kilometer in the Sacramento Mountain zone to five vehicles outside of the Sacramento Mountain zone in the Northeast McGregor Range. This minimum density of vehicles would slightly increase noise and human activity impacts in areas away from the roads. Over time, habitats would be driven over by L-classified vehicles operating on rocky soil slopes (even though the slopes would be less than 30 percent) and some arroyos riparian areas would be crossed. The periodic, repetitive presence of vehicles in areas away from roads would result in minimal interference with wildlife activities. As mentioned in previous discussion, elk would move away from the sources of interference and would likely temporarily leave the area, only to return once the maneuver has passed through the area. Other species that would tolerate lower levels of human and vehicle presence, such as mule deer and pronghorn, might also be impacted and leave the area temporarily. However, overtime the wildlife would become accustomed to the repetitive presence of Soldiers and vehicles. Overall, the low density of Soldiers and vehicle maneuvers in the Northeast McGregor Range North of Highway 506 under LU-4 would have a less than significant impact for wildlife species.

Sensitive Species – Sensitive species occupying the area could also be affected by increased impacts to vegetation by driving vehicles over the ground, and from noise and human activities. The impacts to Gray Vireo discussed under LU-3 would not increase by the density of less than one L-classified vehicle per square kilometer (Table 3-28). The Gray Vireo nesting habitat exposed to these impacts would be the same as under LU-3. For the reasons discussed under LU-3, it is determined that impacts would be less than significant.

Gray-footed chipmunks would be impacted by noise and human activities under LU-4. The presence of light vehicles in areas away from the roads would represent an increase in some impacts to the species; however, the gray-footed chipmunk typically occupies rock piles which would not be driven over.

As stated in LU-1, the Kuenzler cactus potential habitat that appears to be the most suitable is in the Northeast McGregor Range North of Highway 506. A large survey within Fort Bliss is underway but no cacti have been found. Therefore, LU-4 would result in no known impacts to this sensitive species in the Northeast McGregor Range North of Highway 506. The impacts to sensitive species would be considered less than significant.

No Sneed pincushion cactus nor desert night blooming cereus populations would be affected by the change in military land use as a result of LU-4; therefore, impacts to these species would remain less than significant.

Northern aplomado falcon potential habitat would be similarly impacted by LU-4 (Table 3-30). Off-road light vehicle maneuvering would impact (crushing, uprooting, elimination) some grassland habitats that might support the species; however, the amount of area (115.5 square kilometers) represents a small proportion (only 17 percent) of the total area of northern aplomado falcon habitat and would be considered less than significant. In addition, nearly 50 percent of this habitat would be located in the Southeast McGregor Range, would experience a decrease in the number of times of vehicle drive-over (Table 3-30). As previously noted, the northern aplomado falcon is transient and has only been spotted on or adjacent to the Otero Mesa South of Highway 506 (Table 3-23, Figure 3-13).

Locally Important Natural Resources –The arroyo-riparian areas that would experience vehicle drive-over would increase to nearly 60 percent of the total arroyo-riparian areas on the FBTC. The arroyo-riparian LUA would remain in effect in these areas; therefore, as in LU-3, impacts to this habitat under LU-4 would be less than significant when considered across the entire FBTC, but could be locally significant in the FBTC subdivision if vehicular crossings occurred at multiple localities in a restricted area with a high frequency.

Under LU-4, the drive-over rates for both the sand sagebrush and shinnery oak island areas within the Tularosa Basin of McGregor range would slightly decrease from the LU-1 rates, which were determined to be less than significant. Therefore, under LU-4, the impacts to sand sagebrush and shinnery oak islands would continue to be less than significant.

Under LU-4, the off-road vehicle maneuvers impacts to the mesa grasslands would slightly increase from approximately 19 percent under LU-1 to 21 percent of the total mesa grassland area on the FBTC. Less than 5 percent of the black grama grasslands on Fort Bliss would be found in the areas proposed for off-road vehicle maneuver under LU-4. Further, what populations are present are a primarily a mix of blue and black grama grasslands (i.e. grasslands are not dominated by black grama). Therefore, the impact to black grama grassland and potential conversion to blue grama grassland is less than significant. The vehicle drive-over rate range would slightly decrease from LU-3 to 0.23 to 1.53 times annually under LU-4. The slight decrease in drive-over rates would counter the slight increase in drive-over area. In summary, the impacts to LINR associated with LU-4 would be less than significant.

3.6.6 Land Use Changes Alternative 5 (LU-5)

LU-5 adds to the previous alternatives the placement of three square kilometers of Controlled FTX sites in Otero Mesa South of Highway 506. The effects to vegetation in the Controlled FTX sites would be very similar to those described for LU-2 and LU-3. The vegetation impacts from the use of the Controlled FTX areas would increase for the grassland areas but the area of impact to the grassland is limited to the three square kilometers of the Controlled FTX. Under this alternative, the Other Unit use of the Otero Mesa South of Highway 506 would slightly increase, resulting in a slight overall increase in on-road vehicle trips in this area.

Table 3-31 summarizes the number of times LINRs would experience drive-over annually under LU-5 by L, M, and H classified vehicles. The number of times ground is driven over remains nearly identical as LU-4, with a slight drop in drive-over rates in the Northeast McGregor Range North of Highway 506 under LU-5/ST-4. This is due to the shift in Other Units training from the Northeast McGregor Range North of Highway 506 to the Otero Mesa South of Highway 506, which does not allow off-road vehicle maneuver. The slight decrease in drive-over rates in the Northeast McGregor Range North of Highway 506 would generally result in grasslands impacts similar to LU-4 and would be less than significant.

Table 3-31. Number of Times Locally Important Natural Resources would be Driven-Over Annually under Land Use Change Alternative 5.

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of TA Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-5															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	L	L	M	H	Total	L	M	L	Total
Grasslands	South Training Areas	0.5%	5.5	95%	5	0.82	0.38	0.12	**1.30**	0.94	0.42	0.12	**1.50**	0.90	0.39	0.09	**1.40**	1.00	0.43	0.10	**1.60**
	Doña Ana Range–North Training	7%	82	94%	77	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.82	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	10%	114	83%	94	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	14%	165	99%	162	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	25%	292	27%	79	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.44	0.00	0.00	**1.44**
	Otero Mesa South of Highway 506	44%	525	0%	0	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
	TOTAL	--	**1,182**	--	**417.9**	**3.36**	**0.98**	**0.30**	**4.61**	**3.76**	**1.11**	**0.30**	**5.24**	**3.75**	**1.11**	**0.33**	**5.26**	**4.50**	**1.35**	**0.45**	**6.27**
Mesa Grasslands[2]	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	11	83%	9	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	18%	91	99%	90	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	8%	42	27%	11	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.44	0.00	0.00	**1.44**
	Otero Mesa South of Highway 506	72%	370	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**514**	--	**110.2**	**2.00**	**0.35**	**0.11**	**2.45**	**2.16**	**0.40**	**0.11**	**2.71**	**2.19**	**0.43**	**0.16**	**2.82**	**2.68**	**0.56**	**0.23**	**3.37**
Shinnery Oak	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	58%	1.12	83%	0.93	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	0%	0	99%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Northeast McGregor Range North of Highway 506	42%	0.81	27%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Otero Mesa South of Highway 506	0%	0	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**1.93**	--	**0.93**	**0.62**	**0.28**	**0.08**	**0.97**	**0.75**	**0.33**	**0.08**	**1.20**	**0.78**	**0.35**	**0.12**	**1.30**	**1.00**	**0.43**	**0.17**	**1.50**

LINR	FBTC Subdivision	% of LINR Found in Subdivision	LINR Area on FBTC (km2)	% of TA Used for Off-Road Maneuver	LINR Area Used for Off-Road Maneuver (km2)	Number of Times Driven-Over by Off-Road Vehicle Maneuver[1] Under LU-5															
						ST-1				ST-2				ST-3				ST-4			
						L	M	H	Total	L	M	H	L	L	M	H	Total	L	M	L	Total
Arroyo-Riparian	South Training Areas	2%	6.95	95%	6.6	0.82	0.38	0.12	**1.30**	0.94	0.42	0.12	**1.50**	0.90	0.39	0.09	**1.40**	1.00	0.43	0.10	**1.60**
	Doña Ana Range–North Training	14%	40	94%	38	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.82	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	28%	82	83%	68	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	16%	46	99%	45	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	26%	77	27%	21	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.44	0.00	0.00	**1.44**
	Otero Mesa South of Highway 506	14%	39	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**291**	--	**178.4**	**2.11**	**0.98**	**0.30**	**3.36**	**2.48**	**1.11**	**0.30**	**3.96**	**2.49**	**1.11**	**0.33**	**4.00**	**3.06**	**1.35**	**0.45**	**4.83**
Northern Aplomado Falcon Habitat - Moderate	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	25%	26	94%	24	0.54	0.25	0.07	**0.86**	0.66	0.29	0.07	**1.03**	0.66	0.29	0.08	**1.04**	0.82	0.36	0.12	**1.30**
	Tularosa Basin of McGregor Range	22%	23	83%	19	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	15%	16	99%	16	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	5%	5.6	27%	2	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.44	0.00	0.00	**1.44**
	Otero Mesa South of Highway 506	33%	35	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**105**	--	**60.7**	**1.29**	**0.60**	**0.18**	**2.06**	**1.54**	**0.69**	**0.18**	**2.46**	**1.59**	**0.72**	**0.24**	**2.60**	**2.06**	**0.92**	**0.35**	**3.23**
Northern Aplomado Falcon Habitat – High	South Training Areas	0%	0	95%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Doña Ana Range–North Training	0%	0	94%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	Tularosa Basin of McGregor Range	2%	9	83%	8	0.62	0.28	0.08	**0.97**	0.75	0.33	0.08	**1.20**	0.78	0.35	0.12	**1.30**	1.00	0.43	0.17	**1.50**
	Southeast McGregor Range	7%	38	99%	38	0.13	0.07	0.03	**0.23**	0.13	0.07	0.03	**0.23**	0.15	0.08	0.04	**0.26**	0.24	0.13	0.06	**0.43**
	Northeast McGregor Range North of Highway 506	6%	34.6	27%	9	1.25	0.00	0.00	**1.25**	1.28	0.00	0.00	**1.28**	1.26	0.00	0.00	**1.26**	1.44	0.00	0.00	**1.44**
	Otero Mesa South of Highway 506	85%	480	0%	0	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**	0.00	0.00	0.00	**0.0**
	TOTAL	--	**562**	--	**54.8**	**2.00**	**0.35**	**0.11**	**2.45**	**2.16**	**0.40**	**0.11**	**2.71**	**2.19**	**0.43**	**0.16**	**2.82**	**2.68**	**0.56**	**0.23**	**3.37**

1 Assumes uniform distribution of off-road vehicle maneuver.
2 Includes all grasslands, including mesa grassland.
3

LU-5 adds three square kilometers of Controlled FTX sites to the grassland of the Otero Mesa South of Highway 506. Placement of the Controlled FTX sites would remove three square kilometers of grassland from protection under the grassland LUA (Table 3-32). This area represents less than 1 percent of the grassland LUA area on the Otero Mesa South of Highway 506. Of the total grasslands in this area, approximately 15 square kilometers is already used for Controlled FTX sites (SEIS 2007). Direct and indirect effects on the placement of Controlled FTX sites in grassland areas were previously discussed.

Table 3-32. Portion of Locally Important Natural Resources Opened to Controlled FTX Use Under Land Use Alternative 5.

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km^2)	Percent in Controlled FTX	Resource within Controlled FTX (km^2)
Grasslands	South Training Areas	0.5%	5.5	0%	0
	Doña Ana Range–North Training	7%	82	0%	0
	Tularosa Basin of McGregor Range	10%	114	0%	0
	Southeast McGregor Range	14%	165	0%	0
	Northeast McGregor Range North of Highway 506	25%	292	14%	40
	Otero Mesa South of Highway 506	44%	525	0.6%	3.0
	TOTAL	**--**	**1,182**	**--**	**43.0**
Mesa Grasslands	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	11	0%	0
	Southeast McGregor Range	18%	91	0%	0
	Northeast McGregor Range North of Highway 506	8%	42	1.15%	0.5
	Otero Mesa South of Highway 506	72%	370	0.7%	2.6
	TOTAL	**--**	**514**	**--**	**3.1**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km^2)	Percent in Controlled FTX	Resource within Controlled FTX (km^2)
Shinnery Oak	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	0%	1.12	0%	0
	Southeast McGregor Range	0%	0	0%	0
	Northeast McGregor Range North of Highway 506	0%	0.81	0%	0
	Otero Mesa South of Highway 506	0%	0	0%	0
	TOTAL	**--**	**1.93**	**--**	**0.0**
Arroyo-Riparian	South Training Areas	2%	6.95	0%	0.0
	Doña Ana Range–North Training	14%	40	0%	0
	Tularosa Basin of McGregor Range	28%	82	0%	0
	Southeast McGregor Range	16%	46	0%	0
	Northeast McGregor Range North of Highway 506	26%	77	23.4%	18
	Otero Mesa South of Highway 506	14%	39	0.4%	0.2
	TOTAL	**--**	**291**	**--**	**18.2**
Aplomado Falcon Habitat – Moderate	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	25%	26	0%	0
	Tularosa Basin of McGregor Range	22%	23	0%	0
	Southeast McGregor Range	15%	16	0%	0
	Northeast McGregor Range North of Highway 506	5%	5.6	3.33%	0.19
	Otero Mesa South of Highway 506	33%	35	1.1%	0.38
	TOTAL	**--**	**105**	**--**	**0.57**

LINR	FBTC Subdivision	Percent Found in Grassland LUA within Subdivision	Resource Area on FBTC (km^2)	Percent in Controlled FTX	Resource within Controlled FTX (km^2)
Aplomado Falcon Habitat – High	South Training Areas	0%	0	0%	0
	Doña Ana Range–North Training	0%	0	0%	0
	Tularosa Basin of McGregor Range	2%	9	0%	0
	Southeast McGregor Range	7%	38	0%	0
	Northeast McGregor Range North of Highway 506	6%	34.6	1.14%	0.39
	Otero Mesa South of Highway 506	85%	480	0.61%	2.9
	TOTAL	**--**	**562**	**--**	**3.32**

Wildlife - Impacts to wildlife under LU-5 would be essentially the same as under LU-4. The addition of three square kilometers of Controlled FTX sites within Otero Mesa South of Highway 506 would not cause a substantial increase in impacts to and grassland species of wildlife compared to the previous land use alternatives. Placement of three square kilometers of Controlled FTX sites on Otero Mesa South of Highway 506 would not have a notable impact to any wildlife species and the impacts would be less than significant from the addition of the three controlled FTX sites.

Sensitive Species – Dismounted and on-road training maneuvers and concentrated activities at three Controlled FTX sites on Otero Mesa South of Highway 506 would not be expected to increase impacts to any sensitive species. Impacts to sensitive species would be the same as those described for LU-4. Impacts to moderate to high potential northern aplomado falcon habitat would not change appreciably from LU-4 (Tables 3-30 and 3-31). Overall, the impacts to sensitive species would be less than significant for the same reasons as sensitive species in LU-4. It is noted that other sensitive species, including, but not limited to Gray vireo, grey footed chipmunk, Kuenzler cactus, Sneed pincushion cactus, and desert night blooming cereus would not be impacted by activities on the Otero Mesa South of Highway 506. Further discussion on impacts to these sensitive species is discussed in LU-1 (Section 3.6.2.1).

Locally Important Natural Resources - Impacts to LINR resulting from off-road vehicle training would not change appreciably from LU-4 (Table 3-31). Less than one percent of arroyo-riparian habitat would be impacted by Controlled FTX site placement on Otero Mesa South of Highway 506 (Table 3-32). The placement of the Controlled FTX sites in LU-3 and LU-5 would impact approximately 6 percent of the total arroyo-riparian habitat on the FBTC (Table 3-31). Given this small amount of area and the fact that the arroyo-riparian LUAs would remain in place, impacts would be less than significant when considered both on the Otero Mesa South of Highway 506 and across the FBTC.

The placement of three Controlled FTX sites on the Otero Mesa South of Highway 506 FBTC subdivision would have a less than significant impact on LINR largely due to the small size and

corresponding size of impacts from training activities. Placement of three Controlled FTX sites within the Otero Mesa South of Highway 506 would impact less than one percent of the mesa grassland in this area. Additionally, the placement of the Controlled FTX sites in LU-3 and LU-5 would also impact less than one percent of the total mesa grassland on the FBTC (Table 3-32). Given this small amount of area, impacts would be less than significant when considered both on the Otero Mesa South of Highway 506 and across the FBTC.

This alternative would not increase off-road vehicle maneuver impacts to the sand sagebrush and shinnery oak islands beyond what was assessed in LU-4. Impacts to LINR would be considered less than significant for the same reasons previously discussed in LU-4.

3.6.7 Training Infrastructure Improvements

This category involves Alternatives to modernize and standardize the inventory of ranges. In order to meet specific training requirements, training infrastructure improvements would be necessary and are addressed in the Alternatives.

3.6.7.1 Training Infrastructure Improvements Alternative 1 (TI-1)

TI-1 would continue the current training infrastructure as adopted in the 2007 ROD for the 2007 SEIS with the ranges in place or that have already been analyzed. This EIS states that the ranges are compatible with the designated land use. No additional improvements to existing infrastructure would be constructed beyond those already analyze in other NEPA documents. Under this alternative, no impacts to natural resources would occur beyond what currently exists or has been previously analyzed.

3.6.7.2 Training Infrastructure Improvements Alternative 2 (TI-2)

Under TI-2, Fort Bliss would complete construction of new ranges in the FBTC to accommodate the stationing and training alternative selected. These ranges would accommodate the needs of the BCTs stationed at Fort Bliss.

The impacts in this alternative would be similar to the ones in the 2007 SEIS for the construction of new training ranges. The proposed 26 new ranges would be constructed to accommodate the training of the four HBCT's and two IBCT's stationed at Fort Bliss (Table 2-35). The specific locations of these ranges have not been determined, but they will generally be located within the following three areas – McGregor Range, Dona Ana Range, and the Orogrande Range. These areas contain primarily mesquite coppice dune and shrubland communities and include other existing ranges. These are lands that are mostly disturbed by human use, overgrazing by cattle for more than 100 years, and drought. The new ranges would not have a significant adverse impact on native vegetation which is limited if present within these areas. The exception would be some shrublands and grassy locations, but the vegetation is mostly comprised of invasive shrubs. The loss of vegetation would mean loss of animal nesting substrate and habitat for food sources; however, individuals would be able to move to adjacent locations (U.S. Army 2007 SEIS) since similar habitat occurs over the majority of the installation; therefore, impacts would be less than significant.

One Battle Area Complex (BAX) range and additional ranges would be required if ST-3 and ST-4 is the selected alternative (Table 2-36). The construction of these future ranges would occur as the need arises and funds are available. Sites would be selected and analyzed under NEPA for site-specific impacts at that time.

Wildfire- Wildfire, especially during periods of drought, is a direct impact to vegetation and habitats. Wildfires may result from the increased in ranges that include live weapons firing or pyrotechnics and from human carelessness. Fires generally occur when fine fuel loads are high. Most of the desert scrub and shrubland cover types are not very susceptible to fire, except when unusual weather conditions result in high fuel loads. Given the general locations of the proposed ranges, the potential for additional wildfires associated with TI-2 would be less than significant.

Sensitive Species and Wildlife

Sensitive species in the locations of the new training ranges are the New Mexico endangered desert night blooming cereus cactus, Texas horned lizard, western burrowing owl, and loggerhead shrike. Ranges would not be located at cereus cactus locations. The Texas horned lizard and burrowing owl known to inhabit the range training areas would have local populations reduced by habitat destruction and nesting holes covered, but sufficient populations exist in the ROI that would not significantly reduce these species populations. Nesting birds use the shrubs for reproduction. Other vertebrates, such as rabbits and lizards, use the shrubs for shade in the hot times of the year and would have their habitat reduced. Indirect impacts from loss of habitat would cause limited decreases in population and diversity of wildlife because at stated earlier many of these species would move to adjacent areas of similar habitat.

Local Important Natural Resources

There are numerous arroyo/riparian areas dissecting the proposed range areas. Arroyo/riparian areas are LUA's and range construction is prohibited within 50 meters. The impacts are not significant since either much of the area to be used for new ranges or future ranges are already disturbed (coppice dunes) or there is sufficient habitat in adjacent areas for fauna species. The three sand sagebrush communities and shinnery oak islands would not be impacted under TI-2.

3.6.7.3 Training Infrastructure Improvements Alternative 3 (TI-3)

Under TI-3, the improvements listed under TI-2 plus the construction of COLs would occur. Billet space would increase at the McGregor Range Camp, decrease at Doña Ana Range Camp, and increase at Orogrande Range Camp. The COL's would be located as:

- Six in the South Training Areas
- Five in the Tularosa Basin Portion of McGregor Range
- Five in the Doña Ana – North Training Areas

The facilities criteria for COLs require one square kilometer and location on unimproved roads. The impacts in this alternative would be similar and additional to the ones in TI-2. The proposed new 16 COLs ranges using 16 square kilometers (approximately 2,000 acres) would increase space in the McGregor Range and Orogrande Range Camps and decrease space in the Doña Ana Range Camp. The full disturbance with heavy equipment would be approximately 125 acres (0.5 square kilometer) per site. The COLs would be located in mesquite coppice dune and shrubland communities where ranges are presently located in disturbed landscapes. COLs are proposed to be located in the same areas as the present ranges. The new ranges would not be expected to have significant adverse impacts on vegetation. Most of the habitat is previously disturbed and invaded by shrubs. Additional impacts related to construction of COLs would include temporary construction of berms and digging of holes. Because these activities are temporary, they are considered to have no significant impacts.

Wildfire- The establishment of COLs and range expansions through clearing and berming of land would not increase the wildfire potential.

Sensitive Species and Wildlife

Sensitive species in the locations of proposed ranges are the New Mexico endangered desert night blooming cereus cactus, Texas horned lizard, western burrowing owl, and loggerhead shrike. The horned lizard, loggerhead shrike and burrowing owl that are known to inhabit the range training areas would have local populations reduced, by habitat destruction and nesting holes covered but considerable numbers exist in the ROI. Because considerable populations occur, impacts to sensitive species would be less than significant.

Local Important Natural Resources

The arroyo/riparian areas would be excluded from the COL and range expansion areas. The three sand sagebrush communities and shinnery oak islands would not be impacted under TI-3.

3.6.7.4 Training Infrastructure Improvements Alternative 4 (TI-4)

The proposed new rail line is projected to be placed along US-54. The land includes mesquite coppice dune communities where the adjacent utility line and rail line are presently located in disturbed landscapes. The new rail line would not be expected to have significant impacts on vegetation since the coppice duneland occurs in areas historically impacted.

The only listed sensitive species located in the rail line area might be the Western burrowing owl, loggerhead shrike and Texas horned lizard. Impacts to lizard or sensitive bird species would be less than significant.

3.7 Cultural Resources: Affected Environment

This section defines and summarizes the known and expected cultural resources on Fort Bliss with an emphasis on those found in the Northeast McGregor Range North of Highway 506, Otero Mesa South of Highway 506, and other areas of the installation where new or more intense impacts will occur. This information provides the necessary background to analyze impacts to cultural resources from the Proposed Action. In addition, the regulatory requirements for cultural resources are briefly discussed in this section.

Cultural resources represent a VEC at Fort Bliss. These resources include prehistoric and historic archaeological sites, traditional cultural properties, sacred sites, buildings, structures, artifacts, cultural landscapes, and historic districts. Cultural resources represent the material manifestations of the knowledge, technologies, beliefs, art, morals, laws, and customs particular to the people who have resided in a region. Fort Bliss manages cultural resources associated with all prehistoric and historic periods recognized in south-central New Mexico and west Texas. These resources can be grouped into five major categories.

- Archaeological sites – locations where human activity occurred. These remains consist of artifacts (such as stone tools, broken pottery, nails, bottles); remnants of the construction of above- or below-ground features such as storage pits, ovens, or houses; art work on rock walls, boulders, or caves; or some combination of these. At Fort Bliss, archaeological sites date from 10,000 B.C. (the earliest conclusive evidence of Native Americans in the region) to the early twentieth century when farmers, ranchers, and others occupied the installation. Some prehistoric

archaeological sites at Fort Bliss can be quite small and consist of a few pieces of broken pottery or the remains of stone-tool making. Others can be quite complex and consist of multi-room pueblos or pit house settlements. Archaeological sites dating after the establishment of the Spanish mission at modern Juarez in A.D. 1659 may represent the remnant occupations of Native Americans living in the region at that time (for example, Manso, Suma, Jocome, Apache, Piro, or Tigua), the Euroamerican settlers who moved into the region, or both.

- Architectural resources – buildings and structures that are generally over 50 years of age. These cultural resources include barracks and officers' quarters, mess halls, cavalry stables, garages, dams, canals, bridges and other standing structures. Most architectural resources at Fort Bliss are associated with the military and date from the late nineteenth century when the fort was moved to its present location, World War I, World War II, and the Cold War (1946 to 1991). A few of the architectural resources at Fort Bliss are associated with historic farms, ranches, and mining operations that date from the nineteenth and twentieth centuries along with the schools, railroads and other support facilities for those economic activities.

- Cultural landscapes – geographic areas that contain related cultural and natural resources that are generally 50 years of age or older. The resources and the spatial relationships among them define the boundaries of the cultural landscape. At Fort Bliss, they include the formal parade ground with its associated buildings and officers' quarters in the Cantonment and other military cultural landscapes. Ranching landscapes and farming landscapes may also be on Fort Bliss, particularly on McGregor Range and in the Northeast McGregor Range North of Highway 506, and represent places modified by human activity to reflect certain traditions, customs, or values of the everyday lives of the people who lived there. Ethnographic or traditional landscapes may also be present at Fort Bliss. Those would contain whichever natural and cultural resources, such as contemporary settlements, religious sites, or geological structures, a group of people define as part of their heritage.

- Traditional cultural properties (TCPs) – resources associated with the cultural practices and beliefs of a living community. TCPs are rooted in the history of the community and are important in maintaining the community's continuing cultural identity. TCPs are physical locations, deriving significance from a group and its values, beliefs and/or practices. Federal agencies must make a reasonable effort to identify any TCPs in the planning stages of an action. Although often applied to Indian tribes, any American group may consider a location a TCP. If found eligible for the National Register, a TCP must be treated as any other historic property.

- Sacred sites – resources of traditional religious importance. Sacred sites are physical locations identified by an Indian tribe or a representative of an Indian religion as held sacred in their religion or used for religious ceremonies. Sacred sites may also qualify as TCPs. These sites are often of such importance that their locations are kept confidential. Because of their importance to a tribe, there is no requirement to determine if they are eligible for the National Register. Federal agencies usually identify sacred sites during consultations with Indian tribes.

3.7.1 Prehistoric and Historic Background

The 2000 PEIS (U.S. Army) describes in detail the cultural history of Native Americans and post-contact inhabitants in the region. The ICRMP for Fort Bliss, updated in 2008, also contains detailed information about the prehistory and history of Fort Bliss (U.S. Army). Both documents are incorporated by reference. Because that baseline information is current and has not changed since 2008, only a brief summary taken from those documents is provided here.

Human groups have occupied the lands of Fort Bliss for at least the last 12,000 years. The earliest conclusively documented evidence of prehistoric human occupation in the Jornada occurs during the Paleo-Indian period (10,000 B. C. – 6,000 B.C.). Paleo-Indian adaptations have been viewed as a tradition of small, highly mobile bands with a subsistence economy centered on hunting large game animals such as mammoth and bison[2] (U.S. Army 2000). By about 6,000 B.C., woodlands had been displaced by Chihuahuan desert scrub communities and large game animals were extinct. The Archaic period began at this time and continued until about A.D. 200. The archaeological evidence indicates that local groups during this period were seasonally mobile, relying on a broad spectrum of animal and plant foods. Evidence shows increasing sedentism during certain periods of the year along with increasing populations that had restricted home range territories. Some limited evidence of the cultivation of domesticated crops has also been found late in the Archaic sequence[3] (U.S. Army 2000).

The Formative period (A. D. 200 – 1450) follows the long Archaic period and is characterized by several important changes in settlement adaptations. These include a relatively rapid succession of changes in architectural form from small huts to formal pueblos, settlement size increases, and an increased reliance on cultivated foods that culminated in the pueblo occupations between A.D. 1250/1300 and 1450. These changes, with people living in greater face-to-face contact, would have required revisions in social networks along with other changes in social organization. A general abandonment of puebloan settlements was completed by about A.D. 1450[2] (U.S. Army 2000).

The first documented contact between native groups and Europeans was in A.D. 1581. Spanish expeditions continued during the 1500s and 1600s, the more common native groups referred to in those documents were the Suma, Manso, Jocome, and Apache. The first documented Spanish mission was established around A.D. 1659 in what is now Ciudad Juarez, Chihuahua, Mexico. A salt trail from the mining districts in the modern Mexican state of Chihuahua through El Paso and the east slope of the Organ Mountains to Lake Lucero was first established in 1647. Other salt mines were established in the late 17th century in the eastern Tularosa Basin[4] (U.S. Army 2008). By A.D. 1680, the Pueblo groups in northern New Mexico were revolting against Spanish rule; the New Mexico Governor at that time led Spanish refugees and several native groups south to the El Paso area (Tiwa, Piro, and Tompiro). Today, the most well known group surviving that migration is the Ysleta del Sur Pueblo tribe (U.S. Army 2000, U.S. Army 2008).

Spain ruled the region until 1821, when Mexico gained its independence. At the conclusion of the Mexican American War in 1848, the United States acquired the region. Under Spanish and Mexican rule, most non-mining settlement remained along the Rio Grande. However, after 1848, settlement began to gradually move north and east. During this period, El Paso was an important stop on the Butterfield Overland Mail Route, portions of which have been identified on Fort Bliss. With the construction of rail lines in the 1880s, El Paso increased in size, and a number of sheep and cattle ranches were established on the lands of the installation. Several small communities and sidings grew up in association with the rail lines through what is now the installation, including Newman Section Camp, Escondida, and Alvarado (U. S. Army 2000). During the 19th century, several mining districts were established in Organ Mountains and around the Tularosa Basin; some of the mines are on what is now Fort Bliss (U.S. Army 2000).

Fort Bliss, initially begun as a military post in 1849, was established in its present location in 1893. At first, it was a minor post but during the Mexican Revolution of 1910, the fort became a major horse cavalry post. In 1916, more than 40,000 Soldiers were stationed at Fort Bliss. It played a significant role in World War I as a training, enlistment, and mobilization center. During and after that war, the fort

[2] PEIS Section 4.9, page 6
[3] PEIS Section 4.9, page 7
[4] ICRMP, page 32

continued to train Soldiers and to serve to secure the border. Several thousand acres were acquired around the original 1,000 acres (4.0 square kilometers) of the installation during this period. During World War II, Fort Bliss served as a troop reception center, and began expanding its lands to the north into New Mexico by lease and purchase. Fort Bliss also played a significant role during the Cold War (1946-1991), providing research facilities for the strategic missile program and serving as the Army Air Defense Center. Over the decades, Soldiers were trained in Nike, Nike-Hercules, Hawk, Chaparral, Patriot, Redeye, Stinger, and other missile defense systems. To accommodate these training needs, the installation began to expand; beginning in the 1940s, to the size it is today to become a training facility for artillery and other weapon systems (U.S. Army 2000).

3.7.2 Applicable Statutes, Executive Orders, and Regulations

Pursuant to Army regulation AR 200-1, the Garrison Commander at Fort Bliss is responsible for managing the cultural resources on the installation in compliance with federal laws, regulations, and standards. The laws, executive orders, and regulations that prescribe the manner in which Fort Bliss identifies the potential impacts to cultural resources that may occur from the Proposed Action (described in Chapter 2 above) are summarized here. Other legal historic preservation requirements for Fort Bliss are contained in Section 3 of the ICRMP for Fort Bliss (U.S. Army 2008) and are not repeated here.

3.7.2.1 National Historic Preservation Act of 1966, as amended (16 U.S. C. 470-470w)

The NHPA establishes a national program for historic preservation. The overarching policy of the act is to find "conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations" (Section 2, NHPA). Specifically, it:

- Allows for the expansion and maintenance of a National Register of Historic Places (Section 101).
- Requires all federal agencies to consider the effects of their actions on the nation's historic properties (Section 106).
- Directs federal agencies, such as Fort Bliss, to assume responsibility for the management of historic properties that they own or control (Section 110).

The NHPA requires that the federal agency make these decisions in cooperation with state and local governments, federally-recognized tribes, and the public.

The NHPA acknowledges that not all cultural resources are significant. Only cultural resources significant to American history, architecture, archaeology, engineering, and culture can be listed on or determined eligible for listing on the National Register of Historic Places (National Register). To be eligible for listing in the National Register, a cultural resource must meet one or more of the following criteria (from 36 CFR 60.4 (*Parks, Forests, and Public Property—National Register of Historic Places Criteria For Evaluation*):

- A property associated with events that have made a significant contribution to the broad patterns of our history.
- A property associated with the life of a person significant in our past.

- A property that embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction.

- A property that has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting this significance test, the property must also possess integrity. Integrity means that the property contains the physical characteristics that existed during the resource's historic or prehistoric occupation or use.

Cultural resources that meet this significance test are called "historic properties" or "historic districts" when multiple historic properties lie in close proximity and relate to each other (such as at the Fort Bliss Main Post). Under Section 106 of the NHPA, a federal agency is obligated to consider the effects of its undertakings on historic properties. Cultural resources that are not eligible for the National Register are not "historic properties" and not considered further under Section 106.

3.7.2.2 Protection of Historic Properties, 36 CFR 800

Protection of Historic Properties regulations, 36 CFR 800, outlines how federal agencies meet their responsibilities under Section 106 of the NHPA. They define the roles of the Agency, the ACHP, the SHPO, the Tribal Historic Preservation Officer (THPO), and interested parties or the public. The process for compliance with Section 106 consists of the steps below, all of which are made in consultation with the SHPO, THPO, and interested members of the public. At times, the ACHP may also be a consulting party to a proposed undertaking.

- *Identification of the Area of Potential Effects of the undertaking*. The Area of Potential Effects (APE) is the geographic area within which an undertaking may directly or indirectly cause changes in a historic property. For example, construction of a FTX on the location of an archaeological site that has been determined eligible for the National Register would be a direct effect that could cause dramatic changes to that historic property if portions of the FTX need to be leveled. Fort Bliss has determined that the APE for the Proposed Action would be the areas directly impacted by each individual undertaking within each alternative of the three categories. This includes the footprints for the new ranges or training facilities, FTX sites, new buildings in the Cantonment, off road vehicle training in areas where this has not been allowed, and other proposed undertakings that were not analyzed in previous environmental documents. In some cases, such as for the proposed new ranges and rail line, these footprints are known. In other cases, such as for the FTX sites in the Northeast McGregor Range North of Highway 506, the footprint has not yet been determined. As each footprint is identified, its APE will be defined by the Fort Bliss Historic Preservation Officer (HPO). It also includes TAs where the type of training or the intensity of training will change such as the proposal in Alternative LU-4 to conduct maneuver training north of Highway 506.

- *Identification of historic properties within the APE*. Each cultural resource identified on Fort Bliss is evaluated against the National Register criteria. Resources that are not determined to be eligible for the National Register are not subject to further review under Section 106. If no historic properties are found in the APE, the federal agency documents that no historic properties will be affected and has completed its compliance under Section 106. If properties eligible for the National Register are within the APE, Fort Bliss will review them under the next step.

- *Determination of effect*. Fort Bliss will determine if the proposed undertaking will have an effect on historic properties in the APE. The determination is based on whether the impacts of the proposed undertaking are likely to cause changes to the historic properties in the APE. One of the following effect findings will be made: no historic properties affected any adverse effect, or adverse effect. If the proposed undertaking will have no historic properties affected or no adverse effect, Fort Bliss documents this determination and has completed its responsibilities under Section 106.

- *Resolution of adverse effect/mitigation*. When the effects are found to be adverse, Fort Bliss examines the proposed undertaking to determine if it can be 1) cancelled, 2) relocated, 3) altered to minimize impact, or 4) redesigned to avoid adverse effects. If the proposed undertaking cannot be modified, Fort Bliss will develop mitigation measures that include but are not limited to measures such as excavation of archaeological sites that are historic properties or full recordation of architectural properties eligible for the National Register.

3.7.2.3 Native American Graves Protection and Repatriation Act of 1990

Native American Graves Protection and Reparation Act (NAGPRA) requires federal agencies to consult with tribes about the discovery and disposition of Native American human remains found on federal land. It also provides a process for repatriation to tribes of burial objects not associated with human remains, objects considered sacred to a tribe, and objects considered of great importance to tribal traditions or customs.

3.7.2.4 American Indian Religious Freedom Act

American Indian Religious Freedom Act (AIRFA) affirms American Indians right of freedom to believe, express, and exercise their traditional religions. It also provides their right to access sites on federal land, use and possess sacred objects, and the freedom to worship through ceremonies. It requires federal agencies to consult with tribes about whether agency undertakings will affect tribal religious activities.

3.7.2.5 Executive Order 13007—Indian Sacred Sites

The EO 13007 regarding Indian Sacred Sites requires federal agencies responsible for federal land management to accommodate access and ceremonial use of Indian sacred sites. It also requires that the federal agency avoid adversely affecting the physical integrity of sacred sites "to the extent practicable, permitted by law and not clearly inconsistent with the essential agency functions" and provide notice to the tribe of any action that may affect the site or access to the site." Where appropriate, the Agency will also maintain the confidentiality of such sites. Sacred sites are identified by a tribe, within their religious tradition, as places of religious significance or ceremonial use. It is important to note that while all cultural resources on Fort Bliss are evaluated against National Register criteria, some properties determined not eligible under that process may be identified as a sacred site by a tribe. In such a case, the site will be managed as sacred site by Fort Bliss.

3.7.2.6 EO 13084—Consultation and Coordination with Indian Tribal Governments

EO 13084 states that there exists a unique legal relationship between the United States and Indian tribal governments. It stresses that federal agencies must collaborate with Indian tribal governments when formulating policies that would uniquely affect such governments, their treaty rights, or other rights.

Fort Bliss has consulted about this Proposed Action with several federally-recognized tribes who have expressed interest in traditional lands, sacred places, or sites within the installation in accordance with DoD Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes* (U.S. Army 2006). These tribes are Ysleta del Sur Pueblo, Mescalero Apache Tribe, Comanche Nation, and the Kiowa Indian Tribe of Oklahoma. Two other tribes, the Hopi Tribal Council and the Navajo Nation, have stated that Fort Bliss is too far from their geographical areas of interest and do not wish to receive information about the Proposed Action.

3.7.3 Existing Management Plans, Agreements, and Procedures

Many of the details about management plans, agreement documents, and internal procedures that govern day-to-day management of cultural resources on Fort Bliss were discussed in Sections 2.1.3 and 4.9.2 of the SEIS (U.S. Army 2007). That discussion is summarized as pertinent while the remaining sections are incorporated by reference. Parts that have been updated or changed are discussed here as well as a summary discussion of mitigation and monitoring measures within these documents.

In 2006, Fort Bliss, the New Mexico and Texas SHPOs, and the ACHP signed a Programmatic Agreement. That agreement has been amended twice, most recently in 2008. The amended PA details how Fort Bliss will meet its cultural resources requirements under Sections 106 and 110 of the NHPA. The PA streamlines compliance under Section 106, outlining undertakings that do not require project-by-project review by SHPOs; however, 36 CFR Part 800 is followed when addressing Section 106 with federally-recognized tribes. More detailed discussion of Fort Bliss' compliance under Section 106 and the PA is provided in the ICRMP (U.S. Army 2008) and not repeated here. The PA includes 15 Standard Operating Procedures (SOPs) that provide for consistent, day-to-day management of mission undertakings carried out on the installation that may affect historic properties, including those resulting from the Proposed Action. Each of those SOPs is summarized in the SEIS.

Fort Bliss developed its first plan, the Historic Preservation Plan (HPP), in 1982 to manage cultural resources. It was replaced by an ICRMP in 1998. The ICRMP is a five-year plan to protect and manage the installation's cultural resources in compliance with various federal laws and regulations. It integrates those management responsibilities with the installation's military training, construction, maintenance, and other mission-related activities. The ICRMP was revised in April, 2008 (U.S. Army 2008). The current ICRMP incorporates the PA and its 15 SOPs, but also contains five additional SOPs. Those SOPs are:

SOP 16: COMPLIANCE WITH ARCHAEOLOGICAL RESOURCES PROTECTION ACT (ARPA) OF 1979. This SOP reaffirms that all archaeological materials on Fort Bliss are the property of the United States Government, except where NAGPRA applies. It outlines a training and awareness program, the ARPA Permitting process on Fort Bliss, jurisdictional boundaries, and documentation of suspected ARPA violations. Under ARPA, either criminal or civil proceedings can be employed against suspected violators.

SOP 17: COMPLIANCE WITH NAGPRA. This SOP specifies the process Fort Bliss will follow when Native American human remains, funerary objects, or objects of cultural patrimony are encountered on the installation. As part of a monitoring program for suspected NAGPRA items, Fort Bliss requires notification of the potential for uncovering such items, and procedures to follow in that event, to any military unit, civilian, or contractor intending to disturb the ground. Other environmental training of these groups includes similar notification and procedural requirements.

SOP 18: NATIVE AMERICAN CONSULTATION UNDER THE NHPA. This SOP establishes how Fort Bliss will consult with Native American tribes to meet the installation's responsibilities

under the NHPA. Formal consultation will be conducted on a government-to-government basis, beginning early in the project planning, and continuing throughout the project's life.

SOP 19: IDENTIFYING CONSULTING PARTIES. This SOP details the process that Fort Bliss will use to identify consulting parties for proposed projects. The SHPO and Native American tribes will always be consulting parties. Local governments, historic preservation organizations, and the general public will also be given opportunities to be consulting parties.

SOP 20: CURATORIAL AND COLLECTION MANAGEMENT OF ARCHAEOLOGICAL AND HISTORICAL COLLECTIONS AND RECORDS. This SOP clarifies that the Fort Bliss curatorial facility serves as a premier facility for the installation's archaeological collections and records. It also serves as a research facility to promote the history of Fort Bliss and the prehistoric cultures of the region. The SOP sets out the processes that will be used to manage the collections and records Fort Bliss holds.

The ICRMP includes an action plan whose goals include integrating preservation compliance requirements with planning and conducting military training, and surveying for and evaluating sites on McGregor Range and other areas where change in military training will have the greatest impact. The goals also include minimizing and/or mitigating adverse effects on all eligible properties in concert with the execution of military training and support activities.

To aid in identification and evaluation of archaeological historic properties, Fort Bliss issued *Significance Standards for Prehistoric Archaeological Sites at Fort Bliss* (Abbott et al.) in 1996. Those standards provide guidance for determining a site's NRHP eligibility that is based on seven research domains: chronometrics, geoarcheology, paleoenvironment, technology, settlement patterns, subsistence, and cultural interaction. Those standards have been revised (Miller et al. 2009) and are now incorporated into the amended PA. The draft was submitted to the SHPOs, federally-recognized tribes, and interested parties in the fall of 2008; the final version was completed in the spring of 2009. The revised document outlines a two-tiered approach to site evaluation. The requirements in the first tier (chronometric potential and geomorphological and geoarchaeological [spatial] integrity) must be met before second tier requirements can be addressed. The first of a series of historic contexts that will not only guide evaluation of the site, but any later mitigation, are also developed in the document.

Several other agreement documents also guide Fort Bliss compliance with Section 106, including several ACHP Program Comments made to DoD and PAs for the RCI and EUL programs. All these agreements govern certain architectural properties at Fort Bliss, such as World War II Temporary Buildings, Cold War Era barracks and ammunition storage facilities, and Capehart/Wherry Housing. The agreements are not subject to the stipulations of the amended PA and are used to address a category of undertakings in lieu of conducting individual reviews for each building. They also guide the installation's ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation, and transfer, sale, lease, and closure of Cold War Era buildings and structures. These agreements are discussed in detail in the current ICRMP and not repeated here[5] (U.S. Army 2008).

Finally, some parts of the installation are jointly managed with other federal agencies. Most of TA 33 is part of the Lincoln National Forest. A 1971 Memorandum of Understanding (MOU) between the USFS and Fort Bliss has been signed. A large portion of McGregor Range lands, including Otero Mesa South of Highway 506, some lands north of Highway 506, and TAs 24 through 27, were withdrawn from the BLM. A 2006 MOU with BLM specifies that the proponent of an undertaking, whether BLM or Fort

[5] ICRMP, pages 59-60

Bliss is responsible for permitting and oversight of historic resource investigations as part of compliance with Section 106 of the NHPA. The two agencies share information on completed projects and coordinate future projects annually.

Based on these various agreements and Program Comments, Fort Bliss uses a number of mitigation and monitoring measures to resolve adverse effects to historic properties. The HPO and the implementing organization consider the following options to mitigate adverse effects in accordance with the SOPs: (1) project cancellation, (2) project relocation to avoid impact to the historic property, (3) minimization of impact, and (4) project redesign to avoid adverse effects to the historic property. When an undertaking proposes the demolition of a historic building, the option of adaptive reuse of that building must also be considered.

Fort Bliss also continues to inventory historic properties in the TAs. The PA required that 30 percent of the unsurveyed area of each TA be inventoried prior to receiving the higher levels of off-road vehicle maneuvers authorized in the SEIS. As of January, 2009, only TA 25 has not achieved the 30 percent sample. In TAs where the 30 percent sample of unsurveyed land is complete, training which does not involve digging, placement of FTX sites, or concentrating large numbers of vehicles or troops, is allowed regardless of whether or not eligible sites are present. However, if the training will involve these activities, it will only be allowed in areas that have been adequately inventoried and historic properties are not present or have been mitigated. OLAs are not open to training and only vehicular or dismounted travel through LUAs is allowed. OLAs and LUAs are routinely monitored by Fort Bliss' cultural resource personnel after training activities to identify any impacts and adjust protection if needed.

Impacts that will include digging, concentrations of vehicles or Soldiers, or FTX sites in any TA, are reviewed through the Range Facility Management Support System (RFMSS)/NEPA process and allowed where eligible properties are not present. During this review process, the HPO may find that the APE has not been inventoried, or was inventoried using methods that do not meet current standards. In such cases, the HPO will take steps to adequately inventory the APE. When historic properties are present in these situations and cannot be avoided, they will be mitigated through the measures detailed in the SOPs. Fort Bliss may also choose to mitigate historic properties through establishment of new OLAs. An OLA was recently established around a pueblo and associated sites near McGregor Range Camp. Another is in the process of being staked for avoidance in TA 10 (Knight 2009). Other OLAs may be established in areas of the installation, such as the Northeast McGregor Range North of Highway 506, that do not currently have OLAs. These areas will be established as new information from on-going archaeological surveys becomes available. Fort Bliss also anticipates that rock shelters with cultural deposits, found in several areas of the installation, will be OLAs. If tribes identify rock shelters or caves as TCPs or sacred sites, those shelters and caves may also be made OLAs.

Fort Bliss can also consider off-site mitigation, sampling, or other processes in consultation with the New Mexico or Texas SHPO and tribes. The step-by-step process of identification, avoidance, or mitigation is followed for any construction or maintenance that entails ground disturbance in the TAs. Inadvertent discovery procedures are always in place. Consultation for inadvertent discoveries follows the same process used for other properties with appropriate SHPO. If found eligible, either a mitigation measure in the SOPs would be followed, or an alternative mitigation measure would be chosen in consultation with the SHPO and tribes to mitigate adverse effects. If human remains are encountered, the procedures outlined in the NAGPRA SOP (#17) of the ICRMP will be followed.

3.7.4 Cultural Resource Inventories and Investigations

Historic resource studies have been undertaken at Fort Bliss since the 1920s (Abbott et al. 1996). Several hundred of these studies have been completed on Fort Bliss and in the El Paso region (U.S. Army 2007).

A list of the studies carried out on the installation is available in section 5 of the ICRMP (U.S. Army 2008). As a result of these studies, over 18,000 historic and prehistoric archaeological sites have been recorded within the base cantonment, Biggs Army Airfield, and the FBTC. As of November 2008, the inventory for all buildings constructed prior to 1964 was complete. That inventory adds over 4,000 architectural properties to the cultural resource database. It should be noted that some architectural resources on the installation, particularly the ranching sites found in the training areas, are also recorded as archaeological sites.

3.7.4.1 Archaeological Inventories

The SEIS provides a summary of the archaeological investigations undertaken in the region and at Fort Bliss, beginning with investigations carried out in the 1920s (U.S. Army 2007). That information is included by reference and not repeated here. The focus in this section is on the overall inventory and on recently completed and on-going investigations on the installation.

Table 3-33 summarizes historic and prehistoric archaeological sites identified on Fort Bliss by area as of November 2008[6], except for those located in Castner Range. Investigators have identified over 18,000 sites on the installation. Most sites were recorded in systematic, professional surveys that began in the 1970s. Some early surveys did not meet the current, stricter archaeological standards for adequate inventories. Those surveys can be used for planning purposes such as predicting the site types likely to be found in a particular part of the installation, but re-surveying will be required if the land is to be impacted. Surveys consistent with current state standards are identified as valid surveys in accordance with the stipulations of the PA. Fort Bliss has an on-going program to identify new cultural resources in the TAs. Recently, much of that effort has been concentrated in the Northeast McGregor Range North of Highway 506, Otero Mesa South of Highway 506, TA 24-27, and McGregor Range north of Highway 506 in anticipation of the Proposed Action. Approximately 79 percent of the installation has been subjected to systematic archaeological survey (Table 3-34), but not all of the surveys are considered valid under the standards required by the PA. At present, another 89,000 acres (360 square kilometers) are undergoing inventory. SOP #5 of the PA stipulates that an additional 10,000 acres (40.5 square kilometers) will be surveyed each year depending on the availability of funding. Fort Bliss anticipates that additional archaeological surveys will be undertaken in subsequent years.

Table 3-33. Fort Bliss Historic Properties Data Base Summary – Archaeological Sites.

Location	Listed in NRHP	Eligible	Not Eligible	Undetermined	Fort Bliss Subtotals
Cantonment/Biggs AAB					
Prehistoric	1	136	502	156	795
Historic	1[7]	6[8]	22	7	36
South Training Areas (TAs 1-2)					
Prehistoric	1	1,265	2,450	1,825	5,541
Historic	0	30	34	30	94
Southeast McGregor Range (TAs 24-27)					
Prehistoric	0	69	84	126	279

[6] These figures do not remain static. As Fort Bliss inventories more of their lands and determines which sites are eligible for the National Register, these numbers change monthly.
[7] The Main Post National Register District comprised of 346 properties.
[8] Includes a Historic District comprised of 70 buildings.

Location	Listed in NRHP	Eligible	Not Eligible	Undetermined	Fort Bliss Subtotals
Historic	0	11	38	6	55
Tularosa Basin portion of McGregor Range (TAs 8-11, 12 west of Northeast McGregor, 29-32)					
Prehistoric	0	860	1,613	1,599	4,072
Historic	0	37	135	44	216
Otero Mesa (South of 506-TAs 16-23)					
Prehistoric	0	70	153	230	453
Historic	0	5	36	16	57
Northeast McGregor Range (North of 506-TAs 12-15 and 33)					
Prehistoric	0	61	94	329	484
Historic	0	12	28	15	55
Doña Ana Range–North Training Areas (TAs 3-7)					
Prehistoric	0	1,474	4,120	571	6,165
Historic	0	28	66	64	158
Totals	3	4,064	9,371	5,018	18,460

Table 3-34. Total Area of Fort Bliss subjected to Archaeological Survey.

Location	Total Acres (km^2)	Total Acres Surveyed (km^2)	Percentage Surveyed (%)
Cantonment/Biggs AAB	21,621.9 (87.5)	21,621.9 (87.5)	100.0
South Training Areas (TAs 1-2)	95,571.4 (386.5)	90,736.6 (367)	95.95
Southeast McGregor Range (TAs 24-27)	97,006.8 (392)	68,779.9 (278)	70.90
Otero Mesa South of Hwy 506 (TAs 16-23)	138,192.8 (559)	74,328.9 (301)	53.79
Northeast McGregor Range North of Hwy 506 (TAs 12-15 and 33)	104,574.5 (423)	79,893.4 (323)	76.40
Doña Ana Range–North Training Areas (TAs 3-7)	295,075.2 (1,194)	245.492.6 (993)	83.20
Tularosa Basin portion of McGregor Range (TAs 8-11, 12 west of Northeast McGregor, 29-32)	356,032.3 (1,440)	297,706.9 (1,205)	83.62

Fort Bliss is also evaluating sites for the National Register. Early surveys on the installation did not include requirements to systematically evaluate sites for the National Register. Today, Fort Bliss requires evaluations of newly recorded sites as part of surveys of lands not previously inventoried or lands not inventoried to current standards. Since the 2007 SEIS, National Register eligibility has been determined for several hundred sites; contracts issued in 2008 will determine the eligibility for over 300 previously recorded sites. Current evaluation efforts are concentrated in areas of the installation that are expected to receive an increase in training due to the Proposed Action, and in areas where project proponents indicate

that impacts will include digging or other subsurface impacts. Survey and evaluation are also underway in anticipation of new railheads and a possible rail line parallel to U.S. 54.

All information on the sites has been incorporated into a GIS database system. The system provides efficient management of the resources, including areas surveyed, areas not yet inventoried, and the National Register status of each site.

Figure 2-2 presents OLAs and LUAs on Fort Bliss. These are internal management units begun under the installation's 1982 HPP. All military training activity is prohibited in OLAs. Military activity allowed in LUAs is confined to mounted and dismounted travel through the area, but concentrations of vehicles, digging, establishment of FTX sites or other similar activities are prohibited. They are surrounded by unrestricted areas. Some OLAs have large sites with buried materials and dense concentrations of surface artifacts. The OLAs were established to protect a representative sample of the types of sites on the installation. Some of these sites were never formally determined eligible for the National Register in consultation with the SHPOs. Because they are in protected zones, and thus off-limits to undertakings, there is no present need to evaluate and consult on eligibility. In current practice, OLAs are generally only designated when National Register-eligible sites are densely concentrated in one area.

Tables 3-35 and 3-36 provide the numbers of sites in OLAs and LUAs on the installation that were established to protect archaeological sites. They contain 2,283 sites, approximately 12 percent of the known sites. No archaeological OLAs or LUAs have been established on Otero Mesa or in the Northeast McGregor Range North of Highway 506 because only dismounted military maneuvers have taken place there, with the exception of Centennial Range. When the currently on-going surveys in these parts of the installation are complete, the Fort Bliss HPO will determine if such areas should be established in these portions of the installation. No archaeological OLAs or LUAs are in the southeast McGregor TAs. Based on information from on-going archaeological surveys, these types of protection zones could be established in those training areas. The tables also show the principal time period assigned to the site. Because the sites have had limited subsurface investigations, other time periods may be represented in the sites.

Table 3-35. Off Limit Areas Established for Archaeological Sites in Each Area of the Installation by Time Period.

EIS Division	Prehistoric				Historic	No Temporal Designation
	Paleoindian	Archaic	Formative	Unk. Prehistoric		
Main Cantonment/Biggs AAF	0	1	26	1	0	1
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0
Southeast McGregor Range	0	0	0	0	0	0
Tularosa Basin portion of McGregor TAs	15	15	27	0	3	1
Doña Ana Range–North Training Areas	15	52	186	113	5	88
South Training Areas	0	0	111	33	0	46

Table 3-36. Sites Currently in Archaeological LUAs in each Area of the Installation by Time Period.

EIS Division	Prehistoric				Historic	No Temporal Designation
	Paleoindian	Archaic	Formative	Unk. Prehistoric		
Main Cantonment/Biggs AAF	0	0	2	0	0	0
Northeast McGregor Range North of Hwy 506	0	0	0	0	0	0
Otero Mesa South of Hwy 506	0	0	0	0	0	0
Southeast McGregor Range	0	0	0	0	0	0
Tularosa Basin of McGregor Range	0	4	18	26	7	18
Doña Ana Range–North Training Area	13	58	144	361	2	98
South Training Area	3	38	245	205	8	292

Other LUAs have been established for natural resources in the training areas (Table 3-37). While their designation was made without concern for archaeological sites within their boundaries, the restricted use of these areas has effectively resulted in reduced impacts to the sites within those LUAs. Sites in these areas total 1,737. When combined with the OLAs and archaeological LUAs, they number 4,020, of which 741 are in OLAs.

Table 3-37. Sites in Other Limited Use Areas, by Area of the Installation.

EIS Division	Prehistoric				Historic	No Temporal Designation
	Paleoindian	Archaic	Formative	Unk. Prehistoric		
Main Cantonment/Biggs AAF	0	1	15	6	2	4
Northeast McGregor Range North of Hwy 506	0	13	96	175	47	68

EIS Division	Prehistoric				Historic	No Temporal Designation
	Paleoindian	Archaic	Formative	Unk. Prehistoric		
Otero Mesa South of Hwy 506	4	8	50	232	56	136
Southeast McGregor Range	0	3	81	32	42	21
Tularosa Basin of McGregor Range	8	14	107	52	57	52
Doña Ana Range–North Training Area	0	7	47	61	48	25
South Training Area	0	1	41	25	27	73

3.7.4.2 Architectural Resources

Fort Bliss was first established at El Paso in 1849, and moved to its present location in 1893. As the United States fought in a series of wars during the twentieth century, structures and buildings were constructed on the installation to accommodate changes in mission and increasing troop numbers. At present, Fort Bliss has completed an inventory of all buildings and structures built prior to 1964, including 670 World War II-era temporary buildings and approximately 3,000 Cold War (1946-1991) resources[9] (U.S. Army 2008).

Fort Bliss has evaluated all of its architectural resources for the National Register built prior to 1964 (U.S. Army 2008). Two historic districts have been identified on Fort Bliss: the Fort Bliss Main Post Historic District, and the William Beaumont General Hospital District (Figure 3-15 and Figure 3-16). The former is composed of 346 buildings, sites, structures, and landscapes and is listed on the National Register. The latter is composed of 71 structures and is eligible for listing in the National Register. An additional 73 Cold War-era buildings on the installation have been determined eligible for listing in the National Register (Sackett 2008).

Most evaluations of architectural properties only addressed the period in which the property was constructed. Thus, properties built prior to World War II were not evaluated for their possible significance to later events.

[9] ICRMP, page 158

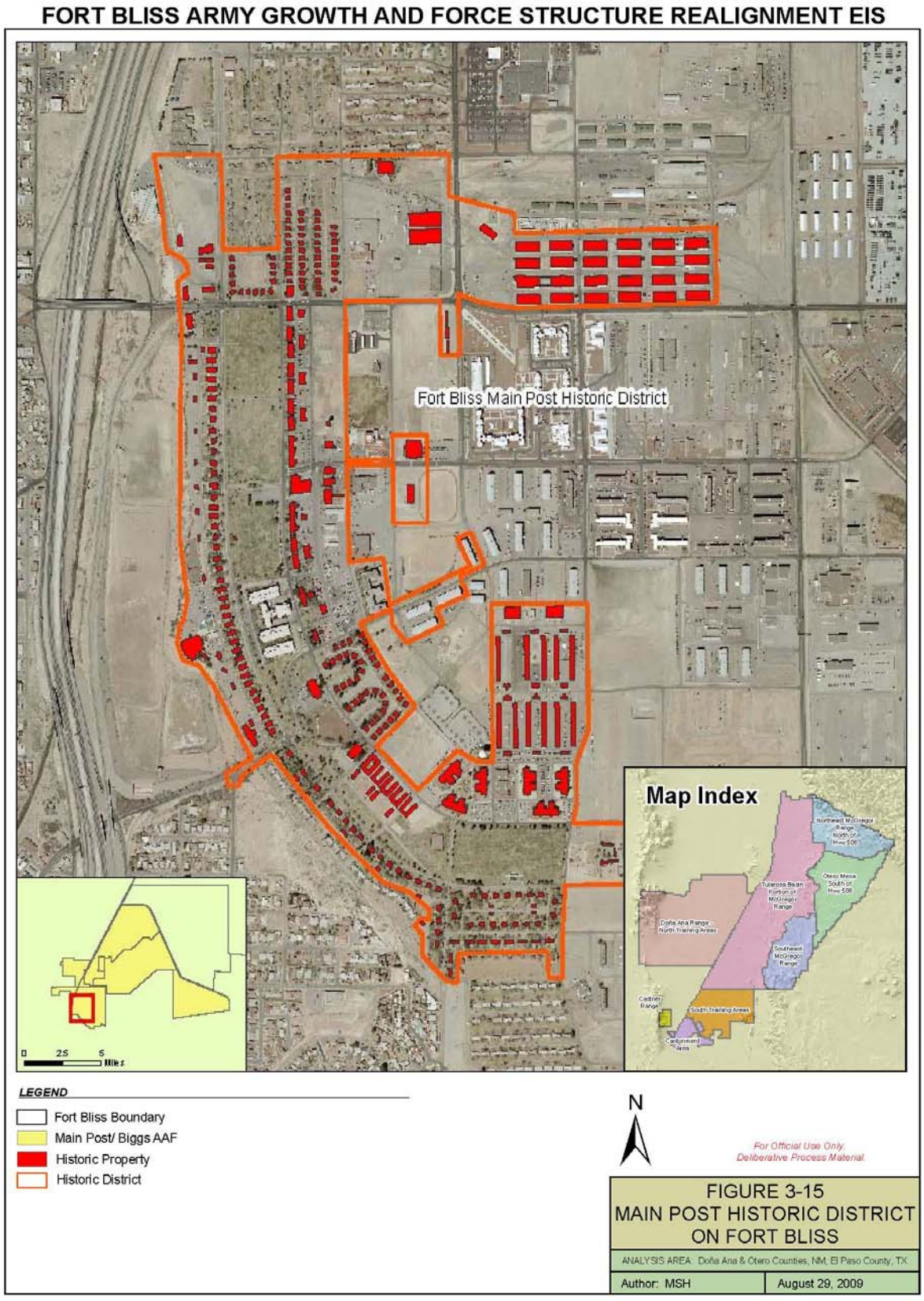


Figure 3-15. Main Post Historic District on Fort Bliss.

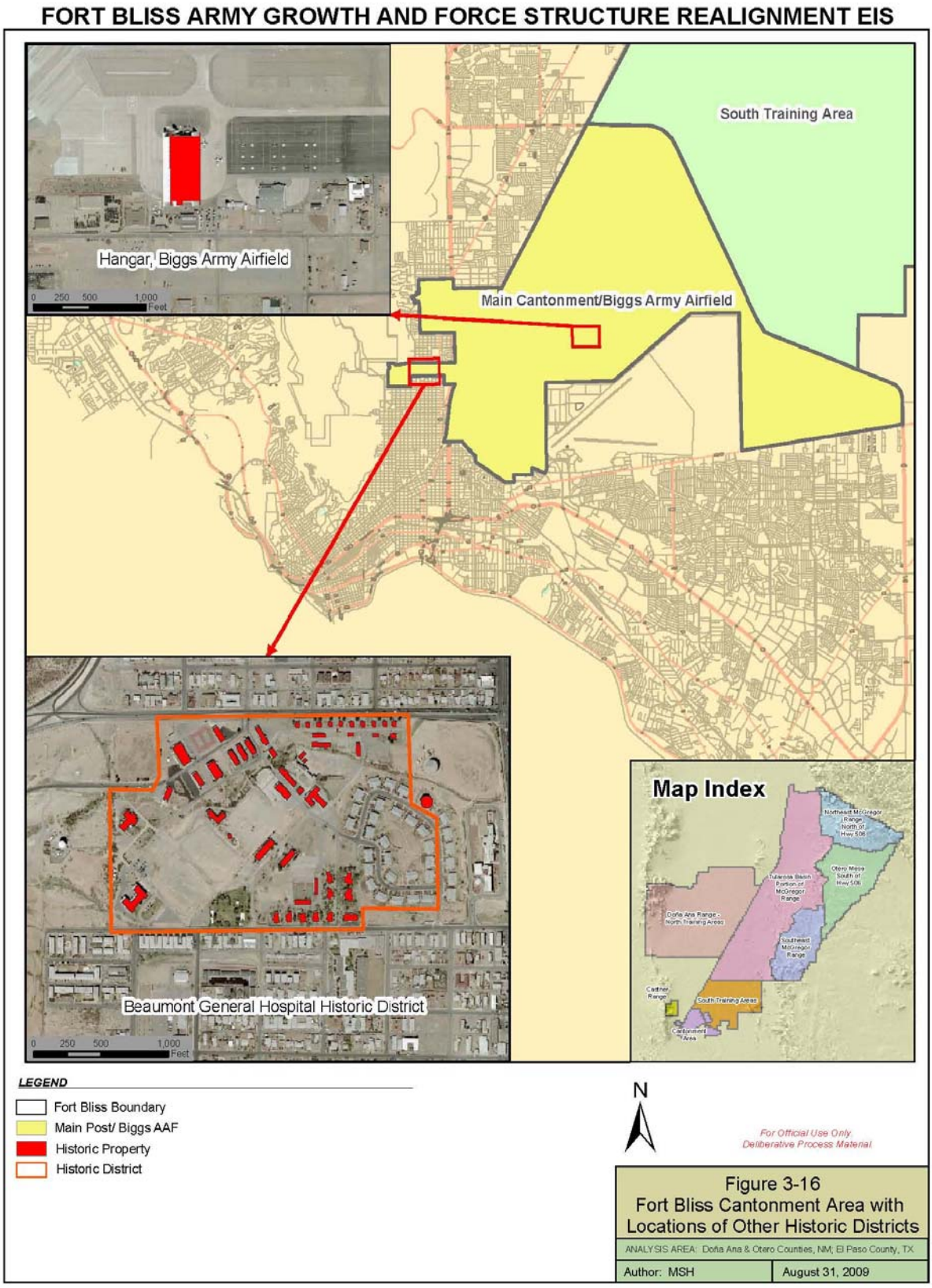


Figure 3-16. Fort Bliss Cantonment Area with Locations of Other Historic Districts.

3.7.4.3 Cultural Landscapes

Historic landscapes have not been fully inventoried at Fort Bliss. Twelve historic landscapes have been determined eligible for the National Register (U.S. Army 2007). All 12 are military historic landscapes. They reflect the cultural traditions and history of military activity in the area. The BLM recently completed a National Register evaluation for a historic rural landscape that is eligible for the National Register (Hart 1997). That landscape includes portions of McGregor Range on Fort Bliss. Other rural historic landscapes may exist on the installation but have not been identified. Ethnographic or traditional cultural landscapes may also exist but have not been inventoried or evaluated, although the Ysleta del Sur Pueblo has indicated that they consider the Hueco and Tularosa Basins and the surrounding mountains to be cultural landscapes.

3.7.4.4 Traditional Cultural Properties

For a variety of reasons, detailed information on traditional Native American beliefs, values, customs, and use areas is often not available. Nonetheless, the NHPA and EO 13007 require consideration of Native American concerns in the management of historic resources. Fort Bliss has consulted with and will continue to consult with Native American tribes with interests in lands managed by the installation.

As part of its consideration of Native American concerns, inventories of TCPs, resources associated with cultural practices and beliefs rooted in the history of a community, have recently been initiated at Fort Bliss. The Mescalero Apache Tribe is actively working with the installation to identify sites important to them. The Mescalero Apache have annually collected the agave plant on Fort Bliss, and the tribe has a long history of association with this plant. Other plants, some archaeological sites, natural features such as springs, certain mountain peaks, rocky outcrops, or minerals that were and continue to be important to the tribe's traditions or to maintaining their beliefs may be identified by the Mescalero during this inventory. Together the tribe and Fort Bliss will evaluate the findings to determine if some are significant. If present, Fort Bliss will consult with the tribe on the appropriate management strategy for the sites.

Fort Bliss has met with the Mescalero Apache Tribe and Ysleta del Sur Pueblo to discuss the Proposed Action. The Ysleta del Sur Pueblo indicated that historically their people avoided the basin but used the mountains. On-going consultations are being conducted with other tribes to identify areas of the FBTC used by their people. The Mescalero Apache has expressed some concern over the potential for increase fires from live fire exercises threatening plants. The Ysleta del Sur Pueblo has not provided any comment. Both the Ysleta del Sur Pueblo and the Mescalero Apache have identified the escarpment as significant, traveling along it during their seasonal subsistence movements. The Mescalero Apache are considering the escarpment as a cultural landscape TCP. The Mescalero Apache have indicated that this was also a trail system for Kiowa as well as others traveling into Mexico. Sites significant to them may exist in these geographic areas of the installation. Fort Bliss has met with the Comanche Nation and the Kiowa Tribe of Oklahoma. The discussion in the meetings focused on the installation's current mission, the known cultural resources, and the Proposed Action. Both tribes expressed the need to preserve more sites at the installation. Rock art sites were mentioned as a specific concern to all tribes. Fort Bliss will continue to consult with all four tribes.

3.7.4.5 Sacred Sites

Consultation with the Tribes to identify sacred sites is ongoing. All Tribes have expressed concerns for caves and rock shelters. As of February 2009, Fort Bliss' consultations with the Comanche, Kiowa, and Ysleta del Sur Pueblo have revealed that all consider the Hueco Mountains sacred to their tribes. Portions of the Hueco Mountains are in the eastern portions of TAs 2, 24, 25, and 26. Ysleta del Sur Pueblo expressed concern about noise impacts in these mountains. The Comanche Nation indicated that some

sites, determined not eligible for the National Register, may be sacred sites. If these tribes or the Mescalero Apache identify other sacred sites on the installation, Fort Bliss will consult with the tribes on the appropriate management strategy for those sites.

3.7.5 Summary of Cultural Resources on Fort Bliss

As of November 2008, the Fort Bliss cultural resources database contains information on over 20,000 properties. The number and management status of cultural resources in the different portions of the APE were summarized in the SEIS and will not be repeated here. Only updates are provided in this section.

3.7.5.1 National Register Listed and Eligible Properties

Five properties at Fort Bliss are listed on the National Register. They include archaeological and architectural historic districts, archaeological sites, and historic buildings. The archaeological district (Fusselman Canyon Rock Art District) is in Castner Range. Because Castner Range is not part of the Proposed Action, that district and the sites in that portion of Fort Bliss will not be included in subsequent discussions in this EIS. The cultural resources database lists 4,064 archaeological sites that have been listed on or determined eligible for listing on the National Register. Of these, 129 are from the historic era. The remainder (n = 3,935) are Native American sites. Most Native American sites eligible for or listed on the National Register date to the prehistoric era. This is an increase from the quantity of National Register eligible sites listed in the SEIS (n = 2,691). The reason for that increase is related to the on-going efforts of Fort Bliss to inventory and evaluate sites on its lands. Eligible sites include prehistoric sites with residential structures and/or large activity areas, rare site types such as Paleoindian or Archaic period sites; historic sites, including ranches and homesteads, mines, historic trails, reservoirs; and military sites. Another 489 structures and buildings on Fort Bliss relating to the military also have been listed or determined eligible to be listed on the National Register. This number is slightly lower than the 600 reported in the SEIS. The reduction is due to recent completion of the final evaluations of the eligibility of Cold War-era and other historic-age architectural properties at the installation.

3.7.5.2 Cantonment Area/Biggs AAB

All of the Main Post and Biggs AAB have been inventoried for buildings built prior to 1964. The Cantonment area contains the majority of the historic buildings that have been listed on or determined eligible for listing on the National Register. These include the Fort Bliss Main Post Historic District, the Pershing House, the William Beaumont Hospital Historic District, and Cold War-era buildings. One building at Biggs AAF is eligible for listing on the National Register. Most of these are still used today, some for purposes other than their original use.

Table 3-34 indicates that 100 percent of the Cantonment and the lands south and west of Loop 375 have been inventoried for archaeological sites. Most of the recorded historic-age sites in this portion of the installation are related to the military. The prehistoric sites are largely located in lands that were formerly parts of TA 1B south and west of Loop 375. Of the 831 sites in this area, most are prehistoric Native American sites. In this part of Fort Bliss, the central basin of the Hueco Bolson, most prehistoric sites are Formative-age short-term residential sites. Some long-term residential sites such as pit houses and pueblos are present in the northern portion of the cantonment within an archaeological OLA. One of the sites in this OLA (Sergeant Doyle Pueblo) is listed on the National Register; the others have been determined eligible for the National Register. One hundred thirty-six Native American sites (including those in the OLA) and six historic-age sites have been determined eligible for listing on the National Register. A total of 141 have not been evaluated for the National Register. No sacred sites or TCPs have been identified to date in this portion of Fort Bliss.

3.7.5.3 South Training Areas (TAs 1-2)

Approximately 96 percent of the South Training Areas have been surveyed, but most of the survey does not meet the modern standards for adequate inventory and will require re-survey for specific undertakings that have the potential to affect sites eligible for the National Register. The portion that has not been surveyed is covered by modern buildings, roads, or other impediments to survey. The area contains over 5,600 archaeological sites. The majority are prehistoric Native American sites. A large percentage of TAs 1-2 is within the central basin of the Hueco Bolson. Prehistoric sites in this environment are dominated by short-term residential camps except where alluvial fans are present near large playas or along the alluvial fans present along the eastern edge of TA 2. Many pueblo villages have been recorded in the latter environments. Rock shelters with evidence of human occupation are found in the Hueco Mountains in TA 2; an inventory of those sites has been completed (Almarez and Leach 1997). One site in TA 2 is listed on the National Register: Hot Well Pueblo. Of the prehistoric sites in TAs 1-2, 1,265 have been determined eligible for listing on the National Register and 1,825 have not yet been evaluated for the National Register. Ninety-four sites in the South Training Areas are of historic age. Most relate to Euroamerican settlement of the region in the late nineteenth and twentieth centuries. Thirty have been determined eligible for the National Register. No architectural resources, sacred sites, or TCPs have been identified to date in this portion of Fort Bliss. A number of archaeological OLAs and LUAs have been established in the south training areas, including an OLA for Hot Well Pueblo.

3.7.5.4 Doña Ana Range–North Training Areas (TAs 3-7)

Nearly 100 percent of TAs 3 through 7 has been inventoried. While some of that inventory does not meet current standards, much of it has been re-surveyed in the past five years. Less survey has been completed in the Doña Ana Range area (44 percent). However, much of the land within Doña Ana is an active impact zone or is very steep terrain. Each of these conditions prohibits survey. Most of the accessible land in Doña Ana has been surveyed to modern standards. Current efforts in this area of the installation are focused on evaluation and mitigation of sites. Located on the western edge of the Tularosa Basin and alluvial fans of the Organ Mountains, the area contains over 6,300 archaeological sites. The majority are prehistoric Native American sites. They consist of sites that are from all prehistoric eras known in the region, ranging from small hearths with artifact scatters to residential sites with small huts, pit houses, or pueblos. Residential sites often contain dense artifact concentrations, trash middens, and storage features. Rock shelters have been recorded in the Organ Mountains, some with residue of human occupation. Within the inventory of prehistoric sites, none are listed on the National Register, but 1,474 have been determined eligible for listing on the National Register. A number of archaeological OLAs and LUAs have been established in this portion of the installation. Of the prehistoric sites, 571 have not been evaluated for National Register eligibility. A total of 158 sites in this area are of historic age. Most relate to Euroamerican settlement of the region in the late nineteenth and twentieth centuries. A few relate to the early twentieth century development of Fort Bliss. Twenty-eight have been determined eligible for the National Register. No cultural landscapes, sacred sites, or TCPs have been identified to date in this portion of Fort Bliss.

3.7.5.5 Tularosa Basin portion of McGregor Range (TAs 8-11, 12 west of the Northeast McGregor, 29-32)

Approximately 84 percent of the remaining TAs has been surveyed. The TAs south of Highway 506 has a higher proportion of land area surveyed than the TAs north of Highway 506. Surveys are underway in these TAs to increase the coverage. A survey is also underway along the proposed rail line that may parallel U.S. 54. Currently, over 4,200 sites have been recorded in this portion of the installation. They include 4,072 Native American sites and 216 historic-age sites. Sites in this portion of Fort Bliss span the prehistoric era and include short term and longer term residential sites and other activity areas. In the

surveys being conducted north of Highway 506 where there are deep alluvial fans, site density is quite high (Stowe et al. 2009). Many of these sites contain pit houses and pueblos, and some are up to one-square kilometer in size. Sites south of Highway 506 include small sites in the central basin that contain hearths with associated ceramic and lithic artifacts. The alluvial fans near playas and along the east edge of the basin contain many longer term residential occupations of the late Formative. The piedmont slopes along Otero Mesa and the Hueco Mountains contain sites with large and small roasting pits and associated artifact scatters (see Baaugh and Sechrist 2001; Kenmotsu and Miller 2008; Seymour 2002, 2004, 2008; Seymour 2007; Stowe et al. 2009). Of these, 860 Native American and 37 historic-age sites have been determined eligible for the National Register. Two off-limit areas, including one for Escondida pueblo, were recently created in this part of the installation. Architectural properties have also been inventoried in this portion of the installation. Most are related to historic ranching and small settlements near the railroads. No cultural landscapes, sacred sites, or TCPs have been identified to date in this portion of Fort Bliss, although they may be present.

3.7.5.6 Southeast McGregor Range (TAs 24-27)

Archaeological surveys of over 20,000 acres (90 square kilometers) are currently underway in TAs 24-27. These surveys will add to the 71 percent of land that has already been inventoried, or replace the surveys that did not meet current standards. TAs 24-27 are located in the Hueco Mountains where site density is lower than in lower elevations (Kludt 2007). To date, 279 Native American sites and 55 historic-age sites have been identified. Most of the Native American sites date from A.D. 200 to 1450, and they tend to be small sites that were briefly used to gather and cook plant foods (Cason et al. 2008). In addition to this site type, rock shelters are present in these TAs that can contain residue of human occupation, rock art, or both. Many of the historic-age sites relate to early twentieth century ranches. A total of 80 sites in this portion of the range have been determined to be eligible sites, 11 of them from the historic era. At least one architectural property, the early twentieth century Campbell School (LA 37034/FBH 137/FB 15306), is among the eligible sites. Portions of the BLM-identified cultural landscape associated with an early twentieth century rancher and entrepreneur are potentially present in this area. No sacred sites or TCPs have yet been identified in this portion of Fort Bliss. No archaeological OLAs or LUAs have been established in these TAs.

3.7.5.7 North of 506-Northeast McGregor Range (TAs 12-15 and 33)

Approximately 76 percent of this portion of Fort Bliss has been surveyed. However, much of the survey was completed in the 1970s and does not meet modern standards. Survey is currently underway along 500m on either side of all roads regardless of slope. In addition, outside of the buffered areas along roads, land that has not been surveyed or not surveyed to modern standards and has a 15 percent or less slope is undergoing survey. The 15 percent slope is intended to capture both those areas most likely to have archaeological sites and those most likely to receive more intensive use, such as FTX sites. To date, more than 500 sites have been recorded in this area, the majority of which are prehistoric Native American sites. Native American sites in this part of the installation contain numerous and large thermal features, varieties of burned rock middens, and lithic scatters (Knight and Miller 2003, Russell 2008; Stowe et al. 2009). Ceramics are not common, but abundant diagnostic projectile points are present among the artifacts. The large thermal features could be related to the processing of upland cacti resources that are documented for historic Apache groups in the Sacramento and Guadalupe mountains (e.g., Seymour 2002). Rock shelters with evidence of human occupation are also present, but in relatively low numbers (Stowe et al. 2009). Several historic-age homesteads and ranches were established in this part of the installation. Many of these contain buildings and structures. All building and structures have been inventoried and evaluated. Sixty-one prehistoric sites and 12 historic-age sites have been determined eligible for the National Register. Cultural landscapes, sacred sites, and TCPs may be present in this area. To date none have been identified in this portion of Fort Bliss.

3.7.5.8 Otero Mesa South of Highway 506 (TAs 16-23)

Fifty-four percent of Otero Mesa has been surveyed. Most of the surveys were completed in the 1970s and do not meet current standards. New surveys are underway, concentrating on a 30-meter buffer zone along both sides of all roads on Otero Mesa. At present, just over 500 sites have been recorded in this part of the installation. Of these, 70 Native American sites and five historic-age sites have been determined eligible for listing on the National Register. In general, site density on Otero Mesa is lower than in the alluvial fans or central basin environments (Lowry 2004). Most Native American sites consist of scatters of the debris from stone-tool making and remains of campfires and roasting pits of varying sizes that contain heated stones used in cooking. Those sites located on hill slopes or relatively flat mesa surfaces tend to have relatively shallow soils with limited subsurface integrity (Quigg et al. 2002). Sites located on alluvial slopes have deeper soils and greater probability of subsurface integrity (Quigg et al. 2002). Some rock shelters, present on the escarpment that drops down to the Tularosa basin, contain the residue of human use; an inventory of these rock shelters has been completed (Graves et al. 1997). Most historic sites are related to cattle ranching. No cultural landscapes, sacred sites, or TCPs have yet been identified in this portion of Fort Bliss.

3.8 Cultural Resources: Direct and Indirect Effects

Table 3-38. Classification of Direct and Indirect Effects to Cultural Resources in the Cantonment Area.

VEC	Stationing/ Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST- 3	ST -4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Archaeological	O	⦸	⦸	⦸	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	O
Historical	O	⦸	⦸	⦸	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	O
Native American	O	O	O	O	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	O

O No impact
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Table 3-39. Classification of Direct and Indirect Effects to Cultural Resources in the FBTC.

VEC	Stationing/ Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST- 3	ST -4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Archaeological	#	#	#	#	⊙	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	O	⦸	⦸	⦸
Historical	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Native American	#	#	#	#	⊙	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	⦸	O	⦸	⦸	⦸

⦸ Significant impacts can be mitigated to less than significant
⊙ Less than significant
O No impact
N/A Not Applicable
* Architectural properties are present on the FBTC. However they are recorded as archaeological sites and included with them in this table.
# Refer to Land Use Change Alternative 1

This section discusses the cultural resources direct and indirect effects of the proposed action and alternatives presented in Chapter 2 with respect to the three categories: Category 1, stationing and training alternatives; Category 2, alternatives with various land use changes; and Category 3, alternatives with various training infrastructure improvements. As discussed in Section 3.3, cultural resources eligible for or listed in the National Register are called "historic properties."

The methods used for assessing direct and indirect impacts of the proposed action to cultural resources included identifying significant cultural resources on the installation (Section 3.3). Cultural resource reports were reviewed along with the ICRMP for Fort Bliss. Inventories of cultural resources maintained by Fort Bliss and the New Mexico and Texas SHPOs were reviewed for information related to prehistoric and historic resources within the installation. In addition, a literature review of studies of military impacts on archaeological and natural resources was conducted to better assess the potential impacts for each category and alternative.

At Fort Bliss, the existing PA provides a process and the procedures for how historic properties are identified and managed on the installation, and that process and procedures will be used to address the impacts from the Proposed Action. That process complies with Sections 106 and 110 of the NHPA. The analysis in this section meets those requirements as well as the requirements of AR 200-1. The first step in identifying impacts to cultural resources is the identification of historic properties. The identification of these resources is on-going at Fort Bliss. As noted in Section 3.3.2, a number of archaeological sites, buildings, structures, historic districts, and cultural landscapes on Fort Bliss have been listed on or determined eligible for listing on the National Register. Efforts are also underway to identify TCPs and sacred sites of importance to tribes.

The next step in the impact analysis is identifying any potential for direct or indirect impacts from the proposed action to those resources. Any impact to historic properties is potentially irreversible and could result in irretrievable loss of the resource or its data. Factors considered in determining whether an action would result in a significant impact on cultural resources included the following:

Archaeological. The action would destroy the resource or damage the resource's integrity through one of more of the following: direct or indirect ground disturbance, including soil erosion; vibration; noise; change in setting or accessibility; or fire, including techniques to suppress fires and reduce the risk of fires such as construction of fire-breaks, use of heavy equipment, and trenching. The action would result in damage to the resource through vandalism.

Historical. The action would result in intrusion of new buildings or structures that are not sympathetic to the historic characteristics of the site or district; renovation; or demolition of an historic building. The action would remove features (such as fences) that contribute to the cultural landscape's significance. The action would result in damage to the resource through fire or vandalism.

Native American. The action would result in restrictions of access to TCPs or sacred sites. The action would alter the setting of TCPs or sacred sites by noise or other training activities when the setting contributes to the property's significance for ceremonies or rituals performed by Native Americans, which depend in part on isolation, solitude, or silence.

Adverse effects are direct or indirect impacts that would alter the characteristics of the property that qualify it for inclusion in the National Register. As per 36 CFR 800.5, an undertaking would have an adverse impact when it would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Potential adverse effects include the following:

- Removal of the property from its historic location or the physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property from, or alteration of the character of the property's setting, when that character contributes to the property's eligibility for the National Register;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting if setting is integral to the property's significance;
- Neglect of a property resulting in its deterioration or destruction;
- Transfer, lease, or sale of the property if the sale removes the property from federal protection.

3.8.1 Potential Impacts to Historic Properties in the Cantonment Area

Facility and infrastructure construction and demolition activities could impact historic properties. These impacts could occur through foundation or trench excavation, grading, filling, asphalt removal, heavy machinery movement, soil compaction, and renovation or demolition of historic buildings or facilities. Adverse effects to architectural historic properties in the Cantonment could also occur if new structures or additions to structures with designs that are not compatible with the historic properties are proposed. Adverse effects to archaeological sites could occur when these types of activities take place and buried sites are encountered in areas that have not previously been investigated because they were covered by buildings, asphalt, or other impediment to survey.

3.8.2 Potential Impacts to Historic Properties in the FBTC

Activities that occur during or in anticipation of training on the FBTC could impact historic properties. The impacts affect historic properties by destroying the resource or by damaging the resource's integrity. Some of these activities and their impacts were discussed in detail in the SEIS (U.S. Army 2007) and are only summarized here. The primary impacts from training are:

- Ground disturbance
- Vibration
- Noise
- Change in setting
- Access
- Fires

Ground-disturbance can be caused by a variety of different activities at military installations. When sites are exposed on the ground surface, they could be impacted. The severity of impact depends on the type of site, the type of impact, soil type, and depth to bedrock, slope, and the intensity and repetition of the impact. Direct impacts to cultural resources from the alternatives discussed in this document include vehicle maneuvers and associated activities, construction of new training facilities including temporary housing on the maneuver areas, new ranges, digging, ordnance delivery, infrastructure delivery (including utility lines, pipelines, sanitation facilities, and roads), fire fighting, and human trampling.

Ground disturbance could also lead to indirect effects through soil erosion, which could cause adverse effects to cultural resources. Depending on their type and intensity, off-road pedestrian or vehicular maneuvers could also lead to indirect effects by disturbing the upper layers of soils, known as biological crusts (see discussion in Section 3.3). These crusts are stabilized by vegetation and natural cementation of surface sediments. On-road training activities could lead to erosion of areas adjacent to roads when an unpaved road's bearing strength fails. This would usually occur with an increase in use, during periods of heavy use, or in wet conditions, and often results in temporary bypass routes that degrade vegetation and soil crusts outside of the authorized roadways. The bypass routes could impact and adversely affect archaeological sites present in the area of the bypass.

Disruption of crusts during off-road maneuvers also could lead to increased soil erosion that may expose and erode archaeological deposits. However, few studies of impacts (direct or indirect) have been completed at archaeological sites. In one of the only controlled studies, Ziedler (2004) documented a variety of impacts to site 41CV575 at Fort Hood, Texas. Tank trails on the site had disrupted vegetation, compacted both surface and subsurface deposits, and accelerated erosion. The study could not determine if these impacts disturbed, damaged, or destroyed artifacts at or near the surface.

At Fort Bliss, soil erosion is considered a significant problem (U.S. Army 2000, 2007). Simulated studies of tank impacts have been conducted on the installation and indicate that training with tracked vehicles can lead to soil instability and loss of vegetation in some areas, particularly in Sandy and Deep Sandy areas where coppice dunes are not present, including the alluvial fans (U.S. Army 2007:Table 5.5.1, see also Section 3.3 this document). Sites in shallow soils, particularly in areas with exposed bedrock are generally believed to be less susceptible to impacts from vehicular and pedestrian passage over their surfaces (Ziedler 2004). In such environments, the vehicular pressure on the ground surface is partially supported by the bedrock, reducing the overall impact to surface or subsurface deposits. Within areas of coppice dunes, recent archaeological work at several sites in the South Training Areas indicated soils in inter-dunal areas had deflated between 40-cm and 100-cm below comparable soils in the adjacent dunes (Graves et al. 2009).

Nonetheless, a direct link from these data to this proposed action is difficult. The studies at Fort Hood and elsewhere were in different environments and in soils distinct from those at the FBTC. The alternatives presented in this document would result in changes in the amount of off-road and on-road vehicular impacts from what was analyzed in the 2007 SEIS. As discussed in Chapter 2, the number of times the ground would be driven-over within the various TAs under the proposed action could vary from zero to 1.7 depending on the Stationing and Training and Land Use alternatives selected. As the number rises, there would be increased potential for adverse effects to archaeological sites eligible for listing in the National Register due to compression and erosion. However, without more definitive studies, the threshold for the number of vehicular passes when compression or crust disturbance will adversely affect archaeological sites in the FBTC is not clear. It is also not known if the deflation in inter-dunal areas covered by coppice dunes is the direct result of tank travel or some other factor, or if it is pervasive among all areas covered by coppice dunes. In sum, archaeological sites can be compressed or exposed when sandy soils erode, adversely affecting their integrity, but the threshold that will result in impacts on archaeological sites in the FBTC are under-studied.

Wind-driven sand also could bury sites enhancing their integrity. Dust, caused either by maneuvers or from blowing sands, could adversely affect rock art by obscuring the art work. Studies of rock art in other regions suggest that the dust may react chemically with shelter walls where the rock art is located and hasten natural exfoliation or spalling on the walls (Silver 1985). It is not known if this process would occur when dust settles on rock art in this region.

Vibration is caused by blasting, vehicular traffic, and aircraft over-flights. Vibration would not be expected to have adverse effects on archaeological historic properties from the Proposed Action. Buildings and structures could be adversely affected by vibration. Studies have shown, however, that the decibel levels must be in excess of 120 dB at a distance of 150 feet or less to generate the potential for adverse effects (U.S. Air Force 1983 and 1988, U.S. Forest Service 1992). Large caliber guns can emit this level of decibels, but they would be located at distances greater than 150 feet from eligible structures and buildings in the FBTC. There is little evidence that low-flying jet aircraft would cause this level of noise-related vibration on the installation. Helicopters also cause vibrations. While they generally result in lower noise and vibration levels than low-flying jet aircraft, helicopters can and do hover above the ground for longer periods. If they hover closer than 300 feet from a historic structure, they would have the potential to adversely affect the property (SEIS U.S. Army 2007).

A historic resource's setting could be affected by noise or removal of features (such as fences) that contribute to the property's significance. Temporary noise from construction would not be an adverse effect. However, continued operation of machinery or noise from guns or other sources could introduce an adverse effect to TCPs or sacred sites. This would be particularly acute if the properties are places where ceremonies or rituals are performed by Native Americans. Such ceremonies may depend in part on isolation, solitude, or silence. Restriction of access to TCPs or sacred sites would be an adverse effect.

Access to historic properties could result in adverse effects from vandalism. Buildings, pueblos, or other sites with significant quantities of exposed artifacts, rock shelters, and rock art would be especially vulnerable to these adverse effects. Those found near roads would likely be most frequently vandalized.

Live-fire maneuvers could adversely affect historic properties. These maneuvers typically require installing temporary targets. The targets are usually installed in relatively flat landscapes with elevated backdrops (e.g. in canyons or basins/bowls with surrounding hills). On the FBTC, these flat landscapes contain a high number of prehistoric residential sites that may be eligible for listing on the National Register. Impacts to these sites could occur from the disturbance to install targets, digging to provide safety from enemy fire, or increased off road vehicular maneuvers to access the established targets.

Live-fire maneuvers could also result in fires that adversely affect historic properties. Buildings would be particularly vulnerable to fires, although fires can also affect archaeological historic properties. Fire can damage archaeological sites by destroying man-made features such as adobe walls or altering deposits such as artifacts or organic food remains. Fire can also cause exfoliation of rock art (National Park Service 2007). Techniques to suppress fires and those used to reduce the risk of fires include ground disturbance (construction of fire-breaks, use of heavy equipment, and trenching) could damage archaeological sites. Damage to archaeological historic properties could also be caused by the use of fire retardants with chemicals that can alter the contents of a site.

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts identified as significant but can be mitigated to less than significant are discussed in Chapter 5.

3.8.3 Stationing and Training Alternative 1 (ST-1)

Table 3-40 classifies the impacts to cultural resources under implementation of ST-1.

Table 3-40. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 1.

Cultural Resource VEC	Potential Impacts	
	Cantonment	FBTC
Archaeological	○	#
Historical*	○	N/A
Native American	○	#

\# Refer to the Land Use Change Alternatives for further discussion of the direct and indirect impacts.
○ No impact
N/A Not Applicable
* Architectural historic properties outside the Cantonment are included with archaeological sites in this and subsequent tables.

Impacts in the Cantonment Area. Architectural inventories of all structures and buildings in the Cantonment with construction dates through 1963 are complete. No impacts to architectural historic properties, other than those analyzed and disclosed in the SEIS and modified by the GTA PEIS, would occur.

Archaeological inventory is complete for the Cantonment. With the approval of the ROD for the SEIS, the Cantonment was expanded to include all the land south and west of Loop 375 and to include 600 acres (2.4 square kilometers) east of Loop 375. Archaeological historic properties, including one OLA, are present in these lands. The OLA has been seibert staked and is surrounded by a dismounted Land Navigation Course used in training. The Directorate of Public Works – Environment (DPW-E) has worked with Directorate of Plans, Training, Mobilization, and Security (DTPMS) to ensure that the points in the navigation routes will avoid dismounted units crossing through the OLA. If ground disturbance reveals previously unknown archaeological sites, the impacts could be significant. No Native American sacred sites or TCPs have been identified in the Cantonment.

The effects of development projects in the Cantonment encompassed in the ST-1 have been considered in previous NEPA documents. There would be no additional impacts to cultural resources under ST-1.

Impacts in the FBTC. Four HBCTs and two IBCTs would train on the installation, which equate to more vehicle trips than considered in the 2007 SEIS. On-road training would result in 2,654,000 linear km traveled for all units combined (Table 2-8). Less off-road maneuver training on the FBTC would occur when compared to the six HBCTs studied in the 2007 SEIS, resulting in fewer off-road tracked vehicle passes over archaeological sites eligible for the National Register. As shown in Table 2-9, total ground contacted under ST-1 is 2,755 square kilometers (680,485 acres). How serious these on-road and off-road impacts would be depends on site type, soil type, the number of passes, and the time between passes. The intensity of both off-road and on-road maneuver training on the FBTC is further discussed in the land use alternatives.

Soil types vary across the installation. Depending on the type and intensity, off-road pedestrian or vehicular maneuvers could lead to indirect adverse effects by disturbing the biological crusts (Sections

3.3 and 3.4, and SEIS Section 5.5). These crusts are stabilized by vegetation and natural cementation of surface sediments. Disruption of crusts can lead to increased soil erosion that could expose and erode archaeological deposits. The two IBCTs would result in different, but less severe impacts to archaeological sites in the FBTC than impacts caused by HBCTs. Some IBCT maneuvers are by foot (U.S. Army 2004) which can cause compression in archaeological sites but is considerably less than the compression or rutting caused by vehicles. The intensity of the BCT maneuvers on the FBTC is further discussed in the land use alternatives.

Noise from artillery can cause another indirect adverse effect to cultural resources. Apart from the Hueco Mountains, other sacred sites and TCPs have not yet been identified in the FBTC, but they may be present. If identified in the future, impacts from maneuvers, including vehicular roll-over, live-fire, wildfires, or other activities, would have the potential to adversely affect these sites. Vandalism, if it occurred, would be a significant adverse effect. Fort Bliss cultural resource staff monitors the TAs after maneuvers. If they find evidence of vandalism, they follow the procedures in SOP #16, Compliance with the ARPA of 1979. This SOP outlines a training and awareness program, jurisdictional boundaries, and documentation of suspected ARPA violations. Under ARPA, either criminal or civil proceedings can be employed against suspected violators. In addition to these procedures, the Fort Bliss HPO decides on a case-by-case basis whether remedial mitigation is required.

Fort Bliss will continue to consult with the tribes to identify and resolve issues of concern regarding tribal access to sacred sites and TCPs. Tribal access based on the percent training days scheduled in each FBTC subdivision is further discussed in the land use alternatives.

3.8.4 Stationing and Training Alternative 2 (ST-2)

Table 3-41. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 2.

Cultural Resource VEC	Potential Impacts	
	Cantonment	FBTC
Archaeological	○	#
Historical	○	N/A
Native American	○	#

\# Refer to the Land Use Change Alternatives for further discussion of the direct and indirect impacts.
○ No impact
N/A Not Applicable

Impacts in the Cantonment. The Cantonment area was enlarged in the ROD for the SEIS to have sufficient capacity for the six stationed BCTs. Thus, there will be no additional impacts to historic properties from ST-2.

Impacts in the FBTC. One additional HBCT would train on the installation. Under ST-2, the seven BCTs training would result in approximately 3,215 square kilometers of off-road ground contact and 3,012,100 vehicle trips, which would increase the intensity of use across the FBTC. The number of training days required would increase under ST-2. The intensity of the on-road and off-road maneuver training and the tribal access to sacred sites on the FBTC is further discussed in the Land Use alternatives.

3.8.5 Stationing and Training Alternative 3 (ST-3)

ST-3 would station one SBCT at Fort Bliss. This additional unit would result in an increase of 4,100 Soldiers stationed in the Cantonment along with their equipment (Table 2-3). These Soldiers would be added to the other BCTs using the FBTC, for a total of eight BCTs training at Fort Bliss.

Table 3-42 classifies the impacts to cultural resources under implementation of ST-3.

Table 3-42. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 3.

Cultural Resource VEC	Potential Impacts	
	Cantonment	FBTC
Archaeological	⦸	#
Historical	⦸	N/A
Native American	○	#

Refer to the Land Use Change Alternatives for further discussion of the direct and indirect impacts.
⦸ Significant but mitigable to less than significant
○ No Impact
N/A Not Applicable

Impacts to the Cantonment Area. The number of Soldiers stationed at Fort Bliss would increase from that analyzed in ST-3 to 44,600. Facility and infrastructure construction and demolition activities could potentially impact historic properties. These impacts could occur through foundation or trench excavation, grading, filling, asphalt removal, heavy machinery movement, soil compaction, and renovation or demolition of historic buildings or facilities. Adverse effects to architectural historic properties in the Cantonment could also occur if new structures or additions to structures with designs that are not compatible with the historic properties are proposed.

All architectural historic properties in the Cantonment that date prior to 1964 have been identified. The SOPs in the PA and ICRMP along with other PAs and Program Comments would be used to mitigate any adverse impacts to architectural properties in the Cantonment that are eligible for or listed on the National Register to less than significant.

As noted under ST-1, the Cantonment has been surveyed for archaeological sites. A number of them have been determined eligible and one is listed on the National Register. One OLA is present in the Cantonment. The archaeological OLA in the Cantonment is protected in place and would continue to be protected and monitored through the PA and ICRMP SOPs.

Archaeological sites could be adversely affected if they are within the footprint of new construction. During ground disturbance previously unknown archaeological sites may be found. If they are eligible for the National Register and could not be avoided, they would be adversely affected. Inadvertent discovery of archaeological sites during construction would be subject to the same consultation process used for all newly discovered sites. These steps would continue and would mitigate significant adverse effects on historic properties in the Cantonment to less than significant.

No Native American sacred sites or TCPs have been identified in the Cantonment. There would be no impacts to Native American VECs.

Impacts to the FBTC. The addition of one SBCT training, which completes 90 percent of vehicle distance driven on-road (Table 2-7), on the FBTC would result in a greater increase in the total on-road travel (4,166,100 km) than the amount of off-road ground contact (3,305 square kilometers). The intensity of the on-road and off-road maneuver training on the FBTC is further discussed in the land use alternatives.

Given the increased use of FBTC, Native American access to TCPs and sacred sites would be slightly more limited under this alternative. Tribal access to sacred sites on the FBTC is further discussed in the land use alternatives.

3.8.6 Stationing and Training Alternative 4 (ST-4)

ST-4 would station a second SBCT at Fort Bliss. This additional unit would result in an increase of 4,100 Soldiers stationed in the Cantonment along with their equipment (Table 2-3). These Soldiers would be added to the other BCTs using the FBTC, including a second TDY HBCT, for a total of ten BCTs training at Fort Bliss.

Table 3-43 classifies the impacts to cultural resources in the FBTC under implementation of ST-4.

Table 3-43. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 4.

Cultural Resource VEC	Potential Impacts	
	Cantonment	FBTC
Archaeological	⦸	#
Historical	⦸	N/A
Native American	○	#

\# Refer to the Land Use Change Alternatives for further discussion of the direct and indirect impacts.
⦸ Significant but mitigable to less than significant
○ No Impact
N/A Not Applicable

Impacts to the Cantonment Area. The number of Soldiers stationed at Fort Bliss would increase from that analyzed in ST-3 to 51,800. Facility and infrastructure construction and demolition activities could potentially impact historic properties. These impacts could occur through foundation or trench excavation, grading, filling, asphalt removal, heavy machinery movement, soil compaction, and renovation or demolition of historic buildings or facilities. Adverse effects to architectural historic properties in the Cantonment could also occur if new structures or additions to structures with designs that are not compatible with the historic properties are proposed.

Archaeological sites could be adversely affected if they are within the footprint of new construction. During ground disturbance previously unknown archaeological sites may be found. If they are eligible for the National Register and could not be avoided, they would be adversely affected. Inadvertent discovery of archaeological sites during construction would be subject to the same consultation process used for all newly discovered sites. These steps would continue and would mitigate significant adverse effects on historic properties in the Cantonment to less than significant.

No Native American sacred sites or TCPs have been identified in the Cantonment. There would be no impacts to Native American VECs.

Impacts to the FBTC. Under this alternative, the 10 BCTs training would distribute 5,819,000 km of on-road distance driven (Table 2-8) and 4,080 square kilometers of ground contact (Table 2-9) across the FBTC. This would be the highest level of on-road and off-road vehicle training. The intensity of the on-road and off-road maneuver training on the FBTC is further discussed in the Land Use alternatives.

Native American access to TCPs and sacred sites would be slightly more limited under this alternative with a total of 10 BCTs training on the FBTC. Tribal access to sacred sites on the FBTC is further discussed in the land use alternatives.

3.8.7 Land Use Changes Alternative 1 (LU-1)

Table 3-44 classifies the impacts to cultural resources in the FBTC under implementation of LU-1.

Table 3-44. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 1.

Cultural Resource VEC	Potential Impacts FBTC			
	ST-1	ST-2	ST-3	ST-4
Archaeological	⊙	⊘	⊘	⊘
Historical	N/A	N/A	N/A	N/A
Native American	⊙	⊘	⊘	⊘

⊘ Significant but mitigable to less than significant
⊙ Less than significant
N/A Not Applicable

The areal extent of HBCT impacts would change somewhat under this alternative from the impacts analyzed in the 2007 SEIS. As noted in Chapter 2, a greater proportion of training has historically taken place in the South Training Areas because of their location adjacent to the Cantonment. The HBCTs stationed at Fort Bliss would be expected to continue training close to the Cantonment; however, the HBCT on TDY training at the installation would be housed in the base camps, COLs, or Controlled FTX sites in the FBTC. That HBCT would be more likely to train in the Tularosa Basin of McGregor Range for similar efficiency of movement; that use of the Basin is reflected in Table 2-18. Other than the South Training Areas and those in the North Training Areas, the remaining TAs in the Tularosa Basin of McGregor Range were not open to off-road vehicular training until the ROD for the 2007 SEIS was published. As discussed above, training in the Tularosa Basin of McGregor Range could result in some soil erosion in those TAs in Sandy or Deep Sandy areas not currently in coppice dunes (U.S. Army 2007). Soil erosion can adversely affect archaeological sites.

IBCT training would result in a greater quantity of training in the Northeast McGregor Range North of Highway 506 and in the foothills in Southeast McGregor Range (TAs 24 through 27). The distance to the Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506, along with their prohibitions on off-road vehicular maneuvers, has tended to result in fewer military maneuvers in these TAs. Live-fire maneuvers would increase. As noted previously, live-fire maneuvers, particularly when temporary targets are installed in flat terrain near canyons or surrounding hills, can directly impact archaeological sites, cause wildfires, or inadvertently expose previously unknown archaeological resources. Any of these could result in direct adverse effects to archaeological resources.

Impacts of Stationing and Training Alternative 1 (LU-1/ST-1). In the FBTC, the land-use changes authorized in the 2007 SEIS would continue. This alternative would result in fewer impacts in the TAs than the impacts from six HBCTs that were analyzed in the 2007 SEIS. On-road training would result in 2,654,000 linear km traveled for all units combined (Table 2-8). Based on Table 2-16, under LU-1/ST-1 unpaved roads in the FBTC would incur vehicle trips ranging from 327 to 969 annually. These traffic loads would not lead to heavy rutting or degrading of road surfaces. Where sites eligible for the National Register exist adjacent to unpaved roads, they would not be adversely affected from erosion by these traffic loads.

As shown in Table 2-9, total ground contacted under LU-1/ST-1 is 2,755 square kilometers (680,485 acres). Four HBCTs training on the installation, rather than the six studied in the SEIS, would result in fewer tracked vehicle passes over archaeological sites eligible for the National Register. A higher number of wheeled vehicles would pass over the sites due to the training of two IBCTs. The annual number of times vehicular off-road traffic would pass over the ground in the various segments of the FBTC varies from 0.24 in Southeast McGregor Range to 1.5 in the South Training Areas (Table 2-18). These impacts would likely be minimal as it is assumed that surface sediments would have sufficient time between passes to restabilize.

Given the estimated distribution of training days for each FBTC subdivision, tribal access to sacred sites and TCPs would be adequate under LU-1/ST-1 (Table 2-15). The South Training Areas will be used with greatest frequency (90 percent), but would still have days of no use. The remaining subdivisions would be less heavily used. Native American access could be accommodated within that schedule. As well, Fort Bliss will continue to consult with the tribes to identify and resolve issues of concern. Under LU-1/ST-1, impacts to the Native American VECs would be less than significant.

Impacts of Stationing and Training Alternative 2 (LU-1/ST-2). On-road training would increase to 3,012,100 linear km traveled for all units combined (Table 2-8). Unpaved roads on Otero Mesa South of Highway 506, Northeast McGregor Range North of Highway 506, and Southeast McGregor would see the greatest use being traveled more than twice annually (Table 2-16). Based on Table 2-16, under LU-1/ST-2 unpaved roads in the FBTC would incur vehicle trips ranging from 332 to 1,135 annually. As with LU-1/ST-1, these traffic loads should not lead to erosion of areas adjacent to the roadways unless heavily rutted or degraded roadway surfaces develop in the roads and vehicles need to bypass those areas. If sites eligible for the National Register are present adjacent to such degraded road surfaces, they would be adversely affected by such bypasses.

Under LU-1/ST-2, the BCT off-road training would distribute 3,215 square kilometers (794,105 acres) of ground contact across the FBTC, increasing the intensity of use across the installation. Because this would be 281 square kilometers (69,407 acres) more than the land presently available for off-road training, slight increases in off-road training would occur in the South TAs, North TAs, and Tularosa Basin (Table 2-18). Off-road training in Southeast McGregor would remain unchanged. As off-road training intensity would increase slightly in the TAs, vehicular and pedestrian passage over the archaeological sites would increase, as would the probability of repeated passages. Under LU-1/ST-2, the probability rises slightly that some soils in off-road maneuver areas could erode with this increase adversely affecting sites eligible for the National Register. Additionally, live-fire maneuvers would increase. Live-fire maneuvers can directly affect archaeological sites, cause wildfires, or inadvertently expose previously unknown archaeological resources. If Native American sacred sites or TCPs are identified, they would be similarly affected.

Due to an increase in training requirements, noise levels would increase but noise analysis in Section 3.24 indicates that it would only exceed normal background noise in the Hueco Mountains in small areas of TAs 25, 26, and 27. No noise impacts would occur at Hueco Tanks State Park. Native American access to

TCPs and sacred sites could be somewhat limited. However, windows would exist in the annual training calendar for tribes to access places of concern. Native American VECs would be mitigated to less than significant due to continued consultation with the tribes to identify and resolve issues of concern.

The impacts associated with LU-1/ST-2 could be mitigated to less than significant. Fort Bliss has developed mitigation and monitoring measures to address adverse effects to historic properties. The process relies on SOPs in its PA and ICRMP that provide a series of tools to manage historic properties while accomplishing the training mission at the installation. These tools are detailed in Section 3.3.3. They include, but are not limited to, measures to avoid or minimize adverse effects to historic properties, as well as mitigate through data recovery or documentation. Another is the establishment of new OLAs. OLAs are not open to training and only vehicular or dismounted travel on existing roads through LUAs is allowed. OLAs and LUAs are monitored by Fort Bliss' cultural resource personnel after training activities to identify any impacts and adjust protection if needed. On-going monitoring of unpaved roads for potential degradation is required under the INRMP. This monitoring, in addition to the cultural resource monitoring, would act as an additional safeguard against soil erosion along unpaved roads that could adversely affect archaeological sites eligible for the National Register.

The routine monitoring of OLAs and LUAs and degraded roads mentioned above is designed to track compliance with SOPs and evaluate the effectiveness of the mitigation measures implemented. However, three other monitoring strategies may be needed and will be further discussed in Chapter 5.

Impacts of Stationing and Training Alternative 3 (LU-1/ST-3). Annual on-road doctrinal training would require 4,166,100 km of travel by the BCTs (Table 2-8). Based on Table 2-16, under LU-1/ST-3 unpaved roads in the FBTC would incur vehicle trips ranging from 478 to 1,675 annually. Unpaved roads could be degraded with this traffic load, leading to bypasses that could adversely affect any adjacent archaeological sites eligible for the National Register.

Under LU-1/ST-3, the vehicles in the eight BCTs would contact approximately 3,305 square kilometers (816,335 acres) of ground, as part of the increasing intensity of off-road vehicle use in the FBTC. Off-road vehicle maneuver would remain relatively high in the South TAs, North TAs, and Tularosa Basin (Table 2-18). Over time, the potential for adverse effects from deepening ruts, compression, and soil erosion could increase in these TAs, particularly on Deep Sands and Sandy areas with no coppice dunes. As discussed in Sections 3.3 and 3.4, soil erosion could increase. If erosion increases, sites eligible for the National Register outside of LUAs and OLAs could erode and be adversely affected.

Increased use of rock shelters and caves could also occur as dismounted training increases somewhat in the TAs in Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506. These formations are present in the Sacramento Mountains and on the escarpment of Otero Mesa and can contain cultural deposits and rock art; rock art sites can also be found in the open on rock faces. Such sites could be adversely affected by military use of rock shelters and caves, or vandalism. Rock art in some areas of Texas can also be adversely affected by dust that chemically reacts with the walls and encourages spalling (Silver 1985).

With the greater off-road training, dust could increase. Studies completed for the 2007 SEIS indicated that wind patterns would send dust in a generally northeasterly direction, but most of the dust would be retained within the installation. Since Northeast McGregor Range North of Highway 506 is in the eastern and northern sectors of the installation, rock art sites, where present, could be adversely affected by increased levels of dust.

Live fire and noise impacts would remain the same as in LU-1/ST-2. Given the increased use of TAs for off-road and on-road maneuvers, Native American access to TCPs and sacred sites would be slightly

more limited under this alternative, particularly in the South TAs where training would require more than 100 percent of the annual calendar, without implementation of concurrent use (Table 2-14). In the other subdivisions of the FBTC, adequate time would be available for Native American access.

As with LU-1/ST-2, the impacts associated with LU-1/ST-3 could be mitigated to less than significant.

Impacts of Stationing and Training Alternative 4 (LU-1/ST-4). Annual on-road doctrinal training under this alternative would require 5,819,000 km of travel by the BCTs (Table 2-8). Based on Table 2-16, under LU-1/ST-4 unpaved roads in the FBTC would incur vehicle trips ranging from 609 to 2,314 annually. Unpaved roads could be degraded with this traffic load, leading to bypasses that could adversely affect any adjacent archaeological sites eligible for the National Register.

Given the heavy use of the roads on the FBTC under this alternative, Native American access to TCPs and sacred sites would continue to be limited. Impacts to the Native American VEC would be significant under LU-1/ST-4. However, windows would exist in the annual training calendar for tribes to access places of concern. Native American VECs would be mitigated to less than significant due to continued consultation with the tribes to identify and resolve issues of concern.

Under this alternative, the 10 BCTs would distribute 4,080 square kilometers (1,007,760 acres) of off-road vehicular maneuver; this is 1,146 square kilometers more than the area presently available for off-road maneuver. These vehicular passes could adversely impact archaeological sites, sacred sites, and TCPs.

As with LU-1/ST-3, there would be a higher quantity of Soldiers completing dismounted maneuver. In addition to the trampling of sites during this training, increased use of rock shelters and caves could occur. Such sites could be adversely affected by military use of them, damaging their cultural deposits or vandalizing them. Increases in live-fire maneuvers could result in greater potential for fires to ignite and adversely affect sites, including rock art sites.

Noise impacts from large caliber guns may extend beyond the installation (115 decibels). The noise contours for these impacts include the Hueco Mountains in TA-2 as well as portions of TAs 25, 26, and 27 in Southeast McGregor. The noise contours at 115 dB also would extend over the Hueco Tanks State Park (Figure 3-40). The park is located in the Hueco Mountains approximately 5 miles east of TA 2B and 6.8 miles south of TA 25. The park would be at the Moderate Compliant Risk Under Standard Criteria (Table 3-105). The Ysleta del Sur Pueblo holds ceremonies at the park at certain times of the year. High noise levels could disrupt these ceremonies. Schedules may need to be altered to not interfere with those ceremonies, if this would be a reasonable option.

The heavy need for use of the South TAs, North TAs and Tularosa Basin for training the higher number of Soldiers may limit Native American access to sacred sites and TCPs in those parts of the FBTC Training schedules may need to be altered to allow for Native American access to sacred sites and TCPs, if this would be a reasonable option. Continued consultation with Native Americans to identify and resolve issues of concern would mitigate access concerns to less than significant.

3.8.8 Land Use Changes Alternative 2 (LU-2)

Table 3-45 classifies the impacts to cultural resources under implementation of LU-2.

Table 3-45. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 2.

Cultural Resource VEC	Potential Impacts FBTC			
	ST-1	ST-2	ST-3	ST-4
Archaeological	⦸	⦸	⦸	⦸
Historical	N/A	N/A	N/A	N/A
Native American	⦸	⦸	⦸	⦸

⦸ Significant but mitigable to less than significant
N/A Not Applicable

Impacts of Stationing and Training Alternative 1 (LU-2/ST-1). In the FBTC, the four square kilometers (988 total acres) of fixed sites would be established in TAs 24, 25, 26, and 27. To construct each could require some ground disturbance to create a relatively flat surface for placement of tents and equipment. In addition to these impacts, some or all of the sites may require new roads or other infrastructure construction. The infrastructure improvements would also cause ground disturbance. As of November 2008, 179 sites are within the grassland LUA where these FTX sites would be placed. If any of these sites are present, or if Native American sacred sites or TCPs are present within the proposed location of one of the FTX sites, those sites could be adversely impacted.

Fixed sites would also be allowed in the Northeast McGregor Range North of Highway 506, and the grassland LUA there removed. As of November 2008, 399 sites are present in the grasslands LUA in the Northeast McGregor Range North of Highway 509 (Table 3-33); none of them have been evaluated for the National Register. However, only dismounted and on-road vehicle maneuvers are permitted in these TAs and LU-2 would not change that use. Thus, removal of designation of the LUA in Northeast McGregor Range North of Highway 506 could have slight increases in adverse effects of trampling or wildfires, but the impacts are not expected to be significant due to the permitted uses. If sites, sacred sites, or TCPs are within an area where a fixed site is to be placed, they would be adversely affected. Vandalism, if it occurred, would be a significant adverse effect based on the degree of alteration and destruction. Fort Bliss cultural resource staff monitors the TAs after maneuvers. If they find evidence of vandalism, they would follow the procedures in SOP #16, as discussed under ST-1.

Selection of this alternative would introduce noise from rotary wing aircraft to the TAs in the Northeast McGregor Range North of Highway 506. The aircraft are currently permitted for this area, but seldom fly there. Although noise from these aircraft could be considered an adverse effect to TCPs and sacred sites, military training on this portion of the FBTC would continue to be limited (Table 2-14) and would permit Native American access to such sites during periods without noise from training.

Impacts of Stationing and Training Alternative 2 (LU-2/ST-2). This alternative would have the impacts discussed under LU-1/ST-2. In addition, it would include the cultural resource impacts discussed under LU-2/ST-1.

Impacts of Stationing and Training Alternative 3 (LU-2/ST-3). This alternative would have the impacts discussed under LU-1/ST-3. In addition, it would include the cultural resource impacts discussed under LU-2/ST-1.

It would also continue to increase rotary wing aircraft noise in the Northeast McGregor Range North of Highway 506, as discussed under LU-2/ST-1. While these TAs will have an increase in training under this alternative (Table 2-14), adequate time for Native American access to TCPs and sacred sites would be available during periods without training.

Impacts of Stationing and Training Alternative 4 (LU-2/ST-4). This alternative would have the impacts discussed under LU-1/ST-4. In addition, it would include the cultural resource impacts discussed under LU-2/ST-1, and the noise impacts discussed under LU-2/ST-3.

Due to training intensity, access to TCPs and sacred sites may be limited in the South TAs, North TAs, and Tularosa Basin. Continued consultation with Native Americans to identify and resolve issues of concern would mitigate access concerns to less than significant.

3.8.9 Land Use Changes Alternative 3 (LU-3)

Table 3-46 classifies the impacts to cultural resources under implementation of LU-3.

Table 3-46. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 3.

Cultural Resource VEC	Potential Impacts FBTC			
	ST-1	ST-2	ST-3	ST-4
Archaeological	⦸	⦸	⦸	⦸
Historical	N/A	N/A	N/A	N/A
Native American	⦸	⦸	⦸	⊗

⊗ Significant
⦸ Significant but mitigable to less than significant
N/A Not Applicable

Impacts of Stationing and Training Alternative 1 (LU-3/ST-1). Construction of five square kilometers of Controlled FTX sites in Northeast McGregor North of Highway 506 would have direct adverse effects on any sites eligible for the National Register within their footprints. They would also have direct adverse impacts to any Native American sacred sites or TCPs within their footprints if leveling of the ground is required. As described under LU-2/ST-1, construction of bivouac or logistic sites, including Controlled FTX sites, and any infrastructure needs for them would result in ground disturbance.

The placement of Controlled FTX sites within Northeast McGregor Range North of Highway 506 portion of the installation would enhance training opportunities for IBCTs and others who need to conduct dismounted and on-road maneuvers. On-road training would also increase substantially in this portion of the FBTC. Tables 2-19 and 2-21 illustrate the increased IBCT use of this area under LU-3/ST-1. This shift would mean additional dismounted maneuver over archaeological sites, sacred sites, and TCPs north of Highway 506. The impacts of dismounted maneuver north of Highway 506 would not be significant. Some additional direct effects to sites, sacred sites, and TCPs would come from an increase in live-fire that could result in wildfires burning over sites adversely affecting their deposits or adversely affecting qualities that make certain places TCPs or sacred sites. Similar adverse effects would occur if the increased use of unpaved roads results in temporary bypasses if roads degrade. Vandalism could also increase as personnel increase in this portion of the FBTC. While noise effects to TCPs and sacred sites in Northeast McGregor Range North of Highway 506 would increase, they would not be expected to be

significant as these TAs would be used intermittently and adequate time would be available to allow Native American access when training is not scheduled. The impacts associated with LU-1/ST-3 could be mitigated to less than significant, as discussed in LU-1/ST-2.

Use of Otero Mesa South of Highway 506 and travel on its unpaved roads would decrease under this alternative (Tables 2-19 and 2-21). This would result in a net benefit to sites, sacred sites, and TCPs in this portion of the FBTC.

HBCT off-road maneuver disturbance would remain the same as it was described under LU-1/ST-1.

Impacts of Stationing and Training Alternative 2 (LU-3/ST-2). In addition to the adverse effects of LU-3/ST-1 for any sites eligible for the National Register, sacred sites, or TCPs within their footprints, the addition of one HBTC under LU-3/ST-2 would increase the intensity of use in the North Training Areas, South Training Areas, and Tularosa Basin. The number of vehicle trips completed during on-road maneuvers in these subdivisions also would increase. The increase could result in unpaved roadway degradation. Archaeological sites adjacent to degraded roads could be impacted by temporary bypasses. Off-road maneuvers would impact the South Training Areas to the greatest extent. All land there would be driven over once annually and 60 percent of it would be impacted twice. Off-road impacts in the North Training Areas would be slightly more (17 percent) than under LU-3/ST-1, and would result in more than one impact annually for approximately 20 percent of the land. If the soils where these maneuvers occur are Deep Sands or Sandy areas with no coppice dunes, erosion could occur. If archaeological sites eligible for the National Register were present in those areas, they would be adversely affected.

LU-3/ST-2 would result in a slight addition of on-road maneuvers in Northeast McGregor North of Highway 506 (Table 2-21). The increase would not be expected to cause significant impacts. The increase in live-fire could result in an increase in wildfires that could adversely affect archaeological sites.

Other than the Hueco Mountains, sacred sites and TCPs have not been identified in the FBTC, but they could be present. The increased use of the FBTC that would result from LU-3/ST-2 would limit Native American access to such sites in the South TAs, and there and elsewhere in the FBTC could inadvertently harm such properties through direct impacts or increased noise. The limitation or harm would be an adverse effect.

As with LU-1/ST-2, the impacts associated with LU-3/ST-2 could be mitigated to less than significant.

Impacts of Stationing and Training Alternative 3 (LU-3/ST-3). Impacts to archaeological sites, sacred sites, and TCPs in the FBTC would include the effects described for the LU-2/ST-3. They would also include the effects from any preparation for the Controlled FTX sites in the Northeast McGregor Range North of Highway 506 and the effects from LU-3/ST-1. The addition of the one SBCT under ST-3 would result in the same intensity of use in the FBTC as in LU-1/ST-3 except in Northeast McGregor North of Highway 506 and Otero Mesa South of 506 (Tables 2-14 and 2-19). Northeast McGregor would be used more frequently than under LU-1/ST-3 while Otero Mesa would be used less.

Off road maneuver land in the South TAs, North TAs, and the Tularosa Basin would be driven over 1.5, 1.09, and 1.3 times respectively per year. If erosion increases over time, sites eligible for the National Register could erode and be adversely affected.

This alternative would result in a higher number of trips to conduct on-road and dismounted maneuvers in the Northeast McGregor North of Highway 506. The intense use of unpaved roads to meet training needs under this alternative could result in degradation of their surfaces leading to temporary bypasses. Those bypasses could impact archaeological sites eligible for the National Register if present.

The increase in live-fire could result in an increase in wildfires that could adversely affect archaeological sites. The increase in Soldiers on the FBTC could also result in vandalism that would adversely affect archaeological sites, sacred sites, and TCPs.

As with LU-1/ST-2, the training intensity impacts associated with LU-3/ST-3 could be mitigated to less than significant.

Other than the Hueco Mountains, sacred sites and TCPs have not been identified in the FBTC, but they could be present. The increased use of the South TAs that would result from LU-3/ST-3 would limit Native American access to such sites or could inadvertently harm the property. The limitation or harm would be an adverse effect. Noise impacts to such sites would also increase in Northeast McGregor North of Highway 506 and Otero Mesa. However, adequate time would be available without noise impacts, and some periods without noise impacts could be scheduled for Native American access to such sites to mitigate adverse effects to less than significant.

Impacts of Stationing and Training Alternative 4 (LU-3/ST-4). Impacts to archaeological sites, sacred sites, and TCPs would include the effects described above for LU-3/ST-3. They would also include the effects from any preparation for Controlled FTX sites in the Northeast McGregor Range North of Highway 506 and the effects from LU-2/ST-4.

Increased demand for on-road training under this alternative would result in higher levels of on-road and dismounted training in the Northeast McGregor Range North of Highway 506. These traffic loads may degrade roads leading to adverse effects to archaeological sites eligible for the National Register. On-road maneuvers elsewhere in the FBTC would remain approximately the same as that of LU-1/ST-4. As well, the on-road and dismounted maneuvers on Otero Mesa would be less than in LU-1/ST-4. The amount of on-road training in Northeast McGregor Range North of Highway 506 may also restrict Native American access to TCPs and sacred sites. The restriction would be an adverse effect.

Noise impacts from rotary wing aircraft, vehicles, and small-arms fire will also increase in Northeast McGregor Range North of Highway 506. However, time would be available for access to such sites in this subdivision of the FBTC without noise impacts. As with LU-1/ST-2, the training intensity impacts associated with LU-3/ST-4 could be mitigated to less than significant.

Access to TCPs and sacred sites may be limited in the South TAs, North TAs, and Tularosa Basin. As with the previous ST-4 alternatives, continued consultation with Native Americans to identify and resolve issues of concern would mitigate access concerns to less than significant.

3.8.10 Land Use Changes Alternative 4 (LU-4)

Table 3-47 classifies the impacts to cultural resources under implementation of LU-4.

Table 3-47. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 4.

Cultural Resource VEC	Potential Impacts FBTC			
	ST-1	ST-2	ST-3	ST-4
Archaeological	⦸	⦸	⦸	⦸
Historical	N/A	N/A	N/A	N/A
Native American	⦸	⦸	⦸	⦸

⦸ Significant but mitigable to less than significant
N/A Not Applicable

Impacts of Stationing and Training Alternative 1 (LU-4/ST-1). In addition to the impacts from LU-3, off-road vehicular maneuvers of light-wheeled vehicles in the Northeast McGregor Range North of Highway 506 would result in ground disturbance that could affect sites, TCPs, and sacred sites. Wheeled vehicles, such as HMMWVs, compress soils as they roll over them, although to a lesser extent than is done by an M1A1 Abrams Tank (Tables 2-2). However, the compression is proportionately high when compared to the much greater weight of the M1A1 Abrams Tank. This is because their weight is borne by four tires rather than distributed along the length of the track on the tanks.

Bedrock is frequently exposed in this portion of the installation and soils are generally shallow. These factors have been found to lessen compression because the bedrock acts as a support for a portion of the vehicle's weight while other tires are in contact with the site (Ziedler 2004).

Many sites in Northeast McGregor Range North of Highway 506 are sitting at or close to the ground surface in shallow soils (Stowe 2009). Cultural features commonly exposed on the ground surface include accumulations of burned rock and hearths from prehistoric campfires. Features lying flat on the surface would receive some compression from off-road vehicular maneuvers. While, as previously noted, those effects would not be expected to be significant due to the shallower soils and more frequent exposure of bedrock that relieves some of the pressure as the vehicles pass over the feature, the frequency of passes could result in significant impacts. Off-road maneuvers would be limited to within 500m of roads on slopes of 30 percent or less, which encompasses approximately 144 square kilometers or 33 percent of this 424 square kilometers FBTC subdivision. That land would all be driven over once annually; 25 percent of it would be driven over two times annually. The ability of surface features to sustain this frequency of compression year after year could be limited and the maneuvers may result in adverse effects over time. Some sites contain roasting pits with accumulations of burned rock that can be up to a meter or more above the ground's surface. HMMWV passage over these features of unconsolidated rocks would be expected to have a significant adverse impact to such features.

Vehicular traffic on the shallow soils on slopes in Northeast McGregor would disrupt vegetation. With vegetation loss, archaeological resources on the slopes could be impacted as the soil erodes. These activities could result in adverse effects to sites eligible for the National Register, TCPs, and sacred sites.

On-road and off-road use of the Northeast McGregor Range North of Highway 506 would increase under this land use change. With the increased use of Northeast McGregor Range North of Highway 506, increased use of rock shelters and caves could occur under this alternative. These formations can contain

cultural deposits and rock art; rock art sites also can be found in the open on rock faces. Such sites could be adversely affected through military use of rock shelters and caves. Vandalism and wild fires could occur with the increase of Soldiers in the area.

These adverse effects are significant. However, through the use of the SOPs they can be mitigated to less than significant. It is worth noting that the intensity of training in the South TAs would decrease slightly under LU-4/ST-1, slightly reducing the amount of impact to sites in that subdivision.

Noise effects would be only slightly higher than the noise effects for LU-1/ST-1under this alternative. Adequate time would be available to allow Native American access to sacred sites and TCPs during periods with no training.

Impacts of Stationing and Training Alternative 2 (LU-4/ST-2). In the FBTC, the impacts would be slightly different than those described for this alternative when combined with LU-4/ST-1. With the increase in Soldiers training on the FBTC, off-road vehicular maneuvers will increase slightly in the South Training Areas, North Training Areas, the Tularosa Basin of McGregor Range, and Southeast McGregor Range (Table 2-29).

The types of impacts to sites, TCPs, and sacred sites would continue to be comparable those described in LU-1/ST-2 and as described for LU-4/ST-1.

Impacts of Stationing and Training Alternative 3 (LU-4/ST-3). This alternative would have some increases in on-road maneuvers in the South Training Areas, North Training Areas, and the Tularosa Basin of McGregor Range due to the stationing and training of one SBCT. However, in all subdivisions other than Northeast McGregor Range North of Highway 506 and Otero Mesa South of Highway 506, the amount of on-road maneuvers would be slightly less than in LU-1/ST-3. Under this alternative, the road network in Northeast McGregor Range North of Highway 506 could degrade and adversely impact adjacent archaeological sites, TCPs, or sacred sites.

As IBCTs and others are allowed to do off-road maneuvers in Northeast McGregor Range North of Highway 506 under LU-3, this alternative, like the others under LU-3 will continue to have less off-road maneuvers than LU-1 in all subdivisions where off-road maneuvers are permitted other than in Northeast McGregor Range North of Highway 506. This would be a net benefit to the sites in the other subdivisions. In this subdivision, the land available for off-road maneuvers would be driven over once and 26 percent would be driven over twice. The impacts in the Northeast McGregor Range North of Highway 506 could be mitigated to less than significant using the SOPs in the PA and ICRMP.

The types of impacts to historic properties, TCPs, and sacred sites would continue to be those described in LU-1/ST-3. These would be in addition to the impacts described under LU-4/ST-1 and the noise impacts discussed in LU-3/ST-3.

Impacts of Stationing and Training Alternative 4 (LU-4/ST-4). LU-4/ST-4 would result in increased BCTs and support units conducting higher levels of their on-road and off-road vehicular training in Northeast McGregor Range North of Highway 506 (Table 2-30 and Table 2-33). Off-road vehicular traffic would annually drive over all land in this area 1.53 times. Elsewhere in the FBTC, off-road impacts will be slightly more than LU-4/ST-3. Those impacts could be mitigated to less than significant using the SOPs in the PA and ICRMP.

Under this alternative, on-road and dismounted training would increase in the Northeast McGregor Range North of Highway 506 and be reduced on Otero Mesa South of Highway 506 (Table 2-26). With this training load, some of the roads in the Northeast McGregor Range North of Highway 506 may degrade

resulting in adverse effects to any archaeological sites adjacent to those degraded roads. Slightly fewer on-road maneuvers would take place in other subdivisions of the FBTC than would occur under LU-1/ST-4.

The types of impacts to historic properties, TCPs, and sacred sites would continue to be those described in LU-1/ST-4. These would be in addition to the impacts described for LU-4/ST-1, and in addition to the noise impacts discussed in LU-3/ST-4. Unless scheduling can permit Native American access to sacred sites and TCPs in the lower elevations of the FBTC, the inability to access such properties could be mitigated to less than significant through continued consultation with Native Americans to identify and resolve issues of concern.

3.8.11 Land Use Changes Alternative 5 (LU-5)

LU-5 would add three square kilometers of Controlled FTX sites in the Otero Mesa South of Highway 506. These Controlled FTX sites will be adjacent to existing roads, and are in addition to LU-4.

Table 3-48 classifies the impacts to cultural resources under implementation of LU-5.

Table 3-48. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 5.

Cultural Resource VEC	Potential Impacts FBTC			
	ST-1	ST-2	ST-3	ST-4
Archaeological	⦸	⦸	⦸	⦸
Historical	N/A	N/A	N/A	N/A
Native American	⦸	⦸	⦸	⦸

⦸ Significant but mitigable to less than significant
N/A Not Applicable

Impacts of Stationing and Training Alternative 1 (LU-5/ST-1). Establishment of Controlled FTX sites, combined with the other Land Use changes, would result in little to no difference from LU-4/ST-1 (Tables 2-22 and 2-33). On-road, dismounted, and off-road training would remain essentially the same. The impacts to cultural resource VECs would remain the same at LU-4/ST-1.

Impacts of Stationing and Training Alternative 2 (LU-5/ST-2). In the FBTC, LU-5 combined with the other land use alternatives and ST-2, would have the same uses of the TAs described when combined with LU-4/ST-2.

Adverse effects to archaeological sites eligible for the National Register, TCPs, and sacred sites under this alternative would be the same as those described for this alternative when combined with LU-4/ST-2.

Impacts of Stationing and Training Alternative 3 (LU-5/ST-3). In the FBTC, LU-5 combined with the other land use alternatives and ST-3, would have the same uses of the TAs described when combined with LU-4/ST-3.

Adverse effects to archaeological sites eligible for the National Register, TCPs, and sacred sites under this alternative would be the same as those described for this alternative when combined with LU-4/ST-3.

Impacts of Stationing and Training Alternative 4 (LU-5/ST-4). In the FBTC, LU-5 combined with the other land use alternatives and ST-4, would have the same uses of the TAs described when combined with LU-4/ST-4.

Adverse effects to archaeological sites eligible for the National Register, TCPs, and sacred sites under this alternative would be the same as those described for this alternative when combined with LU-4/ST-4.

3.8.12 Training Infrastructure Improvements Alternative 1 (TI-1)

Table 3-49 classifies the impacts to cultural resources under implementation of TI-1.

Table 3-49. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 1.

Land Use VEC	Potential Impacts FBTC
Archaeological	○
Historical	N/A
Native American	○

○ No Impact
N/A Not Applicable

Under TI-1, there would be no additional training infrastructure construction which has not been previously assessed. Therefore there would be no new impacts associated with this alternative.

3.8.13 Training Infrastructure Improvements Alternative 2 (TI-2)

Table 3-50 classifies the impacts to cultural resources under implementation of TI-2.

Table 3-50. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 2.

Land Use VEC	Potential Impacts FBTC
Archaeological	⦸
Historical	N/A
Native American	⦸

⦸ Significant but mitigable to less than significant
N/A Not Applicable

Sixteen of the 27 new ranges to support ST-1 and ST-2 would be situated north and south along the western slopes of Otero Mesa with eight situated in the Doña Ana area; 19 would have relatively certain footprints within those areas. The locations for two have not been determined. The size and footprint of these ranges vary according to their purpose. For example, Sniper Fire Ranges would be smaller than Qualification Training Ranges.

Archaeological sites eligible for the National Register, TCPs, and sacred sites that are within the footprint of these ranges would be adversely affected. Table 3-51 provides a list of the National Register status (eligible, not eligible, and not yet evaluated) for the 17 ranges whose locations are known. Of the 52 sites within these ranges, 12 have been determined eligible for the National Register, and 11 have yet to be evaluated for listing on the National Register. The remaining 29 are not eligible.

Table 3-51. Archaeological Sites within Footprints of Proposed New Ranges.

Range #	No. Sites Eligible	No. Sites Not Eligible	No. Sites Undetermined	Total
20	1	4	0	5
21	0	1	0	1
25	0	0	0	0
26	0	1	0	1
27	0	0	0	0
29	0	0	0	0
31	0	0	0	0
32	2	0	3	5
33	4	3	0	7
57	0	1	0	1
58	0	0	0	0
61	0	4	0	4
64	1	3	1	5
65	0	2	0	2
82	1	4	2	7
86	0	0	1	1
89	3	5	4	12
90	0	1	0	1
Totals	12	29	11	52

Additional ranges would be required for ST-3 and ST-4 (Table 2-36). The locations of those ranges have not yet been identified. The primary cultural resources impact from any of the ranges would result from ground disturbance caused by the creation of ranges in the TAs. These impacts would be in addition to those caused by decisions surrounding Category 1 or Category 2. Architectural and archaeological properties, TCPs, and sacred sites would be lost or adversely affected by those activities. The previously discussed PA and ICRMP SOPs would be used to mitigate the effects to less than significant.

3.8.14 Training Infrastructure Improvements Alternative 3 (TI-3)

Table 3-52 summarizes the potential direct and indirect impacts to cultural resources under implementation of TI-3.

Table 3-52. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 3.

Land Use VEC	Potential Impacts FBTC
Archaeological	⦸
Historical	N/A
Native American	⦸

⦸ Significant but mitigable to less than significant
N/A Not Applicable

Although the locations of the COLs have not been determined, their construction and expansion of the range camps could significantly impact archaeological sites eligible for the National Register. TCPs or sacred sites would also be significantly impacted by COL construction. The previously discussed PA and ICRMP SOPs would be used to mitigate the effects to less than significant.

3.8.15 Training Infrastructure Improvements Alternative 4 (TI-4)

Table 3-53 summarizes the potential direct and indirect impacts to cultural resources under implementation of TI-4.

Table 3-53. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 4.

Cultural Resources VEC	Cantonment	FBTC
Archaeological	○	⦸
Historical	○	N/A
Native American	○	⦸

⦸ Significant but mitigable to less than significant
○ No Impact
N/A Not Applicable

Cantonment Area

Direct effects of the rail line in the Cantonment would be caused by its construction. Indirect effects could be caused by introducing visual elements incompatible with historic properties. The rail line would enter the Cantonment from the northeast at Loop 375, turn west until it is close to the Union Pacific railroad where it would then turn south. It would follow that rail line to the southwest into the northern portion of the Cantonment, but well to the north of the Main Post or William Beaumont Hospital historic districts. The rail line would terminate adjacent to a triangular "transfer area" of approximately 75 acres (0.3 square kilometer).

The nearest architectural historic properties to the rail line are the Cold War Era eligible properties known as the 3600 Area. They are located approximately 600 meters to the east-northeast and, based on current plans, would not be affected by the rail line or the transfer area.

The area of the proposed rail line and transfer area would not affect archaeological historic properties within the OLA in the Cantonment. The portion of the rail line within the Cantonment has been subjected to adequate inventory and no sites eligible for the National Register would be within its 50m wide footprint. Although the precise footprint of the rail line has not been determined, the 50m wide corridor for it is believed to capture its placement. Neither the rail line or transfer area would impact the OLA within the Cantonment. Based on this placement, there would be no effect on historic properties in the area.

Fort Bliss has a PA and ICRMP that establish the process and procedures to address adverse effects. The process, procedures, and mitigation alternatives are detailed under ST-1. The unique constraints required for rail construction (very low grade and wide turning radius) permit limited deviation once the right-of-way is established. Avoidance would be an unlikely mitigation alternative. The remaining mitigation alternatives described under ST-1 would be used to reduce adverse effects.

Fort Bliss Training Complex

Direct effects of the rail line would result if the line or its construction corridor impacts an archaeological site eligible for the National Register. The final location of the rail line would be determined at a future date. However, it would generally parallel the existing commercial rail line along US-54. Minimal loading and unloading operations would be at Orogrande, Oro Grande Range Camp, and Alvarado.

Inventory and evaluation of archaeological sites is underway in a portion of the proposed corridor where the rail line and loading facilities would be constructed. At least 21 previously recorded sites are within the proposed corridor. Some of them are within an OLA and could be eligible for listing on the National Register (Burt 2009). If the line or the loading/unloading docks were situated over an archaeological site eligible for the National Register, the impacts would be significant. TCPs and sacred sites, if present within the right of way would also have significant impacts. The significant impacts would be due to the unique rail road requirements that dictate maximum acceptable grades and turning requirements. Therefore, historic properties within the footprint could probably not be avoided and would be adversely affected.

Fort Bliss has a PA and ICRMP that establish the process and procedures to address adverse effects. The process, procedures, and mitigation alternatives are detailed under ST-1. The unique constraints required for rail construction (very low grade and wide turning radius) permit limited deviation once the right-of-way is established. Avoidance would be an unlikely mitigation alternative. Other mitigation alternatives described under ST-1 would be used to reduce adverse effects to less than significant.

The area of the proposed rail line and transfer area would not affect archaeological historic properties within the OLA in the Cantonment. The portion of the rail line within the Cantonment has been subjected to adequate inventory and no sites eligible for the National Register would be within its 50m wide footprint. Although the precise footprint of the rail line has not been determined, the 50m wide corridor for it is believed to capture its placement. Neither the rail line or transfer area would impact the OLA within the Cantonment. Based on this placement, there would be no effect on historic properties in the area.

Fort Bliss has a PA and ICRMP that establish the process and procedures to address adverse effects. The process, procedures, and mitigation alternatives are detailed under ST-1. The unique constraints required

for rail construction (very low grade and wide turning radius) permit limited deviation once the right-of-way is established. Avoidance would be an unlikely mitigation alternative. The remaining mitigation alternatives described under ST-1 would be used to reduce adverse effects.

Fort Bliss Training Complex

Direct effects of the rail line would result if the line or its construction corridor impacts an archaeological site eligible for the National Register. The final location of the rail line would be determined at a future date. However, it would generally parallel the existing commercial rail line along US-54. Minimal loading and unloading operations would be at Orogrande, Oro Grande Range Camp, and Alvarado.

Inventory and evaluation of archaeological sites is underway in a portion of the proposed corridor where the rail line and loading facilities would be constructed. At least 21 previously recorded sites are within the proposed corridor. Some of them are within an OLA and could be eligible for listing on the National Register (Burt 2009). If the line or the loading/unloading docks were situated over an archaeological site eligible for the National Register, the impacts would be significant. TCPs and sacred sites, if present within the right of way would also have significant impacts. The significant impacts would be due to the unique rail road requirements that dictate maximum acceptable grades and turning requirements. Therefore, historic properties within the footprint could probably not be avoided and would be adversely affected.

Fort Bliss has a PA and ICRMP that establish the process and procedures to address adverse effects. The process, procedures, and mitigation alternatives are detailed under ST-1. The unique constraints required for rail construction (very low grade and wide turning radius) permit limited deviation once the right-of-way is established. Avoidance would be an unlikely mitigation alternative. Other mitigation alternatives described under ST-1 would be used to reduce adverse effects to less than significant.

3.9 Air Quality: Affected Environment

The 2007 SEIS (U.S. Army) comprehensively describes the affected environment, identifies the ROI, and discusses these principal considerations for air quality: applicable federal and state regulations and air quality standards, the State Implementation plans for Texas and New Mexico, the Conformity Rule and air permit requirements, and air pollutant emissions associated with Fort Bliss. This information is summarized in this section. Any relevant changes or updates to the 2007 SEIS are also addressed.

The ROI for air quality includes El Paso County, Texas, Doña Ana County, New Mexico, and Otero County, New Mexico. With the exception of PM_{10} in two localized areas (Table 3-54), these counties are currently meeting National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. Criteria pollutants include particulate matter (PM_{10}, $PM_{2.5}$), carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), ozone, and lead.

Table 3-54. Areas not Meeting National Ambient Air Quality Standards.

Area	County	Nonattainment Pollutant
City of El Paso , TX	El Paso	PM_{10}
Anthony, NM	Doña Ana	PM_{10}

Source: Texas Commission on Environmental Quality. 2009, New Mexico Environment Department 2009.

The CO level is the notable change in the ROI air quality since the publication of the 2007 SEIS. As of August 4, 2008, the City of El Paso is no longer considered nonattainment for CO as indicated in the 2007 SEIS. Both El Paso County and a portion of Doña Ana County (specifically, Sunland Park, New Mexico), remain Maintenance Areas for the eight-hour ozone standard. They were previously considered nonattainment areas for the one-hour standard. Maintenance plans require the Texas and New Mexico air quality agencies use an established baseline pollutant standard to demonstrate that a reduction in air pollutant emissions is occurring.

Fort Bliss is affected by the air quality of its neighbors. The Fort Bliss Cantonment area borders both ROI PM_{10} nonattainment areas (the City of El Paso and Anthony, New Mexico, just south of the Doña Ana – North Training Areas range) and a Maintenance Plan area (Sunland Park, New Mexico, approximately ten miles to the west). Monitoring stations in these areas have demonstrated significant improvement in CO levels over recent years.

The ROI experiences moderate wind speeds throughout the year and may be subject to severe dust storms at certain times of the year. These storms can have a significant impact on air quality and as a result, both El Paso and Doña Ana County have implemented Natural Events Action Plans (NEAPs) to address potential exceedances of the PM_{10} NAAQS due to high wind events. Prevailing wind patterns associated with area high-wind events make it unlikely that the Fort Bliss land holdings are a significant PM_{10} contributor; however, Fort Bliss is party to both NEAP agreements. Monitoring stations in El Paso recorded exceedances for PM_{10} in 2008 (24-hour average). Stations in Doña Ana county also have recorded exceedances of the PM_{10} and $PM_{2.5}$ standard in 2008 (24-hour and annual averages).

In recent years, the eight-hour average ozone standard was exceeded at several monitoring stations in El Paso, TX and Doña Ana County, NM. As a result, the Texas Commission on Environmental Quality (TCEQ) has proposed redesignating El Paso County as nonattainment for the eight-hour ozone standard (TCEQ 2009b) and the governor of New Mexico has recommended redesignating Sunland Park, NM as nonattainment for the eight-hour ozone standard (NM Environment 2008). Table 3-55 summarizes recent air quality data in the area and compares the monitored values to data presented in the 2007 SEIS. This table also includes the Primary NAAQS, which are the limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

Table 3-55. Air Quality Monitoring Data for El Paso and Doña Ana Counties.

Pollutant/Monitoring Station/ID No.	Averaging Time	Primary NAAQS	Maximum Concentration	
			2004-2006	2008
CO (ppm)				
Ascarate Park (El Paso, TX)/481410055	8-hour	9	5.7	3.0
Chamizal (El Paso, TX)/481410044			6.7	4.2
Ivanhoe (El Paso, TX)/481410029			2.8	1.5
Skyline Park (El Paso, TX)/481410058			2.2	1.4
Ascarate Park (El Paso, TX)/481410055	1-hour	35	13.3	4.3
Chamizal (El Paso, TX)/481410044			12.3	7.3
Ivanhoe (El Paso, TX)/481410029			4.9	2.9
Skyline Park (El Paso, TX)/481410058			3.6	2.5
NO_2 (ppm)				
Ascarate Park (El Paso, TX)/481410055	Annual	0.053	0.018	0.016
Chamizal (El Paso, TX)/481410044			0.021	0.013
Desert View (Doña Ana Co., NM)/350130021			0.011	0.008
Santa Teresa Int. Blvd. (Doña Ana Co., NM)			0.006	0.004
Ozone (ppm)				
Ascarate Park (El Paso, TX)/481410055	8-hour	0.075	0.097	0.094
Chamizal (El Paso, TX)/481410044			0.105	0.084
Ivanhoe (El Paso, TX)/481410029			0.088	0.082
Skyline Park (El Paso, TX)/481410058			0.092	0.084
Chaparral (Doña Ana Co., NM)/350130020			0.087	0.069
Desert View (Doña Ana Co., NM)/350130021			0.085	0.080
Sunland Park City (Doña Ana Co., NM)/350130017			0.087	0.069
PM_{10} ($\mu g/m^3$)				
Chamizal (El Paso, TX)/481410044	24-hour	150	49	165
Ivanhoe (El Paso, TX)/481410029			226	55
Anthony (Doña Ana Co., NM)/350130016			113	399
Sunland Park City (Doña Ana Co., NM)/350130017			152	395
$PM_{2.5}$ ($\mu g/m^3$)				
Chamizal (El Paso, TX)/481410044	Annual	15.0	10.6	10.8
Sunland Park City (Doña Ana Co., NM)/350130017			12.2	11.9
Chamizal (El Paso, TX)/481410044	24-hour	35	49	29.5
Sunland Park City (Doña Ana Co., NM)/350130017			56	46.6

Source: Environmental Protection Agency, 2009

In general, CO, nitrous oxide (NO_x), ozone, and SO_2 are the result of fuels combusted either for industrial/commercial uses or in motor vehicles. In addition to the dust storms described above, PM_{10} is attributed to fugitive dust sources, such as unpaved roads and material handling operations, but is also the result of industrial/commercial activities. $PM_{2.5}$ is commonly attributed to combustion of fuel. Volatile organic compounds (VOCs) are associated with fuel combustion, as well as fuel storage and marketing, and surface coating operations.

Air pollutant emissions associated with operations at Fort Bliss are permitted by the TCEQ. The facility has a Title V Federal Operating Permit (No. O2865) issued on January 29, 2007. The emission units in the permit include boilers, emergency generators, fuel storage tanks and loading stations, paint spray booths, and other solvent use operations. Fort Bliss is currently rated by the TCEQ as generally in compliance with permit requirements. Operations in New Mexico do not require an air pollution operating permit since air pollutant emissions are below levels requiring a permit.

Air pollutant sources are required to report total annual emissions. Table 3-56 summarizes the emissions reported by Fort Bliss in 2007.

Table 3-56. Air Pollutant Emissions Reported by Fort Bliss.

Year	Emissions (ton/year)					
	PM_{10}	**$PM_{2.5}$**	**NO_x**	**CO**	**VOC**	**SO_2**
2007	7.25	4.48	58.77	38.30	66.51	1.0

3.10 Air Quality: Direct and Indirect Effects

The environmental consequences analysis evaluates the direct and indirect impacts of increased air pollutant emissions associated with the categories and alternatives presented. Air quality impacts are considered significant if:

- The activity would cause ambient air quality levels to exceed NAAQS.
- The activity would impact the timely attainment of NAAQS in an area not meeting standards.
- The activity would release hazardous air pollutants that exceed NESHAP program standards.

Air pollutants considered in this analysis include PM_{10}, $PM_{2.5}$, CO, NO_x, SO_2 and VOC. VOC is considered because it is associated with the formation of ozone which is a criteria pollutant of concern. It is not anticipated that any NESHAP program hazardous air pollutants are associated with any of the categories and alternatives except in trace amounts. In addition, since the air quality of Fort Bliss land holdings is considered to be in attainment for NAAQS, the Conformity Rule does not apply.

The alternatives are described in detail in Chapter 2. Table 3-57 classifies the impacts to air quality for the various categories and alternatives evaluated in this section.

Table 3-57. Classification of Direct and Indirect Impacts to Air Quality at Fort Bliss.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Air Quality	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

⊙ Less than Significant

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5. The air quality impacts associated with the Cantonment include emissions from the following activities:

- Building construction and paving activities.
- Operation of privately owned vehicles.
- Increased facility operations.

Emission calculations for the Cantonment construction activities are based on the California Environmental Quality Act (CEQA) Air Quality Handbook (SCAQMD 1993) emission factors for general construction activities. These emission factors are basically the same factors used in the 2007 SEIS (U.S. Army). The emissions for each proposed alterntive are based on the estimated size of buildings constructed and area paved. Emissions of $PM_{2.5}$ associated with construction and paving activities were estimated by applying a factor of 0.25 since the PM_{10} emission factors include those due to fuel combustion in construction equipment as well as fugitive emissions. Emission factors for construction activities were taken from the 2007 SEIS and are summarized in Table 3-58.

As previously mentioned, the Cantonment emissions also include the increase in PM_{10}, NO_X, CO, and VOC associated with the estimated increase in privately owned vehicles. The emissions from the privately owned vehicles are assumed to affect only the Cantonment. This assumption considers that access to the training ranges in the New Mexico portion of Fort Bliss would largely be restricted to military vehicles. In this analysis, the emission estimates from the 2007 SEIS were simply increased by a factor representing the increase of stationed personnel. To estimate $PM_{2.5}$ emissions, all of the PM_{10} is assumed to be $PM_{2.5}$.

The emissions from the facility operations were estimated by taking the actual emissions reported for the 2007 SEIS and factoring them by the percent increase in stationed personnel proposed for each alternative.

Air quality impacts associated with military use of the FBTC include:

- Fugitive dust emissions from training vehicles.
- Combustion emissions from diesel and JP-8 fueled training vehicles.

The environmental consequences associated with the FBTC consider PM_{10} fugitive emissions associated with the travel of wheeled and tracked vehicles on unpaved roads and across the training ranges. The

emission factors used to determine the PM_{10} emissions are the same as those relied on in the 2007 SEIS (Gillies 2005) specifically for military vehicles. To estimate $PM_{2.5}$ in fugitive emissions associated with training vehicle operation, a factor of 0.1 was used.

The main sources of NO_X and other pollutants are the combustion of diesel and JP-8 in the operation of mobile generators, and wheeled and tracked vehicles. Studies have suggested that kerosene-based fuels such as JP-8 fuel have the potential for lowering exhaust emissions, especially particulate matter, compared to diesel fuel (G Fernandes, 2007). For this analysis, the emissions from the training activities was estimated by taking the emissions calculated in the 2007 SEIS and factoring them by the percent increase in training personnel proposed for each alternative. $PM_{2.5}$ emissions were estimated by applying a factor to PM_{10} emissions. For combustion sources, all of the PM_{10} is assumed to be $PM_{2.5}$.

Table 3-58. 2007 SEIS Construction Emission Factors.

Component	Emission Factor			
	PM_{10}	**NO_x**	**CO**	**VOC**
Building Construction (ton/MMsf/year)	4.25	59.81	13.01	4.07
Paving (ton/acre/year)	0.007	0.112	0.045	0.009

MMsf = million square feet

Table 3-59 shows the emissions and number of personnel from the 2007 SEIS which were used as the baseline for the analysis in this section.

Table 3-59. 2007 SEIS Alternative 4 Baseline Emissions and Personnel.

Component	Emissions (ton/year)				
	PM_{10}	**NO_x**	**CO**	**VOC**	**SO_2**
Privately Owned Vehicles	10.9	347.3	2,811.0	244.8	2.2
Training Use of Military Equipment (Fuel combustion)	363.0	1,750.0	76.0	93.0	18
Training Use of Military Equipment (Fugitive PM_{10} emissions)	29,488	-	-	-	-
Training Personnel	40,300				
Stationed Personnel (military, civilian, & dependants)	124,300				

For each of the categories and alternatives, the estimated increases in pollutant emissions were evaluated.

3.10.1 Stationing and Training Alternative 1 (ST-1)

For ST-1 there were no increases in emissions above the baseline Alternative 4 from the 2007 SEIS. This is due to:

- No plans for construction of additional buildings or paved areas.
- No increase in number of stationed or training personnel.

- No increase in the total number of BCTs training.

Impacts to air quality under ST-1 would be less than significant (Table 3-57).

3.10.2 Stationing and Training Alternative 2 (ST-2)

For ST-2 the only increases in emissions evaluated were those associated with having an additional BCT training. A 10 percent increase over the baseline was assumed to account for having one additional HBCT training and the resulting change in number of training personnel. Table 3-60 summarizes the emissions associated with this alternative.

Table 3-60. Emissions Increase Associated with Military Use of FBTC under Stationing and Training Alternative 2.

Component	Emissions (ton/year)					
	PM_{10}	**$PM_{2.5}$**	**NO_x**	**CO**	**VOC**	**SO_2**
Training Use of Military Equipment (Fuel Combustion)	36.0	36.0	173.7	7.5	9.2	1.8
Training Use of Military Equipment Fugitive PM10 emissions)	2,926.8	292.7	-	-	-	-
Total	**2,962.9**	**328.7**	**173.7**	**7.5**	**9.2**	**1.8**

Air pollutant emissions in this alternative are spread over a wide area. The 2007 SEIS included air quality dispersion modeling to evaluate the impact of training within the FBTC. The analysis showed that the maximum impact of PM_{10} emissions at the FBTC boundary was approximately one-third of the NAAQS, based on the maximum concurrent use of a limited geographic area within the training areas. Emissions increases for PM_{10}, presented in Table 3-60 for ST-2, represent small increase in total annual emissions and are not expected to increase the maximum 24-hour emissions. Therefore, emissions from the proposed alternative are not expected to exceed the NAAQS. The impact of $PM_{2.5}$ emissions was not evaluated in the 2007 SEIS, however $PM_{2.5}$ emissions are only 10 percent of the total PM emissions and the 24-hour standard is 25 percent of the PM_{10} standard. For this reason, the increase proposed would not be expected to exceed the $PM_{2.5}$ standard. Impacts to air quality under ST-2 would be less than significant (Table 3-57).

3.10.3 Stationing and Training Alternative 3 (ST-3)

For ST-3, increases in emissions evaluated were those associated with all of the following activities:

- Construction of additional buildings and paved areas in the Cantonment.

- Increase in number of stationed personnel, resulting in additional facility operation and additional privately owned vehicles.

- Increase in the total number of BCTs training.

Table 3-61 summarizes the emissions associated with construction for this alternative. These emissions are relatively short-term and, therefore, would not be expected to impact air quality significantly.

Table 3-61. Emissions Increase Associated with Cantonment Area Construction under Stationing and Training Alternative 3.

Component	Emissions (ton/year)				
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC
Building Construction (1.66 MMsf)	7.1	1.8	99.3	21.6	6.8
Paving (1.3 km^2)	2.3	0.6	35.2	14.0	2.7
Total	**9.4**	**2.3**	**134.5**	**35.6**	**9.5**

Table 3-62 summarizes emission increases associated with increased facility operations and privately owned vehicles. These increases are long term and, therefore, must be considered in light of the air quality significance criteria. When compared to the TCEQ estimates of pollutant emissions that are contained in the El Paso air quality maintenance plans for CO and ozone (TCEQ 2006a, 2006b), these emissions are not considered significant. The Commission's estimates for El Paso County emissions in 2014 are approximately 129,420 tons CO per year, 13,465 tons NO_x per year, and 16,282 tons of VOC per year. The plans account for some increases due to Fort Bliss expansion plans already.

Table 3-62. Emissions Increase Associated with Cantonment Area Operations under Stationing and Training Alternative 3.

Component	Emissions (ton/year)					
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2
Facility Operations	0.4	0.3	3.5	2.2	3.9	0.1
Privately Owned Vehicles	0.6	0.6	20.4	165.1	14.4	0.1
Total	**1.1**	**0.9**	**23.8**	**167.3**	**18.3**	**0.2**

Table 3-63 summarizes emission increases associated increased training activity proposed for the FBTC. A 20 percent increase over the baseline was assumed to account for having one SBCT added to the FBTC resulting in a change in number of training personnel.

Table 3-63. Emissions Increase Associated with Military Use of FBTC under Stationing and Training Alternative 3.

Component	Emissions (ton/year)					
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2
Training Use of Military Equipment (Fuel Combustion)	73.0	73.0	351.7	15.3	18.7	3.6
Training Use of Military Equipment Fugitive PM10 emissions)	5,926.9	592.7	-	-	-	-
Total	**5,999.8**	**665.6**	**351.7**	**15.3**	**18.7**	**3.6**

Air pollutant emissions in this alternative are spread over a wide area. The 2007 SEIS included air quality dispersion modeling to evaluate the impact of training within the FBTC. The analysis showed that the maximum impact of PM_{10} emissions at the FBTC boundary was approximately one-third of the NAAQS, based on the maximum concurrent use of a limited geographic area within the training areas. Emissions increases for PM_{10}, presented in Table 3-63 for ST-3, as with ST-2, represent a moderate increase in total annual emissions and are not expected to increase the maximum 24-hour emissions. Therefore, emissions from the proposed alternative are not expected to exceed the NAAQS. Additionally, the added SBCT, a large unit performing mainly on-road maneuvers, would make this rough scale-up of PM emissions an overestimation of the actual increases. The impact of $PM_{2.5}$ emissions was not evaluated in the 2007 SEIS, however $PM_{2.5}$ emissions are only 10 percent of the total PM emissions and the 24-hour standard is 25 percent of the PM_{10} standard. For this reason, the increase proposed would not be expected to exceed the $PM_{2.5}$ standard. Impacts to air quality under ST-3 would be less than significant (Table 3-57).

3.10.4 Stationing and Training Alternative 4 (ST-4)

For ST-4, increases in emissions evaluated were those associated with all of the following activities:

- Construction of additional buildings and paved areas in the Cantonment.
- Increase in number of stationed personnel, resulting in additional facility operation and additional privately owned vehicles.
- Increase in the total number of BCTs and support units training.

Table 3-64 summarizes the emissions associated with construction for this alternative. These emissions are relatively short-term and, therefore, would not be expected to impact air quality significantly.

Table 3-64. Emissions Increase Associated with Cantonment Area Construction under Stationing and Training Alternative 4.

Component	Emissions (ton/year)				
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC
Building Construction (3.32 MMsf)	14.1	3.5	198.6	43.2	13.5
Paving (2.5 km^2)	4.7	1.2	70.4	28.0	5.4
Total	**18.8**	**4.7**	**269.0**	**71.2**	**18.9**

Table 3-65 summarizes emission increases associated with increased facility operations and privately owned vehicles. These increases are long term and therefore must be considered in light of the air quality significance criteria. When compared to the TCEQ estimates of pollutant emissions that are contained in the El Paso air quality maintenance plans for CO and ozone (TCEQ 2006a, 2006b), these emissions are not considered significant. The Commission's estimates for El Paso County emissions in 2014 are approximately 129,420 tons CO per year, 13,465 tons NO_x per year, and 16,282 tons of VOC per year, The plans account for some increases due to Fort Bliss expansion plans already.

Table 3-65. Emissions Increase Associated with Cantonment Area Operations under Stationing and Training Alternative 4.

Component	Emissions (ton/year)					
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2
Facility Operations	1.7	1.0	13.5	8.8	15.2	0.2
Privately Owned Vehicles	2.5	2.5	79.6	644.5	56.1	0.5
Total	**4.2**	**3.5**	**93.1**	**653.3**	**71.4**	**0.7**

Table 3-66 summarizes emission increases associated increased training activity proposed for the FBTC. A 48 percent increase over the baseline was assumed to account for having one additional HBCT and SBCT training, and the resulting change in the number of training personnel.

Table 3-66. Emissions Increase Associated with Military Use of FBTC under Stationing and Training Alternative 4.

Component	Emissions (ton/year)					
	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2
Training Use of Military Equipment (Fuel Combustion)	174.7	174.7	842.4	36.6	44.8	8.7
Training Use of Military Equipment Fugitive PM10 emissions)	14195.2	1419.5	0.0	0.0	0.0	0.0
Total	**14370.0**	**1594.3**	**842.4**	**36.6**	**44.8**	**8.7**

Air pollutant emissions in this alternative are spread over a wide area. The 2007 SEIS included air quality dispersion modeling to evaluate the impact of training within the FBTC. The analysis showed that the maximum impact of PM_{10} emissions at the FBTC boundary was approximately one-third of the NAAQS, based on the maximum concurrent use of a limited geographic area within the training areas. Emissions increases for PM_{10}, presented in Table 3-66 for ST-4 represent a moderate increase in total annual emissions but are not expected to increase the maximum 24-hour emissions. Therefore, emissions from the proposed alternative are not expected to exceed the NAAQS. Additionally, the added SBCTs, large units performing mainly on-road maneuvers, would make this rough scale-up of PM emissions an overestimation of the actual increases. The impact of $PM_{2.5}$ emissions was not evaluated in the 2007 SEIS; however, $PM_{2.5}$ emissions are only 10 percent of the total PM emissions and the 24-hour standard is 25 percent of the PM_{10} standard. For this reason, the increase proposed would not be expected to exceed the $PM_{2.5}$ standard. Impacts to air quality under ST-4 would be less than significant (Table 3-57).

3.10.5 Land Use Changes Alternative 1 (LU-1)

LU-1 is the No Action alternative and does not add any significant source of air pollution (Table 3-57).

3.10.6 Land Use Changes Alternative 2 (LU-2)

LU-2 adds some fixed sites by removing land use limitations, but does not add any significant source of air pollution (Table 3-57).

3.10.7 Land Use Changes Alternative 3 (LU-3)

LU-3 does not add any significant source of air pollution. It addresses the establishment of Controlled FTX sites and Mission Support Facilities, the construction of which would have a very minimal short term impact on air quality. Impacts to air quality under LU-3 would be less than significant (Table 3-57).

3.10.8 Land Use Changes Alternative 4 (LU-4)

LU-4 provides additional areas for Off-Road Vehicle Maneuver: Light. Further geographic distribution of those maneuvers would not have a significant impact (Table 3-57).

3.10.9 Land Use Changes Alternative 5 (LU-5)

LU-5 does not add any significant source of air pollution. It addresses the establishment of additional Controlled FTX sites the construction of which would have a very minimal short term impact on air quality. Impacts to air quality under LU-5 would be less than significant (Table 3-57).

3.10.10 Training Infrastructure Improvements Alternative 1 (TI-1)

The pollutants of concern related to the training infrastructure improvements at the FBTC are $PM_{10/2.5}$, NO_X, CO and VOC. The principal sources of these pollutants would be the small amount of criteria pollutant emissions associated with any range not able to utilize the existing electrical power grid. The impact of these emissions would be insignificant considering the wide range over which the ranges are proposed.

TI-1 is the No Action alternative and does not add any significant sources of air pollution (Table 3-57).

3.10.11 Training Infrastructure Improvements Alternative 2 (TI-2)

TI-2 proposes the completion additional 26 ranges and future ranges to meet the training demands for the selected stationing and training alternative. The principal sources of the pollutants of concern would be the small amount of land disturbance and construction activities to develop training ranges at the FBTC as well as emissions associated with the new ranges able to utilize the existing electrical power grid. The construction and operation of which would not be expected to have a significant impact on air quality (Table 3-57).

3.10.12 Training Infrastructure Improvements Alternative 3 (TI-3)

TI-3 proposes an expansion of existing range camps and establishment of COLs, the construction and operation of which would not be expected to have a significant impact on air quality (Table 3-57).

3.10.13 Training Infrastructure Improvements Alternative 4 (TI-4)

TI-4 consists of the construction and operation of a rail line, which would allow the transport of tracked and wheeled vehicles between the Cantonment and the FBTC. The rail line would also allow the transportation of military equipment from other commands deploying for maneuvers at the FBTC.

The exact alignment of the rail line, frequency of use, and expected loads are under preliminary consideration. Thus, the extent of emissions related to construction and the possible effect on air quality cannot be determined. The actual operation of the line would use one of the more efficient modes of land transportation available. A study of economic efficiency of different transportation systems (McCullough 2007) suggests the economics and efficiency of railroad transportation to be superior to on-road transportation in terms of density of loads carried, energy efficiency, and revenue of ton-miles per employee carried. These three factors suggest an expectation of lower emissions of criteria pollutants from the operation of the rail line than comparable transportation of military equipment by semi-trailer systems, providing a long-term operational benefit to air quality. Impacts to air quality under TI-4 would be less than significant (Table 3-57).

3.11 Water Resources: Affected Environment

This section presents the affected environment for surface and groundwater resources, except for stormwater management. Management of stormwater is addressed in Section 3.13: Facilities. The ROI for

water resources includes the surface water and groundwater sources that supply Fort Bliss, the City of El Paso, and other communities whose water supply may be affected by activities at Fort Bliss. The ROI is comprised of portions of four watersheds and four groundwater basins. Watershed boundaries are very similar, but do not exactly correspond, to boundaries of groundwater basins. The surface water watersheds in the ROI are Tularosa Valley, Rio Grande-Fort Quitman, Salt Basin, and El Paso-Las Cruces watersheds. Groundwater basins in the ROI are the lower Tularosa Basin, the upper Hueco Bolson, the Mesilla Basin, and the Salt Basin. The general hydrologic environment in the ROI was described in previous documents including the 2000 PEIS, 2007 SEIS, 2007 GTA PEIS, and 2004 Desalination FEIS, portions of which are incorporated by reference.Surface Water

Watersheds are delineated by the USGS nationwide system, which defines each watershed by a hydrologic unit code (HUC). The ROI surface water watersheds designations are Tularosa Valley (HUC 13050003); Rio Grande-Fort Quitman (HUC 13040100), which includes the Cantonment area; Salt Basin (HUC 13050004); and El Paso-Las Cruces (HUC 13030102) watersheds (USGS 2008). ROI watersheds and surface water resources are part of the Rio Grande Hydrologic Unit (Region 13). Surface water features and watershed boundaries are presented in Figure 3-17.

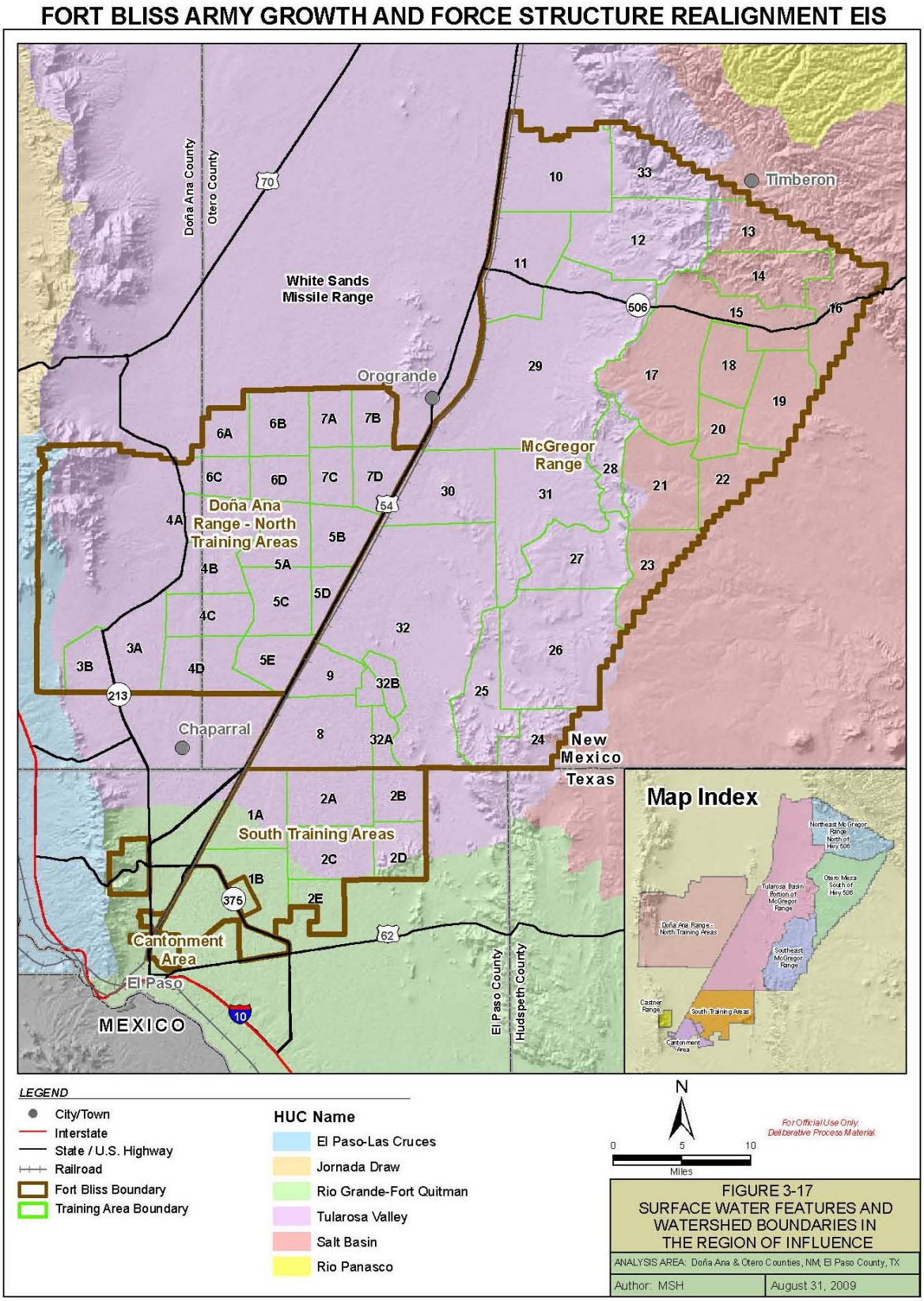


Figure 3-17. Surface Water Features and Watershed Boundaries in the Region of Influence.

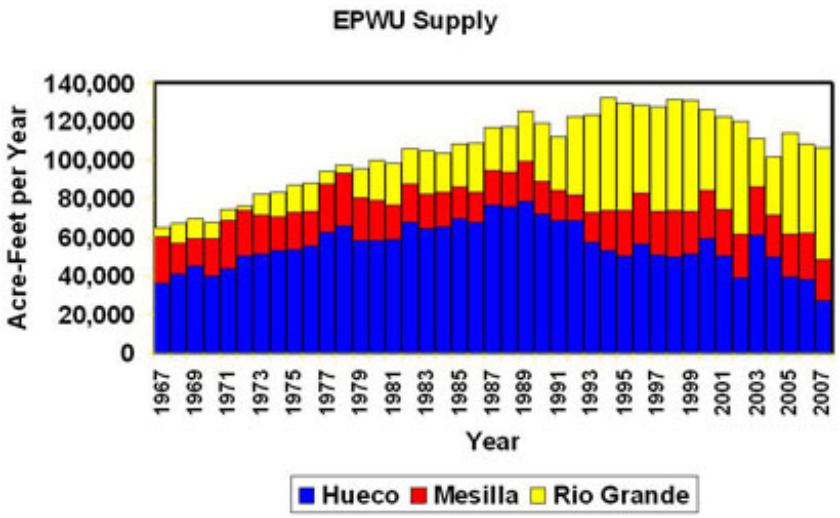
The main surface water feature within the ROI is the Rio Grande River, located west of Fort Bliss. Other surface waters within the region are scarce and some are only intermittent or seasonal in nature. No natural, perennial lakes currently exist in the area; however, shallow depressions, known as playa lakes, are common features and are important habitat sites for migrating waterfowl and resident wildlife species. Man-made lakes and reservoirs are present, predominantly in the mountains outside of the military reservation (RPMP). Wetlands, such as playas, are further described in Sections 3.5 and 3.6 of this report.

Precipitation is historically low throughout most of the region. The average annual precipitation ranges from approximately 8 to 13 inches, with majority events occurring from mid-spring to mid-autumn. At the FBTC, the average annual precipitation ranges from approximately 12 to 16 inches, fluctuating widely from year to year. Moreover, because of the topography and low-vegetated states of the region, most of the precipitation becomes stormwater runoff entering into the Rio Grande. Some of the precipitation does slowly filter into the aquifers along various recharge sites such as playa lakes, but most of the surface water collected in playas is lost to evaporation (RPMP).

Flash flooding and high alluvial erosion and deposition caused by high-intensity thunderstorms are also problems associated with the terrain. The Cantonment has drainage and flooding problems during heavy precipitation events. Future rainfall volumes exceeding the ten-year through the 100-year events would cause flooding and result in additional flood damage to the Cantonment. Outside the Cantonment, natural drainage features have been less disturbed; consequently, outlying training areas do not experience major drainage problems and related flooding (RPMP).

The Cantonment is located within the Rio Grande-Fort Quitman watershed. The Rio Grande River is the only sizable source of surface water in the ROI. The El Paso region obtained an average of 26 percent of its water supply from the Rio Grande River from 1967 to 2007 (Figure 3-18). The remaining 74 percent of the water supply came from intermontane-basin aquifers. As a result of conservation measures, during the last decade (1997-2007), surface water production increased to an average of 40 percent, while groundwater production declined. The maximum annual surface water production of 58,743 acre-feet (af) occurred in 2002 and comprised approximately 49 percent of the total water production for that year. The greatest surface water proportion, approximately 55 percent, occurred in 2007 (Figure 3-18) (Hutchison 2008).

Figure 3-18. El Paso Water Utilities Water Supply Sources.



Source: EPWU 2008

Reuse of river water for irrigation between the headwaters of the Rio Grande and El Paso degrades the quality of water by increasing its dissolved solids content. During periods of high reservoir releases, water quality meets drinking water standards, and El Paso can use the water after conventional treatment. However, during periods of low discharge, including the non-irrigation season (October - March), and during droughts, the salinity increases to the point that the water is not usable for domestic purposes without additional treatment (Desalination FEIS U.S. Army 2004).

The Doña Ana Range – North Training Areas and McGregor Range are located in two watersheds, the Tularosa Valley and the Salt Basin. The Salt Basin includes the western part of Otero Mesa and the southern slopes of the Sacramento Mountains foothills. Both watersheds are characterized by small ephemeral streams that discharge toward the central areas of the Salt Basin. Under natural conditions, small playas develop in low-lying areas during periods of high runoff. Some streams that originate in the mountains are perennial in their upper reaches (PEIS U.S. Army 2000). The principal difference between these two watersheds is the higher elevation of the Salt Basin, particularly in the Sacramento Mountains, which results in higher runoff in Salt Basin. The Sacramento River, prior to the installation of upstream diversions, probably was perennial for at least part of its course through McGregor Range (PEIS U.S. Army 2000).

The USACE Waterways Experiment Station has mapped and characterized all arroyos, including wetlands on Fort Bliss. The vast majority of arroyo-riparian drainages on Fort Bliss do not qualify as USACE jurisdictional wetlands or the perennial riparian corridors of the western U.S. (ITAM 2008). Based on the USACE mapping effort, there were 13 natural dry lakes, 1,291 dry washes with distinct streambeds, and stream banks covering 2,475 miles at McGregor Range and the South Training Areas. While at Doña Ana Range–North Training Areas nine dry lakes, 105 dry washes with distinct stream beds and stream banks comprising 532 miles were mapped (ITAM 2008). These dry lakes or playas are dry for most of the year; however, fine-grained sediments, mostly sand, silt, and clay are deposited in thin horizontal layers after seasonal heavy rains. Since water permeability is slow and shallow, standing water may remain up to several weeks following heavy rains (ITAM 2008). These areas are critical habitat for a variety of plants and animals, and are described in further detail in Section 3-3.

3.11.1 Groundwater

Fort Bliss is located primarily in the Tularosa-Hueco Basin of the Basin and Range Physiographic Province with small portions in the Mesilla Basin and the Salt Basin (Figure 3-19). The principal aquifers in the Tularosa-Hueco Basin are the Hueco Bolson and the Tularosa aquifer. Hueco Bolson provides groundwater to the City of El Paso, the Fort Bliss Cantonment, and Ciudad Juárez. Tularosa Basin underlies portions of the Doña Ana Range – North Training Areas and McGregor Range, and supplies water for Doña Ana Range Camp, the Main Post at WSMR, and the City of Alamogordo. The Mesilla Basin aquifer is located west of Fort Bliss but represents an important source of water for the Fort Bliss Main Cantonment and the City of El Paso. Salt Basin aquifer underlies the eastern portion of the McGregor Range, but does not represent a source of water for Fort Bliss.

3.11.1.1 Hueco Bolson

The Hueco Bolson is an intermontane basin incised by the Rio Grande Valley. The Hueco Bolson aquifer is replenished by mountain front recharge; by seepage from the Rio Grande, canals, and agricultural drains; and by deep well injection (Desalination FEIS US Army 2004). The principal area of recharge is along the eastern edge of the Franklin and Organ Mountains, where runoff from the mountains infiltrates into the coarse gravel of alluvial fans. U.S. Geological Survey (USGS) modeling efforts in the area indicate natural recharge from infiltration of 5,600 acre feet per year (afy) (SEIS U.S. Army 2007).

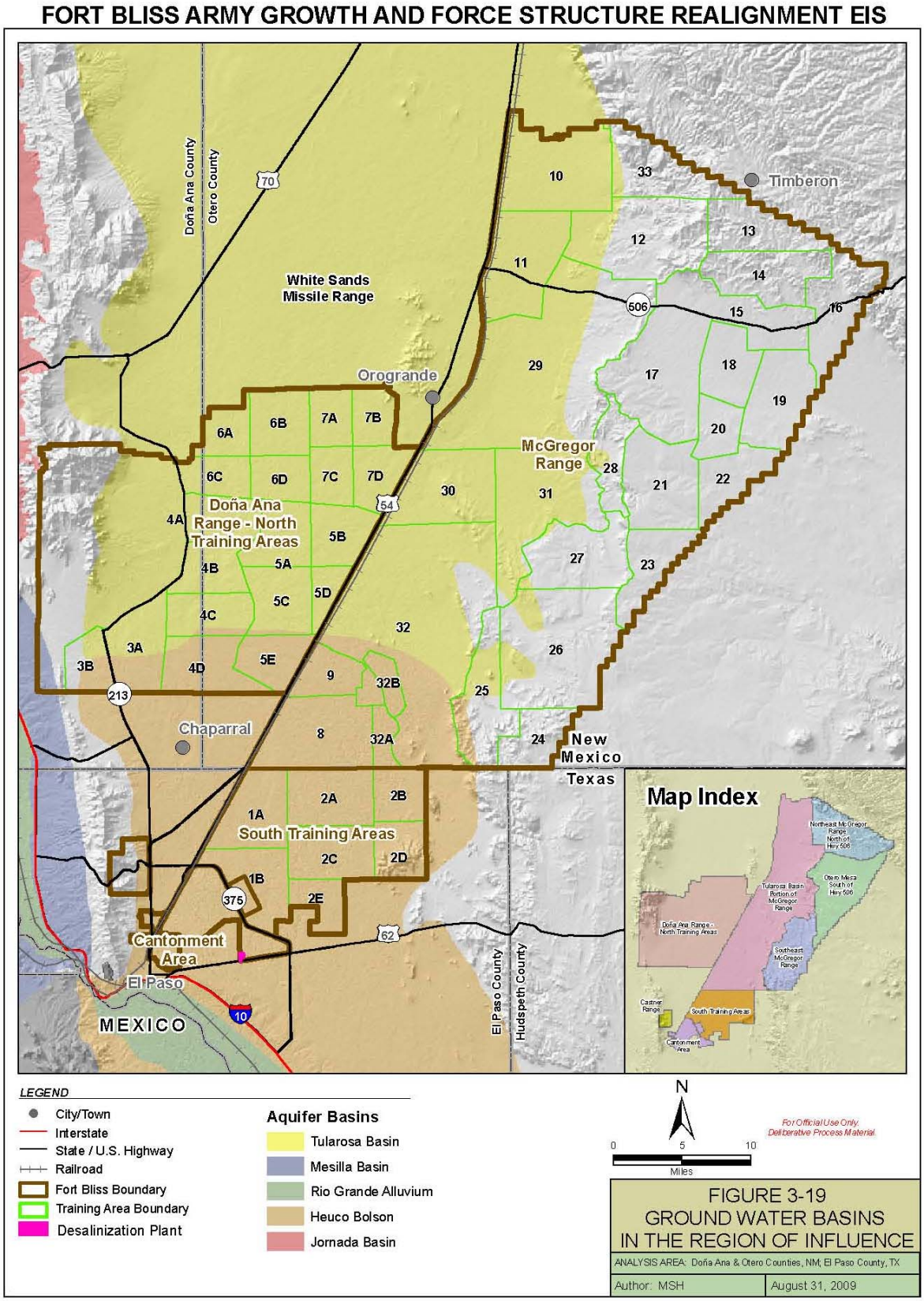


Figure 3-19. Groundwater Basins in the Region of Influence.

Most of the Rio Grande channel through the El Paso metropolitan area has been lined since 1968, effectively eliminating infiltration to the aquifer from the river in that area. Since 1985, the Fred Hervey water reclamation plant has recharged the basin artificially through injection of treated sewage effluent into the aquifer at a rate estimated to be less than 2,000 afy (half of the plant's current average daily wastewater treatment) (SEIS U.S. Army 2007). Total annual recharge to the upper Hueco Bolson, including underflow from Tularosa Basin and through Fillmore Pass, has been estimated by USGS to be approximately 8,560 afy (PEIS U.S. Army 2000).

Groundwater generally occurs under water table conditions in the Rio Grande alluvium overlying the bolson sediments and partially under artesian conditions where sand layers are sufficiently confined by clay in the bolson deposits. The depth to groundwater near El Paso ranges from 249 to 400 feet below the ground surface. Aquifer properties are described in detail in the 2004 Desalination FEIS (U.S. Army).

The majority of the fresh water (chloride concentration of less than 250 milligram per liter [mg/L]) in the Hueco Bolson aquifer lies along the eastern front of the Franklin Mountains. The area of fresh water thins toward the east until only brackish water is present. In addition to fresh groundwater in storage, large volumes of brackish water are stored within deeper bolson sediments. Freshwater supplies in the Hueco Bolson are further described in 2007 SEIS (U.S. Army).

Estimates of groundwater availability representing the amount of usable water in the Hueco Bolson aquifer in Texas are varied and range from three million af to 10.6 million af. Estimates of the availability of slightly saline groundwater, between 1,000 and 3,000 mg/L total dissolved solids (TDS), are more uncertain, ranging from 2.5 to 20 million af (Desalination FEIS U.S. Army 2004). EPWU estimates fresh (less than 250 mg/L chloride) groundwater storage in the Hueco Bolson is approximately 9.4 million af, and saline (greater than 250 mg/L chloride up to 1,000 mg/L chloride) storage is approximately 26.3 million af (Desalination FEIS U.S. Army 2004).

Domestic water supplies for the Fort Bliss Cantonment area are furnished by on-post wells (Tobin and Pike well fields), Biggs AAF wells, and EPWU. Of the water purchased from the EPWU, the new East Biggs Public Water System purchases approximately 50 percent of the total (Lady 2009). Tobin Well Field operates seven wells and the Pike Well Field operates four wells that can produce a combined flow of 15.8 million gallons per day (mgd). Biggs AAF has two wells, each capable of providing 1.44 mgd to the airfield and Aero Vista Housing. The Main Post and the City of El Paso can also supply Biggs AAF, but the connections are normally closed because Biggs AAF produces its own water. EPWU obtains groundwater primarily from the Hueco Bolson, and to a lesser degree from the Mesilla Basin. The City of El Paso can provide up to 4.24 mgd to Fort Bliss. The combined total from all the sources is 22.9 mgd (2007 Mission and Master Plan SEIS U.S. Army 2007a). If needed, additional potable water sources could be developed from water resources within the installation.

The great majority of water used on Fort Bliss is obtained from on-post well fields, so consumption of water from the City of El Paso is generally low. Monthly production from on-post well fields constituted between 85.6 to 96.4 percent of the total need in 2007 (FBWS 2009). In 2007, EPWU provided Fort Bliss 0.19 mgd, which constitutes approximately 4.4 percent of what EPWU can provide to Fort Bliss. Of this amount, approximately 0.12 mgd was provided for use in Cantonment, while 0.07 mgd was provided for use at McGregor Range (Hutchison 2008b).

The water produced by the well fields averaged approximately 4.6 mgd in 2004, approximately 20 percent of the capacity of the on-post wells. On-post per capita water consumption for 2004 averaged 266 gallons per day, however subtracting certain population-independent uses (such as golf course water use) resulted in more accurate reflection of the actual per capita water use of 203 gallons per day (Christensen 2008). This Fort Bliss per capita water consumption is approximately 46 percent higher than the 139

gallons per day average use for citizens of El Paso reported by EPWU in 2004 (2007 SEIS, Hutchison 2008).

In 2007, EPWU operated 83 wells in the Hueco Bolson aquifer, producing 27,204 af (Hutchison 2008). The rate of groundwater pumping from the aquifer currently exceeds the recharge rate, creating water level declines, the largest of which have occurred adjacent to the municipal well fields. Rates of water level decline in the metropolitan El Paso area range from less than 0.5 feet per year in the east to more than five feet per year near pumping centers. Historically, from 1903 through 1989, declines of as much as 150 feet have occurred in the downtown areas of El Paso and Ciudad Juárez. Declines of more than 50 feet occurred in the same general area during the ten-year period between 1979 and 1989. The decline of water levels in the bolson deposits has allowed infiltration of salt water into the freshwater zones (Desalination FEIS U.S. Army 2004).

During the 1990s, combined total water demand by the City of El Paso and Fort Bliss averaged approximately 133,000 afy (117.8 mgd), but has been declining since 2000 due to conservation and pricing strategies. Current total demand is approximately 107,000 afy. Per capita demand has been reduced from about 225 gallons per person per day in the 1970s to about 134 gallons per person per day in 2007 (EPWU 2008).

Historically, approximately 70 percent of the combined total annual water used by Fort Bliss and the City of El Paso was drawn from freshwater supplies in the Hueco Bolson and Mesilla Basin aquifers; however, that percentage has declined in recent years. EPWU pumping in Hueco Bolson in 2002 was below 40,000 afy for the first time since 1967. Hueco Bolson pumping increased in 2003 and 2004 from 2002 levels due to a drought and associated reduction in surface water diversions (EPWU 2008). Pumping again dropped below 40,000 afy in 2005 as a result of a return of nearly full river allocation conditions and further declined to 27,204 afy in 2007 (Hutchison 2008).

Fort Bliss withdrawals of fresh water from Hueco Bolson have averaged approximately 5,000 afy (4.5 mgd) and have remained relatively constant (Desalination FEIS U.S. Army 2004). Groundwater withdrawals from Hueco Bolson by Ciudad Juárez, Mexico, were about 15,000 afy (13.4 mgd) throughout the 1950s and 1960s, but in the early 1970s water use began to increase sharply to the extent that withdrawals in 1984 amounted to 66,000 afy (58.9 mgd). During the 2000 to 2004 period, pumping declined from over 126,000 afy (112 mgd) to under 120,000 afy (107 mgd) (SEIS U.S. Army. 2007).

Based on current capacities of wells and surface water plants, and the limitation that surface water is only available during the irrigation season, total available municipal supply in El Paso County is about 150,000 afy. This total includes about 5,000 afy of reclaimed water supply that is available independent of drought conditions. Under full surface water allocation conditions, municipal surface water supply is about 60,000 afy. Under these conditions, Hueco Bolson groundwater pumping supply is about 50,000 afy, and Mesilla Bolson pumping supply is about 35,000 afy for the entire county. Under drought-of-record conditions, it is expected that surface water supplies would drop to 10,000 afy. During drought-of-record conditions, pumping supplies in the Hueco Bolson increase to 90,000 afy and Mesilla Bolson pumping supplies increase to 45,000 afy in order to maintain the full supply of 150,000 afy (EPWU 2008).

A desalination plant was built in 2007 as a joint effort between the EPWU and Fort Bliss to address water supply demand in the area. The plant came on line in July 2007 and was tested at full capacity for 28 days. At full capacity, the plant is capable of withdrawing approximately 34,000 afy (30.5 mgd) of brackish water from the Hueco Bolson and producing approximately 31,000 afy (27.5 mgd) of potable water. Based on current demand, the plant produces on average 3.5 mgd, and the rates varied from three to five mgd during the past year (Hutchison 2008). In addition to providing supply of freshwater, the plant protects the freshwater groundwater supplies from brackish water intrusion by capturing the brackish

water as it flows towards freshwater wells (EPWU website). The impact of the desalination plant operation on groundwater movement and water quality in the El Paso area was evaluated by EPWU and is discussed in detail in 2004 Desalination FEIS and EPWU report 04-01 (U.S. Army 2004, Hutchison 2004).

Groundwater resources in the Hueco Bolson outside of the El Paso area have not been developed extensively. The military has intermittently operated a small capacity well at the Old Hueco Range Camp on Doña Ana Range – North Training Areas (PEIS U.S. Army 2000).The Old Hueco Range Camp is supplied by one well that has a capacity of approximately 250 gpm (0.36 mgd). Additionally, a small complex of Site Monitor buildings located 10 miles east of the Main Cantonment area obtains water from an on-site well with a capacity of 130 gpm (GTA PEIS U.S. Army 2007). Site Monitor also has an emergency connection to the city water supply system (Jack Lady comment, 2009).

3.11.1.2 Tularosa Basin

The southern portion of the Tularosa Basin is contiguous with and geologically similar to the Upper Hueco Bolson. Large quantities of saline water occur within most of the basin sediments. Water enters the groundwater system principally as mountain-front recharge from storm runoff in alluvial fan areas adjacent to the Organ and Sacramento Mountains. Mountain-front recharge from the Organ Mountains has been estimated at 4,460 afy and from the Sacramento Mountains at 4,500 afy (PEIS U.S. Army 2000).

In 1986, the USGS estimated 1.4 to 2.1 million af of fresh water is in storage in the area from Grapevine Canyon to Escondido Canyon (about three miles south of Alamogordo) (PEIS U.S. Army 2000). An additional 3.6 to 5.4 million af of slightly saline water may be in storage in the same area. Movement of groundwater is westerly, toward the center of the basin, at a gradient of 10 to 50 feet per mile. The USGS estimation did not extend southeast of Grapevine Canyon, and it is not known how far similar hydrologic conditions may extend into the McGregor Range area.

It is estimated that about 2.6 million af of fresh water may be in storage on the west side of the lower basin, from Soledad Canyon in the south to the Post Headquarters area of WSMR in the north. Movement of groundwater is generally to the east, toward the center of the basin. Groundwater occurrence in Tularosa Basin is described in detail in PEIS (U.S. Army 2000).

Well fields in the Tularosa Basin supply water for the Orogrande Range Camp at Doña Ana Range – North Training Areas, the Main Post at WSMR, and the City of Alamogordo (Mission and Master Plan PEIS U. S. Army 2000). The Orogrande Range camp receives potable water from WSMR from a well field located in Soledad Canyon Well Field on the Fort Bliss property (SEIS U.S. Army 2007). WSMR has agreed not to extract more water from Soledad Well Field than the natural recharge rate, estimated at 750 afy. WSMR uses, on average, approximately 520 afy, which leaves approximately 230 afy available for Fort Bliss use (SEIS U.S. Army 2007). There are also two wells located at the Doña Ana Range Camp with capacities of 500 gpm (0.72 mgd) and 200 gpm (0.29 mgd) (PEIS U.S. Army 2000). Groundwater development in the Tularosa Basin area of McGregor Range, except for a few livestock wells, has not been extensive because of the salinity of the water (PEIS U.S. Army 2000).

3.11.1.3 Salt Basin

The northeast quarter of McGregor Range, including the southern slopes and Sacramento Foothills North of Highway 506 and the western part of the Otero Mesa South of Highway 506, is within the Salt Basin, which is listed as an undeclared groundwater basin by the New Mexico State Engineer (PEIS U. S. Army 2000).

Recharge to the basin-fill deposits on the east side of the Tularosa Basin occurs from storm-water runoff to alluvial fans adjacent to the Sacramento Mountains. An unknown but possibly significant amount of recharge also may occur to the southeast in similar areas in the Salt Basin. Additional work needs to be done to determine the possible presence of a fresh-water aquifer and the size of its likely recharge. The brackish to saline groundwater in the carbonate rocks of Otero Mesa flows easterly toward the center of the Salt Basin. Groundwater occurrence in the Salt Basin is described in detail in PEIS (U.S. Army 2000).

Groundwater resources are not extensively developed in the Salt Basin, and no significant use of groundwater occurs in the basin within McGregor Range. A few small-capacity stock and domestic wells have been completed on Otero Mesa, but none are known to be in operation. The possibility of a fresh-water aquifer in the alluvium south of the Sacramento Mountains represents a potential resource for nondomestic use in that area of McGregor Range (PEIS U.S. Army 2000). All potable water for use at McGregor Range Camp is currently supplied by EPWU (Christensen 2009).

3.11.1.4 Mesilla Basin

Mesilla Basin aquifer underlies the Rio Grande Valley west of the Franklin and Organ mountains in southern New Mexico and western Texas (Figure 3-19). The Rio Grande River runs along the east side of the basin in New Mexico, and exits the basin in Texas at the south end of the Franklin Mountains.

The aquifer in the Texas portion of the basin is estimated to contain 500,000 af of stored water. Recharge to the aquifers in the lower Mesilla Valley was estimated at 18,000 afy. During the irrigation season, groundwater in Mesilla Basin is continuously recharged by Rio Grande (PEIS U.S. Army 2000).

El Paso operates a large well field at Canutillo, where water is pumped for municipal, industrial, and irrigation supply. In 2007, EPWU operated 22 wells in the Mesilla Basin aquifer, producing 21,339 af. This represents approximately 20 percent of total EPWU water production. This is consistent with historical water production from the Mesilla aquifer, which has averaged around 20 percent ranging from 13,000 to 27,000 afy (Hutchison 2008).

Recharge occurs by infiltration of rainfall and runoff, and by leakage from the canals and excess irrigation water on the heavily cultivated flood plain. However, recharge from the Rio Grande is increasing, probably in response to a lowering of water levels in the aquifer due to pumping. Leakage from the Rio Grande to the alluvium increased from 15,000 afy in 1968 to 30,000 afy in 1983 (PEIS U.S. Army 2000).

Water in the Rio Grande alluvium generally ranges from slightly to moderately saline (1,000 to 10,000 mg/L TDS). The freshest water occurs near the river where the alluvium is being recharged. Poorer quality water occurs in areas where irrigation brings leached minerals into the groundwater. Downward leakage of poor quality water from the alluvium has caused problems in areas where the underlying bolson aquifers are being heavily pumped. Groundwater quality and occurrence in Mesilla Basin is described in detail in PEIS (U.S. Army 2000).

3.11.3 Wastewater

Wastewater generated at the Cantonment flows through five connections to the City of El Paso's sewer system. This wastewater is routed to the Haskell Street Wastewater Treatment Plant (WWTP) operated by the City of El Paso. While limited pre-treatment of effluent is done at the Fort Bliss cantonment (e.g. battery maintenance shop), no real wastewater treatment is provided by the Fort Bliss system. The Haskell Street WWTP has a treatment capacity of 27.7 mgd. In 2004, approximately 2.9 mgd of sewage was generated on post. Assuming a sewage generation rate of 24 gallons per person per day for daily staff, per capita sewage generation is estimated at approximately 158 gallons per person per day. The post typically uses approximately 10.5 percent of the plant's treatment capacity (SEIS 2007, GTA PEIS 2007).

The City of El Paso currently has a total treatment capacity of 94.2 mgd at four facilities, including the Haskell Street plant. Military and civilian employees and dependents living off post use approximately 3.7 mgd (3.9 percent) of the City of El Paso's treatment capacity. Combined with the sewage generation on post, Fort Bliss employees and their dependents use approximately seven percent of El Paso's treatment capacity. The four treatment plants operated by EPWU have a combined excess capacity of 44.7 mgd (SEIS U.S. Army 2007).

Wastewater generated at the Site Monitor buildings in the South Training Areas is collected in septic tanks that flow to drain fields. Wastewater flow is estimated to be approximately 1,200 gallons per day. Wastewater from Doña Ana Range Camp is collected in a small network and treated in a two-cell 3.75-acre lagoon. The lagoon has a design biological oxygen demand loading of 40 lbs per day per acre. Wastewater from Orogrande Range Camp is collected in a small network and is treated in a single-cell 4.74-acre lagoon (SEIS U.S. Army 2007). Wastewater generated at SHORAD is treated in the two-cell, 0.43 acre lined oxidation pond (Booze Allen Hamilton 2005). Wastewater from McGregor Range Camp is treated in a 10.23-acre, single-celled lagoon. As of June 2006, a second, five-acre lined pond collects overflow wastewater from the adjacent McGregor pond. Wastewater from the Meyer Range Complex is treated in a 3.36-acre, two-cell lagoon (SEIS U.S. Army 2007). An upgrade to Meyer Range Complex wastewater system is currently under construction. A new aerated multi-cell oxidation pond with capacity of five mg should come on line in summer of 2009 (Hutchinson 2008a).

3.12 Water Resources: Direct and Indirect Effects

This section identifies the water resource direct and indirect effects of the proposed action and alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, alternatives with various land use changes; and Category 3, alternatives with various training infrastructure improvements.

Potential impacts to water resources were identified based on regulatory standards, scientific judgment, and public concerns expressed during the scoping process. Regulatory standards considered during the impact analysis included, but were not limited to, the following:

- Federal and state primary and secondary drinking water standards under the Safe Drinking Water Act.
- State and local plans and policies protecting surface water and groundwater resources.
- Available surface and groundwater resources.
- Compliance with the Clean Water Act (CWA).
- Source water protection program requirements.
- State water code regulations.

Analysis of impacts was based on multiple factors related to activities associated with various alternatives. Impacts related to stationing and training, land use changes, as well as improvements of training infrastructure were evaluated for their potential to adversely affect water resources.

Impacts on water resources were analyzed by evaluating four groups of impact issues. These include impacts on water demand and infrastructure, wastewater demand and infrastructure, surface water quantity and quality, and groundwater quantity and quality.

Groundwater quality data was obtained from the latest data set from sampling of the potable water systems at Fort Bliss in accordance with USEPA regulations (FBWSC 2008). Fort Bliss used a study conducted by the Department of Interior in 1970 (U.S. Dept of Interior 1970) and data obtained from periodic studies conducted by Fort Bliss Department of Public Works, Environmental (DPW-E) in connection with the surface water quality of the oxidation ponds and groundwater quality of the range wells located on the Tularosa Basin.

Both direct and indirect impacts were evaluated for each alternative. Examples of direct impacts to water resources include increased water use due to increased troop numbers and impacts to water quality from introduction of chemical constituents. Impacts to water resources may also result from other affected resources, such as soils and vegetation, which also have the potential to alter flow dynamics and water quality.

Factors considered in determining whether an alternative would have a significant impact on water resources include the extent or degree to which its implementation would:

- Reduce the availability of, or accessibility to, one or more of the water sources.
- Degrade surface or groundwater quality in a manner that would reduce the existing or potential beneficial uses of the water.
- Alter the existing pattern of surface or groundwater flow or drainage in a manner that would adversely affect the uses of the water within or outside the project region.
- Be out of compliance with existing or proposed water quality standards or other regulatory requirements related to protecting or managing water resources.
- Comply with the Clean Water Act.

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5.

Table 3-67. Classification of Direct and Indirect Water Resource Impacts.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Water Demand and Infrastructure	⦸	⦸	⦸	⦸	N/A	N/A	N/A	N/A	N/A	○	⦸	⦸	⦸
Wastewater Demand and Infrastructure	⊙	⊙	⦸	⦸	N/A	N/A	N/A	N/A	N/A	○	⦸	⦸	⦸
Surface Water Quantity/ Quality	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Groundwater Quantity/ Quality	⦸	⦸	⦸	⦸	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙

⦸ Significant but mitigable to less than significant
⊙ Less than Significant
○ No Impact
N/A Not Applicable

3.12.1 Stationing and Training Alternative 1 (ST-1)

Table 3-68 classifies the direct and indirect impacts to water resources under implementation of ST-1.

Table 3-68. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 1.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	⦸	⦸	⦸
Wastewater Demand and Infrastructure	⊙	○	○
Surface Water Quantity/Quality	⊙	N/A	N/A
Groundwater Quantity/Quality	⦸	N/A	N/A

○ No impact
⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Cantonment Area

Potable water to support Fort Bliss personnel and dependents comes from two primary sources: on-post wells operated by Fort Bliss Water Services (FBWS), which currently provide the great majority of water used in the Cantonment, and the EPWU. Of the water purchased from the EPWU, the new East Biggs

Public Water System purchases approximately 50 percent of the total (Lady 2009). The total combined capacity from all the sources is 22.9 mgd (SEIS U.S. Army 2007).

On-post water demand under ST-1 was calculated assuming a per capita consumption rate of 203 gallons per person per day (g/p/d) for permanently stationed personnel and their dependents and 24 g/p/d for daily employees. This estimate of consumption rate is likely an overestimation because of water conservation measures currently being incorporated in military family housing. The on-post water demand under ST-1 would total 21.1 mgd, which is 1.8 mgd less than total current capacity from FBWS and EPWU. Therefore, current available sources would be adequate to meet the on-post water demand under ST-1.

The off-post water demand would also increase as a result of ST-1. The per capita consumption rate of 121 g/p/d was assumed for employees living off post and 145 g/p/d for off-post dependents. The off-post water demand for civilian employees, students, and other personnel would total 5.9 mgd. The combined on-post and off-post water demand would be 27 mgd.

Combined total water demand by the City of El Paso and Fort Bliss averaged approximately 107,000 afy (95.5 mgd) in 2007, and has been declining recently due to conservation and pricing strategies. The combined on-post and off-post water demand would represent approximately 28 percent of EPWU's existing demand for water under ST-1.

Water demand due to ST-1 would have to be combined with the anticipated baseline population growth in the area of El Paso. ST-1 total water demand has been previously analyzed in the 2007 SEIS (U.S. Army). Based on the 2007 SEIS analysis, it was estimated that the total water demand could exceed EPWU's available resources by three percent. Based on the 2007 GTA PEIS, the increase in demand in potable water sources would be even more significant than identified in the 2007 SEIS. Depending on when the additional population influx occurs, it was recommended that EPWU develop additional sources of potable water, currently not anticipated to be needed until 2020. Possible sources include purchase of additional Rio Grande water rights, increased withdrawals from the Hueco and Mesilla Bolsons (SEIS 2007).

However, in 2007, a desalination plant was built to address water supply demand in the area. Based on the current demand, utilization of the desalination plant increases EPWU's fresh water production by approximately 25 percent, therefore providing sufficient amount of fresh water to meet the current and future demand under ST-1. Furthermore, implementation of water conservation measures, such as using more reclaimed water for on-post landscaping, would reduce the consumption of fresh water.

Ranges and Training Areas

Under ST-1, Doña Ana Range Camp would be occupied by approximately 1,783 temporary residents and 291 employees. In addition, it would provide water for field personnel training at Doña Ana - North Training Areas. Assuming consumption rates of 100 g/p/d for temporary residents, 30 g/p/d for employees, and 35 g/p/d for training personnel, the total water demand would be approximately 0.24 mgd. Two wells at Doña Ana Range Camp have a combined capacity of 1mgd and, therefore, would be able to meet the water demand under ST-1.

Orogrande Range Camp would be occupied by approximately 364 temporary residents and 235 employees. Assuming the same consumption rates as for Doña Ana, the total water demand at the range camp would be approximately 0.04 mgd. The Orogrande Range camp receives potable water from WSMR from a production well in the Soledad Canyon Well Field. WSMR has agreed not to exceed the natural recharge rate, which is estimated at 750 afy (0.7 mgd). WSMR uses on average, approximately 520 afy (0.5 mgd), which leaves approximately 230 afy (0.2 mgd) available for Fort Bliss use; therefore,

the currently allotted amount for Fort Bliss would be sufficient to meet the range camp water demand under ST-1.

In addition to supplying water to range camp personnel, Orogrande Range Camp was also designated as a source of water supply for field personnel training at Doña Ana – North Training Areas, Tularosa Basin, and Sacramento Mountains. Water from Orogrande Range Camp is also trucked to the SHORAD and Red Eye Sites on the North McGregor Range where it is stored in elevated storage tanks. Total combined water demand for range camp and training personnel would be 0.36 mgd. Currently allotted amount of water from WSMR (0.2 mgd) would, therefore, not be sufficient to meet the water demand of all the training personnel. Training personnel would need to obtain water from sources other than Orogrande Range Camp until such time that the Army developed additional sources to supply this location.

McGregor Range Camp would be occupied by approximately 3,121 temporary residents and 473 employees under ST-1. In addition it would provide water for field personnel training at Tularosa Basin and Meyer Range Camp. Assuming the same consumption rates as for Doña Ana, the total water demand would be approximately 0.38 mgd. McGregor Range Camp receives potable water from pipeline system supplied by EPWU. The current water distribution infrastructure can supply 76 gpm (0.11 mgd) to McGregor Range Camp. Current water supply system would not be able to meet the water demand under ST-1; therefore, upgrade of the distribution infrastructure or additional water sources would be necessary to meet the water demand under this alternative.

Although the 2007 SEIS did not identify the need for additional water sources to meet the demand at the ranges, the 2007 GTA PEIS acknowledged that the increase in demand in potable water sources as a result of Army growth would be more significant than identified in the 2007 SEIS. Based on the analysis above, the water supplies at Doña Ana would be sufficient to meet the water demand of range camps and training personnel, while water supplies at Orogrande would be able to meet the water demand of the range camp only. Supplies at McGregor would not be sufficient to meet the water demand for range camps and/or training needs. If needed, additional potable water sources could be developed from water sources within the installation. In addition, the installation would establish brackish water wells for fire and dust suppression, if additional water was required to meet training requirements.

Wastewater Demand and Infrastructure

Cantonment Area

Wastewater generated at the Cantonment is treated at the Haskell Street WWTP that has a treatment capacity of 27.7 mgd. Additionally, the City of El Paso currently has a total treatment capacity of 94.2 mgd at four facilities, including the Haskell Street WWTP. The four treatment plants operated by EPWU have a combined excess capacity of 44.7 mgd (SEIS U.S. Army 2007). On-post wastewater loads generated under ST-1 were calculated assuming a per capita generation rate of 158 g/p/d for permanently stationed personnel and their dependents and 24 g/p/d for daily employees. The on-post wastewater loads under ST-1 would total 16.5 mgd, which represents approximately 60 percent of the current treatment capacity Haskell Street WWTP. The off-post wastewater loads would also increase as a result of ST-1. The per capita wastewater generation rate of 46 g/p/d was assumed for employees living off post and 70 g/p/d for off-post dependents. The off-post wastewater loads for civilian employees, students, and other personnel would total 2.6 mgd. The combined on-post and off-post wastewater loads would total 19.1 mgd, which represents approximately 43 percent of EPWU's excess treatment capacity.

Impacts from wastewater demand under ST-1 were analyzed in the 2007 SEIS. Based on that analysis, ST-1 would increase the wastewater load from the Post by 3.4 mgd above current levels. Combined with baseline population growth, total wastewater treatment loads could exceed EPWU's existing treatment capacity by approximately 13 percent by 2015 (SEIS U.S. Army 2007).

Ranges

Under ST-1, the projected wastewater loads would total 0.19 mgd at Doña Ana Range Camp, 0.04 mgd at Orogrande Range Camp, and 0.33 mgd and McGregor Range Camp. Impacts associated with range camps, along with the associated utility infrastructure, were previously analyzed in the 2007 SEIS. Upgrades to infrastructure necessary to meet the wastewater demand under this alternative would have occurred as specified in the ROD for 2007 SEIS. Under implementation of the planned infrastructure improvements, the wastewater treatment system would be adequate and no impacts to wastewater demand would be anticipated.

Training Areas

Wastewater for training would be handled by using portable toilets under a servicing contract. This option would allow for mobility of the portable toilets to meet training units requirements. The number of portable units would be adjusted to adequately meet the required wastewater demand. Under the servicing contract, the waste from the portable toilets would be collected, trucked away, and disposed off site at the designated facility; therefore no impacts to water resources would be anticipated.

Surface Water Quantity and Quality

Potential impacts to surface water quality and quantity may occur from erosion and sedimentation related, to construction activities and maneuver training, as well as from contamination resulting from handling of wastewater at the range facilities. Because no additional development of the Cantonment or renovation of existing structures would be anticipated under this alternative, no impacts to surface water resources related to construction activities would be anticipated.

Maneuver training could result in impacts to surface water quality from nonpoint source sediment loading, increased runoff, and accidental spills. Training events from Roving Sands and the ADA have left an indelible mark on the installation. While most of the ADA training involved using trails to maneuver and set up operations and involved little cross country travel, the trails nonetheless have been greatly impacted. An increase in the amount of bare ground can reduce the quantity of water held within upland areas and increase overland flow. This can increase discharge of peak flows and decrease the duration of flood flows. Disturbance of the physical crusts in the soils further contributes to wind and water erosion.

The intensity of the impact would depend on many factors including weight and type of vehicle, distribution of that weight, soil type, vegetation, terrain, and frequency and type of training (ITAM 2008). The annual maneuver requirement for this alternative would be 727,000 km^2/d (Table 2-6). Additionally, total area disturbed (based on wheel/track land disturbance) during off road maneuvers would be 2,755 square kilometers (Table 2-9). Best Management Practices (BMPs) and mitigation measures would minimize these impacts to less than significant level.

Training activities may also result in accidental releases of the use of fuels, solvents, and other hazardous and toxic substances into the environment. Potential spills would be typically small in magnitude and localized and would be addressed effectively through standard procedures developed by the Army.

Potential impacts to surface water quality may also occur from the handling of wastewater at the training areas and ranges. If septic tanks are required, they would have to be properly designed and maintained for it to effectively treat wastewater. For example, some drainfields may lack the depth of soil beneath the leach lines necessary to filter and bind microbes before the water reaches groundwater. Alternatively, drainfields could be located so close to streams that the wastewater seeps into the waterway via a natural underground connection. In another instance, a drainfield could be properly located but operational failure could cause wastewater to rise to the land surface, thereby contaminating nearby water resources. The

septic tank size needs to be large enough for the volume of wastewater sent to it. Additionally, the solids would need to be removed from the tank every few years. None of these conditions have been documented at Fort Bliss to date. Septic systems have been located, designed, and maintained to prevent any contamination to water resources. Provided that the future septic systems are designed, operated, and maintained properly, no impacts to water quality would be anticipated.

Groundwater Quantity and Quality

Potential impacts to groundwater quality and quantity may occur from compaction of soils and subsequent decreased percolation to groundwater related to construction activities and maneuver training, and from contamination resulting from handling of wastewater at the range facilities. The most significant impact would be groundwater resource depletion due to increased pumping required to meet the water demand.

Increased pumpage from Hueco and Mesilla Bolsons related to increasing water demand could result in further drawdown of these aquifers. However, EPWU plans to obtain water from other sources (described in Water Demand section) as well as utilizing the recently constructed desalination plant to meet the increased water demand. A desalination plant, built in 2007, addresses water supply demand in the area. At full capacity, the plant withdraws approximately 34,000 afy (30.5 mgd) of brackish water from the Hueco Bolson aquifer and produces approximately 31,000 afy (27.5 mgd) of potable water. Based on the current demand, utilization of the desalination plant increases EPWU fresh water production by approximately 25 percent. In addition to providing a supply of fresh water, the desalination plant protects the freshwater groundwater supplies from brackish water intrusion by capturing the flow of brackish water towards freshwater wells (U.S. Army 2004, Hutchison 2004). Impacts of water demand on drawdown under ST-1 could be significant; however, implementation of conservation measures would mitigate these impacts to acceptable level. Impacts from groundwater withdrawals on availability of groundwater resources in the area were analyzed in detail in the 2007 SEIS (U.S. Army 2007).

Because both garrison and quality of life facilities would be adequate to accommodate the Soldiers and their families under the ST-1, no impacts to groundwater resources related to construction activities would occur under this alternative. Potential impacts to groundwater from maneuver training would be related to compaction of soils and subsequent decreased percolation to groundwater during maneuver training, and to accidental spills and leaks. However, these impacts are expected to be less than significant. The Army would implement BMPs and mitigation measures to address any potential impacts.

Potential impacts to groundwater quality may also occur from handling of wastewater at the training areas and ranges. In cases where septic systems are considered, a variety of contaminants including nutrients, pathogens, organic matter and solids, could be introduced to groundwater. Disposal of treated and untreated waste water using current methods of infiltration and/or evaporation have created or impacted shallow discontinuous groundwater zones in some instances. Additional investigation and monitoring indicates no evidence of similar impacts to regional scale fresh or brackish aquifers. Similarly limited subsurface simulation (Tetratech, 1998) of waste water lagoon vertical contaminant transport supports observed conditions. The likelihood of impact is expected to remain unchanged or lessen as a result of operational and planned facility improvements in the future.

3.12.2 Stationing and Training Alternative 2 (ST-2)

Table 3-69 classifies the direct and indirect impacts to water resources under implementation of ST-2.

Table 3-69. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 2.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	⦸	⦸	⦸
Wastewater Demand and Infrastructure	⊙	○	○
Surface Water Quantity/Quality	⊙	N/A	N/A
Groundwater Quantity/Quality	⦸	N/A	N/A

○ No impact
⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Cantonment Area

Water use and demand in the Cantonment would be the same as that described under ST-1, as there would be no increase in population under this alternative. Therefore, the effects would be the same.

Ranges and Training Areas

Water use and demand at the Range Camps would be the same as that described under ST-1, as there would be no increase in range personnel under this alternative. The range camp personnel are limited by the amount of billet space available; therefore, the effects would be the same.

With an additional HBCT unit training under this alternative, there may be a small increase in water demand at training areas compared to ST-1. The increase would depend on their distribution among the training areas. Water supply at training areas is provided by water buffalos based on the numbers of soldiers in a specific training area. As discussed under ST-1, some ranges would have adequate water supply to accommodate additional training personnel, whereas others are currently over capacity and would have to obtain water from other sources or make other provisions, such as upgrading the distribution infrastructure to meet the water demand.

Wastewater Demand and Infrastructure

Cantonment Area

Wastewater use and demand in the Cantonment would be the same as under ST-1, as there would be no increase in population under this alternative. Therefore, the effects would be the same.

Ranges

Wastewater generation at the Range Camps would be the same as that described under ST-1, as there would be no increase in range personnel under this alternative. The range camp personnel are limited by the amount of billet space available; therefore, the effects would be the same.

Training Areas

With an additional HBCT unit training under this alternative, there may be a small increase in wastewater generation at the training areas compared to ST-1. Wastewater from training would be handled by using portable toilets, as discussed under ST-1. The number of portable units would be adjusted to adequately meet the required wastewater demand under this alternative. Therefore, no impacts related to wastewater demand and infrastructure would be anticipated.

Surface Water Quantity and Quality

Impacts to surface water resources related to implementation of ST-2 would be the same as those discussed under ST-1, with the exception of impacts resulting from increased maneuver training. The annual maneuver requirement under this alternative would be 836,000 km^2/d, a 15 percent increase from ST-1 (Table 2-6). The wheel/track land disturbance during off road maneuvers would be 3,215 square kilometers, representing a 17 percent increase over ST-1(Table 2-9). Therefore, impacts related to maneuver training would be the same in nature but greater in magnitude compared to those under ST-1. BMPs and mitigation measures would minimize these impacts to less than significant level.

Groundwater Quantity and Quality

Impacts to groundwater resources related to implementation of ST-2 would be the same as those discussed under ST-1, with the exception of impacts resulting from increased maneuver training. Impacts related to maneuver training would be the same in nature but greater in magnitude compared to those under ST-1. These impact are considered to be less than significant, additionally, BMPs and mitigation measures would further minimize these impacts.

3.12.3 Stationing and Training Alternative 3 (ST-3)

Table 3-70 classifies the potential direct and indirect impacts to water resources under implementation of ST-3.

Table 3-70. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 3.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	⦸	⦸	⦸
Wastewater Demand and Infrastructure	⦸	⦸	○
Surface Water Quantity/Quality	⊙	N/A	N/A
Groundwater Quantity/Quality	⦸	N/A	N/A

○ No impact
⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Cantonment Area

Under this alternative, water use in the Cantonment would increase compared to the ST-1. Therefore, the impacts of ST-3 would be the same in nature as those described under the ST-1, but greater in magnitude. The added total personnel represent a 10 percent increase over the ST-1 population. The total on-post water demand would be 23.3 mgd, which represents an increase of 2.1 mgd compared to the ST-1. Under this alternative the Fort Bliss would have to obtain additional 0.4 mgd from EPWU or meet the additional demand by developing water sources within the installation.

The total off-post water demand would be 6.6 mgd, which represents an increase of 0.6 mgd over the ST-1. The total combined on post and off-post water demand would be 29.8 mgd, which represent approximately 31 percent of EPWU existing water demand, and 10 percent increase over the ST-1. In addition to utilizing the recently constructed desalination plant, EPWU also plans to obtain water from other sources, such as purchase of additional Rio Grande water rights, increased withdrawals from the Hueco and Mesilla Bolsons, and development of the Dell City Area to meet the increased future water demand.

Ranges and Training Areas

ST-3 would result in an overall increase in the number of personnel residing at the range camps as well as training personnel, with one exception. The number of temporary residents at Doña Ana Range Camp would actually slightly decrease from 1,783 to 1,750. ST-3 would result in 291 employees and 1,900 training personnel dependent on water from Doña Ana. This would result in 0.25 mgd in water demand, which would be only 0.01 mgd greater than under the ST-1. Two wells at Doña Ana Range Camp have a combined capacity of 1 mgd and, therefore, would be sufficient to meet the water demand under this Alternative.

ST-3 would result in 1,750 temporary residents, 235 employees, and 10,800 training personnel dependent on water from Orogrande Range Camp. Water demand at Orogrande Range Camp would total 0.56 mgd, an increase of 0.2 mgd compared to ST-1. The Orogrande Range Camp receives potable water from WSMR from a production well in the Soledad Canyon Well Field and is limited to approximately 230 afy (0.2 mgd). The currently allotted amount for Fort Bliss would not be sufficient to meet the water demand under this alternative. Additional water sources would have to be available to meet the water demand for both range camp and training personnel at Orogrande Range Camp. Water demand for temporary residents and employees at the Range Camp totals 0.18 mgd, and could, therefore, be met from currently available resources; however, the training personnel water demand would have to be supplemented by water supply from the other sources, such as wells at Doña Ana. These wells could produce 0.76 mgd in excess of estimated water demand at the Doña Ana, which would be more than enough to supplement the water demand for field personnel at Orogrande Range Camp.

McGregor Range Camp would be occupied by approximately 5,000 temporary residents and 473 employees under this alternative. In addition it would provide water for 1,900 personnel training at Tularosa Basin. The total water demand would be approximately 0.58 mgd, which represents an increase of 0.2 mgd compared to ST-1. McGregor Range Camp receives potable water from pipeline system supplied by EPWU. The current water distribution infrastructure can supply 76 gpm (0.11 mgd) to McGregor Range Camp. Therefore, the water supply system would not be able to meet the water demand under this alternative. An upgrade of the distribution infrastructure or additional water sources would be necessary to meet the water demand under this alternative.

Wastewater Demand and Infrastructure

Cantonment Area

Under this alternative, wastewater loads in the Cantonment would increase compared to the ST-1. Therefore, the impacts of ST-3 would be the same in nature as those described under the ST-1, but greater in magnitude. Assuming the same wastewater generation rates as for ST-1, the total on-post generation loads would be 18.2 mgd, which represents an increase of 1.7 mgd compared to the ST-1. The total off-post generation loads would be 2.9 mgd, which represents an increase of 0.3 mgd over the ST-1. The total combined on-post and off-post wastewater loads would be 21.1 mgd, which represents approximately 47 percent of the EPWU's excess treatment capacity.

Ranges

ST-3 would result in an overall increase in the number of personnel residing at the range camps. As the generation of wastewater is influenced by the population level, the increased personnel would generate an increase of wastewater load under this alternative. The wastewater loads would decrease by approximately 0.003 mgd at Doña Ana Range Camp, and increase by 0.14 mgd at Orogrande Range Camp, and by 0.19 mgd at McGregor Range Camp under this alternative.

Since the wastewater loads at the Doña Ana Range Camp would actually decrease, infrastructure available under the ST-1 would be sufficient to meet the wastewater demand. McGregor Range Camp would have a wastewater load increase of almost 60 percent, and at Orogrande Range Camp the increase would be four fold. Therefore, the wastewater treatment system at these range camps would need to be upgraded. One upgrade is currently under construction at the Meyer Range Complex at McGregor and should be operational by August 2009 – the treatment capacity of the existing system is being expanded by a new, lined, aerated oxidation pond (Hutchison 2008a).

Training Areas

This alternative would result in an increase in the number of personnel training. Wastewater load generated at the training areas would increase by approximately 0.08 mgd under this alternative; however, wastewater for training would be handled by using portable toilets, and the number of portable toilets would be adjusted to adequately meet the required wastewater demand under this alternative. Therefore, no impacts related to wastewater demand and infrastructure would be anticipated.

Surface Water Quantity and Quality

Potential impacts to surface water resources would be similar in nature to those described under the ST-1. The main difference under this alternative would be related to the construction activities in the Cantonment needed to meet the requirements for garrison operations and quality of life facilities for the additional soldiers stationed under this alternative. Impacts from maneuver training and potential for impacts from spills and handling of wastewater at the range facilities would also increase in magnitude.

Construction activities could result in short-term, localized increases in erosion and runoff. Use of heavy construction equipment would cause compaction of near-surface soils, which could result in increased runoff and increased sedimentation. Clearing and grading during construction would expose the soils to erosion. Engineering controls and BMPs, including the SWP3, would be used to minimize potential impacts during construction.

Implementation of this alternative would result in increase of 315 acres (1.3 square kilometers) of impervious surface compared to the ST-1 (Table 2-4). The stormwater conveyance system, utilities, and ditches within the Cantonment may be unable to handle the increased loading from additional

construction and facilities operation. Insufficient capacity in the stormwater conveyance system could result in adverse effects to floodplains in the Cantonment under this alternative. To avoid adverse impacts, new facilities could be located to the extent practicable outside of known flood-prone areas. Additional stormwater facilities would need to be constructed to handle the runoff from impervious area added due to construction in the Cantonment.

Applying dust-suppressing materials during construction could affect surface water quality, either by increasing the biological oxygen demand or by increasing total dissolved solids concentrations. These impacts are expected to be minimal because the dust-suppressants would be applied according to industry standards and because the amount of runoff is expected to be low.

Construction of new facilities would temporarily increase the use of fuels, solvents, and other hazardous and toxic substances, which could result in indirect impacts to surface water if accidentally released into the environment. Potential spills would be typically small in magnitude and localized. Impacts from spills would be addressed effectively through the SWP3 and standard procedures, including training personnel in spill prevention and control techniques and requirements, maintaining appropriate spill control equipment in areas where refueling may occur, and complying with all hazardous materials management regulations. Preventive measures would also include safe driving practices and proper transport of hazardous materials in compliance with Army, state, and federal regulations. With these established measures, impacts are expected to be minimal.

The annual maneuver requirement would increase to 980,000 km^2/d under this alternative (Table 2-6). This represents a 34 percent increase from ST-1 and a 17 percent increase over ST-2. The wheel/track land disturbance during off road maneuvers would be 3,305 square kilometers, representing a 19 percent increase over the ST-1 and three percent increase over ST-2 (Table 2-9). BMPs and mitigation measures are expected to minimize these impacts to less than significant level.

Groundwater Quantity and Quality

Potential impacts to groundwater resources would be similar in nature to those described under the ST-1. The difference under this alternative would be related to the construction activities in the Cantonment, increased pumpage from area groundwater sources, and increased maneuver training.

Increase in personnel stationed and training under this alternative would result in increased water demand which would further contribute to depletion of area groundwater resources. The total projected water demand would increase by 10 percent compared to ST-1. The majority of this need (approximately 77 percent) would be supplied by on-post well fields while the remainder would be supplied by EPWU. To address the impacts this anticipated water need would have to be combined with the anticipated baseline population growth in the area of El Paso. Combined total water demand has been previously analyzed for ST-1 in the 2007 SEIS, as well as 2007 GTA PEIS (see Section 3.2.1.1). Based on these analyses, it was recommended that EPWU develop additional sources of potable water, currently not anticipated to be needed until 2020. These sources include purchasing of additional Rio Grande water rights; increasing withdrawals from the Hueco and Mesilla Bolsons; and developing the Dell City Area, which could further deplete the available water resources and therefore potentially limit the population growth in the area. However, in 2007, a desalination plant was built to address water supply demand in the area. Based on the current demand, utilization of the desalination plant increases EPWU fresh water production by approximately 25 percent. The population increase of Soldiers and their families under this alternative would represent an increase of less than two percent compared to the existing population in the ROI. Furthermore, implementation of water conservation measures, such as using more reclaimed water for on-post landscaping, would reduce the consumption of fresh water.

Implementation of this alternative would require construction of additional garrison and quality of life facilities necessary to accommodate additional military personnel in the Cantonment. Construction activities could result in short-term, localized effects that would include increased overland flow and runoff and consequently decreased percolation to groundwater. These impacts are expected to be minimal. Engineering controls and BMPs, including the SWP3, would be used to further minimize these potential impacts during construction.

Construction of new facilities would temporarily increase the use of fuels, solvents, and other hazardous and toxic substances, which could result in indirect impacts to subsurface water resources. The depth to groundwater in the Cantonment is approximately 250 feet below ground surface, and it is unlikely that any spill would reach any potable water supplies. Fort Bliss would implement BMPs and a SWP3 to address leaks or spills of hazardous materials. With these established measures, impacts are expected to be minimal.

Impacts related to maneuver training would be the same in nature but greater in magnitude compared to those under the ST-1 and ST-2. These impacts are considered to be less than significant. BMPs and mitigation measures would further minimize these potential impacts. Stationing and Training Alternative 4 (ST-4)

Table 3-71 classifies the direct and indirect impacts to water resources under implementation of ST-4.

Table 3-71. Classification of Direct and Indirect Impacts from Stationing and Training Alternative 4.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	⦸	⦸	⦸
Wastewater Demand and Infrastructure	⦸	⦸	○
Surface Water Quantity/Quality	⊙	N/A	N/A
Groundwater Quantity/Quality	⦸	N/A	N/A

○ No impact
⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Cantonment Area

Under this alternative, water use in the Cantonment would be highest of all alternatives. Generally, the impacts of ST-4 would be the same in nature as those described under the ST-1, but greater in magnitude. The added total personnel due to addition of another Stryker unit would represent a 28 percent increase over the ST-1 population, and about 16 percent increase over the ST-3. The total on-post water demand would be 27 mgd, which represents an increase of 5.9 mgd compared to the ST-1. Under this alternative, the Fort Bliss would have to obtain additional 4.1 mgd from EPWU or meet the additional demand by developing water sources within the installation.

The total off-post water demand would be 7.6 mgd, which represents an increase of 1.7 mgd over the ST-1. The total combined on post and off-post water demand would be 34.6 mgd, which represent

approximately 36 percent of EPWU existing water demand, and 28 percent increase over the ST-1. As discussed under the ST-3, in addition to utilizing the recently constructed desalination plant, EPWU would have to obtain water from other sources, such as purchase of additional Rio Grande water rights, increased withdrawals from the Hueco and Mesilla Bolsons, and development of the Dell City Area to meet the increased water demand under this alternative.

Ranges and Training Areas

ST-4 would not result in an increase in the number of personnel residing at the range camps, as this is limited by the available billet space, however the number of Soldiers training at the ranges would increase slightly. Total water use at Doña Ana Range would be 0.27 mgd, an increase by 0.02 mgd compared to ST-3. Two wells at Doña Ana Range Camp have a combined capacity of 1 mgd and, therefore, would be sufficient to meet the water demand under this Alternative.

Total water demand at Orogrande Range under ST-4 would be 0.65 mgd, an increase of 0.09 mgd compared to ST-3. The currently available water supply from WSMR would not be sufficient to meet the water demand under this alternative. Additional water sources would have to be available to meet the water demand for both range camp and training personnel at Orogrande Range Camp. Water demand for temporary residents and employees at the Range Camp totals 0.18 mgd, and could therefore be met from currently available resources; however, the training personnel water demand would have to be supplemented by water supply from the other sources, such as wells at Doña Ana. These wells could produce 0.73 mgd in excess of estimated water demand at the Doña Ana, which would be more than enough to supplement the water demand for field personnel at Orogrande Range Camp.

The total water demand at McGregor Range would be approximately 0.6 mgd, an increase of 0.02 mgd compared to ST-3. McGregor Range Camp receives potable water from pipeline system supplied by EPWU. The current water distribution infrastructure can supply 76 gpm (0.11 mgd) to McGregor Range Camp. Therefore, the water supply system would not be able to meet the water demand under this alternative. An upgrade of the distribution infrastructure or additional water sources would be necessary to meet the water demand under this alternative.

Wastewater Demand and Infrastructure

Cantonment Area

Under this alternative, wastewater loads in the Cantonment would be greatest compared to all the alternatives. Impacts of ST-4 would be the same in nature as those described under the ST-1, but greater in magnitude. Assuming the same wastewater generation rates as for ST-1, the total on-post generation loads would be 21.2 mgd, which represents an increase of 4.6 mgd compared to the ST-1 and 2.9 mgd compared to ST-3. The total off-post generation loads would be 3.4 mgd, which represents an increase of 0.76 mgd over the ST-1. The total combined on-post and off-post wastewater loads would be 24.6 mgd, which represents approximately 55 percent of the EPWU's excess treatment capacity.

Ranges

ST-4 would not result in an increase in the number of personnel residing at the range camps. Therefore the wastewater loads and associated potential impacts would be the same as those described under the ST-3.

Training Areas

This alternative would result in an increase in the number of personnel training. Wastewater load generated at the training areas would increase by approximately 0.2 mgd compared to ST-1; however, wastewater for training would be handled by using portable toilets, and the number of portable toilets would be adjusted to adequately meet the required wastewater demand under this alternative. Therefore, no impacts related to wastewater demand and infrastructure would be anticipated.

Surface Water Quantity and Quality

Potential impacts to surface water resources would be the same in nature as those described under ST-3; however, the magnitude would increase due to additional construction activities needed to accommodate additional Soldiers stationed under this alternative. Potential impacts from maneuver training and potential for impacts from spills would also increase in magnitude.

Implementation of this alternative would result in increase of 630 acres (2.5 square kilometers) of impervious surface compared to the ST-1 and 315 acres (1.3 square kilometers) compared to ST-3 (Table 2-4). The stormwater system within the Cantonment may be unable to handle the increased loading from additional construction and facilities operation and additional facilities may have to be constructed to handle the runoff from impervious area added due to construction in the Cantonment.

The annual maneuver requirement of 1,304,000 km^2/d would be highest under this alternative. This represents a 79 percent increase from ST-1 and a 33 percent increase over ST-3; however, a majority of this increase would be related to SBCT on-road maneuver training. The wheel/track land disturbance during off road maneuvers would be 4,080 square kilometers, representing a 48 percent increase over the ST-1 and 23 percent increase over ST-3. Therefore, impacts to surface water related to maneuver training would be highest under ST-4. BMPs and mitigation measures are expected to minimize these impacts to less than significant level.

Groundwater Quantity and Quality

Potential impacts to groundwater resources would be the same in nature as those described under ST-3. Increase in personnel stationed and training under this alternative would result in increased potential for impacts related to construction, maneuver training, and most importantly, water demand which could further contribute to depletion of area groundwater resources. The total projected water demand would increase by 28 percent from ST-1 and by 16 percent compared to ST-3. The majority of this need (approximately 66 percent) would be supplied by on-post well fields while the remainder would be supplied by EPWU. Based on the previous analyses (discussed in Section 3.2.1.1), it was recommended that EPWU develop additional sources of potable water, currently not anticipated to be needed until 2020. Utilization of these additional sources could further deplete the available water resources and, therefore, potentially limit the population growth in the area. The population increase of Soldiers and their families under this alternative would represent an increase of less than three percent compared to the existing population in the ROI. Utilization of desalination plant would increase EPWU fresh water production by 25 percent, while implementation of water conservation measures would help reduce the consumption of fresh water to alleviate the demand on groundwater resources resulting from population growth under this alternative.

3.12.4 Land Use Changes Alternative 1 (LU-1)

Table 3-72 classifies the direct and indirect impacts to water resources under implementation of LU-1.

Table 3-72. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 1.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	N/A	N/A	N/A
Wastewater Demand and Infrastructure	N/A	N/A	N/A
Surface Water Quantity/Quality	N/A	N/A	⊙
Groundwater Quantity/Quality	N/A	N/A	⊙

⊙ Less than significant
N/A Not Applicable

Water Demand and Infrastructure

No land use changes are proposed under LU-1. Impacts to water demand and infrastructure were previously analyzed under the 2007 SEIS.

Wastewater Demand and Infrastructure

No land use changes are proposed under LU-1. Impacts to wastewater demand and infrastructure were previously analyzed under the 2007 SEIS.

Surface Water Quantity and Quality

No land use changes are proposed under the LU-1; however, impacts from current land use would continue to affect surface water resources at Fort Bliss. Potential effects to surface water resources would primarily be related to sedimentation and erosion related to ground disturbance activities. Disturbance of grassland areas could result in increased erosion and sedimentation to nearby water bodies. However, surface water bodies at Fort Bliss are limited and these impacts are expected to be less than significant. The major source of these impacts would be from off-road vehicle maneuvering.

Intensity of the off-road vehicle maneuvering impacts can be expressed in terms of the number drive-over annually and can be found in Table 2-18. As illustrated in Table 2-18, the number of times ground is driven over varies between the training areas for various stationing and training alternatives, but the total values would range between 0.24 and 1.7 under the LU-1. The greatest impact from off-road vehicle maneuvering would occur in the South Training Areas (Table 2-18). Range maintenance activities and ongoing ITAM implementation would provide for suitable and adequate restoration and rehabilitation activities to ensure these impacts remain less than significant.

The potential also exists for impacts to surface water quality from accidental spills and leaks. These impacts are expected to be less than significant. Additionally, Fort Bliss would implement BMPs and mitigation measures, including the SWP3 to address any potential impacts from spills.

Groundwater Quantity and Quality

No land use changes are proposed under the LU-1; however, impacts from current land use may continue to affect groundwater resources at Fort Bliss. Potential effects to groundwater resources may result from disturbance of grassland areas and compaction of near surface soils from concentrated activities and maneuver training. This would reduce soils ability to absorb water, which would result in increase of surface runoff and decreased percolation to groundwater. As discussed under the surface water quality and quantity, the number of drive-over (Table 2-18) is a good indicator of off-road vehicle maneuvering impacts intensity, and the baseline values would range between 0.24 and 1.7 under the LU-1. Range maintenance activities and ongoing ITAM implementation would provide for suitable and adequate restoration and rehabilitation activities to ensure these impacts remain less than significant.

The potential also exists for impacts to ground water quality from accidental spills and leaks. These impacts are expected to be less than significant and Fort Bliss would implement BMPs, and mitigation measures, including the SWP3 to address any potential impacts from spills.

3.12.5 Land Use Changes Alternative 2 (LU-2)

Table 3-73 classifies the direct and indirect impacts to water resources under implementation of LU-2.

Table 3-73. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 2.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	N/A	N/A	N/A
Wastewater Demand and Infrastructure	N/A	N/A	N/A
Surface Water Quantity/Quality	N/A	N/A	⊙
Groundwater Quantity/Quality	N/A	N/A	⊙

⊙ Less than significant
N/A Not Applicable

Water Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would result in changes in water demand. Therefore, no impacts to water demand would be anticipated under this alternative.

Wastewater Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would affect wastewater demand. Therefore, no impacts to wastewater demand would be anticipated under this alternative.

Surface Water Quantity and Quality

Potential effects to water resources under this alternative would be primarily related to sedimentation and erosion related to potential for new disturbance of grassland areas due to removal of Grassland LUA limitations. This alternative would remove of four square kilometers of Grassland LUAs for fixed sites

within the Southeast McGregor Range and throughout the Sacramento Mountains portion of Northeast McGregor Range North of Highway 506.

Removal of grassland LUA limitation would not involve any construction activities, only concentrated activities such as hand and mechanical digging. It would affect approximately one percent of the Southeast McGregor Range area and approximately 31 percent of the Northeast McGregor Range North of Highway 506 (Table 2-13). Disturbance of grassland areas could result in increased erosion and sedimentation to nearby water bodies. Surface water bodies in these areas are limited and these impacts are expected to be less than significant. Additionally, in order to minimize the disturbance and potential impacts from erosion and sedimentation, the sites at the Southeast McGregor Range would be located within 1,000m from road and predominantly on slopes less than 30 percent. Impacts related to off-road vehicle maneuvering would be the same as under the LU-1.

The potential also exists for impacts to surface water quality from accidental spills and leaks. These impacts are expected to be less than significant. Additionally, Fort Bliss would implement BMPs and mitigation measures, including the SWP3 to address any potential impacts from spills.

Groundwater Quantity and Quality

Disturbance of grassland areas and compaction of near surface soils from concentrated activities and maneuver training would reduce soils ability to absorb water, which would result in increase of surface runoff and decreased percolation to groundwater. Disturbance due to removal of Grassland LUA limitation would result in slightly greater impacts compared to LU-1, but these impacts would be less than significant. Impacts related to off-road vehicle maneuvering would remain the same as under LU-1. The potential also exists for impacts to ground water quality from accidental spills and leaks. These impacts are expected to be less than significant, and Fort Bliss would implement BMPs and mitigation measures, including the SWP3, to address any potential impacts from spills.

3.12.6 Land Use Changes Alternative 3 (LU-3)

Table 3-74 classifies the direct and indirect impacts to water resources under implementation of LU-3.

Table 3-74. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 3.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	N/A	N/A	N/A
Wastewater Demand and Infrastructure	N/A	N/A	N/A
Surface Water Quantity/Quality	N/A	N/A	⊙
Groundwater Quantity/Quality	N/A	N/A	⊙

⊙ Less than significant
N/A Not Applicable

Water Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would result in changes in water demand. Therefore, no impacts to water demand would be anticipated under this alternative.

Wastewater Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would affect wastewater demand. Therefore, no impacts to wastewater demand would be anticipated under this alternative.

Surface Water Quantity and Quality

LU-3 would result in greater impacts compared to LU-1 and LU-2. Potential impacts to surface water resources would be the same in nature as those described under LU-2; however, the area affected would be greater due to the establishment of five square kilometers of Controlled FTX sites on the Northeast McGregor Range North of Highway 506 and a Controlled FTX zone on the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506. In order to limit potential for erosion and sedimentation, the Controlled FTX zone as well as sites would be located within 500 meters of existing roads on areas with slopes of less than 30 percent. Establishing the five Controlled FTX sites and the Controlled FTX zone would affect approximately 10 percent of the Northeast McGregor Range North of Highway 506 (Table 2-13)

Additionally, LU-3 would also allow Live-Fire military uses at the Northeast McGregor Range North of Highway 506. Live-fire training could potentially result in impacts to surface water quality from the introduction of munitions chemical residues from training activities. Contaminants associated with military activities include residues of explosives or other constituents of munitions such as metals, constituents of plastics, or combustion products. Munitions constituents from live-fire training would remain identical to those currently produced, and since no impacts due to chemical residues have been observed up to date, no impacts from munitions residue would be anticipated.

As discussed under LU-1, intensity of the off-road vehicle maneuvering impacts can be expressed as the number of times ground is driven over, which reflects the number of times the FBTC subdivisions were potentially disturbed by vehicles within a training year. As illustrated in Table 2-23, total values for the number of drive-over would be the same compared to LU-1 and LU-2. The greatest impact from ground disturbance maneuvers would similarly occur in the South Training Area.

Live-fire training could also increase erosion and sedimentation due to soil disturbance from projectile impacts and from induced fires, which make soils more susceptible to erosion. Cratering related to projectile impacts directly removes soil resources from their natural position, increasing potential erosion rates and creating areas of bare ground that are more susceptible to erosion. Soils remaining in craters may be compacted and heated; thus, reducing their ability to promote vegetation and altering their water storage and runoff characteristics. Potential impacts to surface water resources under this alternative are expected to be less than significant. Additionally, BMPs and mitigation measures would further minimize these potential affects.

Groundwater Quantity and Quality

Potential impacts to groundwater resources under this alternative would be similar to those described under LU-2. The main difference would be the addition of live-fire military use in the Northeast McGregor Range North of Highway 506. Impacts to shallow groundwater resources from live-fire training could potentially occur from introduction of chemical constituents through leaching and percolation; however, no such impacts have been observed in this area to date. Since live-fire munitions constituents would be identical to those currently produced, no impacts to groundwater quality would be anticipated. Impacts from the off-road vehicle maneuvering would be the same as under LU-1 and LU-2. Potential for impacts to groundwater under this alternative are expected to be less than significant.

Additionally, any potential impacts would be further minimized by implementation of BMPs and mitigation measures.

3.12.7 Land Use Changes Alternative 4 (LU-4)

Table 3-75 classifies the direct and indirect impacts to water resources under implementation of LU-4.

Table 3-75. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 4.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	N/A	N/A	N/A
Wastewater Demand and Infrastructure	N/A	N/A	N/A
Surface Water Quantity/Quality	N/A	N/A	⊙
Groundwater Quantity/Quality	N/A	N/A	⊙

⊙ Less than significant
N/A Not Applicable

Water Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would result in changes in water demand. Therefore, no impacts to water demand would be anticipated under this alternative.

Wastewater Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would affect wastewater demand. Therefore, no impacts to wastewater demand would be anticipated under this alternative.

Surface Water Quantity and Quality

Potential impacts to surface water resources under this alternative would be the same in nature as those described under LU-3; however, the area affected would be greater due to the addition of military off-road vehicle maneuver: Light use within limited areas in the Northeast McGregor Range North of Highway 506. In order to limit the potential for erosion and sedimentation, off-road vehicle maneuver: Light use would only occur within 500 m of an existing road on slopes of less than 30 percent. This would affect approximately 27 percent of the Northeast McGregor Range North of Highway 506 (Table 2-13), resulting in the Off-Road Vehicle Maneuver: Light military use shifting from other areas of the FBTC to this area. Although more land would be available for off-road maneuver training, the intensity of impacts from off-road maneuver training would increase. As illustrated in Table 2-28, the number of drive-over would range between 0.23 and 1.6 time annually. These impacts are expected to be less than significant. Additionally, BMPs and mitigation measures would further minimize any potential impacts.

Groundwater Quantity and Quality

Potential impacts to groundwater resources under this alternative would be the same in nature as those described under LU-3; however, the area affected would be greater due to the addition of light military off-road vehicle maneuver use within limited areas in the Northeast McGregor Range North of Highway

506. Although more land would be available for off-road maneuver training, intensity of impacts from off-road maneuver training would increase under this alternative. Based on Table 2-28, the number of drive-over would range between 0.23 and 1.6 times annually. Potential for impacts to groundwater under this alternative are expected to be less than significant. Additionally, any potential impacts would be further minimized by implementation of BMPs and mitigation measures.

3.12.8 Land Use Changes Alternative 5 (LU-5)

Table 3-76 classifies the direct and indirect impacts to water resources under implementation of LU-5.

Table 3-76. Classification of Direct and Indirect Impacts from Land Use Changes Alternative 5.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	N/A	N/A	N/A
Wastewater Demand and Infrastructure	N/A	N/A	N/A
Surface Water Quantity/Quality	N/A	N/A	⊙
Groundwater Quantity/Quality	N/A	N/A	⊙

⊙ Less than significant
N/A Not Applicable

Water Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would result in changes in water demand. Therefore, no impacts to water demand would be anticipated under this alternative.

Wastewater Demand and Infrastructure

Land use changes proposed under this alternative do not include construction of any infrastructure that would affect wastewater demand. Therefore, no impacts to wastewater demand would be anticipated under this alternative.

Surface Water Quantity and Quality

In addition to impacts identified under previous alternatives, this alternative would result in additional disturbance of grassland and vegetated areas due to the establishment of three square kilometers of Controlled FTX sites on the Otero Mesa South of Highway 506 by removing Grassland LUA limitations. Potential impacts would be the same in nature as those described under LU-3, and would be primarily related to sedimentation and erosion related to disturbance of grassland areas.

The intensity of impacts from off-road maneuver training would slightly decrease compared to LU-4 due to the movement of support units to the Otero Mesa South of Highway 506, which does not allow off-road maneuver. This alternative would, however, result in the greatest aerial disturbance for potential impacts to occur. These impacts are expected to be less than significant and implementation of BMPs and mitigation measures would further minimize these impacts.

Groundwater Quantity and Quality

Potential impacts to groundwater resources under this alternative would be the similar to those described under LU-4; however, the area affected would be greater due to the addition of three square kilometers of Controlled FTX sites on the Otero Mesa South of Highway 506. Impacts related to off-road maneuver training would decrease compared to LU-4. This alternative would result in the greatest aerial disturbance for potential impacts to occur. Potential for impacts to groundwater under this alternative are expected to be less than significant. Additionally any potential impacts would be further minimized by implementation of BMPs and mitigation measures.

3.12.9 Training Infrastructure Improvements Alternative 1 (TI-1)

Table 3-77 classifies the direct and indirect impacts to water resources under implementation of Training Infrastructure Improvements Alternative 1 (TI-1).

Table 3-77. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 1.

VEC	Location		
	Cantonment	**Range Camps**	**Training Areas**
Water Demand and Infrastructure	N/A	○	N/A
Wastewater Demand and Infrastructure	N/A	○	N/A
Surface Water Quantity/Quality	N/A	○	N/A
Groundwater Quantity/Quality	N/A	○	N/A

○ No impact
N/A Not Applicable

Water Demand and Infrastructure

No improvements to training infrastructure are proposed under the TI-1. Therefore, no impacts to water demand and infrastructure would be anticipated.

Wastewater Demand and Infrastructure

No improvements to training infrastructure are proposed under the TI-1. Therefore, no impacts to wastewater demand and infrastructure would be anticipated.

Surface Water Quantity and Quality

No improvements to training infrastructure are proposed under the TI-1. Therefore, no impacts related to construction at the ranges would be anticipated.

Groundwater Quantity and Quality

No additional impacts to groundwater other than those described for water demand would occur under the TI-1.

3.12.10 Training Infrastructure Improvements Alternative 2 (TI-2)

Table 3-78 classifies the direct and indirect impacts to water resources under implementation of TI-2.

Table 3-78. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 2.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	N/A	⦸	N/A
Wastewater Demand and Infrastructure	N/A	⦸	N/A
Surface Water Quantity/Quality	N/A	⊙	N/A
Groundwater Quantity/Quality	N/A	⊙	N/A

⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Under this alternative, Fort Bliss would construct new ranges to accommodate needs of BCTs training at Fort Bliss. The number of ranges actually constructed would depend on the stationing and training alternative selected.

A minimum of 26 future ranges would be constructed during FY2010-2016 to accommodate the training of four HBCTs and two IBCTs stationed at Fort Bliss (ST-1). Fourteen ranges are proposed to be constructed at Doña Ana and Orogrande Ranges, and twelve are proposed at McGregor Range. Additional Soldiers stationed at the ranges under this alternative would increase the water demand. The magnitude of this increase would depend on the number of additional Soldiers involved and their distribution among the ranges. As discussed in Section 3.1.1.2, some ranges would have adequate water supply to accommodate additional personnel, whereas others are currently over capacity and would have to obtain water from other sources or make other provisions, such as upgrading the distribution infrastructure to meet the water demand.

There would be no modification to existing range camps under this alternative. The number of Range Camp residents would be limited by the billet space and would therefore remain the same as under the ST-1 and ST-2.

Later phases of construction would occur to accommodate any additional ranges required for the stationing of additional support units, pursuant to the selection of ST-3 or ST-4. The construction of future ranges would occur as need arises and funds become available. Water demand associated with future ranges would be analyzed under NEPA on site-specific basis at that time.

Wastewater Demand and Infrastructure

A minimum of 26 future ranges would be constructed during FY2010-2016 to accommodate military training under ST-1 and ST-2. Additional Soldiers stationed at the ranges under this alternative would increase the wastewater loads. The magnitude of this increase would depend on the number of additional Soldiers involved and their distribution among the ranges. Additional infrastructure to handle the

wastewater on these new ranges would have to be constructed to meet the wastewater demand as projected for the stationing and training alternatives.

There would be no modification to existing range camps under this alternative. The number of Range Camp residents would be limited by the billet space and would therefore remain the same as under the ST-1 and ST-2.

Construction of future ranges to accommodate additional personnel in case ST-3 or ST-4 are selected, would occur as need arises and funds become available. Wastewater demand associated with future ranges would be analyzed under NEPA on site-specific basis at that time.

Surface Water Quantity and Quality

Range construction activities could result in impacts to surface water quality from nonpoint source contamination of surface water and potential spills. Construction of 26 new ranges would disturb approximately 4,800 acres (19.4 square kilometers). Additional disturbance would occur if the additional ranges are constructed in the future. During ground preparation for new construction sites, which would include limited grading, excavating, and trenching, erodible soils may been exposed to stormwater runoff leading to an increase the potential for sediments to contaminate surface waters. These impacts are expected to be less than significant due to intermittent nature of surface water in the area and effective implementation of BMPs and applicable mitigation measures. Chemicals, such as petroleum hydrocarbons that may spill or leak onto soils as a result of vehicle use or refueling, could bind to soil particles and then be transported to surface water by erosion. Fort Bliss would implement BMPs and a SWP3 to address leaks or spills of hazardous materials. With these established measures, impacts are expected to be less than significant.

Applying dust-suppressing materials could affect surface water quality, either by increasing the biological oxygen demand or by increasing total dissolved solids concentrations. These impacts are expected to be minimal because the chemicals would be applied according to industry standards and because the amount of runoff is expected to be low.

Construction of new ranges would allow for additional range training (shooting and marksmanship, for example). Potential impacts related to live-fire training are presented under LU-3. As discussed in this section, live-fire training could potentially result in impacts to surface water quality from the introduction of munitions residues, leaks and spills, and sedimentation from projectile impacts, and induced fires, which make soils more susceptible to erosion. Potential impacts to surface water resources under this alternative are expected to be less than significant. Additionally, BMPs and mitigation measures would further minimize these potential affects.

Groundwater Quantity and Quality

Construction activities at the ranges could result in short-term, localized effects that would include increased overland flow and runoff and consequently decreased percolation to groundwater. These impacts are expected to be less than significant. Engineering controls and BMPs, including the SWP3, would be used to further minimize these potential impacts during construction.

Construction activities would temporarily increase the use of fuels, solvents, and other hazardous and toxic substances, which could result in indirect impacts to subsurface water resources. Fort Bliss would implement BMPs and a SWP3 to address leaks or spills of hazardous materials. With these established measures, impacts are expected to be less than significant.

3.12.11 Training Infrastructure Improvements Alternative 3 (TI-3)

Table 3-79 classifies the direct and indirect impacts to water resources under implementation of TI-3.

Table 3-79. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 3.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	N/A	⦸	N/A
Wastewater Demand and Infrastructure	N/A	⦸	N/A
Surface Water Quantity/Quality	N/A	⊙	N/A
Groundwater Quantity/Quality	N/A	⊙	N/A

⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

In addition to construction of new ranges, this alternative also includes improvements of existing Range Camps and construction of COLs. Training infrastructure improvements at Range Camps would modify the billet space available for temporary residents. Billet space is projected to increase from 3,121 to 5,000 at McGregor Range Camp, decrease from 1,783 to 1,750 at Doña Ana Range Camp, and increase from 364 to 1,750 at Orogrande Range Camp. Therefore, this alternative would modify the water demand at the ranges.

Because the billet space at Doña Ana Range Camp would decrease under this alternative, the water use would decrease by approximately 0.003 mgd, compared to the No Action Alternative. Local wells at Doña Ana Range Camp would be adequate to meet the water demand at the Doña Ana Range Camp under this Alternative. Water demand at Orogrande Range Camp would be 0.18 mgd, an increase of 0.14 mgd compared to No Action. Water supply at Orogrande would be able to meet the demand of the Range Camp under this alternative.

The water demand at McGregor Range Camp would increase by 0.19 mgd compared to No Action. The current water supply would not be adequate to meet the water demand at McGregor Range under this alternative. An upgrade of the distribution infrastructure or additional water sources would be necessary to meet the water demand under this alternative. Impacts associated with water demand at the COLs would be related to stationing and training alternative selected.

Wastewater Demand and Infrastructure

Improvements of existing range camps proposed under this alternative would result in overall increase of personnel residing at the Range Camps and consequently increased wastewater loads. The exception is Doña Ana Range Camp where the wastewater loads would actually decrease. Therefore, programmed infrastructure available under No Action would be sufficient to meet the wastewater demand at Dona Ana. Increase of wastewater loads at McGregor Range Camp would constitute almost 60 percent and at Orogrande Range Camp it would increase fourfold compared to loads under No Action. Therefore, the wastewater treatment system would likely need to be upgraded.

Surface Water Quantity and Quality

Impacts to surface water resources from this alternative would be the same in nature as those described under TI-2 and would be primarily related to sedimentation and erosion and spill hazards during construction activities. Surface disturbance related to improvement of the existing range camps and construction of COLs would occur in addition to disturbance occurring under TI-2. Therefore, the potential for impacts under this alternative would be greater than under TI-2. These impacts are considered to be less than significant and temporary. Furthermore, to minimize the impacts, grasslands and arroyo-riparian buffer zones LUAs and Off-limits areas would be avoided. Potential impacts are expected to be minimal due to intermittent nature of streams in the area and implementation of mitigation measures.

Groundwater Quantity and Quality

Impacts to groundwater resources from this alternative would be the same in nature as those described under TI-2 and would be primarily related to reduced groundwater percolation and spill hazards during construction activities. However, the impacts would occur throughout greater area than under TI-2. Impacts would be minimal and would be further minimized by implementation of BMPs and mitigation measures.

3.12.12 Training Infrastructure Improvements Alternative 4 (TI-4)

Table 3-80 classifies the direct and indirect impacts to water resources under implementation of TI-4.

Table 3-80. Classification of Direct and Indirect Impacts from Training Infrastructure Improvements Alternative 4.

VEC	Location		
	Cantonment	Range Camps	Training Areas
Water Demand and Infrastructure	N/A	⦸	N/A
Wastewater Demand and Infrastructure	N/A	⦸	N/A
Surface Water Quantity/Quality	N/A	⊙	N/A
Groundwater Quantity/Quality	N/A	⊙	N/A

⊙ Less than significant
⦸ Significant but mitigate to less than significant
N/A Not Applicable

Water Demand and Infrastructure

Construction of a rail line connecting the Fort Bliss Cantonment to the FBTC as proposed under this alternative would not require any permanent dedicated water sources. The water demand related to construction of the rail line would be temporary and the amount necessary would depend on the rail line construction specifications. The related impacts are anticipated to be less than significant and would be evaluated once this information becomes available.

Wastewater Demand and Infrastructure

Construction of a rail line connecting the Fort Bliss Cantonment to the FBTC as proposed under this alternative would not require construction of any permanent new wastewater-related facilities. The

wastewater generated during the construction phase would be temporary and likely be hauled away and disposed off site at designated facilities.

Surface Water Quantity and Quality

Impacts to surface water resources from this alternative would be the same in nature as those described under TI-2 and TI-3. These impacts would be primarily related to sedimentation and erosion and spill hazards during construction, and would affect greater surface area due to the proposed location of the rail line connecting the Fort Bliss Cantonment and the FBTC. Impacts related to sedimentation and erosion and spill hazards would be minimal due to implementation of BMPs and other mitigation measures.

Groundwater Quantity and Quality

Impacts to groundwater resources from this alternative would be the same in nature as those described under TI-2 and TI-3. These impacts would be primarily related to reduced groundwater percolation and spill hazards during construction of the rail line. Impacts would be minimal and would be further minimized by implementation of BMPs and mitigation measures.

3.13 Facilities: Affected Environment

Facilities encompass all aspects of Army real property management. Army real property includes land, facilities, and infrastructure. Land includes Army-owned lands (real estate), leaseholds, and other interests in land, including lands "withdrawn" from federal agencies such as the BLM and USFS. Facilities are buildings, structures, and other improvements and appurtenances to support the Army's mission, such as Cantonment areas, training ranges, housing, schools, and recreational facilities. Infrastructure is the combination of supporting systems that enable the use of Army land and resident facilities, such as transportation infrastructure and utilities. Utility infrastructure includes electrical, gas, water, wastewater, storm water, solid waste, and communications serving Army installations.

Many of the Army facilities are also addressed in other sections of this document; however, the facilities chapter analyzes the availability of Army real property, such as real estate and utility infrastructure for each of the proposed alternatives. The analysis of impacts to facilities identifies if easements or land acquisitions would be required, along with whether or not the existing utility infrastructure (including programmed upgrades) is sufficient to support the proposed stationing and training. Housing and schools are described in Sections 3.25 and 3.26. Existing land uses and recreational facilities are described in Section 3.1. Roadways and other ground transportation infrastructure serving the Army installations are described in Sections 3.15 and 3.16. Electrical and gas utilities, energy use, and conservation measures are described in Sections 3.19 and 3.20. Water supply and demand, as well as and wastewater infrastructure is discussed in more detail in Sections 3.11 and 3.12. Solid waste and hazardous material/waste facilities are described in Section 3.21 and 3.22.

Military real property master plans provide the framework for facilities management, including design and construction activities for land development on military installations. The key Fort Bliss land use management and plan documents are described in Section 2.2.2.2. The following resources guide facilities management and maintenance at Army installations:

- AR 210-10, Real Property Master Planning
- AR 210-20, Real Property Master Planning for Army Installations
- AR 210-21, Army Ranges and Training Land Program

- AR 350-19, The Army Sustainable Range Program
- AR 420-1, Army Facilities Management
- AR 420-49, Utility Services
- PL 94-579, 1976, Federal Land Policy and Management Act
- TR 25-1, Training Lands
- TR25-8, Training Ranges

The Fort Bliss RPMP was developed pursuant to Army Regulation (AR) 210-20, "Real Property Master Planning for Army Installations." It describes the current physical composition of Fort Bliss and the plans for its orderly long-range development of facilities, especially those in the Cantonment.

There are several components to the RPMP: the Long Range Component (LRC), Capital Investment Strategy (CIS), and Short Range Component (SRC). The LRC establishes goals and objectives for future development of the installation. The CIS and SRC are continuously evolving mechanisms for implementing the overall objectives of the LRC. Chapter 3 of 2007 SEIS (U.S. Army) describes specific projects that would bring the CIS and SRC in line with the installation's new mission requirements. While these changes would ultimately result in updates to the LRC, the basic goals of the Fort Bliss RPMP remain as established in the PEIS, including:

- Ensure that facility and land uses can adapt and expand to accommodate new missions, weapons systems, and training.
- Explore and capitalize on opportunities for regional cooperation on infrastructure systems.

The Fort Bliss CIS is undergoing revision as a result of the Army Transformation and BRAC changes occurring at the installation. It includes these general goals:

- Expand, modernize, and increase the efficiency of Biggs AAF.
- Construct a Heavy BCT campus.
- Increase non-DoD revenues.
- Expand and modernize training lands and capacities.
- Modernize and update the U.S. Army Sergeants Major Academy (USASMA) campus.
- Increase quality of life and community support to meet projected population increases.
- Improve transportation networks.
- Develop a utility improvement process.
- Provide high-quality barracks, lodging, and military family housing.
- Modernize and expand logistical and maintenance support facilities.

- Reduce long-term energy and operations and maintenance inefficiencies.
- Improve land utilization and minimize encroachment.
- Integrate important environmental needs into all planning and construction projects.

The ROI for facilities includes the Army installations in which the proposed activities would be located and the service area for the utility providers. The following subsections describe the affected environment for real estate, facilities, and utilities serving the Army installations.

3.13.1 Real Estate

Fort Bliss is comprised of a Cantonment and the FBTC. The facilities within the Cantonment include the Main Post, Biggs AAF, Logan Heights, and WBAMC. Major development and redevelopment is occurring on approximately 4,000 acres (16.2 square kilometers) within the Cantonment to provide needed mission and support facilities for new troops, their dependents, and additional civilian Soldiers (INRMP US Army 2008). In addition, about 1,500 acres (6.1 square kilometers) on the east side of Biggs AAF and along the existing ramp areas are being developed for a new CAB and additional BCTs.

Since the 2001 ROD for the MMPDEIS, facilities development in the Cantonment has been guided by the RPMP (specifically the Long-Range Component). The 2007 SEIS and Training Area Development Concept (TADC) (U.S. Army 2000) describe the size, location, and facilities for the Fort Bliss Cantonment, ranges, and TAs.

The FBTC includes the South Training Areas in El Paso County, Texas, immediately adjacent to the Cantonment, the Doña Ana Range–North Training Areas and McGregor Range, located in south-central New Mexico as shown on Figure 2-1**.** The areas for these different geographic components are provided in Table 3-1. Some of these vary slightly from the 2000 PEIS (U.S. Army) and the BLM's recent Resource Management Plan Amendment (RMPA) for McGregor Range as a result of minor administrative boundary changes and updated mapping data.

The FBTC totals approximately 1,083,310 acres (4,383 square kilometers) and includes a variety of training facilities including, some large land and airspace areas used for missile and rocket firing, aircraft operations, and aerial gunnery training. The TADC identifies the training activities within each TA. Current military land use is designated as indicated on Table 2-12 and Figure 2-3. Each segment of the FBTC is divided into TAs, as shown on Figure 2-1**.** The FBTC supports a wide variety of facilities for training and testing activities. These include Air Defense Artillery (ADA) training by both U.S. and allied units; ADA missile firings; live-fire training with the full range of weapons from small arms to crew-served weapons such as tanks; on- and off-road maneuvers by both wheeled and tracked vehicles; dismounted training; and training with obscurants and other countermeasures. Since the 2001 ROD for the Fort Bliss Mission and Master Plan PEIS, land development in the FBTC has been guided by the TADC. The TADC identifies the training activities within each training area.

The TADC, which has served as the "range plan" for the installation, is being replaced with the RCMP. The primary changes to the TADC are land use designations and training activities in the Tularosa Basin portion of McGregor Range, including the addition of the Off-Road Vehicle Maneuver training category in specific TAs and to include additional live-fire ranges and changes in airspace. The amount of land currently available for the different training activities is shown on Table 2.1-3 of the Fort Bliss INRMP (U.S. Army 2008).

3.13.2 Facilities and Infrastructure

Infrastructure is composed of roadways and transportation infrastructure and utility infrastructure. Roadways and other ground transportation infrastructure serving the Army installations are described in Sections 3.15 and 3.16, while the ground transportation within the FBTC that is used by Soldiers for training is addressed in this section Utility infrastructure includes electrical, gas, water, wastewater, storm water, solid waste, and communications. Electrical and gas utilities, energy use, and conservation measures are described in Sections 3.19 and 3.20. Water supply and demand, as well as water and wastewater infrastructure are discussed in Sections 3.11 and 3.12. Solid and hazardous waste facilities are described in Sections 3.21 and 3.22. The following subsections summarize the existing infrastructure within each of the potentially affected Army installations.

3.13.2.1 Cantonment Area

The Cantonment is the urbanized portion of Fort Bliss. It includes the Main Post, WBAMC, Logan Heights, and Biggs AAF. The Main Post houses the headquarters, Garrison Command, ADA School and ADA Brigades, and mobilization functions. WBAMC houses the medical center and supporting functions and includes family housing and associated community facilities. Logan Heights contains primarily family housing, community, and recreation land uses. Biggs AAF is dominated by the airfield and aviation facilities, but it also includes munitions storage, houses the USASMA and supporting functions, and contains some family housing. East of Biggs AAF the Cantonment has expanded to house HBCTs and support functions.

The ROI for assessing infrastructure and utility systems is made up of the service areas of each service provider serving the facilities operated by Fort Bliss in the Cantonment and the surrounding area. It includes El Paso County in Texas, and Doña Ana and Otero Counties in New Mexico; the City of El Paso; and the service areas of El Paso Electric Company (EPEC), El Paso Gas Company (EPGC), and other utility service purveyors.

3.13.2.1.1 Ground Transportation

Ground transportation at the Cantonment includes both roadways and the rail network. The transportation network is shown on Figure 1-1.

3.13.2.1.2 Roadway Infrastructure

The Cantonment is surrounded by major arterial city streets**.** It is generally bounded by Loop 375 to the northeast, Railroad Drive to the northwest, and various roads on the south and west. Key arterials include Fred Wilson Road and Airport Road, which separate the Main Post and Biggs AAF.

The road network on the Fort Bliss Main Post consists of two- and four-lane asphaltic concrete paved surfaces, mostly with curb and gutter. The primary roadways provide motor access to all areas of the installation and are capable of handling all types of Highway vehicles. Minor delays and congestion occur during the morning and afternoon peak travel periods. The primary roads include Jeb Stuart, Ricker, and Chaffee Roads and portions of Marshall, Sheridan, Haan, and Robert E. Lee Roads.

Currently, vehicles exiting the Main Post for the TAs must either cross Fred Wilson Road at Chaffee or Airport Road at Haan Road. Access to TAs for the majority of tracked vehicles and truck convoys is provided by the Chaffee/Fred Wilson crossing. A new gate has been completed to serve as a southern access point for the stationed HBCTs. Vehicle access to Biggs AAF is provided along Sergeant Major Boulevard east of Airport Road.

3.13.2.1.3 Rail Network

The Fort Bliss rail network consists of approximately 15 miles of track that is located mainly in the western portion of the post. The rail system is used primarily for shipping and receiving tactical vehicles, ammunition, and other material. Government-owned railroad tracks serve the vehicle staging areas on the Cantonment and Biggs AAF. These tracks connect to the rail facilities owned by the Union Pacific/Southern Pacific Railroad (UP/SP) at the western and southeastern post boundaries. A portion of the rail network crosses BLM lands.

3.13.2.1.4 Electricity and Gas

Electrical power is supplied to Fort Bliss by the EPEC through a 115 kilovolt (kV) transmission line that serves Fort Bliss, the City of El Paso, and military reservations and the public to the north. Natural gas is the primary heating fuel in the Cantonment and is supplied by the EPGC through lines owned and maintained by Texas Gas Services.

3.13.2.1.5 Water

Potable water is currently provided to the Cantonment from on-post wells and interconnections with the City of El Paso (USACE 2005). The great majority of water used on Fort Bliss is obtained from the on-post well fields; consumption of water from the City of El Paso is generally low. The water produced by the well fields averaged approximately 4.6 mgd in 2004, approximately 20 percent of the capacity of the on-post wells. In 2007, EPWU provided Fort Bliss 0.19 mgd, which constitutes approximately 4.4 percent of what EPWU can provide to Fort Bliss. Of this amount, approximately 0.12 mgd was provided for use in the Cantonment, while 0.07 mgd was provided for use at McGregor Range (Hutchison 2008b). Domestic water supplies for the Fort Bliss Cantonment and the City of El Paso are furnished by on-post wells (Tobin and Pike Well Fields), Biggs AAF wells and EPWU. Tobin Well Field operates seven wells and the Pike Well Field operates four wells that can produce a combined flow of 15.8 mgd. Biggs AAF has two wells, each capable of providing 1.44 mgd to the airfield and Aero Vista Housing. The Main Post and the City of El Paso can also supply Biggs AAF, but the connections are normally closed because Biggs AAF produces its own water. EPWU obtains groundwater primarily from the Hueco Bolson basin, while some additional groundwater is obtained from the Mesilla Basin as discussed in the previous water resources section. The City of El Paso currently can provide up to 4.24 mgd. Combined total from all the sources is 22.9 mgd (SEIS U.S. Army 2007).

3.13.2.1.6 Wastewater

Wastewater generated at Fort Bliss flows through five connections to the City of El Paso's sewer system. Wastewater is treated at the Haskell Street Wastewater Treatment Plant, about three miles away. The plant has a current treatment capacity of 27.7 mgd (EPWU 2005). The Post typically uses approximately 10.5 percent of the capacity of the plant (SEIS U.S. Army 2007).

3.13.2.1.7 Storm Water

Most of the storm water runoff from the Cantonment drains via channels and lift stations to the Fort Bliss Sump to the north of Fred Wilson Road and east of the Union Pacific Railroad (Blough 2009). From the Fort Bliss Sump outlet, storm water drains to a series of basins including Pershing Dam Basin and connects to the river through the City of El Paso’s municipal separate storm sewer system (MS4) (Blough 2009). Fort Bliss Sump and Pershing Dam Basin are the operational responsibility of the City and are located on Fort Bliss Property under long term leases. There are other small connections with the City of El Paso's MS4 at the post boundary, mainly via curb and gutter flows from access roads to the post.

Storm water drainage from Biggs AAF flight line area is collected via a system of catch-basins and conduits which ultimately flow into a retention pond located east of taxiway G (Jacobs/ Huitt-Zollars 2007). Prior to the current construction of new Biggs AAF facilities, storm water conveyance within the remaining Biggs Army Airfield area was handled by swales and sheet flow. These flows would then collect in low areas and evaporate and infiltrate over time.

Prior to current development of the area east of Biggs AAF, drainage was via sheet flow through natural topography where storm water would infiltrate and evaporate. The existing Biggs AAF area and the area to the east are being developed using on-site storm water retention basins as there are no natural drainages or adjacent urban drainage infrastructure sufficient to receive the increased post development runoff. Consistent with City of El Paso design requirements, the design criteria used for the new Biggs AAF and the area east of Biggs AAF infrastructure is the 10 year event for storm water conveyance and 25 year event for storm water retention.

Fort Bliss maintains a TCEQ Multi-Sector General Storm Water Permit (TXR050000) for industrial activities at the post and a Phase II Small MS4 General Permit (TXR040000) for operation of the installation urban MS4.

3.13.2.1.8 Solid Waste

Qualifying construction activities in the Texas portion of the installation (those involving greater than one acre) are conducted under the TCEQ Construction General Permit (TXR150000) or, in New Mexico, under the EPA Region VI Construction General Permit (FRL-8690-8; EPA-HQ-OW-2008-0238).

Domestic solid waste is collected and disposed of by private contractor at a government-owned, 106-acre landfill located three miles north of the intersection of Fred Wilson and Chaffee Roads. Landfill cells handle Type I waste (refuse) and Type IV waste (construction and demolition wastes). Fort Bliss has an aggressive waste recycling program, and all paper, plastic, and aluminum containers and metal scrap (from artillery use) are recycled. This has substantially reduced the post's reliance on the onsite landfill. In FY2005, the post generated approximately 105 tons of solid waste per day, but beginning July 1, residential waste (approximately 8.8 tons per day) was disposed of in the City of El Paso's Clint Landfill (a Type I Landfill) (SEIS U.S. Army 2007). Prior to July 1, approximately 47 tons of refuse and 44 tons of construction and demolition waste were disposed of in the on-post landfill per day. At current disposal rates, the Type I cell can accept waste through 2011, and the Type IV cell for approximately 10 more years.

Based on these figures, and assuming a continuation of the waste recycling program, the per employee daily generation rates were calculated to be approximately 2.6 pounds of refuse disposed of in the post's landfill, and 0.3 pounds of material per day recycled. Clint Landfill receives wastes from residents and businesses in the City of El Paso. It is designed with a 30-year life expectancy, assuming the current daily solid waste accumulation rate (2007 SEIS, US Army 2007). Since the landfill was constructed in 1983, this implies closure around 2013. Several actions may be taken that could increase the life of the landfill, but it is not known how long they would extend operations. The landfill is governed under TCEQ and EPA rules and regulations.

3.13.2.1.9 Communications

Communication systems on Fort Bliss include telephone, optical cable, automated digital network (AUTODIN), microwave, and television systems. Part of the telephones on-post are commercial sets linked to the commercial telephone network, the Integrated Switch Digital Network (ISDN), and the Defense Switched Network (DSN). Fort Bliss also has several secure phone systems (USACE 2005).

The AUTODIN is supported by a Worldwide Area Network. Diskettes containing organizational messages are hand carried to the network center for transmittal to virtually any place on earth (USACE 2005). The microwave system allows communication within the entire installation. Radio systems comprise amplitude modulation (AM), very high frequency (VHF), and trunking radios. They are used for communications among military units, between aircraft and controllers, and with the Military Police and Fort Bliss Fire Department. Use of radio frequencies is managed by two frequency managers assigned to the post. There are four television networks on-post. Two are closed circuit systems used for training, one is a cable network provided to housing units, and the WBAMC has its own television network (USACE 2005).

3.13.2.2 Fort Bliss Training Complex

The infrastructure within the TAs includes the roadways and transportation system, electrical and gas lines, utilities (water, wastewater, storm water, and solid waste), and communication systems. According to the 2007 SEIS (U.S. Army), facilities (including wastewater treatment) at both Doña Ana and McGregor ranges already require expansion and upgrading to increase size and capacity.

Solid waste generated at all the range camps is placed in dumpsters and picked up by the private contractor that services the Cantonment. Solid waste is then disposed of at the Fort Bliss Type I landfill (U.S. Army 2000). Under baseline conditions solid waste generation is expected to increase.

The infrastructure for ground transportation, energy (electrical and gas), water and wastewater, and solid waste are discussed in more detail in other sections of this document Training ranges communications are not addressed in this document because the communication infrastructure remains the same as described the SEIS (U.S. Army 2007).

3.13.2.2.1 South Training Areas

The South Training Areas continue to be used primarily for off-road vehicle maneuvers. The South Training Areas are northeast of the Cantonment and are bordered on the north by the New Mexico state line. TAs-1A and 1B are adjacent to the Cantonment and El Paso International Airport (EPIA). Being adjacent to the Cantonment, this part of the FBTC is easily accessible and convenient for training units. The South Training Areas support small arms ranges in TA 1D near the Rod and Gun Club and a drop zone in TA 2A.

Ground Transportation

The South Training Areas are northeast of the Cantonment and are bordered on the north by the New Mexico state line. TAs-1A and 1B are adjacent to the Cantonment and EPIA. US-54 runs along the northwest boundary, and the southernmost boundary is U.S. Highway 62/180 (Montana Avenue) as shown on Figure 1-1. Loop 375 divides training area-1B. None of the other TAs are near major roadways. Movement of Soldiers within the FBTC consists of a network of roads and trails that are suitable to support the maneuver requirements.

Water

There is a small complex of Site Monitor buildings ten miles east of the Cantonment. These buildings obtain water from an on-site well. The water is chlorinated and stored in a 30,000-gallon tank (US Army 2000).

Wastewater

Although the Site Monitor buildings are not currently occupied, the Site Monitor buildings are equipped with septic tanks that flow to drain fields or dry wells. The capacity of the wastewater system is estimated to be approximately 1,200 gallons per day (SEIS US Army 2007).

Storm Water

The Site Monitor is located almost ten miles east of the Main Post in a relatively flat area with many sand dunes, but has a general slope to the west. Ten-and 25-year storm water events were evaluated and the facilities at the Site Monitor were determined to be adequate (SEIS U.S. Army 2007).

3.13.2.2.2 Doña Ana Range-North Training Areas

War Highway divides the Doña Ana Range from the North Training Areas. A series of weapons firing ranges are located on the west side of War Highway. There have been upgrades to existing live-fire ranges on Doña Ana Range, providing expanded capability for training. The impact area is located in the foothills of the Organ Mountains. Range 50 supports aerial operations and weapons firing. Helicopter operations tend to concentrate in the southwest part of the range, around Range 50, the Stewart drop zone, and Doña Ana Range Camp. The North Training Areas, on the east side of War Highway, continue to be used primarily for tracked vehicle maneuvering. Drop zones and firing areas are located in the western part of the North Training Areas.

Ground Transportation

The Doña Ana Range-North Training Areas are bounded by US-54 on the east. Doña Ana Range Camp is provided access by War Highway, which runs along the Organ Mountains. While operations take place on the range, War Highway is required to be closed occasionally for safety reasons.

Water

Well fields in the Tularosa Basin supply water for the Orogrande Range Camp at Doña Ana Range-North Training Areas. The Orogrande Range camp receives potable water from WSMR from four production wells located in Soledad Canyon on the Fort Bliss Property (WSMR DEIS US Army 2008).

Wastewater

Wastewater is collected from Doña Ana Range Camp in a small network and treated in a two-cell, 3.75 acre lagoon about one half mile to the south. Wastewater is collected from Orogrande Range Camp and is treated in a one-cell, 4.74-acre lagoon about one quarter mile to the northeast (USACE 2005).

Storm Water

Storm water drainage from the Doña Ana Range Camp consists of sheet flow, most of which is channelized into a graded ditch that runs along the south loop of the access road. Ditch drainage flows south of the access road and to the southeast towards a topographically low area (Blough 2009). Ten- and 25-year storm water events were evaluated and the facilities at the range camp were determined to be adequate (U.S. Army 2000). An analysis of the storm water drainage system at the Orogrande Range Camp in 1983 indicated that arroyos and graded ditches had adequate capacity to carry 10-year storm flows; however, four culverts within the camp were insufficiently sized for 10-year storms (U.S. Army 2000).

3.13.2.2.3 McGregor Range

McGregor Range continues to be co-managed by the Army and BLM. It is used for a variety of missile testing and training programs and large-scale field training exercises. TA 32 has a series of missile firing sites, a helicopter gunnery range at Cane Cholla, a series of small arms ranges at Meyer Range, missile firing areas at Forward Area Weapon sites, and Convoy Live Fire Courses at Ranges 37 and 38. TAs 29, 30, and 31 contain the Orogrande and SHORAD ranges and impact areas and Wilde Benton, a 2-mile long dirt airstrip. Only TA 8 in the southwest of McGregor Range is currently used for off-road vehicle maneuvers. Several smaller controlled-access FTX sites have been designated adjacent to existing roadways where vehicles and equipment can set up and Soldiers can bivouac. The primary change in military use on McGregor Range over the last five years has been the construction and use of the Centennial Range on Otero Mesa South of Highway 506. This USAF facility occupies about 5,200 acres (21 square kilometers) and is used for air-to-ground target training (SEIS U.S. Army 2007).

Ground Transportation

US-54 is on the western border of McGregor Range. New Mexico Highway 506 is an east-west roadway that crosses the northern part of the range. This road provides access to McGregor Range on the west at US-54 and exits the range at Training Area 16. Highway 506 is a gravel road maintained by Otero County.

There are numerous other roads in the McGregor Range road network. The Army maintains the road network on McGregor Range, which primarily consists of dirt roads that provide access to different parts of the range.

Water Supply

McGregor Range Camp receives water from the City of El Paso through a line with a capacity of 2.88 mgd. The Meyer Range Complex receives water by pipeline from McGregor Range Camp. Water is stored in a 25,000-gallon tank (USACE 2005).

Wastewater

Wastewater from McGregor Range Camp is treated in a 10.23 acre, single-celled lagoon. As of June 2006, a second five acre lined pond has been constructed and collects overflow wastewater from the adjacent McGregor pond. Wastewater from the Meyer Range Complex is treated in a 3.36 acre, two-cell lagoon located one-half mile to the west (USACE 2005). An upgrade to Meyer Range Complex wastewater system is currently under construction. A new aerated multi-cell oxidation pond with capacity of five mg should come on line in summer of 2009 (Hutchinson 2008a).

Storm Water

Storm water from McGregor Range Camp and the Meyer Range Complex drains to the south and west, either to small playa lakes within the basin or to larger playa lakes east of Newman, Texas. Storm water drainage within McGregor Range Camp consists of sheet flow to the west and southwest, eventually flowing into an ephemeral lake one mile southwest of the camp. Analysis of the storm drainage system indicates that the large ephemeral lake has adequate volume to contain a 10-year frequency discharge. There may be a small amount of nuisance ponding within the range camp and at Meyer Range. The storm water facilities at McGregor Range Camp and Meyer Range are considered to be adequate for 25-year storm events (U.S. Army 2000).

3.14 Facilities: Direct and Indirect Effects

This section identifies the direct and indirect effects to Army real property, including installation real estate, facilities, and infrastructure, within the ROIs of the proposed action and alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, alternatives with various land use changes; and Category 3, alternatives with various training infrastructure improvements. This analysis included identification and evaluation of the mission requirements for facilities and utility infrastructure and the extent to which each installation already meets these requirements. The analysis also evaluates the need for upgrades to existing facilities or utility infrastructure and any secondary impacts associated with those upgrades.

The evaluation of potential impacts to facilities is based on the project's potential to affect installation real estate, facilities, and infrastructure. Potential infrastructure shortfalls, inconsistencies, inadequacies, or deficiencies identified between the existing infrastructure and the requirements of a project alternative are identified. Where the existing facilities do not meet the mission requirements, the additional facilities would be acquired through construction by the Army or through community or private sector mechanisms. The effects of acquiring the additional facilities are assessed in this section.

Potential temporary impacts associated with construction of new facilities are addressed in Section 3.14, of this document. Where the existing facilities and infrastructure do not meet the mission requirements, the additional facilities and infrastructure would be acquired through construction by the Army or through community or private sector mechanisms. The effects of acquiring the additional facilities and infrastructure are assessed in this section.

Except for routing of telephone lines and other communications lines to new facilities, no major changes in communications systems are anticipated to be required for any of the proposed alternatives (SEIS U.S. Army 2007); therefore, no impact analysis was required. The impacts of the alternatives on facilities are primarily related to construction of new facilities and projected increases in the number of Soldiers stationed and training at Fort Bliss. Impacts associated with additional storm water runoff were assessed based on the projected proportionate increase in impervious surface in the Cantonment or ground disturbances within the TAs.

Impacts were evaluated by estimating the proportionate increase in consumption or generation rates, and then estimating how total consumption or generation rates would change with the changed population. The increased consumption and generation were then compared with the ability of existing utility infrastructure to handle those changes to determine if capacities would be exceeded.

Potential impacts on utility infrastructure would occur proportionate to the number of Soldiers stationed and training at Fort Bliss. Potential impacts to water and waste water demand and infrastructure, storm water management, energy demand and infrastructure, housing and educational facilities, land use compatibility, transportation infrastructure, and waste management are analyzed in other sections of this document.

Factors considered in determining whether an alternative would have a significant impact on real estate, facilities, or utility infrastructure would include the extent or degree to which its implementation would result in the following:

- Result in potential shortfalls, inconsistencies, inadequacies, or deficiencies between the existing facilities or utility infrastructure and the requirements of a project alternative;

- Interrupt or disrupt utilities, as a result of physical displacement and subsequent relocation of public utility infrastructure, to the extent that the result would be a direct, long-term service interruption or permanent disruption of essential public utilities;

- Result in an increase in demand on utilities beyond the current capacity of the utility provider to the point that substantial expansion of utility infrastructure, additional facilities, or increased staffing levels would be necessary; or

- Result in the need for land or easement acquisition or lease agreements.

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5.

Table 3-81 classifies the impacts to facilities, including Cantonment facilities, training ranges, range camps, and utility infrastructure, under implementation of each of the alternatives. Impacts to maneuver areas are analyzed in Section 3.2, Land Use. Potential impacts to facilities at the Army installations would be proportionate to the number of Soldiers stationed and training at Fort Bliss.

Table 3-81. Classification of Direct and Indirect Impacts to Facilities and Infrastructure.

VEC	Stationing/ Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST- 1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST -1	ST -2	ST -3	ST -4	ST -1	ST -2	ST -3	ST -4	ST -1	ST -2	ST -3	ST -4	ST -1	ST -2	ST -3	ST -4	ST -1	ST -2	ST -3	ST -4				
Construction	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙
Land Easement/ Acquisition	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

○ No impact
⊙ Less than significant
⊗ Significant

3.14.1 Stationing and Training Alternative 1 (ST-1)

Construction

Under ST-1, there would be no construction-related impacts to Cantonment facilities other than those analyzed in the 2007 SEIS. Implementation of the ROD for the 2007 SEIS includes construction of approximately 21.9 million square feet of additional building space, and associated infrastructure, to accommodated stationing of 40,500 Soldiers and their Families. The existing facilities within the Cantonment would continue to be used as described in the 2007 SEIS. Impacts would be less than significant because both garrison and quality of life facilities would be adequate for stationing as projected under this alternative. No improvements to utility infrastructure are proposed for this alternative; however, a number of programmed infrastructure improvements would continue to be constructed to implement the ROD for the 2007 SEIS, including construction of approximately 21.9 million square feet of additional building space with 1,600 acres (6.5 square kilometers) of new impervious surfaces. Because there would be no additional construction and stationing would not change under this alternative, there would be no impacts to utility infrastructure within the Cantonment beyond those analyzed in the 2007 SEIS. Assuming completion of the planned utility infrastructure

improvements needed to implement the stationing and training decision of the ROD for the 2007 SEIS, utility infrastructure would be adequate for stationing as projected for this alternative.

Under ST-1, demands on existing utility infrastructure would be similar to what was analyzed in the 2007 SEIS; however, actual utility demands would be proportionate to the number of additional Soldiers training at FBTC. The BLM would continue to maintain access to existing water supply pipelines which transport water from the Sacramento Mountains to the areas jointly used for livestock grazing and training. To accommodate training as projected for this alternative, the initial capital investments required to upgrade utility infrastructure would be significant but these impacts have already been planned. Impacts to energy (gas and electric) demand and infrastructure are analyzed in Section 3.20. Impacts to potable and non-potable water demand, waste water generation, and storm water management are analyzed in 3.12, Water Resources.

Compared to existing conditions, impacts to the existing ground transportation system would not increase. Approximately 2,654,000 km of on-road vehicle maneuver would be conducted annually driven on the FBTC (Table 2-8). On road training on unpaved roads within TAs in the Northeast McGregor Range North of Highway 506, South Training Areas, Tularosa Basin, and Southeast McGregor would be subjected to heavy traffic loads that cause rutting, potholes and road wear. The Army would continue to implement routine maintenance to ensure vehicles and equipment can effectively traverse the TAs.

Impacts to energy (gas and electric) demand and infrastructure are analyzed in Section 3.20. With continued implementation of water and energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008), impacts to utility infrastructure within the ROI would be less than significant because these impacts would generally be limited to the Army installation.

Land/ Easement Acquisition

Under ST-1, programmed construction and renovation activities analyzed in the 2007 SEIS and training as analyzed in the 2007 GTA PEIS would continue within the existing Army installation. Existing land ownership, ROWs, easements and leases on Fort Bliss would continue with no changes or additions proposed. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.2 Stationing and Training Alternative 2 (ST-2)

Construction

Under ST-2, there would be no construction-related impacts to Cantonment facilities other than those analyzed in the 2007 SEIS. The existing facilities within the Cantonment would continue to be used as analyzed in the 2007 SEIS. Impacts would be less than significant because both garrison and quality of life facilities would be adequate for stationing as projected under this alternative.

No improvements to utility infrastructure are proposed for this alternative; however, under implementation of the planned infrastructure improvements analyzed in the 2007 SEIS, the utility infrastructure would have adequate capacity for stationing as projected for this alternative. Because there would be no additional construction and stationing would not change under this alternative, there would be no impacts to utility infrastructure within the Cantonment beyond those analyzed in the 2007 SEIS. Assuming completion of the planned utility infrastructure improvements needed to implement the stationing and training decision of the ROD for the 2007 SEIS, utility infrastructure would be adequate for stationing as projected for this alternative.

Under ST-2, demands on existing utility infrastructure would be similar to what was analyzed in the 2007 SEIS; however, actual utility demands would be proportionate to the number of additional Soldiers training at FBTC. To accommodate training as projected for this alternative, the initial capital investments required to upgrade utility infrastructure would be significant. Additional storm water management controls may be required in the training ranges as a result of increased training compared to ST-1. The BLM would continue to maintain access to existing water supply pipelines which transport water from the Sacramento Mountains to the jointly used areas.

The rate of degradation of the existing ground transportation system would increase from ST-1. Approximate 3,012,100 km of on-road vehicle maneuver would be conducted annually driven on the FBTC (Table 2-8). The routine maintenance that occurs to ensure vehicles and equipment can effectively traverse the TAs would continue as described for ST-1. Impacts would be less than significant because there would be sufficient availability on TAs to conduct repairs and routine maintenance as needed.

Impacts to potable and non-potable water demand, waste water generation, and storm water management are analyzed in 3.12, Water Resources. Impacts to energy (gas and electric) demand and infrastructure are analyzed in Section 3.20. With continued implementation of water and energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008), impacts to utility infrastructure within the ROI would be less than significant because these impacts would generally be limited to the Army installation.

Land/Easement Acquisition

Under ST-2, programmed construction and renovation activities analyzed in the 2007 SEIS would continue to be constructed and training would continue to occur within the existing Army installation. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.3 Stationing and Training Alternative 3 (ST-3)

Construction

Under ST-3, approximately 1.66 million square feet of additional building space would be constructed with 1.3 square kilometers of additional impervious surface. These facilities would be within the existing Cantonment footprint and would include military family housing, administrative facilities, equipment storage, recreation, shopping, vehicle parking and maintenance facilities, and other buildings to support the missing and maintain Soldiers and family quality of life. New Army facilities would also incorporate water and energy conservation measures in facilities designs to comply with AR 11–27, *Army Energy Program*, E.O. 13123, *Greening the Government through Efficient Energy Management*, E.O. 13123, *Strengthening Federal Environmental, Energy, and Transportation Management*, and the requirements under the new Energy Independence and Security Act of 2007. Long-term impacts associated with construction and modernization of facilities would be beneficial because inadequate facilities would be improved or replaced.

During renovation or demolition of older buildings to clear the way for construction of new facilities, asbestos wastes, LBP and lead-contaminated soils, PCBs, and other hazardous materials may be encountered and removed. The Army would continue to implement standard regulatory and administrative measures to minimize the potential for inadvertent spills or releases of hazardous wastes or exposure of Army personnel, the public, or the environment to hazardous wastes generated during construction. Impacts would be beneficial because new facilities would be constructed using building materials that are generally less hazardous than many of the materials used in the past.

Short-term impacts during construction would include temporary interruptions of utility service and delays in access to buildings currently in use. These impacts would be less than significant because the length of disruptions would be minimized to the greatest extent possible during this period and service would be returned to normal after construction.

Compared to ST-1 and ST-2, this alternative would result in both short-term and long-term increased demand on the existing utilities within the Cantonment. Utility demand may increase in the short-term during construction of the proposed facilities. The initial capital investments required to upgrade utility infrastructure in the Cantonment Area would be significant. Utility lines would need to be extended to the new facilities and new storm water management facilities may be required to accommodate the additional 1.3 square kilometers of impervious area within the Cantonment. The SWP3 and associated BMPs would require updating prior to the start of construction and additional BMPs may be required during construction. Impacts would be less than significant because infrastructure improvements would be funded by the Army and construction impacts would generally be limited to the Army installation.

In the long term, operation of the new facilities as proposed would result in an increased demand on the existing potable water, wastewater and storm water collection and treatment systems. New Army facilities would be designed with water and energy saving features. The demand on the existing utility infrastructure would increase proportionate to the number of additional Soldiers stationed at Fort Bliss; however, this population increase (Soldiers and dependents) would represent an increase of less than two percent compared to the existing population in the ROI. Impacts to potable and non-potable water demand, waste water generation, and storm water management are analyzed in 3.12, Water Resources. Impacts to energy (gas and electric) demand and infrastructure are analyzed in Section 3.20. With continued implementation of water and energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008), impacts would be less than significant because utility demand for this alternative would be less than significant compared to utility demand within the ROI.

Construction of additional utility infrastructure improvements as proposed for this alternative would result in temporary service interruptions. These impacts would be less than significant because the length of disruptions would be minimized to the greatest extent possible during this period and service would be returned to normal after construction.

Training as projected for this alternative would result in additional utility demand compared to ST-2. There would be an increase in utility demand as a result of increased use of the existing live-fire training ranges for weapons qualifications; however, the utility demand for live-fire training is minimal compared to other facilities at Fort Bliss.

Under ST-3 approximately 4,166,100 km (Table 2-8) would be driven annually on the FBTC roadways, increasing the intensity of on-road training over ST-2. This will result in multiple vehicle passes on roads within the FBTC. This is an approximate 38 percent increase over ST-2 and is attributed to the over one million km driven by the added SBCT unit. On road training would comprise 90 percent of the SBCT usage of the FBTC (Table 2-7). Impacts will be from creation of ruts, potholes, and surface degradation from continued wear.

Maintenance costs for the ground transportation systems would increase proportionate to the usage. Impacts to the ground transportation system would be less than significant for this alternative because the Army has existing equipment, means, and methods to conduct maintenance as needed. Additional funding may be required for the increased maintenance costs and would be secured by the Army.

The BLM would continue to maintain access to existing water supply pipelines which transport water from the Sacramento Mountains to the jointly-used areas. Utility demand for this alternative would be less than significant compared to utility demand within the ROI.

Land/Easement Acquisition

ST-3 would result in an additional 240 acres (0.97 square kilometer) of redevelopment; however, all proposed redevelopment would occur within the existing Cantonment footprint. There is adequate buildable space within the Cantonment to accommodate this level of growth (U.S. Army 2007). Impacts would be less than significant. Training as projected for this alternative would occur within the existing Army installation. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.4 Stationing and Training Alternative 4 (ST-4)

Construction

Compared to ST-3, additional 1.66 million square feet of building space would be constructed under ST-4, with additional 1.3 square kilometers of impervious surface to support stationing of another SBCT unit. These facilities would be within the existing Cantonment footprint and would include military family housing, administrative facilities, equipment storage, recreation, shopping, vehicle parking and maintenance facilities. New Army facilities would also incorporate water and energy conservation measures in facilities designs to comply with AR 11–27, *Army Energy Program*, E.O. 13123, *Greening the Government through Efficient Energy Management*, E.O. 13123, *Strengthening Federal Environmental, Energy, and Transportation Management*, and the requirements under the new Energy Independence and Security Act of 2007. Long-term impacts associated with construction and modernization of facilities would be beneficial because inadequate facilities would be improved or replaced.

For ST-4, the additional on post population would result in a proportionate increase in utility demand compared to ST-3. The projected on post population increase (Soldiers and dependents) would represent an increase of less than three percent compared to the existing population in the ROI; therefore, long-term effects on utility demand within the ROI would be minimal. Water and energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008). Impacts would be similar to those described for ST-3 and would be less than significant.

Training as projected for this alternative would result in additional utility demand compared to ST-3. There would be an increase in utility demand as a result of increased use of the existing live-fire training ranges for weapons qualifications; however, the utility demand associated with live-fire training is minimal compared to other facilities at Fort Bliss. Utility demand for this alternative would be less than significant compared to utility demand within the ROI.

The addition of HBCT and SBCT units training under ST-4 would results in 5,819,000 km driven on-road annually (Table 2-8) and is an approximate 40 percent increase over ST-3. This increase is attributed to over 1 million km driven by SBCTs, the approximate 360,000 km driven by HBCTs, and the remainder attributed for Other Units. On road training would comprise 90 percent of the SBCT usage of the FBTC (Table 2-7).

Routine maintenance to ensure vehicles and equipment can effectively traverse the TAs would continue, but increase based on the reliance of on road training by SBCTs. Maintenance costs would increase

proportionate to the usage. Because the Army has existing equipment, means, and methods to conduct maintenance, and that additional funding would be secured as needed, impacts to the ground transportation system, impacts would be less than significant for this alternative.

Land/Easement Acquisition

ST-4 would result in an additional 240 acres (0.97 square kilometer) of redevelopment compared to ST-3 and 480 acres (1.9 square kilometers) of redevelopment compared to ST-1. All proposed redevelopment would occur within the existing Cantonment footprint. There is adequate buildable space within the Cantonment to accommodate this level of growth (U.S. Army 2007). Impacts would be less than significant. All training would occur within the existing Army installation. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.5 Land Use Changes Alternative 1 (LU-1)

Construction

Under LU-1, no training facilities or utility infrastructure would be constructed at FBTC other than those analyzed in the 2007 SEIS; however, the potential direct and indirect impacts associated with degradation of training ranges from current land uses would continue as described for each of the stationing and training alternatives. For training as projected forLU-1/ST-1, impacts to the training ranges would as described for ST-1. For this alternative, the intensity of use of the TAs would continue similar to current conditions. Intensity of use on FBTC subdivisions is considered for the FBTC transportation network maintenance and repair. Traffic loads over time if not repaired can result in rutted roads with potholes and degraded roadway surfaces. Access to roads requiring repair will be based on times when FBTC subdivisions are not in use or when the use is compatible and safe for these activities. With continued implementation of regulatory and administrative mitigation and routine maintenance, impacts to the training ranges and the associated transportation network would be less than significant.

LU1/ST-1

Under LU1/ST-1, the Tularosa Basin of McGregor Range would be the most heavily used for on-road training with the other FBTC subdivisions experiencing less vehicle trips (Table 2-16). Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

LU-1/ST-2

On-road training would increase to 3,012,100 linear km traveled for all units combined (Table 2-8). As under ST-1, the Tularosa Basin of McGregor Range would be the most heavily used for on-road training (Table 2-16). Increased on-road training would occur on all other FBTC subdivisions under ST-2. Additional traffic loads over time could lead rutted roads, potholes and degraded surfaces, potentially leading to erosion of areas adjacent to the roadways if vehicles need to bypass heavily rutted or degraded roadway surfaces. Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

LU-1/ST-3

Impacts to the training ranges would be as described for ST-3. Under LU-1/ST-3, the Tularosa Basin of McGregor Range would be the most heavily used for on road training (Table 2-16). As described for ST-1 and ST-2, impacts for all the on-road use will be ruts, potholes and road wear. The rate of degradation of the ground transportation may increase as a result of conflicts in TAs that are heavily scheduled. There would be limited access for crews to conduct maintenance activities when TAs adjacent to roads are in use.

Maintenance would be bundled with other range maintenance activities, and the Army will prioritize the maintenance to address those road issues on FBTC that if left would disrupt access to TAs. Maintenance costs could increase because additional repairs may be required compared to ST-1 and ST-2. Because the Army has existing equipment, means, and methods to conduct maintenance and additional funding would be secured as needed, impacts to the ground transportation system would be less than significant for this alternative.

LU-1-ST-4 Under LU-1/ST-4, on-road training would continue to be heaviest in the Tularosa Basin of McGregor Range and lightest at Otero Mesa South of Highway 506 (Table 2-16). Annual on-road training under this alternative would require over 5,819,000 km of travel by the BCTs (Table 2-8). Distribution of vehicle trips is similar to ST-3. Heavy use of these roads including any unpaved roads could be degraded with this traffic load. The impacts will be ruts, potholes and road wear. Some scheduling conflicts similar to that described in ST-2 will occur.

Maintenance would be bundled with other range maintenance activities. Due to the increased on-road training use by SBCTs, maintenance costs may increase to address additional wear and tear on the ground transportation system. With continued implementation of regulatory and administrative mitigation, impacts to the training ranges would be less than significant for this land use change alternative because the Army has existing equipment, means, and methods to conduct maintenance and additional funding would be secured as needed. Fort Bliss recognizes the need for road maintenance and in accordance with the McGregor MOU, will work with BLM to jointly develop a road maintenance strategy that will specify agency responsibilities for maintenance and maintenance standards. Fort Bliss has done a significant amount of road work, but the majority of is done where the majority of the mission has occurred. As the mission becomes more intense in other areas, the maintenance will also.

Land/Easement Acquisition

Under LU-1, existing land ownership, ROWs, easements and leases within the FBTC would continue with no changes or additions proposed. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.6 Land Use Changes Alternative 2 (LU-2)

Construction

Under LU-2, no new facilities or utility infrastructure would be constructed; however, the condition of the training ranges would continue to degrade based on the allowed land uses and intensity of use as described for each stationing and training alternative. The same is true for the transportation network for training as projected for all four stationing and training alternatives under LU-2. The potential direct and indirect impacts for all four stationing and training alternatives would be the same as those described for LU-1. Impacts to training facilities including the roads on the FBTC would be less than significant for all

four stationing and training alternatives under LU-2 because the intensity of use of the TAs would be similar to LU-1 conditions.

Land/Easement Acquisition

Under LU-2, the planned land use changes would occur within the FBTC portion of the existing Army installation. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.7 Land Use Changes Alternative 3 (LU-3)

Construction

Under LU-3, no new facilities or utility infrastructure would be constructed for the Controlled FTX sites; however, mission support facilities could require construction. During construction of the mission support facilities, UXO or soils contaminated with lead or hazardous wastes resulting from historic uses may be encountered during construction. Impacts regarding UXO and contaminated soils are addressed in Section 3.22, Solid Wastes and Hazardous Materials/Wastes. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous wastes or exposure of Army personnel, the public, or the environment to hazardous wastes generated during construction. With continued implementation of Army regulatory and administrative mitigation, impacts to training facilities would be less than significant for all the stationing and training alternatives under LU-3. The placement of Controlled FTX sites would reduce the number of times traveling between the Cantonment and the Northeast McGregor Range North of Highway 506. Impacts to training facilities would be beneficial for all four stationing and training alternatives.

LU3-ST-1

Under LU-3/ST-1, the Northeast McGregor Range North of Highway 506 would be the most heavily used for on-road training (Table 2-21). Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

LU-3/ST-2

Under LU-3/ST-2, Tularosa Basin of McGregor Range would be the most heavily used for on-road training (Table 2-21). Overall increase in on road training would result in an increased rate of degradation of the transportation infrastructure used for training, including any unpaved roads. Impacts would include additional ruts, potholes and road wear. Maintenance would be bundled with other range maintenance activities; however maintenance costs may increase proportionate to the rate of degradation. Scheduling for maintenance and repair would be conducted without severe constraints. Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

LU-3/ST-3

Under LU-3/ST-3, on-road training would further increase in all FBTC subdivisions, with Tularosa Basin of McGregor Range being the most heavily used (Table 2-21). The increased intensity of use for unpaved roads to meet training needs under this alternative would result in degradation of their surfaces and require additional repair.

Scheduling for maintenance and repair would be conducted without severe constraints. Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

LU-3/ST-4

Implementation of LU3/ST-4 would result in further increase in on-road training compared to LU3/ST-3. Tularosa Basin of McGregor Range would continue to be the most heavily used FBTC subdivision (Table 2-21).

Land/Easement Acquisition

Under LU-3, the planned land use changes would occur within the existing Army installation. Existing land ownership, no land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.8 Land Use Changes Alternative 4 (LU-4)

Construction

Under LU-4, impacts to training facilities would be as described for LU- 3 with the addition of light off-road vehicle maneuver training allowed within limited areas within the Northeast McGregor Range North of Highway 506. Off-road vehicle maneuver training would be limited to HMMWVs and other wheeled vehicles with L classifications in designated areas. With continued implementation of Army regulatory and administrative mitigation, impacts to training facilities would be less than significant for all the stationing and training alternatives under LU-4.

Under LU-4/ST-1 through LU-4/ST-4 impacts to ground transportation infrastructure would be similar to those described for LU-3. Implementation of LU-4 would result in increased on road training and consequently an increased rate of degradation to ground transportation. Northeast McGregor Range North of Highway 506 would be the most heavily used FBTC subdivision for on-road training under all stationing and training alternatives (Table 2-27).

The impacts would be additional ruts, potholes and road wear. Some scheduling conflicts would occur, but roadway maintenance would be completed as needed. Scheduling for maintenance and repair would be conducted without severe constraints. Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

Land/Easement Acquisition

Under LU-4, the planned land use changes would occur within the FBTC portion of the existing Army installation. Existing land ownership, ROWs, easements and leases within the FBTC would continue with no changes or additions proposed. No land or easement acquisitions would be required for any of the Stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.9 Land Use Changes Alternative 5 (LU-5)

Construction

Under LU-5, no new facilities or utility infrastructure would be constructed for the addition of three square kilometers of Controlled FTX sites within Otero Mesa South of Highway 506; however, the condition of the three square kilometers areas would degrade based on the allowed land uses and intensity of use.

The rate of degradation to ground transportation from implementation of LU-5/ST-1 through LU-5/ST-3 would be similar to that described for LU-4. Implementation of LU-5/ST-4 would result in a slight decrease in on-road training in the Northeast McGregor North of Highway 506 (Table 2-27) as on-road training would slightly shift to the Otero Mesa South of Highway 506.

The impacts would be ruts, potholes and road wear. Some scheduling conflicts would occur, but roadway maintenance would be completed as needed. Scheduling for maintenance and repair would be conducted without severe constraints. Because the Army has existing equipment, means, and methods to conduct maintenance, impacts to the ground transportation system would be less than significant for this alternative.

Land/Easement Acquisition

Under LU-5, the planned land use changes would occur within the FBTC portion of the existing Army installation. Existing land ownership, ROWs, easements and leases within the FBTC would continue with no changes or additions proposed. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Construction

Under TI-1, no training infrastructure improvements would be constructed; however, ranges and infrastructure improvements would be constructed as analyzed in the 2007 SEIS. Under TI-1, the use of munitions during training would continue to generate UXO and lead within the live-fire impact zones proportionate to the number of Soldiers training at FBTC under each stationing and training alternative. Routine maintenance of the existing and programmed new training facilities would continue similar to current conditions. With continued implementation of regulatory and administrative mitigation, such as ITAM, INRMP, ecosystem management, AR 350-19, *The Army Sustainable Range Program*, and water and energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008), impacts to the training ranges would be less than significant all stationing and training alternatives because the ranges and associated access roads would be maintained and repaired as needed. Assuming the training infrastructure improvements identified in the 2007 ROD for the SEIS are constructed, the number of training ranges, range camp facilities, and associated access roads would be adequate under TI-1 training as proposed under ST-1 and ST-2. For ST-3 and ST-4 under TI-1, impacts would be significant because the number of ranges and range camps would not be adequate for training as projected under these alternatives.

Under TI-1, training as projected under all the stationing and training alternatives would result in long term increased demands on the existing utility systems. Utility demand under any of the stationing and training alternatives would be less than significant because the Army utility demands would continue to

represent a small percentage of the total regional demand and water and energy saving features of new Army facilities would offset some of the increased demands on the public utilities.

Land/Easement Acquisition

Under TI-1, no training infrastructure improvements would occur and training would continue within the FBTC portion of the Army installation similar to current conditions. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.11 Training Infrastructure Improvements Alternative 2 (TI-2)

Construction

Under TI-2 new ranges would be constructed and impacts to training facilities would be beneficial. The number of ranges and associated range access roads to be constructed would vary based on the stationing and training decision.

Adding the new ranges under this alternative would result in an adequate number of ranges for training as projected for ST-1 and ST-2 (Table 2-35); however, additional future ranges (Table 2-36) would be required for training under ST-3 and ST-4. Construction of these future ranges would require subsequent NEPA analyses. Until future ranges are constructed, the number of ranges would not be adequate for training as proposed under ST-3 and ST-4. Construction of the proposed additional ranges under T!-2 would offset some of the increased demand on the existing ranges under ST-3 and ST-4. Impacts to range facilities would be less than significant because scheduling would be implemented to support training as proposed under ST-3 and ST-4 until additional ranges are constructed.

A number of range camp improvements are planned under TI-2 and impacts to training facilities would be beneficial. Under TI-2 range camps would be adequate for ST-1 and ST-2. Until the proposed range camp expansions are completed, range camp facilities would not be adequate for ST-3 and ST-4. Impacts to range facilities would be less than significant because scheduling would be implemented to support training as proposed under ST-3 and ST-4 until additional range camps are constructed.

During construction, short term impacts would be similar to those analyzed for construction under ST-3 and would be minimized because the new ranges and associated access roads would be constructed in a phased approach over FY2010 to 2016. UXO and lead may be encountered during construction. Impacts regarding contaminated soils are addressed in Section 3.22, Solid Wastes and Hazardous Materials/Wastes. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous wastes or exposure of Army personnel, the public, or the environment to hazardous wastes generated during construction.

Under TI-2, demands on existing utilities may increase slightly during construction; however, these demands would be temporary and limited to the construction time period. In addition, operation of the new ranges would result in long term increased demands on the existing utility systems. New construction would incorporate sustainable design and development features, such as water and energy conservation measures in facilities designs. Utility demand under any of the stationing and training alternatives would be less than significant because the Army utility demands would continue to represent a small percentage of the total regional demand and water and energy saving features of new Army facilities would offset some of the increased demands on the public utilities. The proposed new ranges would require upgrades to the utility system infrastructure and additional work to maintain the access roads. An initial capital

investment would be required to extend the utility infrastructure to the new facilities and to install additional storm water management systems to accommodate the increased impervious area associated with the new training ranges compared to TI-1. The Army would continue to implement water and energy conservation measures. Impacts to utility infrastructure and roads within the ROI would be less than significant because the Army would provide funding for the required infrastructure improvements and construction impacts would generally be limited to the Army installation.

The SWP3 and associated BMPs would also require updating prior to the start of construction and additional BMPs may be required during construction. Impacts would be less than significant because these impacts would be limited to the Army installation and the Army would implement erosion and control measures as needed.

Land/Easement Acquisition

Under TI-2, the proposed training infrastructure improvements would occur within the FBTC portion of the Army installation. The FBTC has adequate buildable space available to accommodate this level of growth. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.12 Training Infrastructure Improvements Alternative 3 (TI-3)

Construction

Under TI-3 construction-related impacts would be similar to those described under TI-2; however, construction would include expansion of existing range camps and construction of 16 COLs in addition to the new ranges. For training as proposed under ST-1 through ST-4 impacts to training facilities would be similar to those described under TI-2 and less than significant.

The addition of COLs within the South Training Area, Tularosa Basin portion of McGregor Range and Doña Ana North Training Areas would facilitate more evenly distributed training impacts throughout the training ranges. Under implementation of TI-3, expansion of the Orogrande base camp would result in adequate range camp facilities for training as proposed for any of the stationing and training alternatives. Impacts to training facilities would be beneficial.

Long term operation of the additional new facilities under TI-3 would result in slightly increased demands on the existing utility systems compared to TI-2. An initial capital investment would be required to extend the utility infrastructure and access roads to the new facilities and to install additional storm water management systems to accommodate the additional new facilities compared to TI-2. New Army facilities would be designed with water and energy saving features. The Army would continue to implement water and energy conservation measures. Impacts to utility infrastructure and from long term maintenance for roads within the ROI would be less than significant because the Army utility demands would continue to represent a small percentage of the total regional demand and water and energy saving features would offset some of the increased utility demands.

Land/Easement Acquisition

Under TI-3, the planned training infrastructure improvements would occur within the FBTC portion of the Army installation. The FBTC has adequate buildable space available to accommodate this level of growth. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.14.13 Training Infrastructure Improvements Alternative 4 (TI-4)

Construction

Under TI- 4, impacts to training facilities for construction and training as proposed for ST-1 through ST-4 would be similar to those described for TI-3; however, a new rail line would also be constructed. The new rail line as proposed under TI-4 would reduce the amount of time required to access the FBTC from the Cantonment. Impacts to overall facilities including roads at FBTC would be beneficial; however, there would be no direct impacts to the training ranges. The rail line alternative is in the conceptual stages. Environmental documentation that presents the expected direct, indirect, and cumulative impacts would be prepared once this project is programmed for design and construction.

Long term operation of the facilities under TI-4 would result in slightly increased demands on the existing utility systems compared to the other alternatives. New Army facilities would be designed with water and energy saving features. The Army would continue to implement water and energy conservation measures. Impacts to utility infrastructure within the ROI would be less than significant. Utility demand under any of the stationing and training alternatives would be less than significant because the Army utility demands would continue to represent a small percentage of the total regional demand and water and energy saving features of new Army facilities would offset some of the increased demands on the public utilities.

Under implementation of this alternative, utility infrastructure and roads improvements would likely be required to accommodate the planned range improvements. Additional capital investments may be required to extend utility and road infrastructure to the proposed new facilities. Assuming completion of the planned infrastructure improvements needed to implement the stationing and training decision of the ROD for the 2007 SEIS, utility infrastructure would be adequate for ST-1 and ST-2; however, infrastructure improvements would likely be required for range construction and training as projected for ST-3 and ST- 4 (Table 2-36). Impacts would be less than significant because the Army would provide funding for the required infrastructure improvements and construction impacts would generally be limited to the Army installation.

Land/Easement Acquisition

Under TI-4, the planned training infrastructure improvements would occur within the FBTC portion of the Army installation. The FBTC has adequate buildable space available to accommodate this level of growth. No land or easement acquisitions would be required for any of the stationing and training alternatives; therefore, this alternative would result in no impacts.

3.15 Transportation and Traffic Resources: Affected Environment

Infrastructure is composed of roadways and transportation infrastructure, and utility infrastructure. Roadways and other ground transportation infrastructure serving the Army installations are described in this section. Electrical and gas utilities, energy use, and conservation measures are described in Sections 3.19 and 3.20. Water supply and demand, as well as waste and wastewater infrastructure is discussed in more detail in Sections 3.11 and 3.12. Solid waste and hazardous material/waste facilities are described in Section 3.21 and 3.22.

The ROI for the ground transportation systems within the Cantonment is El Paso County, TX. The ROI for the ground transportation systems within the FBTC consists of the South Training Areas, Doña Ana Range–North Training Areas, and McGregor Range.

The forecasted addition of active duty Soldiers, civilian personnel, and their dependents to Fort Bliss will result in a significant increase in traffic volumes both within and around the installation. This section summarizes the existing traffic and related infrastructure on Fort Bliss and in areas surrounding the installation, and quantifies the projected impact the proposed actions would have on the existing traffic and related infrastructure.

Several highways provide regional access to El Paso and Fort Bliss (Figure 3-20). The major east-west access is provided by Interstate 10, which runs through downtown El Paso and passes just south of the Cantonment. 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. Interstate 25 is the major northern access route to the El Paso region and is available by following I-10 approximately 44 miles northwest to Las Cruces, New Mexico. US-54 (locally referred to as the Patriot Freeway), a major non-Interstate freeway, also provides northern access to Alamogordo, New Mexico. Another key inter-regional roadway is Montana Avenue (US-62/180), which is located immediately south of Fort Bliss and provides access to locations east of El Paso.

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

The Fort Bliss Cantonment is surrounded by major arterial city streets (Figure 3-21). The north boundary is Fred Wilson Avenue and the east boundary is Airport Road. Patriot Freeway (US-54) forms the west boundary and Montana Avenue serves as the south boundary. Other major roadways in the area of the installation are Railroad Drive and Dyer Street. Current traffic conditions and roadway capacities are further discussed in the 2007 SEIS (U.S. Army)

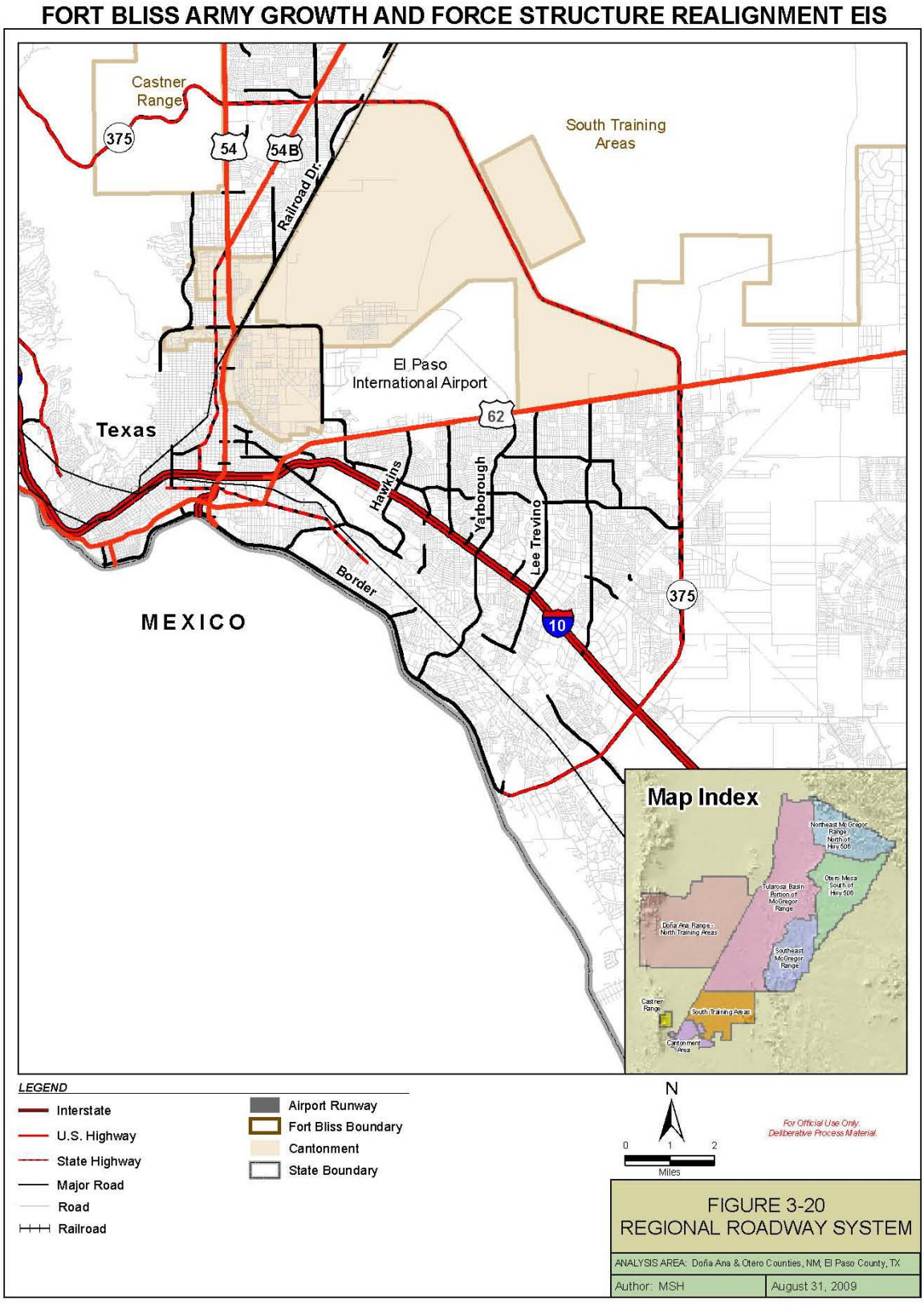


Figure 3-20. Regional Roadway System.

Access to the Cantonment is provided by 12 Access Control Points (Figure 3-21). Eight of the gates provide access to the Main Post: Cassidy Gate, Chaffee Gate, Jeb Stuart Gate, Marshall Gate, Pershing Gate, Remagen Gate, Robert E. Lee Gate, and Sheridan Gate. There are two gates on Biggs AAF (Biggs Gate and Global Reach Gate) and two gates on WBAMC (Fred Wilson Gate and Alabama Gate). Depending on post construction activities or operational needs, some of these gates are closed from time to time. All vehicles that enter Fort Bliss are required to have an individual with a government identification card, display an installation decal, or be issued a vehicle pass. For those persons without a government identification card or decals, vehicle passes are issued at the Cassidy Gate, Robert E. Lee Gate, Chaffee Gate, Biggs Gate, and Fred Wilson Gate.

The FBTC (Figure 2-1) is comprised of three main segments: the South Training Areas (TAs 1 and 2), Doña Ana Range–North Training Areas (TAs 3-7), and McGregor Range (TAs 8-33). The South TAs are northeast of Fort Bliss's Cantonment and are bordered on the north by the New Mexico state line. TA 1B is adjacent to the Cantonment, EPIA, and Biggs AAF. US-54 runs along the northwest boundary, and the southernmost boundary is US-62/180 (Montana Avenue). TA 2A through TA 2E adjoin TAs 1A and B on the east and do not border any major roadways, but TA 2E comes close to Montana Avenue just east of Loop 375.

Doña Ana Range is located west of US-54 and is provided access from Fort Bliss by Martin Lurther King Highway (Ranch Road 3255) in Texas, and War Highway 11 (NM 213) in New Mexico, which runs along the Franklin and Organ Mountains on the eastern boundary of the range. War Highway 11 (NM 213) is closed occasionally for safety reasons during certain military operations. US-54 connects El Paso, Texas, with Alamogordo, New Mexico, and is on the western border of the McGregor Range. New Mexico Highway 506, an east-west arterial, is the major road on McGregor Range, and crosses the northern portion of the range. This road provides access to McGregor Range on the west at US-54 and travels east where it intersects County Road FO52, and then continues northeast until it exits the range. New Mexico Highway 506 is a gravel road maintained by Otero County and provides access to several communities in the area. BLM maintains the road network on grazing units 1 through 15 (Figure 3-2). The Army maintains the remainder of the road network on the McGregor Range. These intra-range roads primarily consist of dirt roads that provide access to different parts of the range and are discussed in other sections.

Military convoy traffic between the Fort Bliss Cantonment and the FBTC on US-54 is limited to wheeled vehicles. Tracked vehicles are generally transported to and from the FBTC by Heavy Equipment Tactical Trucks (HETT) or transit through the TA on tank trails.

The evaluation of roadway conditions is based on capacity estimates. The capacity of a roadway depends on the number of lanes, lateral obstructions, percentage of large trucks in the traffic stream, intersection control, and other physical factors. Traffic volume is typically reported as Annual Average Daily Traffic (AADT). The AADT is the total number of vehicles for an entire year divided by the number of days in the year. AADT may be measured directly with continuous count equipment, but is more often estimated by taking short traffic counts called Average Daily Traffic (ADT). ADT is determined/measured using portable equipment (usually for two consecutive days) and the resulting data is adjusted to account for daily and seasonal variations.

Access to the Cantonment is provided by ten gates identified earlier. In addition to the requirement to display a vehicle decal or pass, all drivers must carry a valid and current driver license, registration, insurance, and safety inspection at all times. For those persons without decals, vehicle passes are issued at Cassidy Gate, Lee Gate, Chaffee Gate, Biggs AAF Gate, and Fred Wilson Gate daily. The passes are good for 24 hours only.

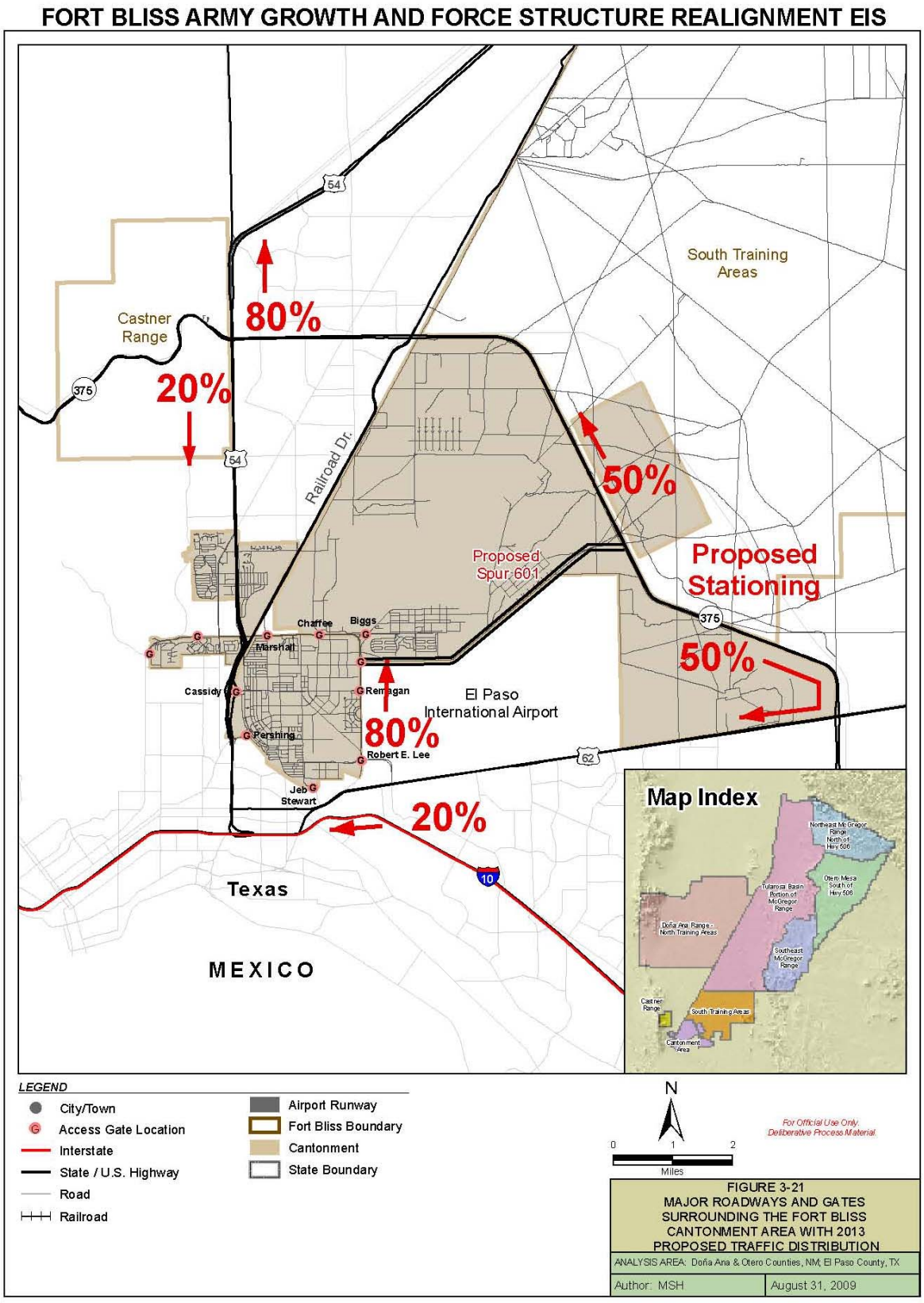


Figure 3-21. Major Roadways and Gates Surrounding the Fort Bliss Cantonment Area with 2013 Proposed Traffic Distribution.

Table 3-82 summarizes the 2006 average weekday entering traffic at installation gates. The highest volumes are observed at Cassidy, Sheridan, Biggs AAF, and Robert E. Lee gates. The highest volume of entering occurs during the morning rush hour between 0700 and 0800 and between 0800 and 0900 hours. Each gate has two entering lanes, which means that under low security conditions (e.g., decal checking only) approximately 500 vehicles per hour per lane can be processed. The result is little or no delay or congestion at the entry points.

Table 3-82. 2006 Average Weekday Entering Traffic at Fort Bliss Gates.

Hour	Cassidy	Sheridan	Biggs	Lee	Wilson	Remagen	Pershing	Alabama	Jeb S	Chaffee
0001-0100	68	0	30	46	13	NA	NA	NA	NA	NA
0101-0200	36	0	18	33	6	NA	NA	NA	NA	NA
0201-0300	39	0	19	40	6	NA	NA	NA	NA	NA
0301-0400	74	0	12	70	6	NA	NA	NA	NA	NA
0401-0500	168	0	58	105	20	NA	NA	NA	NA	NA
0501-0600	485	327	611	354	210	401	189	30	110	95
0601-0700	400	317	596	321	384	331	179	152	139	85
0701-0800	637	547	550	386	740	308	367	434	193	137
0801-0900	617	595	722	386	461	418	261	299	165	119
0901-1000	353	507	251	247	338	268	134	256	69	78
1001-1100	365	430	170	245	282	208	83	215	80	65
1101-1200	432	507	244	281	274	227	100	159	109	77
1201-1300	489	562	460	387	317	317	173	206	235	71
1301-1400	475	460	237	356	247	268	106	197	122	88
1401-1500	390	424	198	272	285	179	73	151	83	63
1501-1600	429	422	194	262	228	178	73	99	79	68
1601-1700	381	396	154	220	157	165	68	53	72	50
1701-1800	351	373	168	252	107	157	66	32	61	37
1801-1900	263	211	172	161	105	106	38	22	41	26
1901-2000	192	122	98	157	62	71	29	9	32	14
2001-2100	162	82	69	129	53	36	23	6	23	6
2101-2200	155	0	60	161	41	0	0	0	0	0
2201-2300	112	0	44	98	59	0	0	0	0	0
2301-2400	87	0	47	65	35	0	0	0	0	0
Total	**7,161**	**6,282**	**5,184**	**5,035**	**4,437**	**3,639**	**1,962**	**2,321**	**1,612**	**1,080**

NA Not Applicable; gate is not open during those hours.

3.16 Transportation and Traffic Resources: Direct and Indirect Effects

This section projects the direct and indirect effects on transportation and traffic resources based on the proposed action and alternatives presented in Chapter 2. Potential impacts associated with off-road maneuvers are evaluated in other sections of this document.

The traffic impact analysis describes the potential impacts from the projected traffic. The analysis is proportionate to the number of military personnel and their families stationed at Fort Bliss, traffic associated with transport of troops and equipment on public roads to training ranges, and construction traffic. The analysis includes impacts on local intersections, long-term traffic volumes, and on the local circulation network. The objectives of the impact analysis are to quantify the impacts of the project alternatives on traffic and ground transportation infrastructure, and to identify and evaluate potential strategies to mitigate traffic impacts.

Level of service (LOS) is a measure of the capacity of a roadway to handle the volume of traffic anticipated. The LOS scale ranges from A to F, where A is the best (free-flow conditions) and F is the worst (stop-and-go conditions). LOS A, B, and C are considered good operating conditions while LOS D is considered below average, and LOS E and F are considered unacceptable. Volume (in vehicles per hour or VPH)-to-capacity ratios (capacity ratio) as they relate to LOS values are shown in Table 3-83.

Table 3-83. Roadway Levels of Service.

LOS	Description	Capacity Ratio (volume/capacity)		
		Freeways	Signalized Intersections	Two-lane Highways
A	Free flow with users unaffected by presence of other users of roadway	0.32	0.50	0.15
B	Stable for, but presence of the users in traffic stream becomes noticeable	0.50	0.65	0.27
C	Stable flow, but operation of single users becomes affected by interaction with others in traffic stream	0.75	0.85	0.43
D	High density, but stable flow; speed and freedom of movement are severely restricted; poor level of comfort and convenience	0.90	0.95	0.64
E	Unstable flow; operating conditions at capacity with reduced speeds, maneuvering difficulty, and extremely poor levels of comfort and convenience	1.00	1.00	1.00
F	Forced breakdown flow with traffic demand exceeding capacity; unstable stop-and-go traffic	>1.00	>1.00	>1.00

Source: Transportation Research Board 2000

The evaluation of roadway conditions is based on capacity estimates. The capacity of a roadway depends on the number of lanes, lateral obstructions, percentage of large trucks in the traffic stream, intersection control, and other physical factors.

Traffic volume is typically reported as AADT, which is the total number of vehicles for an entire year divided by the number of days in the year. The AADT may be measured directly with continuous count

equipment, but is more often estimated by taking short traffic counts called Average Daily Traffic (ADT). ADT is determined measured using portable equipment (usually for two consecutive days) and the resulting data is adjusted to account for daily and seasonal variations. Applying a peak hour factor to the AADT can provide the vehicles per hour (VPH) for each roadway segment.

Traffic projections and patterns were based on the Fort Bliss Traffic Pattern Analysis (2006). The impact analysis for traffic is based on the proportionate increase in traffic for each alternative compared to the baseline conditions. The baseline conditions are assumed to be those for FY2013. The timing of each action (except for the No Action alternative) is assumed to occur over four years with the increases occurring evenly throughout the years.

For this analysis, the same ratio as used in Table 2, of the Fort Bliss TIA was applied to the 2013 VPH to determine the 2013 Background AADT. Based on these calculations, the 2013 background traffic is shown in Table 3-84.

Table 3-84. 2013 Background Traffic Calculations.

Route	Segment	2013 Background LOS[1]	2013 Background V/C	2013 Background Capacity[2]	2013 Background VPH	2013 Background Traffic[3]
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	F	1.10	8,280	9,108	202,390
I-10	Paisano Dr (US62) to McRae Blvd	F	1.10	8,280	9,108	202,409
I-10	McRae Blvd to Yarbrough Dr	D	0.90	6,210	5,589	124,204
I-10	Yarbrough Dr to Lee Trevino Dr	D	0.90	6,210	5,589	124,202
I-10	Lee Trevino Dr to Zaragoza Rd	C	0.75	6,210	4,658	103,491
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	C	0.75	4,140	3,105	69,008
I-10	Loop 375 (Americas Ave) to Horizon Blvd	C	0.75	4,140	3,105	69,009
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	C	0.85	1,980	1,683	30,608
Montana	Paisano Dr (US 62/1 80) to Hawkins Blvd	C	0.85	2,970	2,525	45,900
Montana	Hawkins Blvd to McRae Blvd	D	0.95	2,970	2,822	51,300
Montana	McRae Blvd to Yarbrough Dr	C	0.85	2,970	2,525	45,908
Montana	Yarbrough Dr to Lee Trevino Dr	C	0.85	1,980	1,683	30,606
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	C	0.85	1,980	1,683	30,607
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	C	0.85	1,980	1,683	30,603
US-54	I-10 to Trowbridge Ave	C	0.75	12,420	9,315	169,349
US-54	Trowbridge Ave to Pershing Dr	C	0.75	12,420	9,315	169,379
US-54	Pershing Dr to Van Buren Ave	D	0.90	7,245	6,521	118,545
US-54	Van Buren Ave to Fred Wilson Ave	D	0.90	4,140	3,726	67,746

Route	Segment	2013 Background LOS[1]	2013 Background V/C	2013 Background Capacity[2]	2013 Background VPH	2013 Background Traffic[3]
US-54	Fred Wilson Ave to Hondo Pass	C	0.75	4,140	3,105	56,449
US-54	Hondo Pass to Loop 375 to Kenworthy St	D	0.90	4,140	3,726	67,752
Loop 375	Route 659 to Montana Avenue	D	0.90	4,140	3,726	41,400
Loop 375	Montana Avenue to BR 54	D	0.90	4,140	3,726	41,400
Loop 375	BR 54 to US-54	D	0.90	4,140	3,726	41,400
Fred Wilson Blvd	US-54 to Airport Drive	E	1.00	2,430	2,430	36,818
Airport Rd	Fred Wilson to Haan Rd	F	1.00	2,430	2,430	36,821

[1] From Table 6—Level of Service for Area Roadways in 2016, in the 2006 Analysis of Traffic Impacts Associated with Expansion of Fort Bliss, Texas and New Mexico

[2] From Table 2—Capacity Analysis of Area Roadways, 2006, in the 2006 Analysis of Traffic Impacts Associated with Expansion of Fort Bliss, Texas and New Mexico

[3] Calculated using same ratio as Table 2, in the 2006 Analysis of Traffic Impacts Associated with Expansion of Fort Bliss, Texas and New Mexico

The 2006 Fort Bliss TIA and the 2007 Fort Bliss SEIS were used to extrapolate previously used trip generation rates. Calculations in the aforementioned reports indicate an average of two trips per day per military personnel. Using the proposed total military personnel associated with each stationing alternative, the total number of trips was calculated as shown in Table 3-85.

Table 3-85. Traffic Generation Calculations Stationed Personnel.

	Total Number of Military Personnel[1]	Total Trips[2]	Additional Trips[3]
No Action Alternative 1	40,500	81,000	0
Alternative 2	40,500	88,600	0
Alternative 3	44,600	89,200	8,200
Alternative 4	51,800	103,600	22,600

1 Total Personnel was taken from Table 2-3 Key Attributes of the Category 1 Stationing and Training Alternatives
2 Assuming two trips per person which was calculated from Table 5—Trip Generation Results, in the 2006 Analysis of Traffic Impacts Associated with Expansion of Fort Bliss, Texas and New Mexico
3 Additional Trips refer to any trips generated that exceed the No-Action Alternative of 81,100

Background traffic was combined with the traffic generated by each alternative and the total trips were distributed along the regional and local road network. A determination was made on how to distribute these trips on the roadway network, based on where the trips are generated and attracted. Due to training requirements and Main Post traffic, the initial assumption was that traffic would be evenly distributed on Loop 375 and Montana Ave. It was assumed that 50 percent of the traffic generated by all of the alternatives would use Loop 375 and 50 percent would use Montana Ave. From there it was assumed that 80 percent of the traffic on Loop 375 would head north on US-54 for training activities and the remaining 20 percent would head south to Logan Heights. From Montana Ave., it was assumed that 80 percent of the traffic would use Airport Rd. and Fred Wilson Blvd. to access the Cantonment, while the remaining 20 percent would access I-10 for travel throughout El Paso. This trip distribution combined provides an overall amount of traffic on each roadway (Figure 3-21). The completion of Spur 601 will provide an alternative route for a majority of the traffic traveling back to the Main Post area via Montana Ave.

Factors considered in determining whether each project alternative would have a significant impact to traffic / transport include the extent or degree to which its implementation would result in:

- Construction traffic effects – lane closures or impediments that would disrupt or alter local circulation patterns;
- Intersection operations – increase congestion at intersections currently operating at (or anticipated to operate at) capacity; or
- Public roadway segment operations – increased traffic on public roads that would disrupt or alter local circulation patterns (LOS declines to categories E and F).

Table 3-86 classifies the impacts to traffic and roadway infrastructure under implementation of each of the alternatives. Potential impacts to traffic and roadway infrastructure would occur as a result of both construction of new facilities and increased stationing and training.

Table 3-86. Classification of Direct and Indirect Impacts to Transportation and Traffic Resources.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
					LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Construction Traffic	○	○	⊙	⊙	○	○	⊙	⊙	○	○	⊙	⊙	○	○	⊙	⊙	○	○	⊙	⊙	○	○	⊙	⊙	○	⊙	⊙	⊙
Intersection and Public Roadway Operations	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙

○ No impact
⊙ Less than significant

3.16.1 Stationing and Training Alternative 1 (ST-1)

Construction Traffic. Under ST-1, there would be no additional construction or redevelopment of existing facilities other than those analyzed in the 2007 SEIS. Traffic within the Cantonment would continue as analyzed in the 2007 SEIS. There would be no construction-related impacts to traffic for this alternative.

Intersection and Public Roadway Segment Operations. Under ST-1, there would be no additional stationing at Fort Bliss and traffic within the Cantonment would continue as analyzed in the 2007 SEIS. Within the Army installation, the highest volumes of traffic would continue to occur at Cassidy, Sheridan, Biggs AAF, and Robert E. Lee gates. The highest volume of vehicles entering the Army installation would continue to occur during the morning rush hour between 0700 and 0800 and between 0800 and 0900 hours. Little or no delay or congestion would occur at the entry gates and the existing gate system would adequately accommodate the traffic as projected under this alternative. Impacts to public roadway operations would be less than significant.

Under this alternative, the number of Soldiers training at Fort Bliss would increase compared to the number of Soldiers training as analyzed in the 2007 GTA EIS; however, this would represent an increase of less than four percent for the on post population and less than one percent of the regional population. Impacts to intersections and roadway operations would be less than significant.

As shown in Table 3-87, the existing transportation network serving Fort Bliss has segments of highways currently operating at unacceptable levels of service; however, a number of transportation infrastructure upgrades would be completed as to accommodate the stationing and training analyzed in the 2007 ROD for the SEIS (Alternative 4) as modified by the 2007 ROD for the GTA PEIS. Transportation upgrades would be completed in FY2013. In addition to the planned roadway improvements within the Army installation, the TransBorder 2035 Metropolitan Transportation Plan includes adding additional lanes to I-10, Montana Avenue, and US-54 and the construction of Spur 601, but only the Spur project is scheduled to be completed within our evaluation period. With implementation of planned roadway upgrades to accommodate stationing and training under the ROD for the 2007 SEIS, ground transportation infrastructure would be adequate for stationing and training as projected under this alternative. Impacts to intersections and roadway operations would be less than significant.

Table 3-87. 2013 Stationing and Training Alternative 1 Traffic Calculations.

Route	Segment	2013 Background Traffic	ST-1 Generated Traffic	Percent Increase from ST-1	ST-1 Total VPH	ST-1 Capacity	ST-1 V/C Ratio	Background Level of Service	ST-1 Level of Service	ST-1 Significance
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	202,390	0	0%	9,108	8,280	1.10	F	F	None
I-10	Paisano Dr (US62) to McRae Blvd	202,409	0	0%	9,108	8,280	1.10	F	F	None
I-10	McRae Blvd to Yarbrough Dr	124,204	0	0%	5,589	6,210	0.90	D	D	None
I-10	Yarbrough Dr to Lee Trevino Dr	124,202	0	0%	5,589	6,210	0.90	D	D	None
I-10	Lee Trevino Dr to Zaragoza Rd	103,491	0	0%	4,657	6,210	0.75	C	C	None
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	69,008	0	0%	3,105	4,140	0.75	C	C	None
I-10	Loop 375 (Americas Ave) to Horizon Blvd	69,009	0	0%	3,105	4,140	0.75	C	C	None
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	30,608	0	0%	1,683	1,980	0.85	C	C	None
Montana	Paisano Dr (US 62/180) to Hawkins Blvd	45,900	0	0%	2,525	2,970	0.85	C	C	None
Montana	Hawkins Blvd to McRae Blvd	51,300	0	0%	2,822	2,970	0.95	D	D	None
Montana	McRae Blvd to Yarbrough Dr	45,908	0	0%	2,525	2,970	0.85	C	C	None
Montana	Yarbrough Dr to Lee Trevino Dr	30,606	0	0%	1,683	1,980	0.85	C	C	None

Route	Segment	2013 Background Traffic	ST-1 Generated Traffic	Percent Increase from ST-1	ST-1 Total VPH	ST-1 Capacity	ST-1 V/C Ratio	Background Level of Service	ST-1 Level of Service	ST-1 Significance
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	30,607	0	0%	1,683	1,980	0.85	C	C	None
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	30,603	0	0%	1,683	1,980	0.85	C	C	None
US-54	I-10 to Trowbridge Ave	169,349	0	0%	9,315	12,420	0.75	C	C	None
US-54	Trowbridge Ave to Pershing Dr	169,379	0	0%	9,315	12,420	0.75	C	C	None
US-54	Pershing Dr to Van Buren Ave	118,545	0	0%	6,520	7,245	0.90	D	D	None
US-54	Van Buren Ave to Fred Wilson Ave	67,746	0	0%	3,726	4,140	0.90	D	D	None
US-54	Fred Wilson Ave to Hondo Pass	56,449	0	0%	3,105	4,140	0.75	C	C	None
US-54	Hondo Pass to Loop 375 to Kenworthy St	67,752	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	Route 659 to Montana Avenue	41,400	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	Montana Avenue to BR 54	41,400	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	BR 54 to US-54	41,400	0	0%	3,726	4,140	0.90	D	D	None
Fred Wilson	US-54 to Airport Drive	36,818	0	0%	2,430	2,430	1.00	E	E	None
Airport Rd	Fred Wilson to Haan Rd	36,821	0	0%	2,430	2,430	1.00	F	F	None

Under this alternative, convoys to McGregor Range would continue to travel on US-54. The BLM and Army would continue to maintain the range road network, which primarily consists of dirt roads that provide access to different parts of the range. Convoys to Doña Ana Range would continue to travel along War Highway 11 (NM 213), which would continue to be closed on occasion for safety reasons during certain military operations. Military convoy traffic between the Fort Bliss Cantonment and the FBTC on US-54 would continue to be limited to wheeled vehicles. Tracked vehicles would generally be transported to and from the FBTC by Heavy Equipment Tactical Trucks (HETT) or transit through the TA on tank trails. Impacts to public roadway operations would be less than significant.

3.16.2 Stationing and Training Alternative 2 (ST-2)

Construction Traffic. Under ST-2, there would be no additional construction or redevelopment of existing facilities other than those analyzed in the 2007 SEIS. Traffic within the Cantonment would continue as analyzed in the 2007 SEIS. There would be no construction-related impacts to traffic for this alternative.

Intersection and Public Roadway Segment Operations. For training as projected under this alternative, slightly increased traffic volumes on public roads would occur compared to ST-1; however, this would represent an increase of less than eight percent of the on post population and less than one percent of the regional population. As shown in Table 2-1, the same number of military units would be stationed at Fort Bliss under ST-2 as under ST-1; however, under ST-2 one of the stationed HBCTs that are deployed under ST-1 would train at Fort Bliss under ST-2. Therefore, impacts to traffic levels at the entry gates would be very similar to those described for ST-1. Little or no delay or congestion would occur at the entry gates and the existing gate system would adequately accommodate the traffic as projected under ST-2. Impacts to traffic on Fort Bliss and public roadways would be similar to those described for ST- 1 and would be less than significant.

Based on the trip distribution assumed in Section 3.11.2, Table 3-88 summarizes the resulting LOS for the stationing and training as projected under ST-2 when combined with the background traffic. The implementation of planned roadway upgrades to accommodate stationing and training under the ROD for the 2007 SEIS, ground transportation infrastructure would be adequate for stationing and training as projected under this alternative. Implementation of ST-2 would result in less than significant impacts to intersections and roadway operations for public roads.

Table 3-88. 2013 Stationing and Training Alternative 2 Traffic Calculations.

Route	Segment	2013 Background Traffic	ST-2 Generated Traffic	Percent Increase for ST-2	ST-2 Total VPH	ST-2 Capacity	ST-2 V/C Ratio	Background Level of Service	ST-2 Level of Service	ST-2 Significance
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	202,390	0	0%	9,108	8,280	1.10	F	F	None
I-10	Paisano Dr (US62) to McRae Blvd	202,409	0	0%	9,108	8,280	1.10	F	F	None
I-10	McRae Blvd to Yarbrough Dr	124,204	0	0%	5,589	6,210	0.90	D	D	None
I-10	Yarbrough Dr to Lee Trevino Dr	124,202	0	0%	5,589	6,210	0.90	D	D	None
I-10	Lee Trevino Dr to Zaragoza Rd	103,491	0	0%	4,657	6,210	0.75	C	C	None
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	69,008	0	0%	3,105	4,140	0.75	C	C	None
I-10	Loop 375 (Americas Ave) to Horizon Blvd	69,009	0	0%	3,105	4,140	0.75	C	C	None
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	30,608	0	0%	1,683	1,980	0.85	C	C	None
Montana	Paisano Dr (US 62/180) to Hawkins Blvd	45,900	0	0%	2,525	2,970	0.85	C	C	None
Montana	Hawkins Blvd to McRae Blvd	51,300	0	0%	2,822	2,970	0.95	D	D	None
Montana	McRae Blvd to Yarbrough Dr	45,908	0	0%	2,525	2,970	0.85	C	C	None
Montana	Yarbrough Dr to Lee Trevino Dr	30,606	0	0%	1,683	1,980	0.85	C	C	None
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	30,607	0	0%	1,683	1,980	0.85	C	C	None
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	30,603	0	0%	1,683	1,980	0.85	C	C	None

Route	Segment	2013 Background Traffic	ST-2 Generated Traffic	Percent Increase for ST-2	ST-2 Total VPH	ST-2 Capacity	ST-2 V/C Ratio	Background Level of Service	ST-2 Level of Service	ST-2 Significance
US-54	I-10 to Trowbridge Ave	169,349	0	0%	9,315	12,420	0.75	C	C	None
US-54	Trowbridge Ave to Pershing Dr	169,379	0	0%	9,315	12,420	0.75	C	C	None
US-54	Pershing Dr to Van Buren Ave	118,545	0	0%	6,520	7,245	0.90	D	D	None
US-54	Van Buren Ave to Fred Wilson Ave	67,746	0	0%	3,726	4,140	0.90	D	D	None
US-54	Fred Wilson Ave to Hondo Pass	56,449	0	0%	3,105	4,140	0.75	C	C	None
US-54	Hondo Pass to Loop 375 to Kenworthy St	67,752	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	Route 659 to Montana Avenue	41,400	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	Montana Avenue to BR 54	41,400	0	0%	3,726	4,140	0.90	D	D	None
Loop 375	BR 54 to US-54	41,400	0	0%	3,726	4,140	0.90	D	D	None
Fred Wilson	US-54 to Airport Drive	36,818	0	0%	2,430	2,430	1.00	E	E	None
Airport Rd	Fred Wilson to Haan Rd	36,821	0	0%	2,430	2,430	1.00	F	F	None

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3.16.3 Stationing and Training Alternative 3 (ST-3)

Construction Traffic. Under this alternative, the proposed construction at the Fort Bliss Cantonment would generate additional traffic from worker vehicles and equipment. Brief, temporary traffic delays may occur. Minor changes in traffic volumes adjacent to the individual projects within the Cantonment may occur because of changed traffic patterns. However, these traffic changes would generally be redistributions of existing traffic within the Fort Bliss property. There would be minimal changes to traffic patterns or flows on public roads outside the Army installation. Construction traffic impacts to public roadways would be temporary and are expected to be less than significant.

Intersection and Public Roadway Segment Operations. Under this alternative, traffic would increase as a result of additional Soldiers and their families relocating to Fort Bliss for this alternative. Traffic impacts would be limited primarily to the Army installation. Slightly increased traffic volumes on public roads would occur; however, this would represent an increase of less than four percent in the regional population. Impacts to traffic on Fort Bliss and public roadways are expected to be less than significant.

Table 3-89 shows the estimated weekday traffic entering installation gates for stationing and training as proposed under ST-3. As shown on Figure 3-21, fifty percent of the total traffic generated from ST-3 will enter the Cantonment. The additional traffic for this alternative is anticipated to be distributed across the ten gates at the ratios as ST-1. The highest volumes would occur at Cassidy, Sheridan, Biggs AAF, and Robert E. Lee gates, which will lead to additional delay or congestion at the entry points. Impacts to intersections and roadway operations would be less than significant.

Table 3-89. 2013 Additional Weekday Entering Traffic at Fort Bliss Gates from Stationing and Training Alternative 3.

Hour	Cassidy	Sheridan	Biggs	Lee	Wilson	Remagen	Pershing	Alabama	Jeb S	Chaffee
0001-0100	7	0	3	5	1	0	0	0	0	0
0101-0200	4	0	2	3	1	0	0	0	0	0
0201-0300	4	0	2	4	1	0	0	0	0	0
0301-0400	7	0	1	7	1	0	0	0	0	0
0401-0500	17	0	6	11	2	0	0	0	0	0
0501-0600	49	33	62	36	21	41	19	3	11	10
0601-0700	40	32	60	32	39	34	18	15	14	9
0701-0800	64	55	56	39	75	31	37	44	20	14
0801-0900	62	60	73	39	47	42	26	30	17	12
0901-1000	36	51	25	25	34	27	14	26	7	8
1001-1100	37	44	17	25	29	21	8	22	8	7
1101-1200	44	51	25	28	28	23	10	16	11	8
1201-1300	50	57	47	39	32	32	18	21	24	7
1301-1400	48	47	24	36	25	27	11	20	12	9
1401-1500	39	43	20	28	29	18	7	15	8	6
1501-1600	43	43	20	27	23	18	7	10	8	7
1601-1700	39	40	16	22	16	17	7	5	7	5
1701-1800	36	38	17	26	11	16	7	3	6	4
1801-1900	27	21	17	16	11	11	4	2	4	3
1901-2000	19	12	10	16	6	7	3	1	3	1

Hour	Cassidy	Sheridan	Biggs	Lee	Wilson	Remagen	Pershing	Alabama	Jeb S	Chaffee
2001-2100	16	8	7	13	5	4	2	1	2	1
2101-2200	16	0	6	16	4	0	0	0	0	0
2201-2300	11	0	4	10	6	0	0	0	0	0
2301-2400	9	0	5	7	4	0	0	0	0	0
Total	**725**	**636**	**525**	**510**	**449**	**368**	**199**	**235**	**163**	**109**

Table 3-90 summarizes the resulting LOS for the stationing and training as projected under ST-3 when combined with the background traffic. Under this alternative, the levels of service deteriorate to an E or worse for a number of segments; however, with implementation of planned roadway upgrades to accommodate stationing and training under the ROD for the 2007 SEIS, ground transportation infrastructure would be adequate for stationing and training as projected under this alternative.

For training as projected under this alternative, additional military traffic on US-54 would increase as a result of additional vehicles and equipment convoying to training locations in the north Tularosa Basin portion of McGregor Range. Increased congestion may result from military vehicles exiting the US-54 ramp to enter training areas, and then at conclusion of training, entering back onto US-54 for the return trip. Military convoy traffic between the Fort Bliss Cantonment area and the FBTC on US-54 is limited to wheeled vehicles. Tracked vehicles are generally transported to and from the FBTC by Heavy Equipment Tactical Trucks (HETT) or transit through the TA on tank trails. HETT travel on US-54 would require a permit. LOS on US-54 is not expected to be affected by HETT. Some exercises would involve tracked vehicles crossing Highway 506, potentially resulting in delays for civilian travelers on that road. Road closures are expected to be infrequent, and vehicles on the highway would typically be delayed for 15 minutes or less. A similar situation would exist for access roads through McGregor Range to the Sacramento Mountains and Grapevine. Fort Bliss would notify the Otero County Administrator and BLM of any road closings on Highway 506. The procedures used for military convoy travel would prevent convoy traffic from substantially increasing traffic volumes on public roadways as summarized in Chapter 5, Mitigation and Monitoring.

Table 3-90. 2013 Stationing and Training Alternative 3 Traffic Calculations.

Route	Segment	2013 Background Traffic	ST-3 Generated Traffic	Percent Increase for ST-3	ST-3 Total VPH	Existing Capacity	ST-3 V/C Ratio	Background Level of Service	ST-3 Level of Service	ST-3 Significance
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	202,390	820	0%	9,237	8,280	1.12	F	F	None
I-10	Paisano Dr (US62) to McRae Blvd	202,409	820	0%	9,238	8,280	1.12	F	F	None
I-10	McRae Blvd to Yarbrough Dr	124,204	820	1%	5,683	6,210	0.92	D	E	Yes
I-10	Yarbrough Dr to Lee Trevino Dr	124,202	820	1%	5,683	6,210	0.92	D	E	Yes
I-10	Lee Trevino Dr to Zaragoza Rd	103,491	820	1%	4,741	6,210	0.76	C	D	None
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	69,008	820	1%	3,174	4,140	0.77	C	D	None
I-10	Loop 375 (Americas Ave) to Horizon Blvd	69,009	820	1%	3,174	4,140	0.77	C	D	None
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	30,608	4,100	12%	1,928	1,980	0.97	C	E	Yes
Montana	Paisano Dr (US 62/180) to Hawkins Blvd	45,900	4,100	8%	2,778	2,970	0.94	C	E	Yes
Montana	Hawkins Blvd to McRae Blvd	51,300	4,100	7%	3,078	2,970	1.04	D	F	Yes
Montana	McRae Blvd to Yarbrough Dr	45,908	4,100	8%	2,778	2,970	0.94	C	E	Yes
Montana	Yarbrough Dr to Lee Trevino Dr	30,606	4,100	12%	1,928	1,980	0.97	C	E	Yes
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	30,607	4,100	12%	1,928	1,980	0.97	C	E	Yes

Route	Segment	2013 Background Traffic	ST-3 Generated Traffic	Percent Increase for ST-3	ST-3 Total VPH	Existing Capacity	ST-3 V/C Ratio	Background Level of Service	ST-3 Level of Service	ST-3 Significance
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	30,603	4,100	12%	1,928	1,980	0.97	C	E	Yes
US-54	I-10 to Trowbridge Ave	169,349	3,280	2%	9,591	12,420	0.77	C	D	None
US-54	Trowbridge Ave to Pershing Dr	169,379	3,280	2%	9,592	12,420	0.77	C	D	None
US-54	Pershing Dr to Van Buren Ave	118,545	3,280	3%	6,768	7,245	0.93	D	E	Yes
US-54	Van Buren Ave to Fred Wilson Ave	67,746	3,280	5%	3,946	4,140	0.95	D	E	Yes
US-54	Fred Wilson Ave to Hondo Pass	56,449	3,280	5%	3,318	4,140	0.80	C	D	None
US-54	Hondo Pass to Loop 375 to Kenworthy St	67,752	3,280	5%	3,946	4,140	0.95	D	E	Yes
Loop 375	Route 659 to Montana Avenue	41,400	4,100	9%	4,136	4,140	1.00	D	F	Yes
Loop 375	Montana Avenue to BR 54	41,400	4,100	9%	4,136	4,140	1.00	D	F	Yes
Loop 375	BR 54 to US-54	41,400	4,100	9%	4,136	4,140	1.00	D	F	Yes
Fred Wilson	US-54 to Airport Drive	36,818	3,280	8%	2,673	2,430	1.10	E	F	Yes
Airport Rd	Fred Wilson to Haan Rd	36,821	3,280	8%	2,673	2,430	1.10	F	F	Yes

3.16.4 Stationing and Training Alternative 4 (ST-4)

Construction Traffic. Proposed construction traffic under this alternative would be the same as ST-3.

Intersection and Public Roadway Segment Operations. Under ST-4, traffic would increase as a result of additional Soldiers and their families relocating to Fort Bliss. Increased traffic volumes on public roads would occur as described for ST-3, but would represent an increase of 16 percent over ST-3 levels and 28 percent over ST-1 and ST-2 levels; however, the increase would be less than four percent in the regional population. Traffic impacts would be limited primarily to the Army installation. Impacts to traffic on Fort Bliss and public roadways are expected to be less than significant.

Table 3-91 shows the estimated weekday traffic entering installation gates for stationing and training as proposed under ST-4. As shown on Figure 3-21, fifty percent of the total traffic generated from ST-4 will enter the Cantonment. The additional traffic for this alternative is anticipated to be distributed across the ten gates at the ratios as for ST-1. The highest volumes would occur at Cassidy, Sheridan, Biggs AAF, and Robert E. Lee gates, which will lead to additional delay or congestion at the entry points. Traffic impacts would generally be limited to the Fort Bliss installation and impacts to public roadway operations would be less than significant. Table 3-92 provide the ST-4 traffic calculations.

Table 3-91. 2013 Additional Weekday Entering Traffic at Fort Bliss Gates from Stationing and Training Alternative 4.

Hour	Cassidy	Sheridan	Biggs	Lee	Wilson	Remagen	Pershing	Alabama	Jeb S	Chaffee
0001-0100	27	0	12	18	5	0	0	0	0	0
0101-0200	14	0	7	13	2	0	0	0	0	0
0201-0300	15	0	7	16	2	0	0	0	0	0
0301-0400	29	0	5	27	2	0	0	0	0	0
0401-0500	66	0	23	41	8	0	0	0	0	0
0501-0600	189	128	238	138	82	156	74	12	43	37
0601-0700	156	124	232	125	150	129	70	59	54	33
0701-0800	248	213	215	151	289	120	143	169	75	53
0801-0900	241	232	282	151	180	163	102	117	64	46
0901-1000	138	198	98	96	132	105	52	100	27	30
1001-1100	142	168	66	96	110	81	32	84	31	25
1101-1200	169	198	95	110	107	89	39	62	43	30
1201-1300	191	219	179	151	124	124	67	80	92	28
1301-1400	185	179	92	139	96	105	41	77	48	34
1401-1500	152	165	77	106	111	70	28	59	32	25
1501-1600	167	165	76	102	89	69	28	39	31	27
1601-1700	149	154	60	86	61	64	27	21	28	20
1701-1800	137	145	66	98	42	61	26	12	24	14
1801-1900	103	82	67	63	41	41	15	9	16	10
1901-2000	75	48	38	61	24	28	11	4	12	5
2001-2100	63	32	27	50	21	14	9	2	9	2
2101-2200	60	0	23	63	16	0	0	0	0	0
2201-2300	44	0	17	38	23	0	0	0	0	0
2301-2400	34	0	18	25	14	0	0	0	0	0
Total	**2,793**	**2,450**	**2,021**	**1,964**	**1,730**	**1,419**	**765**	**905**	**629**	**421**

Under this alternative, nineteen out of twenty five segments are significantly affected. With traffic demand exceeding capacity by such a large amount, this unstable stop and go traffic could possibly breakdown. The selection ST-4 would have a significant effect on the environment.

The additional military traffic from the training projected under this alterative would be the same as ST-3.

Table 3-92. 2013 Stationing and Training Alternative 4 Traffic Calculations.

Route	Segment	2013 Background Traffic	ST-4 Generated Traffic	% Increase for ST-4	ST-4 Total VPH	Existing Capacity	ST-4 V/C Ratio	Background Level of Service	ST-4 Level of Service	ST-4 Significance
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	202,390	2,260	1%	9,302	8,280	1.12	F	F	None
I-10	Paisano Dr (US62) to McRae Blvd	202,409	2,260	1%	9,303	8,280	1.12	F	F	None
I-10	McRae Blvd to Yarbrough Dr	124,204	2,260	2%	5,748	6,210	0.93	D	E	Yes
I-10	Yarbrough Dr to Lee Trevino Dr	124,202	2,260	2%	5,748	6,210	0.93	D	E	Yes
I-10	Lee Trevino Dr to Zaragoza Rd	103,491	2,260	2%	4,807	6,210	0.77	C	D	None
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	69,008	2,260	3%	3,239	4,140	0.78	C	D	None
I-10	Loop 375 (Americas Ave) to Horizon Blvd	69,009	2,260	3%	3,240	4,140	0.78	C	D	None
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	30,608	9,040	23%	2,203	1,980	1.11	C	F	Yes
Montana	Paisano Dr (US 62/180) to Hawkins Blvd	45,900	11,300	20%	3,178	2,970	1.07	C	F	Yes
Montana	Hawkins Blvd to McRae Blvd	51,300	11,300	18%	3,478	2,970	1.17	D	F	Yes
Montana	McRae Blvd to Yarbrough Dr	45,908	11,300	20%	3,178	2,970	1.07	C	F	Yes
Montana	Yarbrough Dr to Lee Trevino Dr	30,606	11,300	27%	2,328	1,980	1.18	C	F	Yes
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	30,607	11,300	27%	2,328	1,980	1.18	C	F	Yes
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	30,603	11,300	27%	2,328	1,980	1.18	C	F	Yes
US-54	I-10 to Trowbridge Ave	169,349	9,040	5%	9,911	12,420	0.80	C	D	None
US-54	Trowbridge Ave to Pershing Dr	169,379	9,040	5%	9,912	12,420	0.80	C	D	None
US-54	Pershing Dr to Van Buren Ave	118,545	9,040	7%	7,088	7,245	0.98	D	E	Yes
US-54	Van Buren Ave to Fred Wilson Ave	67,746	9,040	12%	4,266	4,140	1.03	D	F	Yes
US-54	Fred Wilson Ave to Hondo Pass	56,449	9,040	14%	3,638	4,140	0.88	C	E	Yes
US-54	Hondo Pass to Loop 375 to Kenworthy St	67,752	9,040	12%	4,266	4,140	1.03	D	F	Yes
Loop 375	Route 659 to Montana Avenue	41,400	11,300	21%	4,791	4,140	1.23	D	F	Yes
Loop 375	Montana Avenue to BR 54	41,400	11,300	21%	4,791	4,140	1.23	D	F	Yes
Loop 375	BR 54 to US-54	41,400	11,300	21%	4,791	4,140	1.23	D	F	Yes
Fred Wilson	US-54 to Airport Drive	36,818	9,040	20%	3,057	2,430	1.33	E	F	Yes
Airport Rd	Fred Wilson to Haan Rd	36,821	9,040	20%	3,057	2,430	1.33	F	F	Yes

Table 3-93 provides a comparison of the effects to overall levels of service from ST-1, ST-2, ST-3, and ST4 relative to the projected background LOS for 2013. There would be no discernible impacts to traffic from ST-1 and ST-2, and the generated LOS would be the same as the projected background LOS for 2013. As shown in Table 3-93, ST-3 and ST-4 change the LOS levels on most routes. Under ST-3, additional military traffic on the affected roadways would change LOS levels from acceptable to unacceptable conditions on 11 routes, acceptable to breakdown conditions on four routes, and unacceptable levels to breakdown conditions on one route. Under ST-4, LOS levels would change from acceptable to unacceptable on four routes, acceptable to breakdown conditions on 12 routes, and unacceptable levels to breakdown conditions on one route. Under ST-3, six routes out of 24 would remain at acceptable LOS. The majority of routes that would operate at levels worse than LOS D include 11 that would operate at LOS E and seven at LOS F. Under ST-4, seven routes would remain at acceptable LOS. The majority of routes that would operate at levels worse than LOS D include four that would operate at LOS E and 15 at LOS F.

Based on the results of the LOS analysis, all of the roadways on the Montana routes, and most roadways on the I-10 and US-54 routes would need to be improved in future projects to meet acceptable LOS. These results are based upon the majority of the future housing in the different alternatives being located in Logan Heights, the WBAMC area, and in the expanded Main Cantonment Areas east of El Paso International Airport. The large influx of vehicles is distributed around the Fort Bliss Main Cantonment Area on US 54, Airport Road, and Fred Wilson Avenue. However, implementation of planned roadway upgrades to accommodate stationing and training under the ROD for the 2007 SEIS, ground transportation infrastructure would be adequate for stationing and training as projected under ST-3 and ST-4.

Table 3-93. 2013 Overall Levels of Service.

Route	Segment	2013 Background LOS	ST-1 Generated LOS	ST-2 Generated LOS	ST-3 Generated LOS	ST-4 Generated LOS
I-10	US-54 (Patriot Fwy) to Paisano Dr (US 62)	F	F	F	F	F
I-10	Paisano Dr (US62) to McRae Blvd	F	F	F	F	F
I-10	McRae Blvd to Yarbrough Dr	D	D	D	E	E
I-10	Yarbrough Dr to Lee Trevino Dr	D	D	D	E	E
I-10	Lee Trevino Dr to Zaragoza Rd	C	C	C	D	D
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	C	C	C	D	D
I-10	Loop 375 (Americas Ave) to Horizon Blvd	C	C	C	D	D
Montana	US-54 (Patriot Fwy) to Paisano Dr (US 62/180)	C	C	C	E	F
Montana	Paisano Dr (US 62/180) to Hawkins Blvd	C	C	C	E	F
Montana	Hawkins Blvd to McRae Blvd	D	D	D	F	F
Montana	McRae Blvd to Yarbrough Dr	C	C	C	E	F
Montana	Yarbrough Dr to Lee Trevino Dr	C	C	C	E	F
Montana	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	C	C	C	E	F
Montana	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	C	C	C	E	F
US-54	I-10 to Trowbridge Ave	C	C	C	D	D

Route	Segment	2013 Background LOS	ST-1 Generated LOS	ST-2 Generated LOS	ST-3 Generated LOS	ST-4 Generated LOS
US-54	Trowbridge Ave to Pershing Dr	C	C	C	D	D
US-54	Pershing Dr to Van Buren Ave	D	D	D	E	E
US-54	Van Buren Ave to Fred Wilson Ave	D	D	D	E	F
US-54	Fred Wilson Ave to Hondo Pass	C	C	C	D	E
US-54	Hondo Pass to Loop 375 to Kenworthy St	D	D	D	E	F
Loop 375	Route 659 to Montana Avenue	D	D	D	F	F
Loop 375	Montana Avenue to BR 54	D	D	D	F	F
Loop 375	BR 54 to US-54	D	D	D	F	F
Fred Wilson Blvd	US-54 to Airport Drive	E	E	E	F	F
Airport Rd	Fred Wilson to Haan Rd	F	F	F	F	F

3.16.5 Land Use Changes Alternative 1 (LU-1)

Under LU-1, traffic impacts associated with training would be as described under the stationing and training alternatives.

3.16.6 Land Use Changes Alternative 2 (LU-2)

Under LU-2, the traffic impacts associated with training would be the same as LU-1.

3.16.7 Land Use Changes Alternative 3 (LU-3)

Impacts of Stationing and Training Alternatives 1 and 2 (LU-3/ST-1 and ST-2)

Under LU-3/ST-1 and LU-3/ST-2, the number of IBCT convoys to the Sacramento Foothills would increase while the IBCT convoys to the Southeast McGregor Range would decrease in comparison to the previous land use alternatives. Localized traffic impacts would be proportionate to the increase in number of convoys to specific training areas. Traffic impacts would be similar to those described under the stationing and training alternatives and would be less than significant.

Impacts of Stationing and Training Alternatives 3 and 4 (LU-3/ST-3 and ST-4)

Under LU-3/ST-3 and LU-3/ST-4, the number of IBCT convoys to the Sacramento Foothills would increase while the IBCT convoys to the Otero Mesa would decrease in comparison to the previous land

use alternatives. Localized traffic impacts would be proportionate to the increase in number of convoys to specific training areas. Traffic impacts would be similar to those described under the stationing and training alternatives and would be less than significant.

3.16.8 Land Use Changes Alternative 4 (LU-4)

Compared to LU-3, LU-4 would result in an additional number of IBCT convoys to the Sacramento Foothills North of Highway 506 and fewer IBCT convoys to Southeast McGregor Range under LU-4/ST-1 and LU-4/ST-2, with no percent increases under LU-4/ST-3 and LU-4/ST-4. A slight increase in SBCT convoys to the Otero Mesa would occur under LU-4/ST-4. Localized traffic impacts would be proportionate to the increase in number of convoys to specific training areas. Traffic impacts would be similar to those described under the stationing and training alternatives and would be less than significant.

3.16.9 Land Use Changes Alternative 5 (LU-5)

Compared to LU-4, LU-5 would result in an additional number of IBCT and SBCT convoys to the Otero Mesa and fewer IBCT and SBCT convoys to the Sacramento Foothills. Localized traffic impacts would be proportionate to the increase in number of convoys to specific training areas. Traffic impacts would be similar to those described under the stationing and training alternatives and would be less than significant.

3.16.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Under this alternative, no training facilities would be constructed other than those analyzed in the 2007 SEIS; therefore, there would be no impacts to traffic or ground transportation infrastructure for any of the ST alternatives.

3.16.11 Training Infrastructure Improvements Alternative 2 (TI-2)

During construction as proposed under this alternative, minor changes in traffic volumes adjacent to the individual range projects may occur. These traffic changes would generally be redistributions of existing traffic within the Fort Bliss property. There would be minimal changes to traffic patterns or flows on public roads outside the Army installation. Temporary traffic delays may occur, but these would generally be brief. Construction traffic impacts to public roadways would be temporary and are expected to be less than significant.

Traffic would increase slightly during operation of the new ranges as proposed under this alternative. The training infrastructure improvements would primarily affect traffic once it exits US-54. Traffic impacts associated with this alternative would generally be limited to the Army installation. Implementation of this alternative would result in less than significant impacts to intersections and roadway operations for public roads.

3.16.12 Training Infrastructure Improvements Alternative 3 (TI-3)

Under this alternative, impacts associated with construction would be similar to those described for TI-2; however, additional construction-related traffic delays and volume changes would occur as a result of the addition of COLs within the South Training Area, Tularosa Basin portion of McGregor Range and Doña Ana–North Training Range. During construction as proposed under this alternative, minor changes in traffic volumes adjacent to the individual range and range camp improvements may occur. However, these traffic changes would generally be redistributions of existing traffic within the Fort Bliss property. There would be minimal changes to traffic patterns or flows on public roads outside the Army

installation. Brief, temporary traffic delays may occur. Construction traffic impacts to public roadways would be temporary and are expected to be less than significant.

Traffic would increase slightly during operation of the new ranges and range camp improvement as proposed under this alternative. The training infrastructure improvements would primarily affect traffic once it exits US-54. Traffic impacts associated with this alternative would generally be limited to the Army installation. Implementation of TI-3 would result in less than significant impacts to intersections and roadway operations for public roads.

There are no direct and indirect environmental effects for this alternative. The training infrastructure improvements associated with TI-3 will only affect traffic once it exits US-54. These impacts from capacity, maneuvers, and off-road maneuvers are evaluated in other sections of this document.

3.16.13 Training Infrastructure Improvements Alternative 4 (TI-4)

Impacts associated with construction as proposed for this alternative would be similar to those described for TI-2. The addition of a railway system designed to transport training vehicles to and from the training facilities is at a conceptual level and environmental impacts associated construction and operation cannot be fully assessed. Environmental documentation specific to this project will need to be prepared when and if the project is programmed for design and construction. Direct and indirect effects are discussed below on a programmatic basis to provide some discussion of this alternative.

Construction activities associated with the railway would result in traffic delays from contractors and equipment moving within the construction area. This may mean disruption in some established vehicle routes. In addition, temporary traffic delays may occur, but these would generally be brief. Construction-related traffic impacts would be temporary and less than significant.

Operation of the rail system will include provision for an overpass or at grade crossing where the tracks cross established roads. At grade crossings have the potential to produce periods of congestion from traffic backups when the train is blocking the crossing. The extent of this impact will need evaluation and the impact will be based on the frequency of train crossings and the duration of each crossing. An overpass would alleviate potential congestion since vehicle traffic will be routed over the train tracks allowing free movement of the train. Impacts from construction of the overpass may temporarily disrupt traffic, and there may be periods of traffic backups or rerouting of traffic. These impacts are temporary and not considered significant, but should be further evaluated when full environmental documentation is prepared.

Traffic impacts associated with this alternative would generally be limited to the Army installation. Implementation of TI-4 would result in less than significant impacts to intersections and roadway operations for public roads.

3.17 Air Space Use and Management: Affected Environment

Airspace use and management addresses how and where aircraft operate in airspace in or near Fort Bliss and its ranges. This section of the EIS examines the rules, regulations, and procedures for military aircraft to operate safely among all aircraft in the National Airspace System (NAS). Airspace use and management is interrelated to other resources and topics including safety, land use, noise, air quality, and biological resources. Background information on Airspace Classifications and Types in the U. S. is provided in Appendix B**.**

The Affected Environment section outlines the regulatory basis for airspace use and management. It describes the regional setting within which the proposed action and its alternatives would occur, and presents details on the air traffic control (ATC) and special use airspace (SUA) managed by the military in southeastern New Mexico.

3.17.1 Definition of Resource

The Federal Aviation Administration (FAA) has primary jurisdiction over management of airspace. The NAS is a collective term referring to the common network of U.S. airspace, embracing all facets of navigable airspace, including terrestrial and satellite based navigation facilities, equipment, and services; airports or landing areas; aeronautical charts, information, and services; rules, regulations, and procedures; technical information, manpower, and material. Included are system components shared jointly with the military.

Navigable airspace is airspace above the minimum altitudes of flight prescribed by regulations under United States Code Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the takeoff and landing of aircraft, as defined in 14 CFR, Part 77. Navigable airspace is a limited natural resource that Congress has charged the FAA to administer in the public interest as necessary to ensure the safety of aircraft and its efficient use. Among the varied and competing users whose interests the FAA must balance are the military, air carriers, and general aviation.

FAA Order 7400.2E, *Procedures for Handling Airspace Matters* is that agency's implementing regulation for defining particular types of airspace (FAA 2008a). The DoD and the Army manage airspace delegated by the FAA to them in accordance with the processes and procedures outlined in DoD Directive 5030.19 *DoD Responsibilities on Federal Aviation and National Airspace System Matters* and AR 95-2 *Airspace, Airfields/Heliports, Flight Activities, Air Traffic Control, and Navigation Aids*, respectively (DoD 2007, Army 2007, April). The DoD and the Army collaborate with the FAA to ascertain the minimum requirement for airspace, evaluating the environmental consequences of proposed airspace designations in compliance with both the FAA and the DoD's NEPA implementing regulations. These agencies thus serve as prudent stewards of a scarce national, common resource.

When examining airspace use and management, it is useful to first categorize it based upon whether the FAA provides ATC separation services within it or not—*controlled versus uncontrolled airspace*. A second tier of classification hinges upon those circumstances when the FAA removes a defined volume of airspace from the public domain, placing other users on notice that it has been allocated for the benefit of a particular category of user, such as the military. The use may be exclusive, limiting non-participating (e.g., civilian) users or it may simply be advisory, indicating to non-participating users of the airspace that military operations are occurring along certain routes, requiring an extra measure of vigilance. This second tier of classification is commonly referred to as *SUA*.

3.17.2 Region of Influence

The proposed action and its alternatives involve aircraft operations in a Class C terminal airspace setting and in Class E and G airspace during en route operations. The Proposed Action and its alternatives involve flight operations occurring within SUA as well. The ROI varies accordingly as their contexts differ. For terminal airspace, the ROI generally includes the area influenced by flight operations at Biggs AAF and El Paso International airport. For airfields of this size and scale, a focus area of approximately 20 miles is appropriate. Therefore, the ROI for terminal airspace is the area that generally lies within 20 miles of Biggs AAF and El Paso International airport. Notice is taken, however, of airports within a similar distance to SUA scheduled or used by Fort Bliss.

For SUA, the ROI extends a greater distance and would include not only the military training airspace within which the aircraft stationed or TDY to Fort Bliss would fly, but also associated SUA in the southeastern New Mexico region. This airspace includes generally the area around White Sands Missile Range and Holloman AFB as well as Fort Bliss.

3.17.1.1 Airfields and Airports

3.17.2.1.1 Installation (Aerodrome)

The airfield at Fort Bliss, Biggs AAF consists of a single runway (03/21) oriented on a northeast/southwest axis and associated taxiways, and ramp space to support military aircraft operations (Figure 3-1). The runway is 150 feet wide by 13,554 long, capable of handling the largest aircraft in the Air Force or civilian fleets, enabling units stationed at Fort Bliss to employ inter-theater, strategic airlift assets. The predominant aircraft type stationed at Fort Bliss, however, is rotary-wing. Helicopters assigned to a CAB support the maneuver elements of larger scale units, such as a Division, providing close air support or medivac functions. A CAB usually consists of approximately 110 rotary wing aircraft, including combat, scout, and medium/heavy airlift airframes.

3.17.2.1.2 Nearby Civilian Airports

It is unusual to have two airports within one Class C surface area as is found at Biggs AAF/El Paso International. The reason for this is the close proximity of the two airfields. The two airfield runway complexes are separated by 8,500 feet, or a little over 1.5 miles. El Paso International airport is a scheduled air carrier facility with significant levels of passenger enplanements and deplanements, flight training, business aviation, and similar activities. Other airfields within the ROI include the previously mentioned Horizon, in El Paso County, TX, and Doña Ana County airport in southern New Mexico (Table 3-94). For purposes of this analysis, airspace and airfields in Mexico are not examined; however, it is noted that the Abraham Gonzalez International airport in Ciudad Juarez lies south of El Paso across the Rio Grande a distance of approximately 12 nautical miles (NM) from Biggs AAF.

Table 3-94. Public Use and Military Airports in the vicinity of El Paso, Texas.

Name	ID	Surface Airspace	2007 Operations Count	Distance from Biggs AAF	IFR Approach	Longest Runway (feet)
Civilian Airfields						
El Paso International	KELP	Class C to 8,000 MSL (~4,000 AGL)	103,988	2.5 NM Southeast	Precision	12,020
Horizon	T27	Class G/Class E 700' shelf	31,200	10.7 NM Southeast	Non-Precision	6,885
Doña Ana County at Santa Teresa	5T6	Class G	32,400	16.7 NM West	Precision	8,500
Las Cruces	KLRU	Class G/Class E 700' shelf	100,208	38.2 NM East	Precision	7,499
Truth or Consequences	KTCS	Class E surface area up to and joining overlying Class E at 1200 feet	15,700	94.7 NM	Non-Precision	7,200

Name	ID	Surface Airspace	2007 Operations Count	Distance from Biggs AAF	IFR Approach	Longest Runway (feet)
Alamogordo	KALM	Class G/Class E 700' shelf	33,700	62.6	Non-Precision	7,006
Military Airfields						
Biggs AAF	KBIF	Class C to 8,000 MSL (~4,000 AGL)/Class D extension – surface to 5,200 to overlying Class C shelf	Not Reported	N/A	Precision	13,554
Condron AAF	KWSD	Class G	Not Reported	29.5 NM North	No published approaches	6,125
Holloman AFB	KHMN	Class D	~97,400	61.8 NM North-Northeast	Precision	12,800

Notes: 1. Unless otherwise indicated, Class E airspace begins 1,200 feet AGL over these airports.
2. Precision IFR approaches provided vertical course guidance in addition to the lateral course guidance provided by a non-precision approach.
3. Condron AAF underlies Restricted (R-) Area R-5107B.
4. One nautical mile (NM) = 6,076 feet or 1.15 statute miles (SM).

Source: FAA 2008c; Air Force 2006

3.17.2.2 Air Traffic Control Airspace

3.17.2.2.1 Controlled Airspace

Controlled airspace is airspace of a particular geographic dimension within which the FAA may exercise ATC and provide separation services to certain aircraft. It is a generic term encompassing five classifications that relate to the level of service provided and degree of regulation imposed. Among the classifications, there are varying levels of minimum airmen certification ratings, aircraft equipment, and required communications. Most airspace that is greater than 1,200 feet above the ground level (AGL) is controlled airspace, and in the vicinity of busier airports, controlled airspace extends all the way to the surface. For example, the airspace immediately surrounding and over El Paso International Airport (airport ID: KELP) and Biggs Army Airfield (KBIF) is Class C airspace (Figure 3-22). Two control towers and a radar approach/departure control facility provide certain aircraft separation services. Pilots are required to communicate with ATC when operating within this class of airspace and their aircraft must be equipped with transponders that identify aircraft to ATC. Air traffic control and aircraft separation services are provided at Biggs AAF to stationed and transient military and authorized civil users (e.g. chartered airlift during deployments) by an Army air traffic control tower and an FAA terminal radar approach control (TRACON) facility located at El Paso International.

The Biggs/El Paso International airport Class C surface airspace extends upward from the surface to 8,000 feet above mean sea level (MSL) outward on a 5.0-NM radius from the El Paso International airport airfield reference point (ARP). From 5 NM to 10 NM away from the El Paso ARP, a Class C shelf extends outward having a floor of approximately 1,200 feet AGL (5,200 feet MSL) and a ceiling of approximately 4,000 AGL (8,000 feet MSL). Due to terrain and the presence of the international boundary with Mexico, the airspace does not describe a full circle and an exclusion area also exists for a nearby general aviation airfield, Horizon Airport (Figure 3-22).

In addition, a Class D surface area extension begins at the 5-NM inner ring of the Class C airspace and extends on a keyhole shape to the northeast; this airspace is associated with and for the benefit of Biggs AAF. It imposes a greater communications and minimum weather requirement for operations under Visual Flight Rules than would otherwise exist.

Beyond the edges of the Class C and D airspace, a Class E airspace shelf begins at 700 feet AGL and extends upward to 1,200 feet AGL where it joins the overlying Class E airspace. The shelf's purpose is to extend controlled airspace, allowing provision of ATC separation services and to protect the instrument approaches to Biggs AAF, El Paso International, and Horizon Airport.

The terminal airspace around Biggs AAF and El Paso International airport is unusual in that two airports lie within a single Class C surface area. This seldom occurs but it reflects the close proximity of the two airfields' runway complexes. In practice, arrivals and departures are coordinated by the FAA TRACON as if the two airfields were one. This is possible because the airfields' primary runways are parallel to each other. The terrain, international boundary, available lands, and prevailing winds influence both airfields' design. Letters of Agreement between Biggs AAF and El Paso International airport controllers allow the two airfields to operate efficiently and safely despite their unusual proximity (Baca 2008).

3.17.1.2 Special Use Airspace

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. It is a complex set of Restricted (R-) Areas, MOA, and Military Training Routes (MTRs) (Tables 3-95 and 3-96). 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).

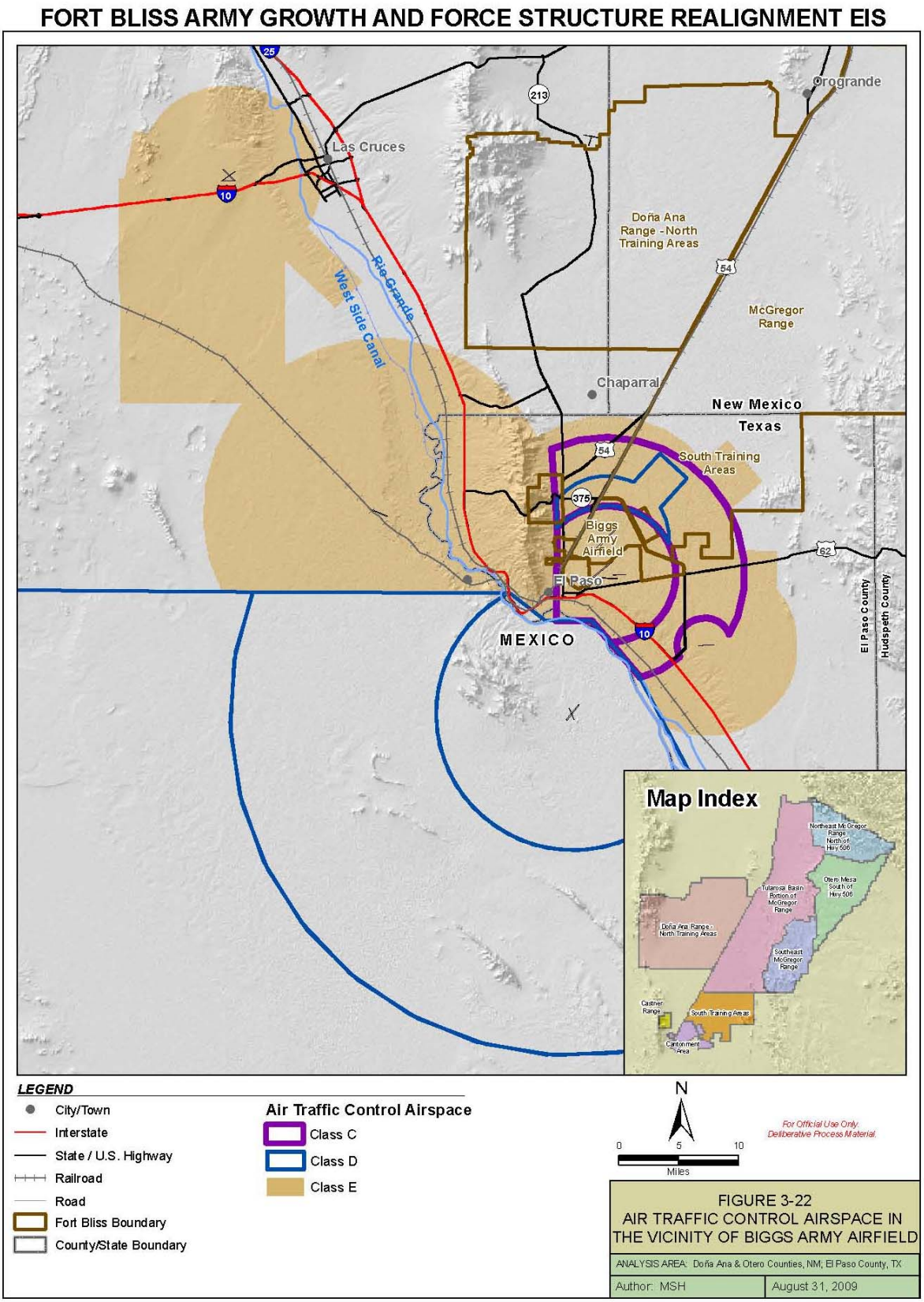


Figure 3-22. Air Traffic Control Airspace in the Vicinity of Biggs Army Airfield.

The major airspace units (e.g., R-5103) are subdivided vertically and horizontally, enabling airspace managers and schedulers to activate particular blocks of airspace that are sized appropriately to the activities occurring within them (Figures 3-23 through 3-33). Four military units are the use or scheduling agencies: one at Fort Bliss, one at WSMR, New Mexico and two at Holloman AFB, New Mexico. A wide variety of activities occur within the SUA; however, for the SUA managed by Fort Bliss (R-5103 A/B/C and R-5107 A/K) the four principal uses and purposes of the SUA are as follows:

- To protect non-participating aircraft from range activities occurring on the ground
- To promote realistic training, allowing scenarios to unfold without training distracters such as suspensions required when civilian aircraft penetrate the Restricted Areas
- To segregate non-participating aircraft from high-speed military fighter aircraft engaged in simulated aerial combat
- To segregate non-participating aircraft from UAS flight operations

Military fighter aircraft stationed or TDY at Holloman AFB and elsewhere use the upper extents of Fort Bliss' airspace, in conjunction with that of WSMR's, to train in aerial combat (U.S. Air Force 2006).

Apart from the Restricted Areas, MOAs, and MTRs the FAA also designates Air Traffic Control Assigned Airspace (ATCAA). Because they begin at 18,000 feet MSL and above (i.e., in Class A [positive control] airspace), they have no effect on traffic operating under visual flight rules (VFR). Therefore, it is not necessary to disclose or chart their existence. Non-participating IFR traffic is re-routed around them. An ATCAA overlies and is associated with an underlying MOA. The BEAK and TALON MOAs have corresponding ATCAAs that effectively extend the MOA SUA from 18,000 to 29,000 feet MSL.

Provision for non-participating civil users to transit the region along a north/south axis without excessive circumnavigation around the SUA is made by designating a VFR flyway along the west side of U.S. Route 54. Specifically the R-5107 series of airspace units is offset by two NM from the R-5103 series. This permits non-participating general aviation air traffic operating under VFR and flying below 18,000 feet MSL to transit this corridor to or from El Paso and Alamogordo.

For general aviation users operating in the lower stratum of the airspace, transit along an East/West axis is more constrained. In addition to the SUA, the San Andres mountain range runs north/south and rises to elevations approaching 9,000 feet MSL. The western half of R-5107 overlies this mountain range. During warm weather months, the combination of temperature and elevation can mean that these aircraft would be approaching the upper end of their service ceiling, not allowing for safe overflight of the terrain. When the SUA is active, transit along an east/west axis is made at the south end of the complex near El Paso or at the north end of the complex, approximately 45 NM south of Albuquerque. At the southern end, this corridor is constrained by the international boundary, the Biggs AAF/El Paso Class C airspace, and the terrain.

Table 3-95. Special Use Airspace in Southeastern New Mexico (Restricted Areas).

Name/ ID	Altitude (Feet MSL)	Times of Use	Operations Counts (2007)	Hours Scheduled (2007)	Scheduling/Using Agency	Controlling Agency
R-5103A	Surface to 17,999 MSL	0700-2000 Mon-Fri. Other times by NOTAM	34	4,453	Fort Bliss DPTMS/Range Control	Albuquerque Air Route Traffic Control Center
R-5103B/C	Surface to Unlimited	0700-2000 Mon-Fri. Other times by NOTAM	1,178	7,024	Fort Bliss DPTMS/Range Control	Albuquerque Air Route Traffic Control Center
R-5107A	Surface to Unlimited	Continuous	224	8,760	Fort Bliss DPTMS/Range Control	Albuquerque Air Route Traffic Control Center
R-5107B	Surface to Unlimited	Continuous	2,941	8,760	WSMR	N/A
R-5107C	9,000 MSL to Unlimited	Continuous Mon.-Fri. Other times by NOTAM 12 hours in advance	2,535	3,682	WSMR	Albuquerque Air Route Traffic Control Center
R-5107D	Surface to 22,000 MSL	Continuous	2,641	4,568	WSMR	Albuquerque Air Route Traffic Control Center
R-5107E	Surface to Unlimited	By NOTAM, 12 hours in advance	325	906	WSMR	Albuquerque Air Route Traffic Control Center
R-5107F	24,000 to 45,000 MSL	Continuous Mon.-Fri. Other times by NOTAM 12 hours in advance	2,637	3,620	WSMR	Albuquerque Air Route Traffic Control Center
R-5107G	24,000 to 45,000 MSL	Continuous Mon.-Fri. Other times by NOTAM 12 hours in advance	2,637	6,661	WSMR	Albuquerque Air Route Traffic Control Center
R-5107H	Surface to 9,000 MSL	By NOTAM, 12 hours in advance	2,591	3,664	WSMR	Albuquerque Air Route Traffic Control Center

Name/ ID	Altitude (Feet MSL)	Times of Use	Operations Counts (2007)	Hours Scheduled (2007)	Scheduling/Using Agency	Controlling Agency
R-5107J	Surface to 9,000 MSL	Continuous Mon.-Fri. Other times by NOTAM 12 hours in advance	2,576	6,624	WSMR	Albuquerque Air Route Traffic Control Center
R-5107K	Surface to Unlimited	0700-2000 Mon-Fri. Other times by NOTAM	Data Not Available	Data Not Available	Fort Bliss DPTMS/Range Control	Albuquerque Air Route Traffic Control Center
R-5111A	13,000 to Unlimited	By NOTAM, 12 hours in advance	2,321	3,483	WSMR	Albuquerque Air Route Traffic Control Center
R-5111B	Unlimited to 13,000	By NOTAM, 12 hours in advance	135	864	WSMR	Albuquerque Air Route Traffic Control Center
R-5111C	13,000 to Unlimited	By NOTAM, 12 hours in advance	59	157	WSMR	Albuquerque Air Route Traffic Control Center
R-511D	Unlimited to 13,000	By NOTAM, 12 hours in advance	22	61	WSMR	Albuquerque Air Route Traffic Control Center

Notes: 1. NOTAM = Notice to Airman.
2. Scheduling / Using Agency is the agency for whose benefit the SUA was designated. Controlling Agency is the Air Traffic Control facility to whom jurisdiction reverts when joint-use SUA is not activated.
3. Unless otherwise noted, times listed are local.
4. WSMR – White Sands Missile Range

Source: NGA 2008

Table 3-96. Special Use Airspace in Southeastern New Mexico (Military Operations Areas)

Name/ID	Altitude (Feet MSL)	Times of Use	Operations Counts (2007)	Hours Scheduled (2007)	Scheduling./ Using Agency	Controlling Agency
Beak A/B/C	12,500 to 17,999 MSL	Sunrise – Sunset, Mon.-Fri. Other times by NOTAM.	4,628	3,535	479th Tactical Training Wing, Holloman AFB	Albuquerque Air Route Traffic Control Center
Talon High East & West	12,500 to 17,999 MSL	Sunrise – Sunset, Mon.-Fri. Other times by NOTAM.	2,300	2,089	479th Tactical Training Wing, Holloman AFB	Albuquerque Air Route Traffic Control Center
Talon Low	300 to 12,499 MSL	Sunrise – Sunset, Mon.-Fri. Other times by NOTAM.	870	846	479th Tactical Training Wing, Holloman AFB	Albuquerque Air Route Traffic Control Center

Notes: 1. NOTAM = Notice to Airman.
2. Scheduling / Using Agency is the agency for whose benefit the SUA was designated. Controlling Agency is the Air Traffic Control facility to whom jurisdiction reverts when joint-use SUA is not activated.
3. Unless otherwise noted, times listed are local.

Source: NGA 2008, FAA 2008a

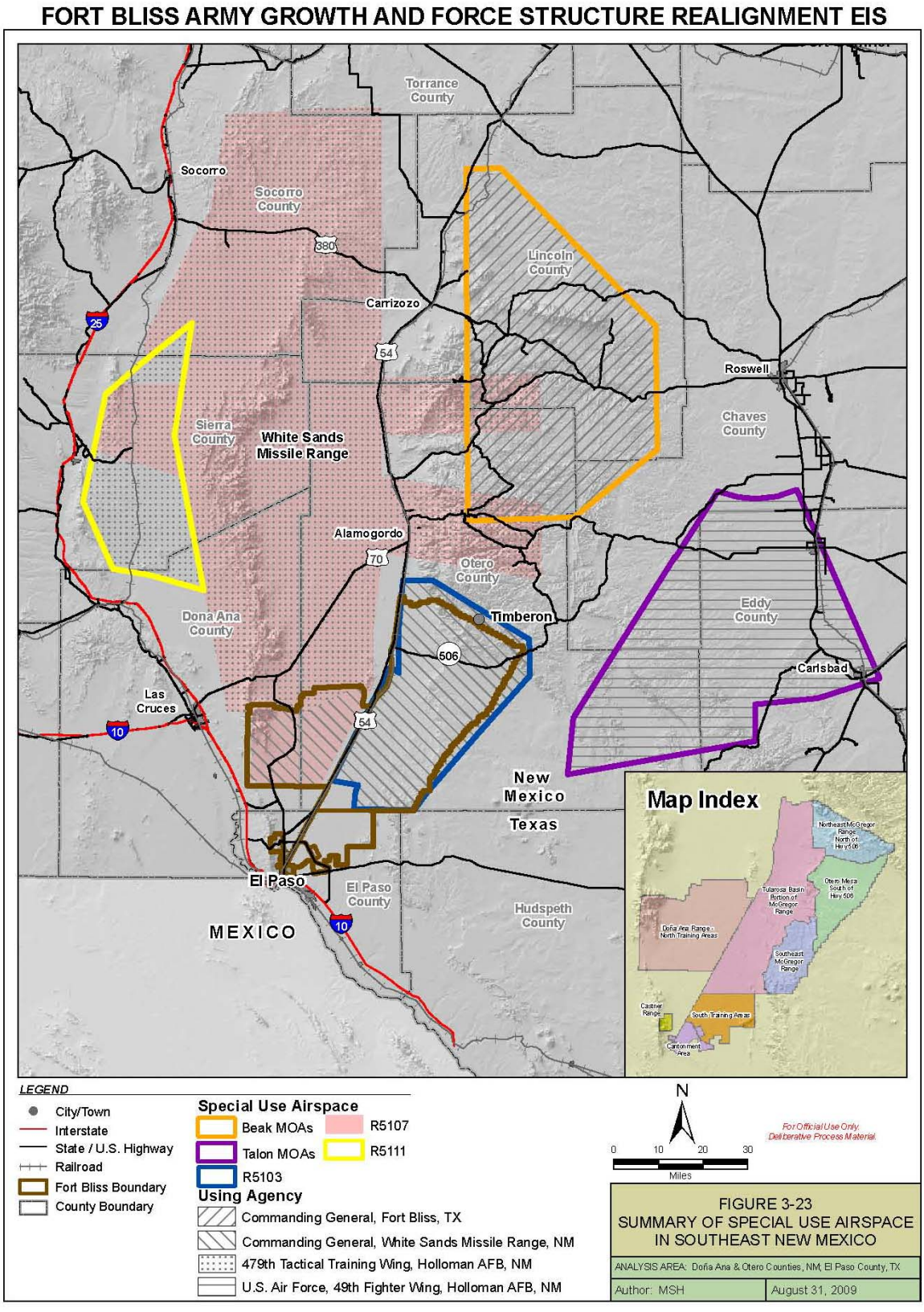


Figure 3-23. Summary of Special Use Airspace in Southeast New Mexico.

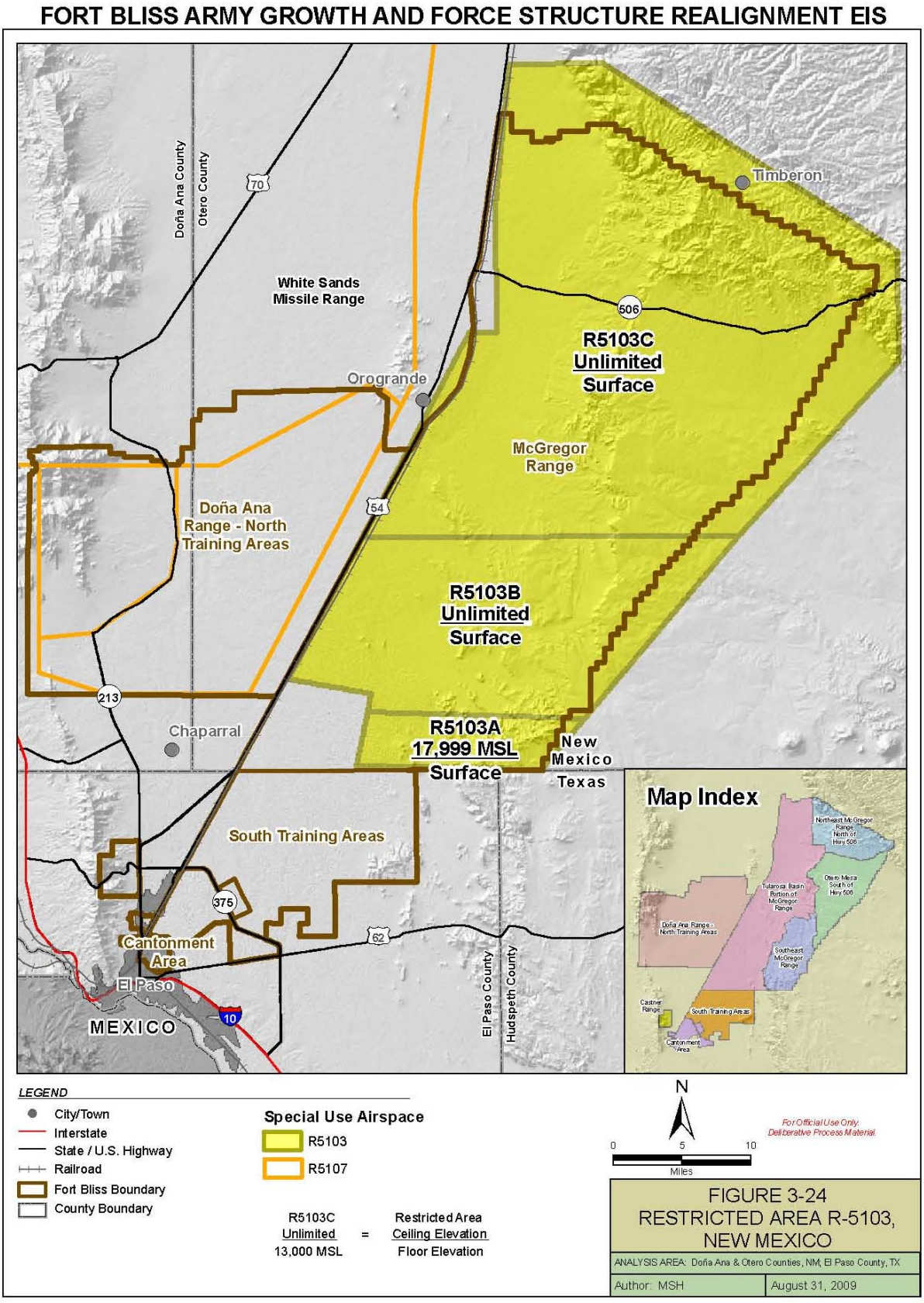


Figure 3-24. Restricted Area R-5103, New Mexico.

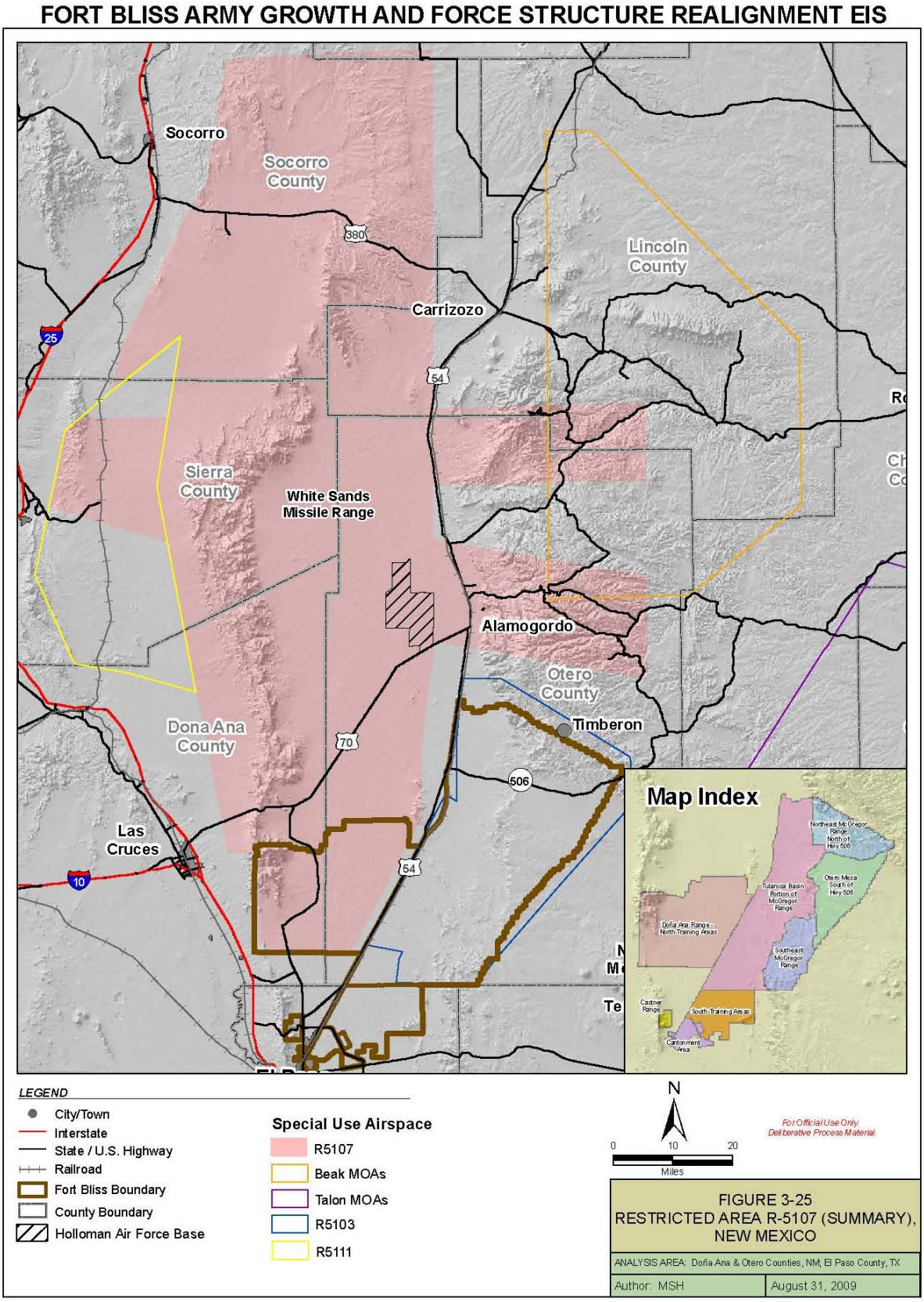


Figure 3-25. Restricted Area R-5107 (Summary), New Mexico.

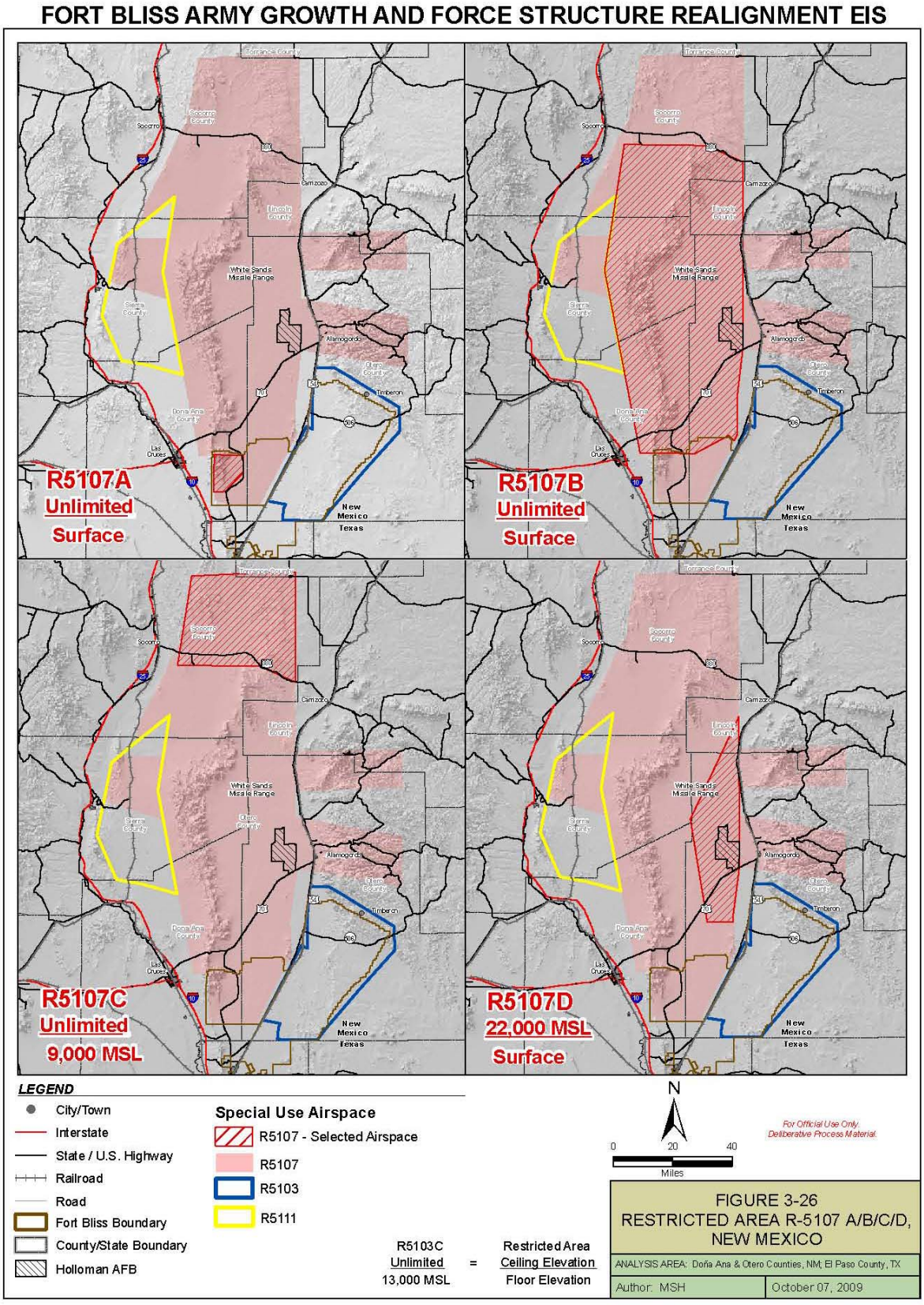


Figure 3-26. Restricted Area R-5107 A/B/C/D, New Mexico.

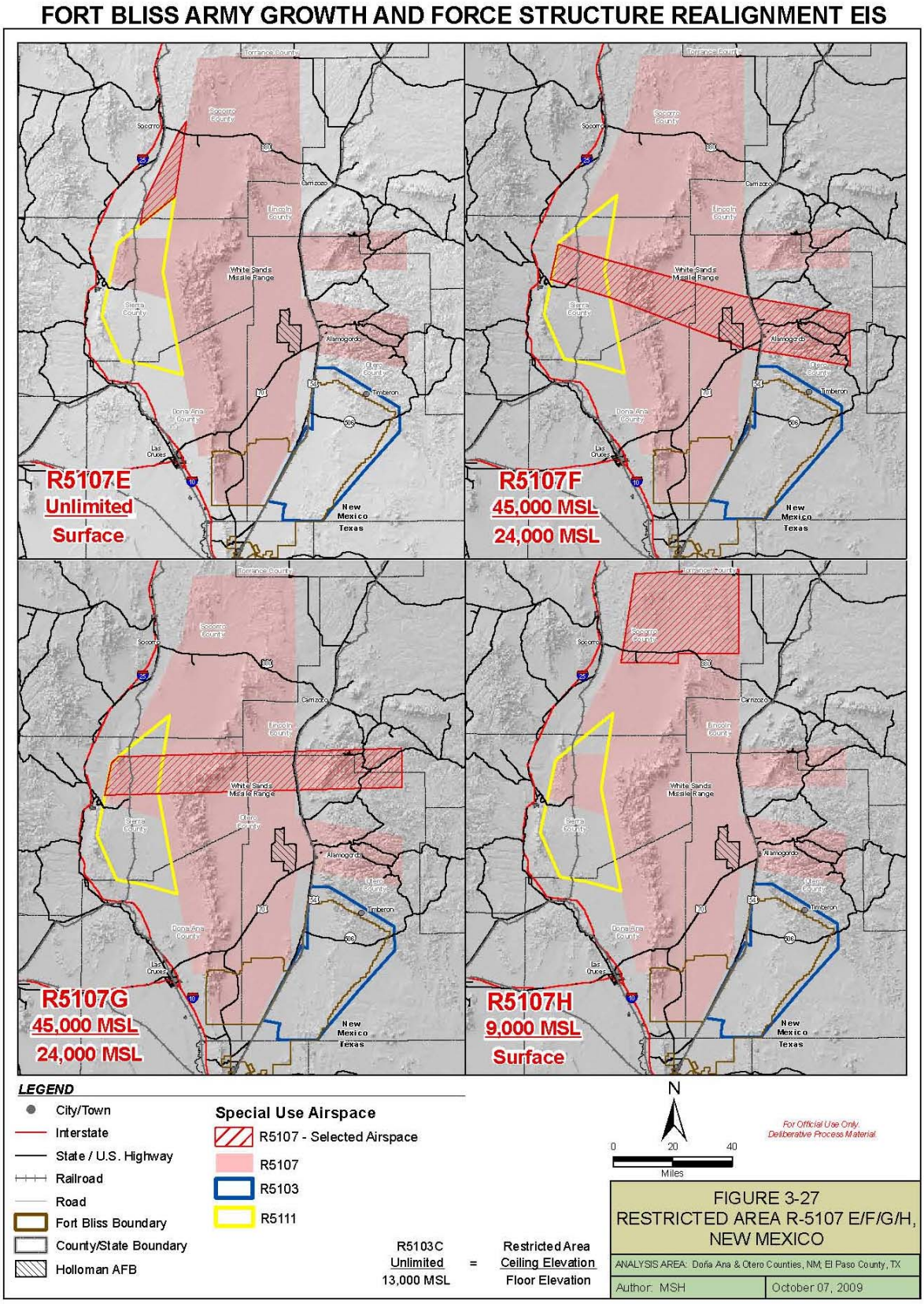


Figure 3-27. Restricted Area R-5107 E/F/G/H, New Mexico.

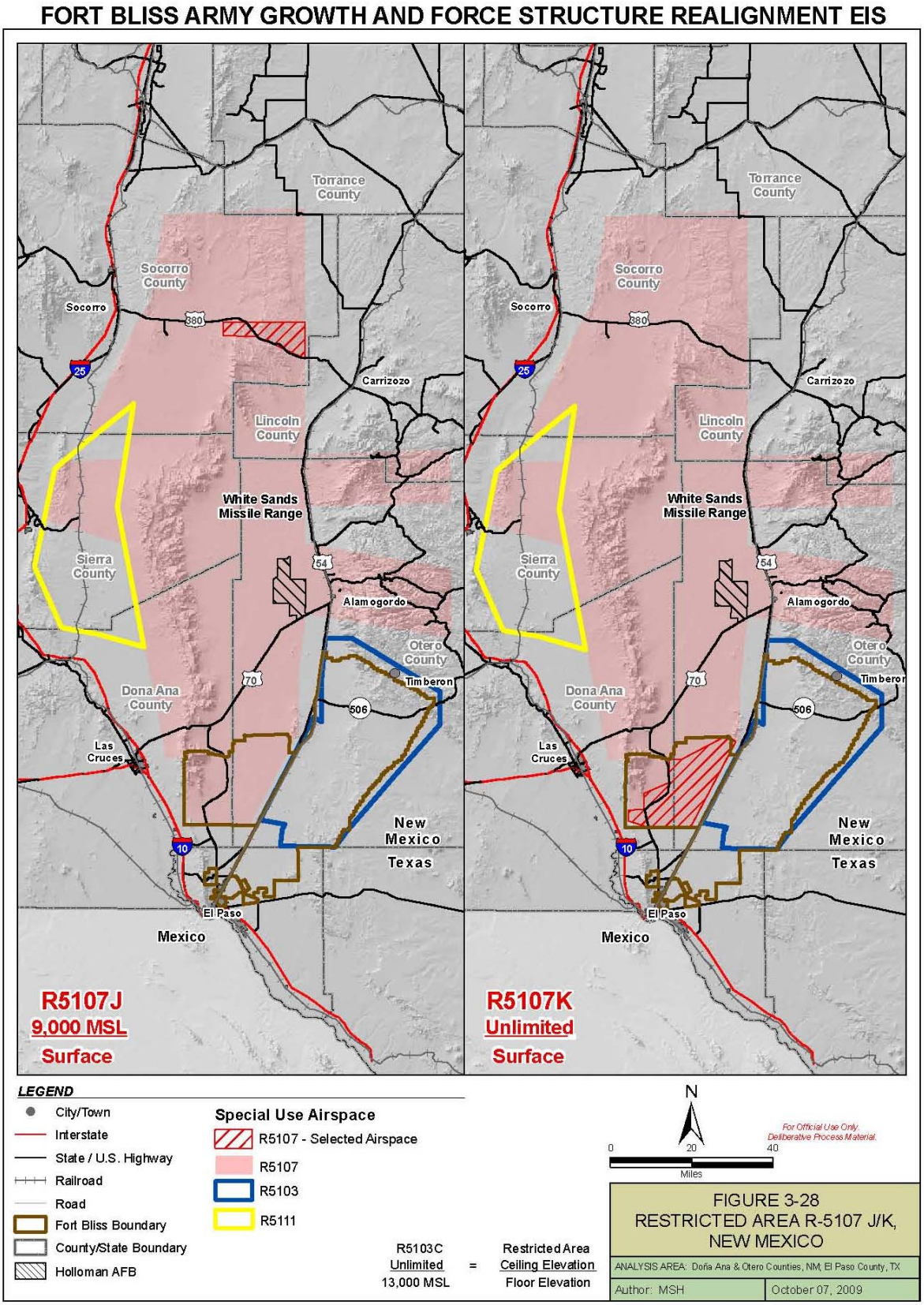


Figure 3-28. Restricted Area R-5107 J/K, New Mexico.

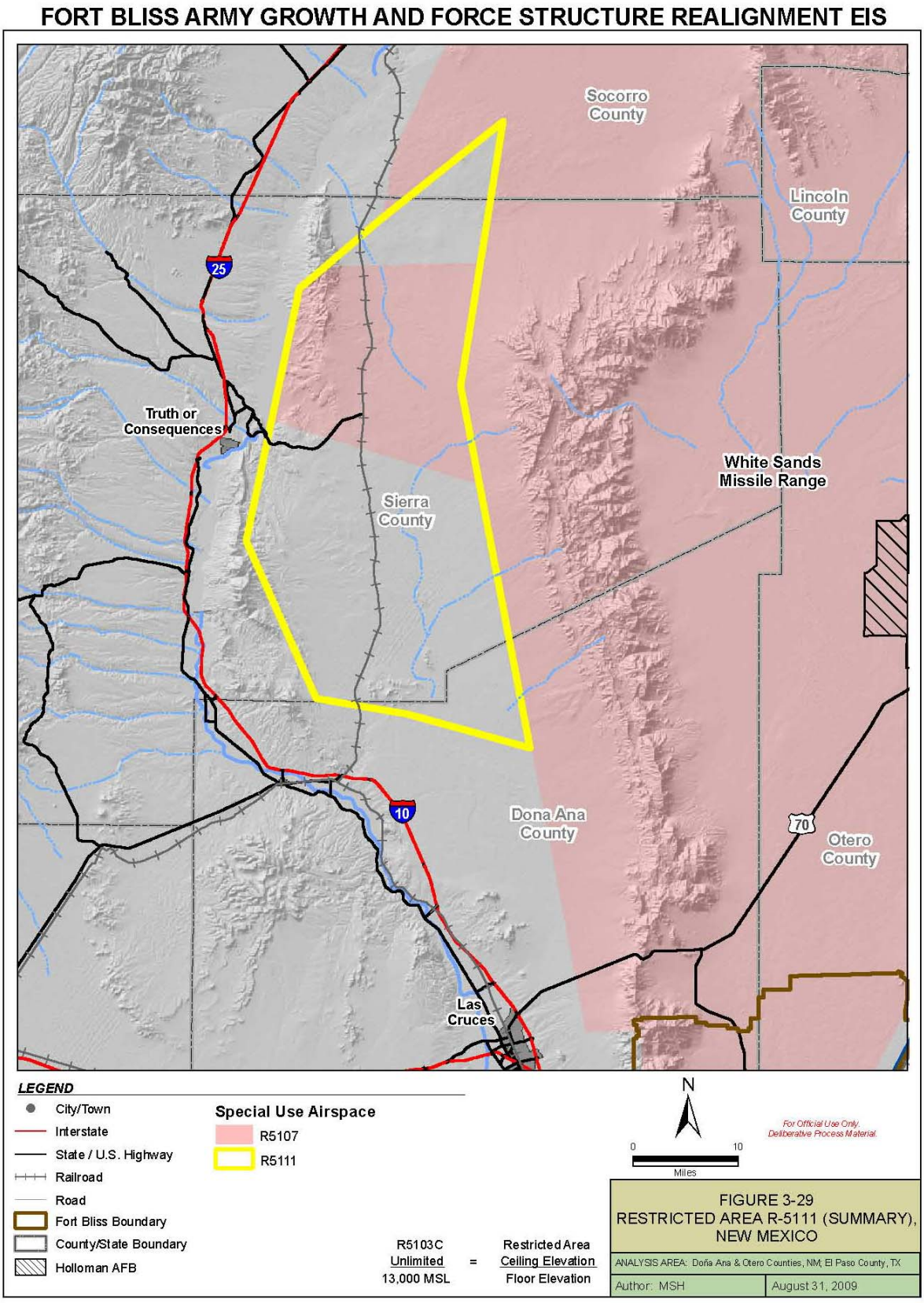


Figure 3-29. Restricted Area R-5111 (Summary) New Mexico.

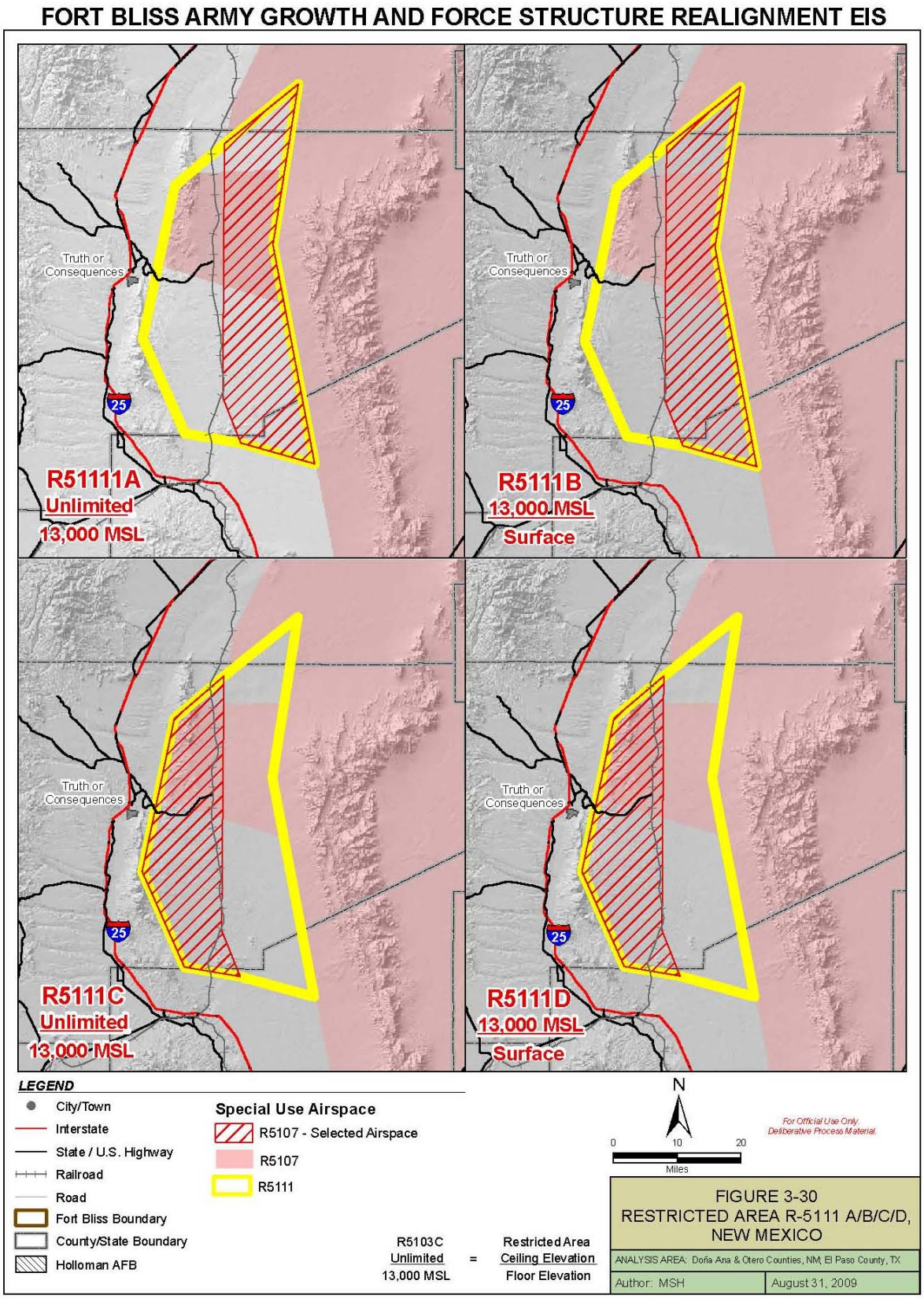


Figure 3-30. Restricted Area R-5111 A/B/C/D, New Mexico.

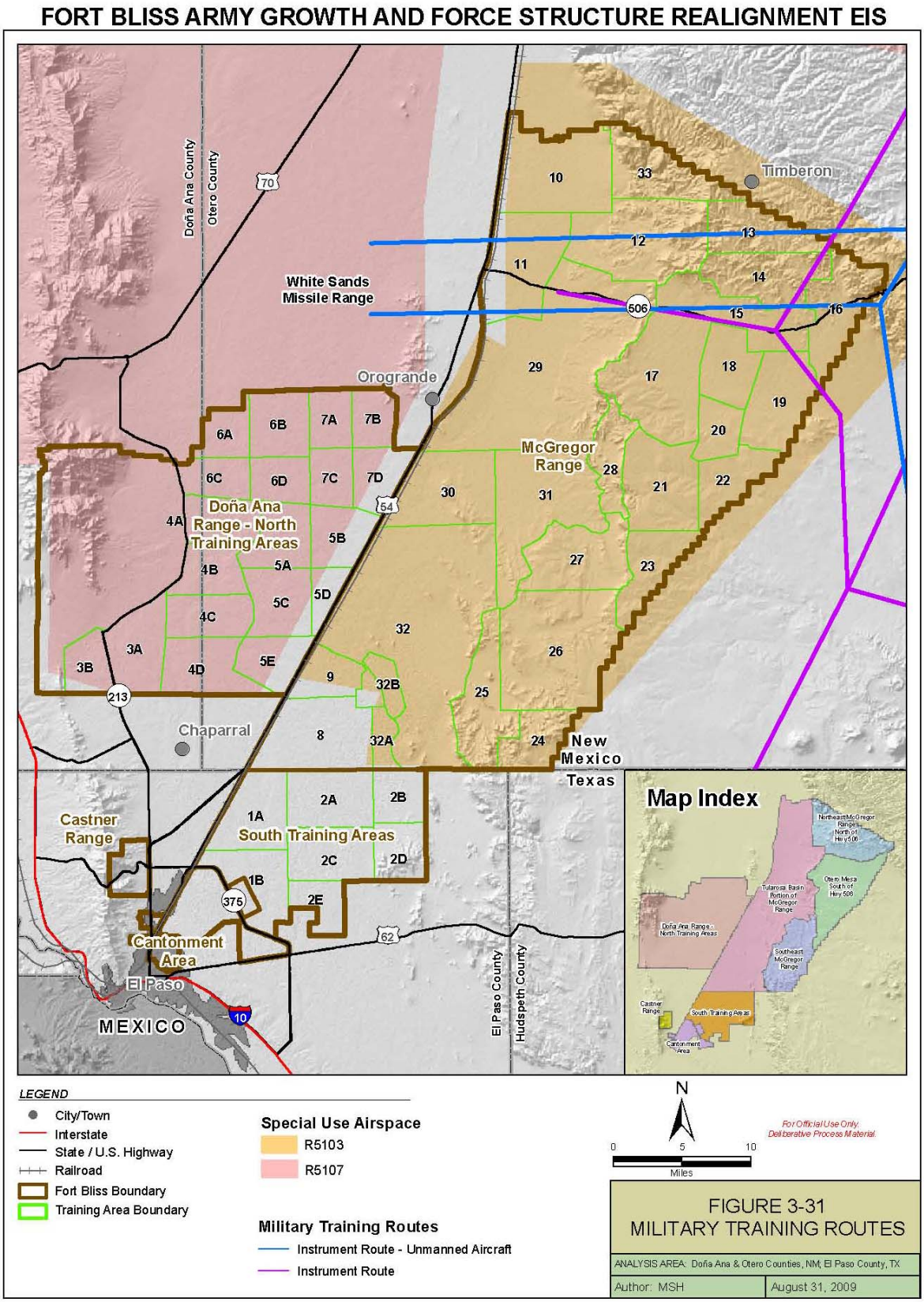


Figure 3-31. Military Training Routes.

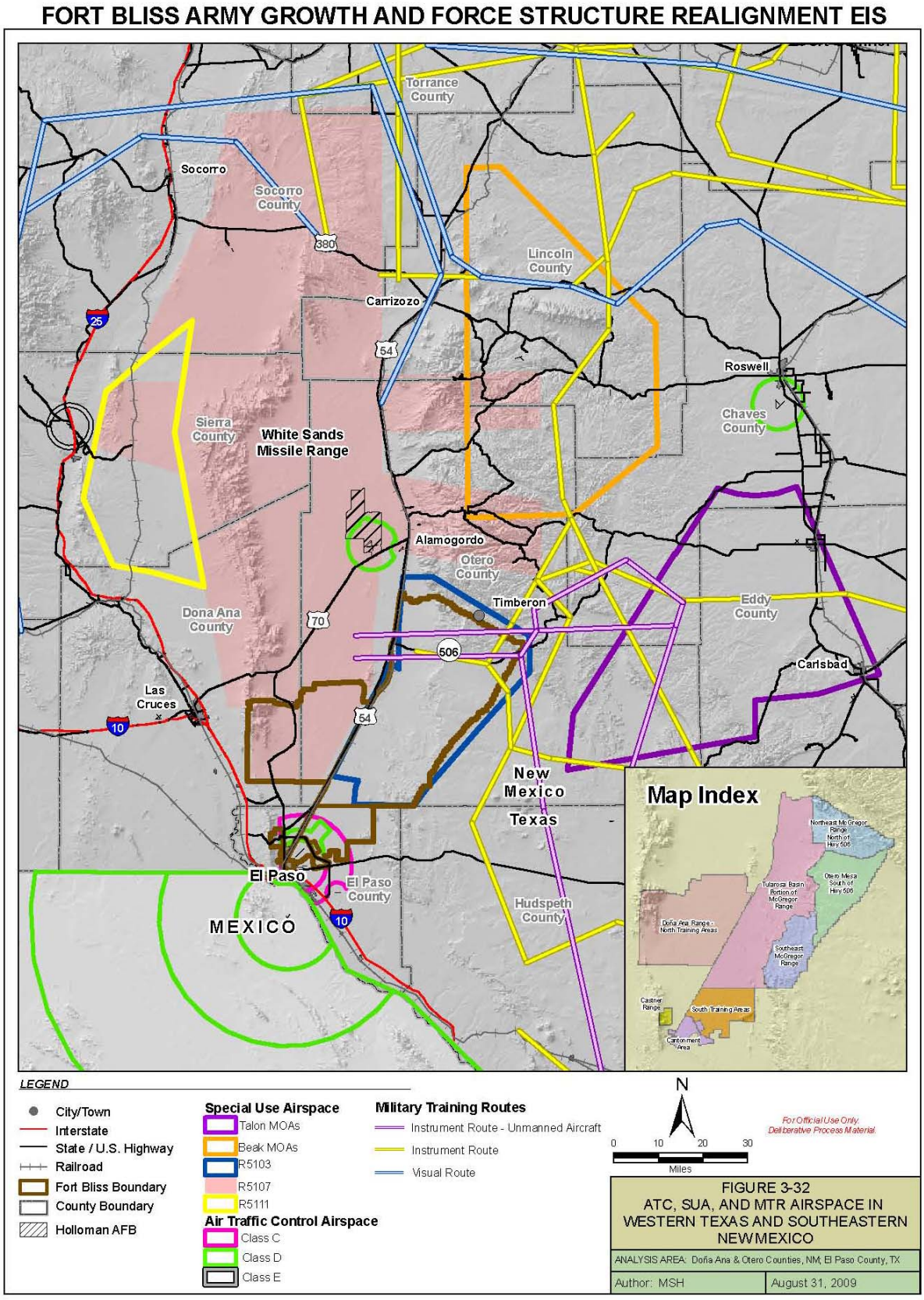


Figure 3-32. ATC, SUA and MTR Airspace in Western Texas and Southeastern New Mexico.

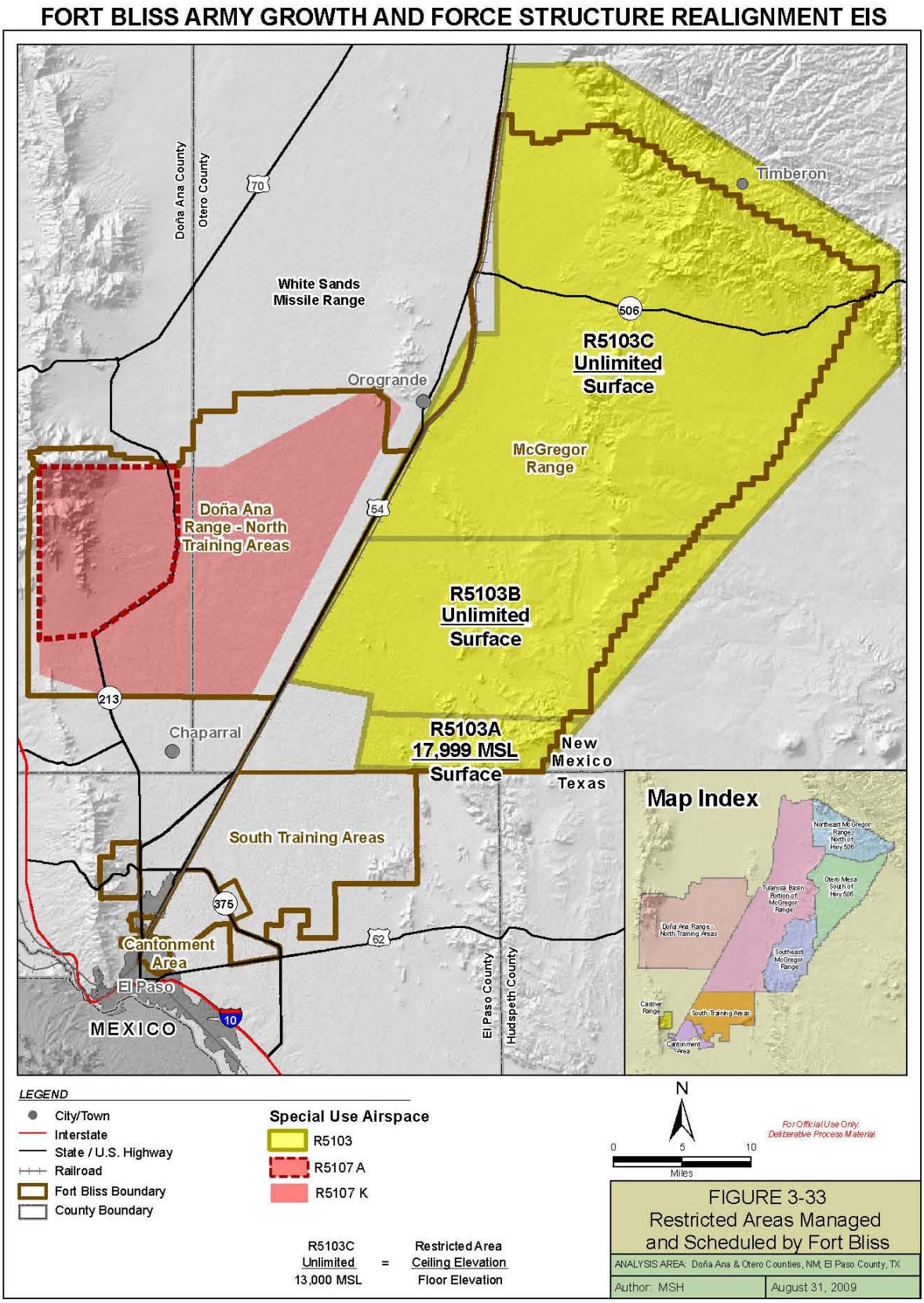


Figure 3-33. Restricted Areas Managed and Scheduled by Fort Bliss.

Civil aircraft operating at the upper range of the altitude stratum, above 18,000 feet MSL are not affected by the terrain. Non-military aircraft at these altitudes would most frequently be air carrier and the light jet segment of general aviation. However, at these altitudes the operations are occurring exclusively under IFR in positive controlled airspace. Therefore, the presence of Restricted Areas and ATCAAs overlying the MOAs indicates that the FAA would be required to re-route non-participating traffic around the SUA when it is active. The DoD airspace managers and the FAA do work collaboratively to manage these issues, particularly when periods of adverse weather, such as thunderstorms require extensive re-routing of air carrier traffic transiting from Texas to California. At these times, the FAA will occasionally reclaim the SUA to absorb civilian traffic.

3.18 Air Space Use and Management: Direct and Indirect, and Cumulative Effects

This section identifies the air space use and management direct and indirect effects of the proposed action and alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, alternatives with various land use changes; and Category 3, alternatives with various training infrastructure improvements.

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 ATC systems were encumbered by changed flight activities associated with the Proposed Action or another alternative.

An impact to airspace management and use would occur if the proposed action or alternative:

- Restricts movement of other air traffic in the area
- Creates conflicts with air traffic control in the region
- Changes operations within airspace already designated for other purposes
- Results in a need to designate controlled airspace where none previously existed
- Results in a reclassification of controlled airspace from a less restrictive to a more restrictive classification
- Results in a need to designate regulatory special use airspace

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 Federal Aviation Administration reassesses the airspace configuration.

Direct and Indirect Effects

Table 3-97 classifies the direct and indirect impacts to air space.

Table 3-97. Classification of Direct and Indirect Impacts to Air Space.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Airspace	⊗	⊗	⊗	⊗	⊙	⊙	⊙	⊙	⊙	⊗	⊗	⊗	⊗

⊗ Significant
⊙ Less than Significant

Given the unique setting of air space use, this section also summarizes the cumulative effects related to the Proposed Action.

3.18.1 Stationing and Training Alternative 1(ST-1)

Under this alternative, the stationing actions assessed and disclosed in the 2007 SEIS with respect to aviation assets (rotary wing aircraft) would occur (U.S. Army 2007).

Airfields and Airports

Selection of ST-1 would mean that activities at Biggs AAF would continue largely as they have in the past few years with the exception of the proposed bed down of two CABs and the additional UAS that would be stationed at Fort Bliss that were covered under the 2007 SEIS. As a result, ST-1 would have less than significant impact on airfields and airports.

Air Traffic Control Airspace Classifications

The flight activity at Biggs AAF would remain at levels consistently observed throughout the past several years, approximately 39,500 annual operations, based on 2002 through 2005 averages. These levels can fluctuate slightly depending upon flying hour budget allocations, deployment of tenant flying activities away from Biggs AAF for extended periods, and the number transient, TDY aviation units coming to Biggs AAF as part of combined arms exercises occurring at McGregor Range. The flying activity for Biggs AAF for 2005 was 39,556 operations (Baca, May 2006). El Paso International Airport flight operations are more prone to fluctuate with air carriers entering and leaving this market, or adjusting frequency of service, as economic conditions and regional growth patterns warrant. In 2007, El Paso supported approximately 103,000 aircraft operations (FAA 2008c). Calendar year passenger enplanements for 2007 were 1,669,792, a 0.7 percent increase over the 1,658,102 that occurred in 2006 (FAA 2007).

The FAA criteria for going from one ATC airspace classification to another, in this case from Class C airspace to Class B airspace, would not be met at current levels of activity. Joint Order (JO) -7400.2G *Procedures for Handling Airspace Matters* establishes an annual operations count threshold of 300,000 for the primary airport and a minimum annual passenger enplanement level of five million to warrant such a reclassification. Absent an unusual, unanticipated, and unlikely surge in activity at El Paso, selection and implementation of ST-1 would not create a need to change the Class C terminal airspace classification at Biggs AAF/El Paso International. ST-1 would be less than significant impact on airtraffic control airspace classifications.

Military Training Airspace/Special Use Airspace

Since the 2007 SEIS referenced above, one airspace revision has occurred and a second is tentatively under consideration.

In November 2008, the southern portion of R-5107, specifically R-5107A was revised by subdividing it into two parts (R-5107A and R-5107K) and by permanently returning to other users of the NAS a portion along the western side of the former R-5107A. Together, the current R–5107A and R–5107K occupy the same vertical, but slightly smaller lateral area than the former R–5107A. This action still fulfills DoD training requirements while freeing unused airspace for use by nonparticipating civil aircraft. Additionally, this action allows the U.S. Army to activate only that portion of the airspace necessary to contain their operations, sizing the airspace requirement more closely to operational needs (FAA 2008e).

Airspace managers at Fort Bliss are also examining whether it would be advisable to expand the Restricted Airspace over the southern portion of McGregor Range for two primary reasons. First, UAS currently operate from an airfield contained within, but at the edge of, the current confines of R-5103A. The runway orientation is northeast/southwest. In order to remain within Restricted Airspace, takeoffs to and recoveries from the southwest by UAS are not permitted. Current FAA policy on allowing UAS access to the NAS continues to evolve. With some limited exceptions, UAS operations are generally required to be confined to Restricted Areas. Under a DoD/FAA Memorandum of Agreement signed in 2007, FAA agreed to allow the military to operate small (20 pounds or lighter) UAS within Class G airspace, provided operations occurred over military lands. Alternatively, the FAA issues Certificate of Authorization (COA) under specific terms and conditions to safeguard the flying public and those on the ground if operations are to occur outside of Restricted Airspace (DoD 2007). Expanding the R-5103A to the west would allow takeoffs to and recoveries from a southwesterly direction without reliance on a COA or the 2007 DoD/FAA MOA. That is, expanding the SUA would allow takeoff and recoveries for sorties involving aircraft greater than 20 pounds and would allow UAS to operate within controlled airspace.

The second reason airspace managers at Fort Bliss are examining a potential expansion of R-5103 is to protect non-participating aircraft from activities occurring on the ground at planned ranges expected to be constructed in the future (Figure 3-34). The need for and locations of these ranges were previously assessed in the 2007 SEIS. A realignment of the airspace would ensure that all live-fire small arms ranges are contained with a Restricted Area, enhancing both the realism of military training and the safety of the non-flying public.

It is important to note that any expansion of SUA is subject to several regulatory requirements, including an FAA airspace study and a joint FAA-DoD evaluation of potential environmental consequences under NEPA. If the Army elects to proceed with an airspace proposal, the FAA would become a cooperating agency under NEPA and it would perform an independent review of any NEPA documentation prepared by DoD, as well as reviewing the justifications for, and alternatives to, the airspace proposal itself. Both the airspace proposal and the NEPA review are public processes, with proposals and supporting analyses fully disclosed, and public comment solicited, prior to any decisions being taken.

Except for a contemplated expansion of R-5103A, implementation of the No Action alternative would not change the manner in which the SUA in southeastern New Mexico is scheduled or managed. Based on current conditions that show airspace is already saturated, ST-1 would result in a significant impact.

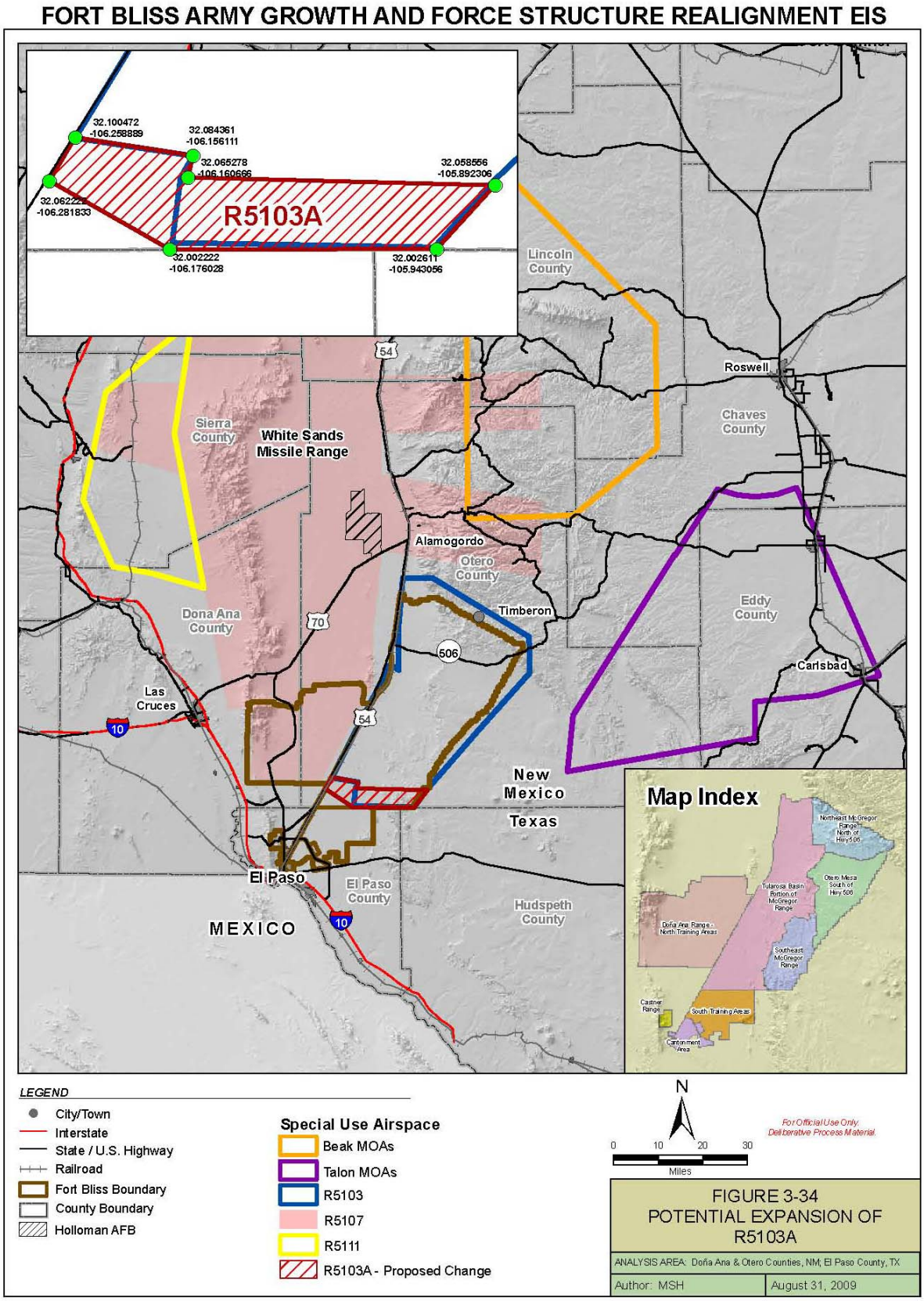


Figure 3-34. Potential Expansion of R-5103A.

3.18.2 Stationing and Training Alternative 2 (ST-2)

Under this alternative, the stationing actions assessed and disclosed in the 2007 SEIS (U.S. Army) with respect to aviation assets (rotary wing aircraft) would occur. Specifically Alternative 4 from the 2007 SEIS, for which a ROD was prepared and signed, proposed that two CABs would be stationed at Fort Bliss. The specific force structure of a CAB is tailored to the type of Division or BCT it supports; however, for purposes of analysis a total of 48 attack helicopters (AH), 38 utility helicopters (UH), 12 cargo helicopters (CH), and 12 medical evacuation (medivac) heavy helicopters (HH) for a total of 110 rotary wing aircraft per CAB is assumed.

Each HBCT has assigned to it 16 UAS. Selection and implementation of this alternative would entail stationing of 96 UAS at Fort Bliss with an additional 16 UAS training in a TDY status for a total of 112 training in Fort Bliss SUA.

Airfields and Airports

The infrastructure and ramp space at Biggs AAF are sufficient to accommodate this potential beddown, given the fact that Biggs AAF is the largest Army airfield in the country (SEIS U.S. Army 2007). With the deployment processing center that was built earlier in the decade at the far southwestern end of the airfield, the power projection platform mission of deploying reservists and other Army units from Biggs AAF would not be adversely affected or displaced as a result of stationing two CABs at Fort Bliss. Airfield throughput and the infrastructure factors that influence the maximum number of aircraft on the ground (MOG) that the airfield is capable of handling would not be affected. ST-2 would have a less than significant impact on airfields and airports.

Air Traffic Control Airspace Classifications

The effect that selection and implementation of the Proposed Action may have on operations counts or passenger enplanements at El Paso International cannot be estimated with any certainty. However, even with the increased operations at Biggs AAF, it is extremely unlikely that the Proposed Action would create so much passenger traffic and aircraft operations at El Paso International that the two airfields would in combination have over 300,000 operations and five million passengers.

As with the No Action alternative, the FAA criteria for going from one ATC airspace classification to another, in this case from Class C airspace to Class B airspace, would not be met at projected levels of activity if the Proposed Action were implemented. Users of Approach/Departure control services in the El Paso region, particularly operators of aircraft performing instrument approaches to El Paso International, Horizon, and Doña Ana airports may experience increased delays as the El Paso TRACON (El Paso, Horizon) and the Albuquerque Air Route Traffic Control Center (ARTCC) (Doña Ana) experience increased levels of activity. However, it should be noted that compared to other regions of the country, this area of Texas and New Mexico is not densely populated with pilots and aircraft. Therefore, these potential delays should be minor in frequency and duration, if they even occur at all. ST-2 would have a less than significant impact on air traffic control airspace classifications.

Military Training Airspace/Special Use Airspace

Selection and implementation of would not affect the utilization and management of SUA differently from the manner described above in the No Action alternative. The rotary wing aircraft assigned to the CABs are expected to remain largely within one of three general areas: the Biggs AAF/El Paso Class C airspace; the SUA associated with the Doña Ana–North Training Area or McGregor Range (R-5107A/K and R-5103A/B/C, respectively); or flight corridors between Biggs AAF and the SUA overlying the

training areas and ranges. Rotary wing aircraft typically do not have the performance capabilities or need to fly at the higher altitude stratum of the SUA (i.e., above 10,000 feet MSL) and thus are not the main determinant of Fort Bliss managed SUA utilization rates. As noted above, the main factor influencing utilization rates for the Fort Bliss SUA is either ongoing maneuver or weapons training (low-level, below 10,000 feet) or Air Force aerial combat training by F-22 *Raptor* aircraft (among others) stationed at Holloman AFB, New Mexico (Air Force 2006).

The Army UAS operate in conjunction with the training activities undertaken by the BCTs they support. As a result, they typically operate within SUA already allocated for the benefit of the BCTs training activities. Their impact on SUA utilitzation is at the margins since they are a supporting activity to the underlying training undertaken by the BCT of which they are an asset. As noted above in ST-2, UAS operations are not the dominant influence in how Fort Bliss' SUA is managed. Live-fire operations below 10,000 feet MSL and Air Force fighter training above 10,000 feet MSL influence Fort Bliss SUA scheduling and utilization. Just as in ST-1, ST-2 would have a significant impact on airspace management and use.

3.18.3 Stationing and Training Alternative 3 (ST-3)

Selection of this alternative would also entail stationing two CABs at Fort Bliss in conjunction with the HBCTs and IBCTs that are proposed. Additionally, a SBCT with 4 UAS would be stationed at Fort Bliss and would train at the FBTC. Under this alternative a total of 116 UAS would train at the FBTC.

With respect to the CABs, this action would be identical to ST-1; the anticipated direct and indirect effects would be the same, as described above in Section 3.18.2. With respect to UAS, selection and implementation of this alternative would not influence the utilization and management of SUA differently from the manner described above in the No Action alternative. Although the number of UAS training in Fort Bliss' SUA would increase slightly with the increased levels of training, the UAS operations are ancillary to the training activities undertaken by the BCTs, including live-fire. The impacts from ST-3 would be similar, as identified in ST-1 and ST-2.

3.18.4 Stationing and Training Alternative 4 (ST-4)

Although this alternative would add a second Stryker BCT at Fort Bliss compared to ST-3, this alternative would not materially differ from ST-1 with respect to airspace use and management.

With respect to stationing of CABs at Fort Bliss, the effects that this action would have on airspace use and management would be identical to those anticipated for the Proposed Action.

With respect to stationing of UAS at Fort Bliss and use of the FBTC and its associated SUA by stationed and transient BCTs, the anticipated effects would be similar, if not identical, to those anticipated for the Proposed Action. Selection and implementation of this alternative would increase the number of UAS by 20 compared to ST-3 with the addition of an additional HBCT (16) and SBCT (4). The impacts from ST-3 would be similar, as identified in ST-1 and ST-2.Land Use Changes Alternative 1(LU-1)

Within the Land Use Changes category, selection of LU-1 would mean that the proposed land uses for Fort Bliss, McGregor Range, and the Doña Ana–North Training Area would remain as disclosed and analyzed in the 2007 SEIS.

Land use changes seldom affect airspace use and management as it relates to ATC airspace. They do have potential, however, to affect navigable airspace and limit the mission if the land use is incompatible with airfield operations or constitutes an obstruction to air navigation. The primary method that DoD uses to

protect airfields and airspace from encroachment by incompatible land uses is the Air Installation Compatible Use Zone (AICUZ) program (DoD 1977). This is a land use compatibility program that influences on-base site selection decisions, seeking to avoid placement of uses that are incompatible with air operations due to aircraft noise, accident potential or obstruction potential. This program is implemented by the Army through the Installation Operational Noise Management Plan (IONMP) process. Further, since aircraft noise, accident potential zones, and approach/departure corridors extend off-installation, the IONMP is distributed to surrounding jurisdictions to guide their land use planning efforts. The IONMP and the Unified Facilities Criteria (UFC) 3-260-1 *Airfield and Heliport Planning and Design* are also the means of implementing 14 CFR 77 (Federal Aviation Regulation [FAR] Part 77) *Objects Affecting Navigable Airspace.* To protect an airfield's utility by minimizing encroachment of tall structures, FAR Part 77 and the UFC establish "imaginary surfaces" — inclined planes radiating outward and upward from a runway. Application of these imaginary surfaces allows structures further from the airfield to be taller than those nearby, with more stringent height restrictions placed upon structures generally lying along the extended runway centerlines.

With the exception of potential SUA expansion triggered by a need to contain live-fire ranges and UAS activities within a Restricted Area, discussed above in Section 3.2.1, the land use changes described in the LU-1 generally would not affect airspace use and management. The changes would not influence airfield operations at Biggs AAF, El Paso International, nor at the nearby general aviation airfields. The land use changes also would not affect ATC airspace classifications nor would they necessitate a change to a more restrictive classification.

Absent the construction of a new airfield, heliport, drop zone, landing zone, or training range involving aviation assets, the effect on airspace use and management of the land use changes would be as disclosed and analyzed in the 2007 SEIS. In general, unless land use changes create an obstruction or hazard to air navigation, or are one of the communications, surveillance or navigation components of NAS itself, there is little potential for their affecting airspace use and management.

Airspace managers at Fort Bliss, WSMR, Holloman as well as the sponsors of air carrier and general aviation airports, however, should remain vigilant for potential development to adversely affect navigable airspace and airfield operations. In particular, interested parties should monitor development proposals, both on-base and off-installation, for those having potential to attenuate air traffic control or weather radar signals such as wind farms. Other incompatible actions would be proposals that by virtue of their height (e.g., wind farms, cell towers), create a hazard to air navigation that in turn causes the minimum descent altitude or decision height of an instrument approach to an airfield to be higher than normal.

The potential to affect navigable airspace and limit the mission under LU-1 would be less than significant. Airspace managers should remain vigilant and follow the DoD AICUZ program to mitigate any potential affect to navigable airspace.

3.18.5 Land Use Changes Alternative 2 (LU-2)

Within the Land Use Changes category, selection of the Proposed Action would entail placement of bivouac/logistics sites in Southeast McGregor Range allow fixed sites in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506.

The direct and indirect effects on airspace use and management that implementation of this alternative would have area substantially the same as described above for LU-1. The proposed land use changes would underlie the existing R-5103 airspace. Changing land use in the southeastern portion of McGregor Range would not affect airfield operations at airports in the ROI nor create a need to change ATC airspace classifications. Since the proposed land use changes would underlie existing SUA, no change to

SUA dimensions or times of use would be made necessary by them and SUA scheduling and management would remain as it is described in LU-1 and in Section 3.17, Affected Environment.

3.18.6 Land Use Changes Alternative 3 (LU-3)

Within the Land Use Changes category, selection of this alternative would allow FTX sites and live-fire activities in the Northeast McGregor Range North of Highway 506.

The direct and indirect effects of this alternative on airspace use and management would be substantially the same as described above for LU-1. The proposed land use changes would continue to underlie the existing R-5103 airspace. Changing land use in the Northeast McGregor Range North of Highway 506 would not affect airfield operations at airports in the ROI nor create a need to change ATC airspace classifications. Since the proposed land use changes would underlie existing SUA, SUA dimensions or times of use would not change. SUA scheduling and management would remain as it is described in LU-1, and in Section 3.17, Affected Environment.

3.18.7 Land Use Changes Alternative 4 (LU-4)

Within the Land Use Changes category, selection of this alternative would include LU-2, LU-3, and Off-Road Vehicle Maneuver: Light use in the Northeast McGregor Range North of Highway 506.

The direct and indirect effects of this alternative on airspace use and management would be substantially the same as described in LU-1. The proposed land use changes would continue to underlie the existing R-5103 airspace. Changing land use in the southeastern portion of McGregor Range as well as that area north of Highway 506 would not affect airfield operations at airports in the ROI nor create a need to change ATC airspace classifications. Since the proposed land use changes would underlie existing SUA, SUA dimensions or times of use would not change. SUA scheduling and management would remain as it is described in LU-1 and in Section 3.17, Affected Environment.

3.18.8 Land Use Changes Alternative 5 (LU-5)

This alternative includes the land use changes described above in LU-4 and adds the establishment of Controlled FTX sites on Otero Mesa South of Highway 506.

Direct and Indirect Effects

The direct and indirect effects of this alternative on airspace use and management would be substantially the same as described above for LU-1. The proposed land use changes would continue to underlie the existing R-5103 airspace. Changing land use would not affect airfield operations at airports in the ROI nor create a need to change ATC airspace classifications. Since the proposed land use changes would underlie existing SUA, SUA dimensions or times of use would not change. SUA scheduling and management would remain as it is described in LU-1 and in Section 3.17, Affected Environment.

3.18.9 Training Infrastructure Improvements Alternative 1 (TI-1)

This alternative does not propose any improvements to training infrastructure beyond those disclosed and analyzed in the 2007 SEIS. The direct and indirect effects of selecting this alternative are identical to the effects described above in ST-1 and LU-1. With the exception of a potential proposal to change SUA dimensions (R-5103A), the affected environment would remain as described in Section 3.18.1.

3.18.10 Training Infrastructure Improvements Alternative 2 (TI-2)

Selection and implementation of this alternative would entail construction of a series of live-fire training ranges. Included in the proposed range construction projects would be a Digital Air/Ground Integration Range (DAGIR) for company-sized combined arms live-fire exercises. These exercises would include the use of attack helicopters during convoy live-fire exercises in a Military Operations in Urban Terrain (MOUT) setting. The DAGIR is designed to teach units the critical air-ground operational integration tactics, techniques, and procedures involved in optimally employing Army and Joint aircraft during combat.

Implementation of this alternative would not affect airspace use and management beyond the way described in ST-1 and LU-1. No effect on either airfield operations or ATC airspace would be anticipated from training activities occurring within McGregor Range or the Doña Ana training area. Construction of the DAGIR would have a tendency to focus rotary-wing operations to a more concentrated area; however, existing procedures for aircraft separation within the SUA that already are in place would be sufficient. The creation of this training facility, along with the others outlined as the Proposed Action does not generate a need for additional SUA, nor does it affect the manner in which Fort Bliss would schedule and manage it.

3.18.11 Training Infrastructure Improvements Alternative 3 (TI-3)

Implementation of this alternative would entail expanding range camps and constructing COLs within the FBTC in addition to the range facilities construction projects included in TI-2.

The direct and indirect effects resulting from implementation of this action would be substantially the same as those identified for TI-2. No change to airfield operations or ATC airspace would occur. All projects underlie existing or expanded R-5103 and existing R-5107 airspace. The range facility construction projects would underlie existing SUA. Therefore, no change to SUA boundaries, times of use, or management would be made necessary by the proposed expansion of range camps or construction of COLs.

3.18.12 Training Infrastructure Improvements Alternative 4 (TI-4)

In addition to the facilities mentioned in TI-3, implementation of this alternative would involve constructing a rail line to connect the Fort Bliss Cantonment and the FBTC.

Direct and Indirect Effects

The direct and indirect effects on airspace use and management that would result from implementation of this action would be identical to those discussed in TI-3. Construction of a rail line, in general, would not affect airfield operations or ATC airspace. With respect to SUA, the bulk of the line would be outside of SUA, running parallel and alongside the current Union Pacific and US-54 right-of-way, from Fort Bliss to Orogrande. This alignment places the rail line within the north/south VFR corridor until it turns east to enter the McGregor Range. Construction and use of rail would not create a need to change the SUA dimensions, would not change the utilization rates, nor would it influence the way the Fort Bliss SUA is managed.

3.18.13 Cumulative Effects of Stationing and Training Alternatives

Air Traffic Control airspace configurations are fairly stable and are not under undue pressure for reclassification to more restrictive classes in the ROI, generally. The classifications are a function of operations counts and passenger enplanements and available information indicates that these numbers are relatively stable at the airfields in the region.

With respect to SUA and its affect on other users, particularly civilian air traffic, airspace in the ROI is constrained. From surface to 10,000 feet MSL, the predominate need for the SUA managed and scheduled by Fort Bliss (R-5103A/B/C and R-5107A/K) is driven by ongoing training operations. These training operations include close air support flight operations, artillery and air defense artillery training, small-arms training, and similar activities create hazards to non-participating aircraft. Above 10,000 feet MSL, the need for SUA is driven more by other military users. The SUA complex in southeast New Mexico is one of very few in the country that are of sufficient size to allow the varied testing activities occurring at WSMR and the extensive airspace needed by the F-22 *Raptor* stationed at Holloman. Additionally, as the Air Force acquires UAS and stations them at Holloman AFB, the SUA need increases.

In combination, the Air Traffic Control airspace and the extensive SUA form an impediment to civil aircraft transiting the region, particularly when the presence of the international boundary and the terrain are considered. The north/south corridor along the west side U.S. Route 54 is helpful and necessary; additionally, the overall low density of based aircraft and pilot population in the region also tend to mitigate matters. Aircraft transiting the region along an east/west access have fewer options as there is no similar VFR corridor. The combination of terrain and sparse settlement patterns tend to make this less of an issue for general aviation; however, it should be kept in mind. At the higher altitude stratum (above 18,000 feet MSL), heavy utilization of the SUA in the region does have the potential to adversely affect air carrier and general aviation operation, requiring re-routing around active SUA. Some relief to both segments of civil aviation is afforded by an FAA initiative to make real-time SUA status available on demand (i.e. via telephone, air-to-ground radio frequencies, and online for use in flight planning). The utility of this is sometimes debatable as it relies upon the using agencies to accurately populate the FAA SUA real-time data base with sufficient frequency to be timely and useful for flight planning. Further, short notice military mission and training requirements can and do arise, requiring airspace to be activated to achieve the mission or training objective.

Collectively, SUA managed exclusively by Fort Bliss averaged a 19.75 percent increase over published operating hours. However, R-5103A was the primary SUA scheduled outside published operating hours, by 31.7 percent, or 1073 additional hours (Table 3-98). The operating hours for R-107A are continuous. The probability this SUA is utilized continuously is unrealistic. Usually, most installations that manage SUA with continuous operating hours establish procedures with the FAA to release the SUA during inactive periods. Inactive periods were not documented. Therefore, an accurate utilization analysis of R-107A was not feasible.

Table 3-98. SUA Saturation for Fort Bliss.

Name/ ID	Altitude (Feet MSL)	Times of Use	Operations Counts (2007)	Annual Days Available	Annual Published Hours	Actual Hours Scheduled (2007)	Scheduled Hours in Excess of Published	Utilization Percentage %
R-5103A/K	Surface to 17,999 MSL	0700-2000 Mon-Fri. Other times by NOTAM	34	260	3,380	4,453	1073	131.7%
R-5103B	Surface to Unlimited	0700-2000 Mon-Fri. Other times by NOTAM	199	260	3,380	3,644	264	107.8%
R-5103C	Surface to Unlimited	0700-2000 Mon-Fri. Other times by NOTAM	979	260	3,380	3,380	0	100%
R-5107A	Surface to Unlimited	Continuous	224	365	8,760	8,760	0	100%

Note: R-5103A was subdivided into R-5103A and R-5103K after the 2007 reports. No utilization data available for R-5107K.

Utilization rates are relatively high, often approaching or exceeding 100 percent – the latter of which means the users are activating the airspace outside of published hours through the notice to airman (NOTAM) process.

3.18.14 Cumulative Effects of Land Use Change Alternatives

The cumulative effect on airspace use and management of the land use changes, in conjunction with ongoing actions at WSMR, Holloman AFB or occurring throughout the El Paso region generally is minimal. The changes do not, in and of themselves, influence the manner in which the FAA classifies ATC airspace. With the exception of ensuring that range activities and UAS flight operations occur within SUA to protect civil users of the NAS, the land use changes occurring throughout the region would not create a need for additional SUA, nor would they change the manner in which the military manages its SUA assets.

3.18.15 Cumulative Effects of Training Infrastructure Improvement Alternatives

To the extent that the construction of training facilities supporting new units stationed at Fort Bliss increases utilization of SUA, it diminishes the likelihood of its being released to civil users. It appears, however, that utilization of R5103A/B/C and R5107A/K is already fairly high, both at the low altitude and high altitude strata, by Fort Bliss and Holloman AFB activities, respectively. It seems unlikely that the airspace could be returned to civil users more frequently since the odds are that one or both of the primary military users would require it on any given weekday. It also is not possible to differentiate any

effect constructing additional live-fire ranges would have on airspace utilization that would be separate and distinct from the effects of the Stationing and Training and Land Use Changes alternatives previously discussed.

3.19 Energy Demand and Infrastructure: Affected Environment

This section describes the current energy suppliers, demand, and energy infrastructure, and the possible environmental consequences of the Proposed Action and alternatives. Environmental consequences are based on the stationing and training of additional Soldiers and the construction and operation of new facilities. For energy demand and infrastructure, the environmental consequences analysis includes assessing the need for upgrades and any secondary impacts associated with those upgrades.

The ROI for energy demand and infrastructure is defined as the regional area served by the energy providers. The ROI includes the Cantonment, South Training Areas, Doña Ana Range–North Training Areas, McGregor Range and the surrounding counties.

Energy consumption is perhaps the major infrastructure and budgetary challenge to the Army. Recent increases in energy costs created an Army utility budget shortfall of $93 million for FY2001 and increases in energy costs for FY2002 to 2007 were estimated to require an additional $218 million. Increased energy costs are non-discretionary, which forces installation commanders to take funds from other accounts to pay for utilities, placing other mission areas at risk (Conrad 2001). The Army developed an Energy Strategy for Installations to address the rising costs of energy and increased risk to other mission areas. This Strategy is based on five major initiatives:

- Eliminate energy waste in existing facilities
- Increase energy efficiency in renovation and new construction
- Reduce dependence on fossil fuels
- Conserve water resources
- Improve energy security

Implementation of these initiatives would improve the working, training, and living environment at Army installations and save critical resources that can be used to support other Army missions, such as training and force deployment.

Army installations at Fort Bliss use both electrical power and natural gas. The demand for electricity is increasing throughout Fort Bliss as a result of increases in Soldiers and increases in the amount of electricity used per capita on the installation.

Energy consumption reduction efforts are guided by energy conservation programs detailed in the Energy Management Plan and installation policy letters. The Energy Management Plan supports the Energy Policy Act (EPACT) of 2005 which requires federal installations to meet multiple goals in the areas of energy conservation, reducing greenhouse gas emissions, renewable energy implementation and water conservation. Key resources for Army energy management include:

- EPACT 2005
- EO 13423, *Strengthening Federal Environmental, Energy and Transportation Management*

- AR 420-1, *Army Facilities Management*

The Army is trying to reduce its demand for electricity at Fort Bliss. New buildings and facilities are designed with energy saving features and construction. The Army also is looking at renewable sources and projects as a means to reducing demand for electricity.

3.19.1 Cantonment Area

In the Cantonment, the energy service providers include the EPEC and the EPGC. Natural Gas is the main heating fuel in this area.

3.19.1.1 Electricity

Electrical power is supplied to Fort Bliss by the EPEC through a 115 kV transmission line that serves Fort Bliss, the City of El Paso, and military reservations to the north. The line is part of a loop that can supply Fort Bliss from two directions. The EPEC power line supplying electrical power to the Cantonment has a loading capacity of 150 megavolt amperes (MVA) (LRC USACE 2005). The EPEC substation on Fort Bliss consists of two 15/20/25 MVA power transformers operated in parallel for a total capacity of 50 MVA.

The Cantonment has a peak demand of 30 MVA, or about one volt ampere per person on post. Average power consumption for the area, based on standard rates in Army Technical Manual TM-5-811, is on the order of 0.3 kilowatts/person, or 10 megawatts (MW) (LRC USACE 2005). EPEC has a total generating capacity of 840 MW and can purchase an additional 110 MW from the Four Corners Plant. Current peak electricity usage within the EPEC service area is estimated to be approximately 75 percent of available power (LRC USACE 2005). The Cantonment thus consumes approximately one percent of power available from EPEC (1.4 percent of peak electricity use). Off-site military dependents consume considerably less.

3.19.1.2 Natural Gas

Natural gas, the primary heating fuel in the Cantonment, is supplied by the EPGC through lines owned and maintained by Texas Gas Services. A number of distribution points, with an estimated total capacity of 2.5 million cubic feet per hour (CFH), are dispersed on a looped network throughout the post.

The annual consumption of natural gas in the Cantonment is not known. The design per capita gas consumption on post is estimated at 28.2 CFH (LRC USACE 2005), a level that would only be used on the coldest days. With a population on post of approximately 30,000, this translates to a consumption rate on the coldest days of 0.85 million CFH. Assuming an energy requirement of 80 British thermal units (btu) per square foot (ft^2) of floor space per hour, approximately 11 million ft^2 of floor space, and 1,000 btu per cubic feet of natural gas, the post requires approximately 0.88 million CFH on the coldest days. Texas Gas Company provides 25.9 billion cubic feet of natural gas per year to 28 cities in Texas, including El Paso, with an average annual consumption of 47 thousand cubic feet per customer (Texas Gas Service 2006).

3.19.1.2.1 South Training Areas

Electricity to meet the peak demand of the Site Monitor location, 268 kW, is supplied by EPEC. No natural gas is provided to the South Training Areas. Instead, Liquefied Petroleum Gas (LPG) is used for heating at the Site Monitor location. LPG is stored in four 1,000-gallon tanks, one 800-gallon tank, and one 500-gallon tank (U.S. Army 2000).

3.19.1.2.2 Doña Ana Range – North Training Areas

Electricity is supplied to Doña Ana Range Camp from an EPEC substation with a total capacity of 5,500 kV amperes (kVA) located to the southwest. Electricity is supplied to Orogrande Range Camp from a substation on WSMR to a 10 MVA substation on site. The WSMR substation, with power supplied by the EPEC, can meet an average power consumption of 3,034 kW (USACE 2005).

No natural gas is supplied to the Doña Ana Range–North Training Areas (USACE 2005). Doña Ana Range Camp has four 5,000-gallon LPG storage tanks serving most of the area, one 5,000-gallon tank serving eight buildings, and one 1,000-gallon storage tank serving a single building. Consumption of LPG is estimated to be seven gallons per person per month, and a 30-day supply must be maintained onsite (LRC USACE 2005).

3.19.1.2.3 McGregor Range

Electricity is supplied to McGregor Range Camp and Meyer Range Complex from an EPEC 7,500 kVA substation to the southwest, although a doubling in demand (15,000 kVA) can be provided without jeopardizing projected service requirements for the adjoining communities. McGregor Range Camp receives natural gas from the Texas Gas Services-owned and operated distribution system. The 2-inch, high-pressure line and high-pressure meters on site limit the capacity of the system. Meyer Range Complex has an LPG system. LPG is stored in two 2,000-gallon tanks in the bivouac area and a 500 gallon tank on the range. Consumption of LPG is estimated to be seven gallons per person per month, and a 30-day supply must be maintained onsite (LRC USACE 2005).

3.20 Energy Demand and Infrastructure: Direct and Indirect Effects

This section uses “energy” to mean consumable power resources such as electricity, natural gas, and LPG. The analysis evaluated whether the proposed project activities for each alternative would expand the specific installation components’ demand for regional energy to the extent that these energy demands would adversely affect the proposed project or affect regional energy demand or infrastructure.

This analysis includes identification and evaluation of the mission requirements for energy and the extent to which each installation component already meets these requirements. The population changes projected for each alternative were compared to the population in the ROI to forecast the proportionate increase in energy demands. These energy demand forecasts were compared to existing levels of energy demand and generation to determine if energy demand would be expected to increase significantly. The evaluation of potential impacts to energy demand or delivery systems (utility infrastructure) is based on the project’s potential to affect energy demand.

Factors considered in determining whether an alternative would have a significant impact on energy demand or utility infrastructure would include the extent or degree to which its implementation would result in increased demand for energy beyond the current capacity of generation or delivery systems to the point that substantial expansion of energy infrastructure, additional facilities, or increased staffing levels would be necessary or result in substantial deterioration over current conditions.

Table 3-99 classifies the impacts to energy demand or utility infrastructure for each alternative. The following sections summarize the estimated proportionate increases in projected consumption of electricity, natural gas, and LPG based on the proposed increases in stationing and training of Soldiers for each alternative. The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts are discussed in Chapter 5.

Table 3-99. Classification of Direct and Indirect Effects to Energy Demand and Generation.

VEC	Stationing and Training				Land Use Changes																				Training Infrastructure Improvements			
Energy	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Demand	○	⊙	⊙	⊙	○	○	○	○	○	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Infrastructure	○	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	⊙	⊙	⊙

○ No impact
⊙ Less than significant

3.20.1 Stationing and Training Alternative 1 (ST-1)

Energy Demand

Under ST-1, no new facilities would be constructed other than those previously analyzed in the 2007 SEIS and training would continue to occur as analyzed in the 2007 GTA PEIS. Energy demand for this alternative would be as described in the 2007 GTA PEIS. Energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008) would continue to be implemented. There would be no impacts to energy demand within the ROI for this alternative.

Energy Infrastructure

Under ST-1, no energy infrastructure improvements would be constructed other than those analyzed in the 2007 SEIS. Assuming completion of the planned infrastructure improvements needed to implement the stationing and training decision of the ROD for the 2007 SEIS, energy infrastructure would be adequate for stationing and training as projected for this alternative. There would be no impacts to energy infrastructure for this alternative.

3.20.2 Stationing and Training Alternative 2 (ST-2)

Energy Demand

Under ST-2, energy demand would increase as a result of increased training compared to ST-1. There would be no change in energy demand associated with construction or stationing. There would be an increase in energy demand as a result of increased use of the existing live-fire training ranges; however, the energy demand for live-fire training is minimal compared to other facilities at Fort Bliss. During maneuver training, power generation is typically self-contained (generators) and does not tap into the existing power infrastructure. Energy infrastructure would be adequate and energy conservation measures would continue to be implemented to reduce the usage of gas and electricity as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008). Impacts to energy demand within the ROI would be less than significant for this alternative.

Energy Infrastructure

Under ST-2, no training infrastructure improvements would be constructed other than those analyzed in the 2007 SEIS. Assuming completion of the planned infrastructure improvements needed to implement the stationing and training decision of the ROD for the 2007 SEIS, energy infrastructure would be adequate for stationing and training as projected for this alternative. Impacts to energy infrastructure would be less than significant for this alternative.

3.20.3 Stationing and Training Alternative 3 (ST-3)

Energy Demand

Under ST-3, additional facilities would be constructed or renovated within the Cantonment compared to the other alternatives. Implementation of ST-3 would result in increased energy demand within the Cantonment compared to the other alternatives. The proposed construction and renovation activities would result in a short-term increase in energy demand. Impacts to energy demand would be less than significant because this impact would be temporary and limited to the construction time period.

In the long term, operation of the new facilities would increase on-post energy demand. New Army facilities would be designed with energy saving features and would comply with AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* and the requirements under the new Energy Independence and Security Act of 2007. Impacts to energy demand within the ROI would be less than significant for this alternative because the new energy-saving features of the proposed facilities would likely offset some of the additional energy demand.

The additional on-post population under this alternative would result in a proportionate increase in energy demand compared to ST-1 and ST-2. This population increase of Soldiers and their families would represent an increase of less than two percent compared to the existing population in the ROI; therefore, long-term effects on energy demand would be minimal. Energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (US Army 2008). Impacts to energy demand within the ROI would be less than significant.

Training as projected for this alternative would result in additional energy demand compared to ST-1 and ST-2. There would be a minor increase in energy demand as a result of increased use of the existing live-fire training ranges; however, the energy demand for live-fire training is minimal compared to other facilities at Fort Bliss. During maneuver training, power generation is typically self-contained

(generators) and does not tap into the existing power infrastructure. Impacts to energy demand would be less than significant.

Energy Infrastructure

Under implementation of ST-3, energy infrastructure improvements would likely be required to accommodate the planned new facilities within the existing Cantonment footprint. Additional capital investments may be required under this alternative to extend energy infrastructure to the proposed new facilities. Impacts would be less than significant because the Army would provide the funding for the required capital improvements. During construction, power may need to be routed to the new facilities, and additional gas line connections or increased feeder line sizes may be needed to meet demands. Construction activities could result in temporary service interruptions in order to connect new lines and extend service. This impact would be less than significant because service interruptions would be minimized to the greatest extent possible and service would be returned to normal after construction is completed.

3.20.4 Stationing and Training Alternative 4 (ST-4)

Energy Demand

Under ST-4, additional facilities would be constructed or renovated within the Cantonment; therefore, implementation of this alternative would result in increased energy demand within the Cantonment compared to ST-3. The proposed construction and renovation activities would result in a short-term increase in energy demand. Impacts to energy demand would be less than significant because this impact would be temporary and limited to the construction time period.

In the long term, operation of the new facilities would increase on-post energy demand. New Army facilities would be designed with energy saving features and would comply with AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* and the requirements under the new Energy Independence and Security Act of 2007. Impacts to energy demand within the ROI would be less than significant for this alternative because the new energy-saving features of the proposed facilities would likely offset some of the additional energy demand.

For ST-4, the additional on post population would result in a proportionate increase in energy demand compared to ST-3. This population increase (Soldiers and dependents) would represent an increase of less than three percent compared to the existing population in the ROI; therefore, long-term effects on energy demand within the ROI would be minimal. Energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008). Impacts to energy demand within the ROI would be less than significant.

Training as projected for this alternative would result in additional energy demand compared to ST-3. There would be a minor increase in energy demand as a result of increased use of the existing live-fire training ranges for weapons qualifications; however, the energy demand for live-fire training is minimal compared to other facilities at Fort Bliss. During maneuver training, power generation is typically self-contained (generators) and does not tap into the existing power infrastructure. Impacts to energy demand would be less than significant.

Energy Infrastructure

Under implementation of ST-4, energy infrastructure improvements would likely be required to accommodate the additional new facilities planned within the existing Cantonment footprint. Additional capital investments may be required under this alternative to extend energy infrastructure to the proposed new facilities. Impacts would be less than significant because the Army would provide the funding for the required capital improvements. During construction, power may need to be routed to the new facilities, and additional gas line connections or increased feeder line sizes may be needed to meet demands. Construction activities could result in temporary service interruptions in order to connect new lines and extend service. This impact would be less than significant because service interruptions would be minimized to the greatest extent possible and service would be returned to normal after construction is completed.

3.20.5 Land Use Changes Alternative 1 (LU-1)

Energy Demand

Under LU-1, there would be no impacts to energy demand within FBTC because no facilities would be constructed and no land use changes are proposed. Energy consumption within FBTC would continue as described under the stationing and training alternatives and LPG consumption at FBTC would continue as described for the 2007 GTA PEIS. There would no impacts to energy demand within the ROI for any of the Stationing/Training alternatives.

Energy Infrastructure

Under LU-1, no improvements to training infrastructure would be constructed and no land use changes are proposed. Energy infrastructure within FBTC would remain as described under the stationing and training alternatives. Under LU-1, there would no impacts to energy infrastructure for any of the stationing and training alternatives.

3.20.6 Land Use Changes Alternative 2 (LU-2)

Energy Demand

Under LU-2, there would be no impacts to energy demand because no facilities would be constructed and the proposed land use changes would result in no changes in energy consumption. Energy demand would continue as described for the stationing and training alternatives and LPG consumption at FBTC would continue as described in the 2007 GTA PEIS. LU-2 would result in no impacts to energy demand within the ROI for any of the stationing and training alternatives.

Energy Infrastructure

Under LU-2, no improvements to training infrastructure would be constructed and minimal land use changes are proposed. Energy infrastructure within FBTC would remain as described for the stationing and training alternatives. Therefore, there under LU-2, there would no impacts to energy infrastructure for any of the stationing and training alternatives.

3.20.7 Land Use Changes Alternative 3 (LU-3)

Energy Demand

Under LU-3, there would be minimal impacts to energy demand because the proposed land use changes would result in little or no changes in energy consumption. For FBTC as a whole, total LPG consumption would continue as described in the 2007 GTA PEIS; however, LPG use may increase slightly within some training areas as a result of the placement of five square kilometers of Controlled FTX sites in the Northeast McGregor Range North of Highway 506. For FBTC as a whole, energy consumption would continue similar to current conditions. For any of the stationing and training alternatives, LU-3 would result in less than significant impacts on energy demand within the ROI.

Energy Infrastructure

Under LU-3, no improvements to training infrastructure would be constructed and minimal land use changes are proposed. Energy infrastructure within FBTC would remain as described for the stationing and training alternatives. For any of the stationing and training alternatives under LU-3, there would be no impacts to energy demand within the ROI.

3.20.8 Land Use Changes Alternative 4 (LU-4)

Energy Demand

Under LU-4, energy consumption within FBTC as a whole would be similar to that described for the stationing and training alternatives; however, additional fuel would be consumed within some portions of the training areas compared to the previous land use changes as a result of light off-road vehicle maneuvers in the Northeast McGregor Range North of Highway 506. This alternative would also result in additional LPG consumption within some training area compared to the LU-3. For any of the stationing and training alternatives under LU-4, impacts to energy demand within the ROI would be less than significant.

Energy Infrastructure

Under LU-4, no improvements to training infrastructure would be constructed and minimal land use changes are proposed. Energy infrastructure within FBTC would remain as described for the stationing and training alternatives. For any of the stationing and training alternatives under LU-4, there would be no impacts to energy demand within the ROI.

3.20.9 Land Use Changes Alternative 5 (LU-5)

Energy Demand

Under LU-5, energy consumption within FBTC as a whole would be similar to that described for the stationing and training alternatives. As described for LU-4, additional fuel would be consumed within some portions of the training areas as a result of light off-road vehicle maneuvers in the Northeast McGregor Range North of Highway 506. As a result of allowing Controlled FTX sites in three locations on Otero Mesa South of Highway 506, this alternative would also result in additional LPG consumption within some training areas compared to the other land use change alternatives. For any of the stationing and training alternatives under LU-5, impacts to energy demand within the ROI would be less than significant.

Energy Infrastructure

Under LU-5, no improvements to training infrastructure would be constructed and minimal land use changes are proposed. Energy infrastructure within FBTC would remain as described for the stationing and training alternatives. For any of the stationing and training alternatives under LU-5, there would be no impacts to energy demand within the ROI.

3.20.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Energy Demand

Under TI-1, there would be no impacts to energy demand because no construction of facilities or utility infrastructure is proposed. Energy would continue to be consumed at the existing training facilities similar to current conditions.

Energy Infrastructure

Under TI-1, there would be no impacts to energy infrastructure because no training facilities or utility infrastructure improvements would be constructed. Energy infrastructure would be adequate for this alternative.

3.20.11 Training Infrastructure Improvements Alternative 2 (TI-2)

Energy Demand

Under TI-2, energy demand would increase as a result of construction of up to 26 new ranges (Table 2-35) and potential future ranges (Table 2-36). In the short term, the proposed construction and renovation activities would result in an increase in energy demand; however, this impact would be temporary and limited to the construction time period. Impacts to energy demand would be less than significant.

In the long term, operation of the increased number of ranges would result in a proportionate increase in energy demand compared to TI-1; however, minimal additional energy would be required for operation of these new ranges compared to the overall energy demand at Fort Bliss and within the ROI. New Army facilities would be designed with energy saving features and construction to comply with AR 11–27, *Army Energy Program*, EO 13123, *Greening the Government through Efficient Energy Management*, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and the requirements under the new Energy Independence and Security Act of 2007. Energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008). Impacts to energy demand within the ROI would be less than significant because the new energy-saving features used for the proposed facilities would likely offset some of the increased energy demand.

Energy Infrastructure

Under implementation of this alternative, energy infrastructure improvements would likely be required to accommodate the planned range improvements. Additional capital investments may be required to extend energy infrastructure to the proposed new facilities. Energy infrastructure improvements would likely be required for required range construction and training as projected for the stationing and training alternatives. Impacts would be less than significant because the Army would provide the funding for the required capital improvements.

During construction, power may need to be routed to the new facilities, and additional gas line connections or increased feeder line sizes may be needed to meet demands. Construction activities could result in temporary service interruptions in order to connect new lines and extend service. Temporary impacts would be minimized because range construction would be performed using a phased approach from FY2010 to 2016. This impact would be less than significant because service interruptions would be minimized to the greatest extent possible and service would be returned to normal after construction is completed.

3.20.12 Training Infrastructure Improvements Alternative 3 (TI-3)

Energy Demand

Under TI-3, total energy consumption would increase within FBTC for improvements to existing range camps, and installation of 16 COLs. Construction-related impacts for this alternative would be similar to those described for TI-2. New Army facilities would be designed with energy saving features and energy conservation measures would continue to be implemented. Impacts to energy demand within the ROI would be less than significant because the new energy-saving features used for the proposed facilities would offset some of the increased energy demand.

Energy Infrastructure

Energy infrastructure improvements would be required as described for TI-2. An initial capital investment may be required to extend energy infrastructure to the proposed new ranges and range camp improvements at FBTC; however, COLs are not anticipated to require energy infrastructure. Construction-related impacts to energy infrastructure would be similar to TI-2 because COLs typically do not require energy infrastructure. Impacts would be less than significant because these impacts would be limited to the Army installation.

3.20.13 Training Infrastructure Improvements Alternative 4 (TI-4)

Energy Demand

Under TI-4, total energy consumption would increase within FBTC as a result of construction and operation of the training infrastructure improvements as described for Alternative 3, as well for the rail line (Figure 2-10). As described for TI-2, the new facilities would be designed with energy saving features and energy conservation measures would continue to be implemented at the new facilities. Impacts to energy demand within the ROI would be less than significant because the new energy-saving features used for the proposed facilities would likely offset some of the increased energy demand.

Energy Infrastructure

Under TI-4, energy infrastructure improvements would be required as described for TI-2. An initial capital investment may be required to extend energy infrastructure to the proposed new ranges and range camp improvements at FBTC; however, COL and the rail line are not anticipated to require energy infrastructure. Construction-related impacts to energy infrastructure would be similar to those described for TI-2. Impacts would be less than significant because these impacts would be limited to the Army installation.

3.21 Solid Waste and Hazardous Materials/Waste: Affected Environment

3.21.1 Solid Waste Management

The ROI for solid waste management includes the Army installations where the proposed activities would occur. Army solid waste policy is based on the concept of Integrated Solid Waste Management (ISWM) planning and development of an ISWM Plan. The ISWM Plan is designed to minimize the initial input into the waste stream. The Fort Bliss Directorate of Public Works Environmental Division coordinates solid waste management and planning with the Directorate of Public Works (DPW), Directorate of Community Activities (DCA), Defense Reutilization and Marketing Office (DRMO), Directorate of Contracting (DOC), Directorate of Resource Management (DRM), Residential Communities Initiative (RCI), and other installation organizations, tenants, and activities as required.

Domestic solid waste is collected and disposed of by private contractor at an on-site, government-owned; 106-acre landfill located three miles north of the intersection of Fred Wilson and Chaffee Roads (SEIS U.S. Army 2007). Landfill cells handle Type I waste (refuse) and Type IV waste (construction and demolition wastes). At current disposal rates, the Type I cell can accept waste through 2011, and the Type IV cell for approximately six and a half more years (U.S. Army 2009). Once the onsite landfill is filled to capacity, all refuse waste will be transported to an off-site landfill for disposal (Lenhart 2009).

Since 2000, Fort Bliss has had an aggressive waste recycling program, and all paper, plastic, and aluminum containers and metal scrap (from artillery use) are recycled. This has substantially reduced the post's reliance on the onsite landfill. In FY2005, the post generated approximately 105 tons of solid waste per day (tpd). Prior to July 1, approximately 47 tons of refuse and 44 tons of construction and demolition waste were disposed of in the on-post landfill per day, but beginning July 1, residential waste (approximately 8.8 tpd) was disposed of in the Clint Landfill, which is owned and operated by the City of El Paso.

Based on these figures, and assuming a continuation of the waste recycling program, the following per employee daily generation rates were calculated: approximately 2.6 pounds of refuse are disposed of in the post's landfill, and 0.3 pounds of material per day are recycled (SEIS U.S. Army 2007). The per capita generation rate for the residents and businesses in the City of El Paso is about three pounds per day or about 15 percent more than base employees. The Clint Landfill, a Type I landfill, is governed under TCEQ and USEPA rules and regulations. The landfill receives wastes from residents and businesses in the city. It is designed with a 30-year life expectancy at the current daily solid waste accumulation rate of 800 tpd (Corral 2005). Since the landfill was constructed in 1983, this implies closure around 2013. Several actions may be taken that could increase the life of the landfill, but it is not currently known how long they would extend operations.

Solid waste management at Fort Bliss is conducted in compliance with all applicable regulations. Key resources for Army solid waste management include:

- Fort Bliss Final Mitigation and Monitoring Plan;
- Fort Bliss Environmental Management Manual;
- PL 94-580, 1976 Resource Conservation and Recovery Act (RCRA);
- 40 CFR Parts 240-258, EPA's non-hazardous solid waste regulations;

- 26 USC 4611-4682, 1980, as amended 1983 and 1986, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA);
- EO 12088, 1978, Federal Compliance with Pollution Control Standards;
- EO 13423, Strengthening Federal Environmental, Energy and Transportation Management;
- AR 200-1, *Environmental Protection and Enhancement*;
- 10 USC 2577, Disposal of Recyclable Materials;
- Department of Defense Instructions (DoDI) 4715.4, Pollution Prevention;
- DoDI 4150.07, Pest Management Program; and
- 6 CCCR 1007-2, Part 1, Regulations Pertaining to Solid Waste Sites and Facilities.

3.21.2 Hazardous Materials/Waste

This section describes hazardous materials and hazardous wastes, as well as the related management programs at Fort Bliss. The ROI for hazardous materials and wastes includes the Cantonment area, including Biggs AAF, and the FBTC.

The 2000 Mission and Master Plan PEIS (U.S. Army) documented the impacts associated with hazardous materials and hazardous wastes at Fort Bliss. The 2007 SEIS provided updated information to augment the PEIS (US Army 2000). This document summarizes the information provided in these two previous EIS documents.

Specific regulations generally govern the use, storage, and disposal of hazardous materials and wastes. AR 200–1 governs all aspects of managing hazardous materials and regulated waste by military or civilian Soldiers and on-post tenants and contractors at all Army facilities. In compliance with the requirements of AR 200-1, Fort Bliss has developed a Hazardous Waste Management Plan, Waste Accumulation Points - SOPs, ISWM Plan, P2 Plan, Fort Bliss Integrated Pest Management Plan (IPMP), Spill Prevention, Control, and Countermeasures Plan (SPCCP), Asbestos Management Plan, Range Management Plan, and several other plans and Army SOPs that address environmental protection (Loman 2009). Hazardous material and waste management continues to follow Army, federal, and state regulations in order to minimize potential impacts to human health or the environment.

Hazardous materials and wastes at Fort Bliss include:

- Hazardous Chemicals
- Ammunition, Live-Fire, and Unexploded Ordnance
- Pesticides/Herbicides
- Petroleum, Oils, and Lubricants
- Wastes, including hazardous and specialized wastes, including medical and biohazardous waste, low-level radioactive waste, asbestos, lead, and polychlorinated biphenols.

Specific laws, regulations, and management plans govern the use and storage of hazardous materials and disposal of hazardous and specialized wastes. Solid waste management and the storage, use, and transport of hazardous materials, and disposal of hazardous and specialized wastes at Fort Bliss is conducted in compliance with all applicable regulations. Programs used to manage hazardous materials and wastes at Fort Bliss include their Installation Restoration Program (IRP), Military Munitions Response Program (MMRP), Compliance-Related Cleanup (CC), and P2. The Army maintains site-specific SPCC plans and pollution prevention plans that regulate the storage and use of petroleum products and hazardous materials, respectively.

3.21.2.1 Hazardous Materials

This section discusses the hazardous materials used, stored, and managed at Fort Bliss, including hazardous chemicals, ordnance and explosives, pesticides and herbicides, as well as petroleum, oils and lubricants and petroleum storage tanks.

3.21.2.1.1 Hazardous Chemicals

Training activities and installation maintenance require the use of many types of hazardous chemicals. Fort Bliss stores and uses hazardous chemicals, including a variety of flammable and combustible liquids. Types of hazardous chemicals used by the installation include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, cleaning agents, pesticides, herbicides, petroleum, oils, lubricants, fire retardants, photographic chemicals, alcohols, sealants, and ordnance (SEIS U.S. Army 2007).

In accordance with the Pollution Prevention Act (PPA) and Emergency Planning and Community Right-to-Know Act (EPCRA), source reduction, recycling, and treatment activities involving EPCRA Section 313 chemicals must be reported on Toxic Release Inventory (TRI) Form R. EPCRA Section 311 requires that facilities with chemicals stored above certain quantities must submit either copies of their Material Safety Data Sheets (MSDSs) or a list of MSDS chemicals, and Section 312 requires submission of an annual inventory report (Tier II report) for the same chemicals to the State Emergency Response Commission, Local Emergency Planning Committee, and the Fort Bliss Fire Department (PP Plan USACE 2005). Fort Bliss prepares a yearly chemical storage report in accordance with EPCRA Section 312. The report identifies the hazardous chemicals stored on Fort Bliss in excess of 10,000 pounds and generally includes the chemical name, physical state of the chemical, associated hazards, type of storage container, amounts stored, and storage locations. In January 2005, a survey of hazardous materials storage data at Fort Bliss identified the following as hazardous materials with potential to be reported in 2004 for Tier II: gasoline, JP-8, antifreeze, ordnance and munitions, breakthrough solvent, chlorine, and chemical agent resistant coating (CARC) paint (SEIS U.S. Army 2007). Calculations were performed on the total amounts of hazardous chemicals not exempt from EPCRA for determining whether a Tier II report was necessary. Based on the information gathered for 2004, gasoline and JP-8 exceeded reporting levels (U.S. Army 2005).

3.21.2.1.2 Ordnance and Explosives

Training exercises and testing activities at Fort Bliss expend a variety of ordnance. Ordnance is expended in a variety of grenades, mortars, howitzers, artillery, rockets, and missiles during training exercises and testing activities. DoD 6055.9 Standard defines UXO as “explosive ordnance that has been primed, fused, armed, or otherwise prepared for action, and that has been fired, dropped, launched, projected, or placed in such a manner as to constituted a hazard to operations, installations, Soldiers, or material and remains unexploded either by malfunction or design or for any other cause.” Grenades, mortars, and artillery weapons used in live-fire training can produce UXO; all other ammunition is inert.

Ordnance impact areas and buffer zones are off limits to unauthorized Soldiers. In addition, impact areas are posted with warning signs indicating the potential risks of unexploded ordnance on the impact area.

The Fort Bliss explosives ordnance disposal (EOD) unit eliminates explosives hazards on ranges by detonation in place of UXO, or, if safe to do so, by removing the hazard to the EOD range and detonating there (SEIS US Army 2007). Fort Bliss has five Military Munitions Response Program (MMRP) sites which are described in the MMPDEIS and summarized below.

- FTBLS-005-R-01, the New Mexico National Guard Impact Area on Doña Ana Range, has not been physically investigated (only a historical record search has been conducted) but is probably somewhat contaminated with UXO constituents. The location of this site must first be verified. The site coordinates place it on top of the existing Doña Ana Range Camp, which has been in its present location since the 1930s without recorded UXO discovery or evidence of live firing fragmentation.

- FTBLS-003-R-01 has the least chance of having UXO as it is the present site of the Shell Terminal. The ground surface in this area has been heavily reworked and is not near its original grade.

- FTBLS-001-R-01, McNew Surplus, and FTBLS-002-R-01, Maneuver Areas 1 & 2, are fairly remote and have minor human activity. These sites could contain some light UXO contamination.

- The fifth site is Castner Range, which is not proposed for any further military use. Fort Bliss plans to complete all site investigations by 2010 and execute follow-on phases/actions as required by the individual site cleanup strategies.

3.21.2.1.3 Pesticides and Herbicides

Pesticides and herbicides are required for insect and rodent control and for the control of unwanted vegetation, including noxious weeds. Authority for pest management activities on Fort Bliss is established by the IPMP (U.S. Army 2008). The IPMP is written under the authority of:

- Section 136 et seq. of title 7, United State Code, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as amended

- DoDl 4150.07, Pest Management Program, May 29, 2008

- AR 200-1, *Environmental Protection and Enhancement*

IPM is a sustainable approach that incorporates the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical strategies, chemical control may be an option used in conjunction with other methods. IPM strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts.

Pest management requirements and activities are coordinated and monitored by the IPM Coordinator while the DPW executes the pest control Service Orders. Major pests include mice, gophers, skunks, termites, mosquitoes, flies, cockroaches, crickets, ants, spiders, wasps and bees, ticks, and noxious weeds. Pest management practices are reviewed by the DPW to ensure safety of Soldiers, protection of natural resources, and compliance with environmental laws.

Fort Bliss has implemented an Integrated Pest Management Plan (IPMP). The function of the IPMP is to provide acceptable management of pests, outline the resources necessary for surveillance and control, and describe the administrative, safety, and environmental requirements of the program. Although IPMP emphasizes the use of nonchemical strategies, chemical control may be used in conjunction with other methods.

Pesticides are stored and mixed at two facilities on the Main Post, Buildings 2509 and 3008 (SEIS U.S. Army 2007). Material Safety Data Sheets (MSDSs) for the pesticides are kept at each of those buildings. The pesticides and equipment inventories at each of the storage facilities are updated every year, and an Annual Pesticide Use Report (pesticide use measured in pounds of active ingredients) is generated. Copies of these inventories are provided to the Fort Bliss Fire Department and the Safety Officer.

3.21.2.1.4 Petroleum Oils and Lubricants and Petroleum Storage Tanks

Petroleum, oils and lubricants (POLs) are used throughout the Fort Bliss installation. POLs include engine fuels (gasoline, diesel, JP-8, and jet fuel), motor oils and lubricants, and diesel and kerosene heating fuels.

Fort Bliss has completed a four-phase project to upgrade existing underground storage tanks (USTs) to meet federal and state requirements and reduce total number of USTs on the installation. Records indicate that 98USTs and 160 aboveground storage tanks (ASTs) are currently in use for storing diesel fuel, unleaded gasoline, used oil, antifreeze, JP-8 jet fuel, and heating oil (SEIS U.S. Army 2007). One UST and three ASTs are located at the Doña Ana Range–North Training Areas; three USTs and one AST are located at Orogrande Range; and five USTs and 18 ASTs are located on McGregor Range (Lenhart 2005). Fort Bliss has identified 36 sites that formerly had leaking petroleum storage tanks, of which four were ASTs. All have been remediated and closed except for a gasoline pipeline release that occurred in 2005 and is currently under remediation by the company which owns the pipeline.

3.21.2.1.5 Hazardous and Specialized Waste

Specific laws, regulations and management plans govern the disposal of hazardous wastes and specialized waste streams, including medical and biohazardous waste, low-level radioactive waste, asbestos, lead, and PCBs. Solid waste management and disposal of hazardous and specialized waste streams at Fort Bliss are conducted in compliance with all applicable regulations. The Fort Bliss hazardous waste management program includes an Installation Hazardous Waste Management Plan (IHWMP) and Army SOPs for the handling and storage of hazardous waste. These documents provide detailed information on training; hazardous waste management roles and responsibilities; and hazardous waste identification, storage, transportation, and spill control, consistent with federal and state regulations. A summary of the typical quantities of hazardous and universal waste generated by Fort Bliss operations on an annual basis is provided in Appendix C of the 2007 SEIS.

The Fort Bliss Waste Analysis Plan (2009) documents procedures for USEPA classification and identification of hazardous wastes to ensure compliant management of all waste streams generated at Fort Bliss. It is intended to ensure compliance with 40 CFR, "Protection of Environment;" 30 Texas Administrative Code (TAC) 335, "Industrial Solid Waste and Municipal Hazardous Waste;" "New Mexico Environment Division, Hazardous Waste Management Regulations", and DoD rules. The Waste Analysis Plan is updated annually or more frequently if there is a change in the waste stream.

Fort Bliss is registered with the EPA as a "Large Quantity Generator" of hazardous waste, per the Resource Conservation and Recovery Act (42 U.S.C. 6901) as defined by 40 CFR Parts 262 and 264. In the state of Texas (EPA ID #TX4213720101) and the installation's status (large quantity generator or small quantity generator) changes from year to year in the state of New Mexico (EPA ID # NM4213720101) depending on the activities at the ranges and the volume of hazardous waste generated as a result. Fort Bliss is permitted by TCEQ to operate as a Hazardous Waste Storage Facility (HWSF) (SEIS U.S. Army 2007). The operating permit was renewed on March 11, 2002, and is valid for 10 years. The permit allows Fort Bliss to store hazardous waste at the HWSF for up to one year and five 90-day storage facilities. Fort Bliss also operates three 90-day storage facilities in New Mexico.

The Fort Bliss HWSF is located at the Building 11614 area of Biggs AAF and is currently managed by the DE and DRMO (SEIS U.S. Army 2007). Wastes generated throughout Fort Bliss, including the FBTC, are brought to one of the 90-day storage facilities or the Permitted Facility (Building #11614) area for classification, labeling, and storage. The DE inspects containers of waste before the waste is removed from waste accumulation points and taken to a 90 Day Storage Facility or the HWSF. Once containers are transferred to the HWSF, the DE inspects the waste to determine if it can be classified as a material that can be reissued (e.g., unopened containers, expired shelf-life items). If it is determined that the substance is a waste, the DE characterizes the waste stream based on documented process knowledge, MSDS information, or by obtaining a chemical analysis of a sample of the waste. Wastes must be characterized and identified as hazardous or non-hazardous to determine proper disposition.

Waste processing at the facility is continual, resulting in a turnaround time of approximately 90 days and ensuring that storage capacity is available for wastes generated during training exercises or spills. Several times a month, or more often if necessary, wastes are transported to an off-site Treatment, Storage, and Disposal Facility (TSDF) (U.S. Army 2002).

Fort Bliss submits an Annual Waste Summary to TCEQ detailing the management of each hazardous waste generated on site during the previous calendar year. A waste minimization report is also submitted to TCEQ in accordance with the installation's hazardous waste permit. In addition, a Biennial Report is submitted to NMED in every even-numbered year and covers the activities for the previous odd-numbered year, per 40 CFR 262.41. These reports detail information on the hazardous wastes generated, including the Department of Transportation (DOT) hazard class, the EPA hazardous waste identification number, TCEQ waste codes, the quantity of waste, the EPA Identification (ID) Number of each TSDF the waste was sent to, and a description of the Fort Bliss waste minimization program. A summary of types and amounts of hazardous and universal waste generated by Fort Bliss operations during the period 1997-2004 is provided in Appendix C of the 2007 SEIS (U.S. Army).

3.21.2.1.6 Medical and Biohazardous Waste

Medical wastes include wastes generated by hospitals, clinics, physicians' offices, dental offices, veterinary facilities, and other medical laboratories and research facilities. The Army complies with MEDCOM 40-35, Management of Regulated Medical Waste, for the handing, use, and disposal of medical and dental supplies and wastes.

Biohazardous waste can typically include human blood and blood products, cultures and stocks of infectious agents and associated biological wastes, isolation wastes, contaminated and unused sharps, animal carcasses, contaminated bedding material, and pathological wastes. Fort Bliss generates approximately 13,000 pounds of medical and biohazardous waste per month at the Dental Clinic, two Blood Banks, the Veterinary Clinic, the Troop Clinic, and WBAMC (SEIS U.S. Army 2007). Large-scale training exercises, such as Roving Sands, may add several thousand pounds of waste per month during the exercise. Waste is collected and stored at the generating locations. These wastes are

picked up by a licensed medical waste contractor about every other day and removed from the post (U.S. Army 2000). Radioisotopes used for medical purposes are discussed in the following subsections.

3.21.2.1.7 Radioactive Waste

Low-Level Radioactive Waste

Various Fort Bliss organizations and WBAMC generate small amounts of low-level radioactive waste. The use of radioisotopes for medical purposes generates short-lived (half life less than 90 days), low-level waste. Other Fort Bliss organizations also generate low-level radioactive waste from commodity items such as unusable compasses, dials, targeting devices, gauges, rocket sights, and chemical weapons detection equipment. These wastes include the radioactive isotopes tritium, thorium 232, radium 226, americium 241, nickel 63, promethium 141, cesium 137, cobalt 60 and strontium 90. All waste items are consolidated, inventoried, the radioactive material removed if possible, and temporarily stored in waste containers (SEIS U.S. Army 2007). The consolidated waste is collected for subsequent disposal at an authorized disposal site. Short-lived radiological waste generated by WBAMC is managed by the hospital Radiation Safety Officer.

All other low-level waste is managed by the Installation Radiation Protection Officer. Low-level waste is segregated at a turn-in point and is stored within a double-fenced, locked area on the Cantonment. Over recent years, Fort Bliss has drastically reduced the amount of low-level radioactive waste generated (SEIS U.S. Army 2007). During the period from 2003 to the present, one 55-gallon drum has been used and is still in use. The Installation Radiation Protection Officer coordinates all radiological waste shipments with Army Material Command. Currently, the Army is coordinating with waste deposit sites in Nevada to dispose of low-level radioactive wastes from Fort Bliss. Once a waste repository site is designated, a disposal contractor would transport the waste from Fort Bliss to the assigned waste deposit site (Collins 2005).

Depleted Uranium

Current Army policy prohibits the use of depleted uranium (DU) ammunition for training worldwide (AR 385-63). The Army thoroughly cleans its vehicles and equipment prior to shipment from one location to another as part of the extensive list of procedures required to deploy military equipment. In addition, vehicles undergo a rigorous inspection process prior to their return from overseas deployments. Armored vehicles determined to have damaged armor are sent to an Army Depot for repair. Armored vehicles at Fort Bliss that require more than routine mechanical repair are also evacuated to an Army Depot. Fort Bliss is not an Army equipment repair depot and is not expected to be designated as such in the foreseeable future. These actions ensure vehicles are not returned to United States with DU materials or residues. Since there are no DU materials present at Fort Bliss there are no potential environmental impacts from DU materials at Fort Bliss.

Asbestos

Asbestos is a mineral fiber once routinely used in construction materials. Buildings constructed prior to 1980 are considered to be at risk for ACM. Approximately 80 percent of all buildings on Fort Bliss contain some form of ACM. Many of the buildings at Fort Bliss were built or renovated between 1940 and 1975, when the use of asbestos was common (SEIS U.S. Army 2007). The majority of the asbestos was in the form of pipe insulation, most of which has been removed and replaced with nonhazardous material. Several other types of ACM, such as floor tiles, cement siding, and

wall/ceiling coverings remain in place throughout Fort Bliss facilities. As long as this ACM remains non-friable and in good condition, it is not considered a health risk (U.S. Army 2000).

Fort Bliss has an Asbestos Management Plan for the identification and removal of friable asbestos. It is Fort Bliss policy to presume all buildings built before 1990 contain asbestos.

Prior to any renovation or demolition, asbestos surveys are performed and abatement is conducted as required. Limited surveys are presently being conducted in buildings that have been identified for renovation. Surveys are limited to the area of renovation to comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP) asbestos requirements. Complete building surveys are conducted for those buildings identified for demolition (Felix 2006). As of July 2005, a private contractor has been responsible for identifying all areas of ACM within housing at Fort Bliss. The contractor is responsible for conducting asbestos surveys as necessary; providing the results to the Army; and maintaining a database containing the list of homes that have been tested for asbestos, the test results, any action taken to abate potential hazardous areas, and housing units/buildings demolished to make way for new housing.

Regulated ACM resulting from renovation and demolition projects is disposed off-site in an approved landfill. The landfill permit from TCEQ allows disposal of regulated and non-regulated ACM in the landfill.

Lead

Potential sources of lead at Fort Bliss include lead-based paint and lead munitions. Many of the houses and facilities at Fort Bliss were constructed before 1978 and are likely to contain lead-based paint. Currently, Fort Bliss has 3,070 military housing units with 2,303 of these constructed prior to 1978 (SEIS U.S. Army 2007).

Lead-based paint is regulated at the state level by the Texas Department of State Health Services and at the federal level by the EPA, the Occupational Health and Safety Administration (OSHA) in the U.S. Department of Labor, and the Centers for Disease Control and Prevention in the U.S. Department of Health and Human Services. The Army policy is to follow the most stringent federal, state, or local lead regulations.

It is Fort Bliss policy to provide a lead-hazard-free living and working environment for Soldiers and their families. In 1998, Fort Bliss conducted a lead-based paint inspection of its housing units and five major groups of houses built before 1978 were identified (SEIS U.S. Army 2007). Lead contamination is found in soils near older homes where deteriorated exterior paint has leached into the soil during rain events.

A risk-based assessment has been completed on all family housing at Fort Bliss, and a project for encapsulation or abatement of lead-contaminated surfaces on the exterior porches of family housing units was implemented. To date, all lead wastes have been determined to be nonhazardous and were disposed of in the Fort Bliss landfill (Felix 2006).

Since July 2005, a private contractor has been responsible for conducting lead inspections and risk assessments if necessary, providing the results to the Army, and maintaining a database containing the list of homes that have been tested for lead, results of the tests, and any action taken to abate potential hazard areas (Felix 2006). The contractor is also responsible for managing lead-based paint during renovations and operations and maintenance of Fort Bliss housing.

Other facilities at Fort Bliss that may be sources of lead include administrative buildings, warehouses, storage buildings, and water towers. DE has instituted a SOP for the review of any type of work that may

disturb lead-based paint. In addition, an SOP for compliance with OSHA standard is attached to any work order reviewed. This ensures that OSHA's standard for Lead in Construction is adhered to during any operation that is covered by this standard.

Soils with lead contamination are also found at gun and artillery practice ranges where lead munitions are used. At Fort Bliss, very high levels of lead in soil have been found around steel structures such as bridges, water towers, and shooting ranges (U.S. Army 2001).

Polychlorinated Biphenyls

Transformers manufactured prior to 1976 and light ballast manufactured before 1979 are likely to contain Polychlorinated Biphenyls (PCBs). The Fort Bliss PCB management program is comprised of a PCB Management Plan, updated SOPs, and a new PCB Compliance Tracking System database which includes an inventory of all tested electrical and hydraulic equipment with data plate information; an updated inventory of new electrical equipment; and tracking of "out of service" electrical equipment. Fort Bliss has completed three PCB survey, testing, and labeling projects since 1990 (SEIS U.S. Army 2007). The identified PCB transformers, capacitors, and other PCB items have been removed from service and disposed of properly through DRMO. There are approximately 300 PCB-contaminated transformers (equal to or greater than 50 ppm and less than 500 ppm of PCBs) in service (Duran 2005). There are no regulatory requirements to replace those transformers.

Waste PCBs and PCB items are managed through DRMO and sent to a designated off-site facility for disposal in accordance with Toxic Substance Control Act (TSCA) regulations. PCB wastes are stored at a TSCA facility, separate from the RCRA Part B facility, before disposal.

Installation Restoration Program

The Installation Restoration Program (IRP) is an ongoing DoD-administered program for identifying, evaluating, and remediating contaminated sites on federal lands under DoD control. The program was implemented in response to CERCLA requirements to remediate sites that posed a health threat. Section 211 of the Superfund Amendments Reauthorization Act (SARA) amended CERCLA and established the Defense Environmental Restoration Program (DERP) through which DoD funds and conducts its environmental restoration programs.

All Fort Bliss IRP in Texas have been closed. Sites in New Mexico include the McGregor, Doña Ana, and Meyer Oxidation Ponds, which have been moved into the Compliance-Related Cleanup (CC) program for groundwater monitoring. All medium- and low-risk IRP sites in Texas and New Mexico have been remediated and closed with the exception of Area A-1, where soil is being sampled for pesticides. Fort Bliss may be required to maintain a Corrective-Actions Only Permit because there are several Solid Waste Management Units (SWMUs) in New Mexico that have not yet been granted No Further Action status (McKernan 2006).

Compliance-Related Cleanup

Only two CC sites are currently open. The landfill at the Orogrande Range Camp is known to be a small municipal landfill receiving household trash and garbage from the range camp. For years, the practice was to burn the landfill contents, greatly reducing the chance of liquid waste. The depth to the regional aquifer, intervening clay layers, and sparse rainfall also protect it from environmental release.

Spill Prevention, Control, and Countermeasures Plan (SPPCP)

The purpose of the Fort Bliss SPCCP (September 2004) is to form a comprehensive federal/state spill prevention program to minimize the potential for discharges from the Army installations. Fort Bliss has supplemented the SPCCP with an Installation Spill Contingency Plan (ISCP). The ISCP is attached to the SPCCP as Appendix A and establishes responsibilities, duties, procedures, and resources to be employed to contain, mitigate, and clean up oil and hazardous substance spills. DOE is the primary point of contact for matters pertaining to the SPCCP. For spills or suspected spills that occur in New Mexico, spills of "any amount of any materials in such quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or may unreasonably interfere with the public welfare or the use of property" must be reported to the NMED by verbal notification. Spills that occur within Texas must be reported to the State Emergency Response Center. Notification must be made upon determination that a reportable discharge or spill of oil, petroleum product, used oil, hazardous substance, industrial solid waste, or other substances into the environment in a quantity equal to or greater than the reportable quantity listed in 30 TAC Part 327.4 in any 24-hour period.

The SPCCP is considered a "living document" and may be amended by the EPA Regional Administrator or Fort Bliss. After review by the EPA Regional Administrator of the information provided during a spill notification requirement or after on-site review of the plan, the EPA Regional Administrator may require that the plan be amended following his review of information provided regarding a spill or as a result of an on-site review of the plan if it does not comply with 40 CFR112. In addition, the SPCCP would be amended by the Army if there is a change in a facility's design, construction, operation, or maintenance that materially affects its potential for discharge. The SPCCP is evaluated at least once every five years and appropriate updates are incorporated.

Pollution Prevention (P2)

P2 encompasses activities which reduce the quantity of hazardous, toxic, or industrial pollutants at the source by changing production, industrial, or other waste generating processes. The goal is to reduce the generation of hazardous wastes by significantly reducing the use of products containing hazardous material compounds. EOs, Army regulations, and state environmental laws have been enacted to provide the method and means by which federal facilities would prevent pollution and reduce wastes. A basic requirement of these regulations is the creation of a P2 plan (USACE 2005).

The Fort Bliss P2 Plan (July 2005) establishes Fort Bliss' roadmap for achieving federal, state, Army, and installation P2 goals. The Fort Bliss P2 Plan complies with current Army regulations and TCEQ requirements. In accordance with the Texas Waste Reduction Policy Act (WRPA) and AR 200-1, the Fort Bliss P2 Plan is revised every five years or when warranted by a change in function or process at Fort Bliss. The P2 Plan also contains listings of hazardous waste generating activities and Toxic Release Inventory (TRI) activities at Fort Bliss, along with current inventories.

Fort Bliss has a central recycling center and one drop-off point with containers for cardboard, papers, magazines, newspapers, toner cartridges, cell phones, and plastics. Since 1998, the Fort Bliss HazMart has been the central point for hazardous materials management. The HazMart process includes a free issue program, shelf-life extension service, and household hazardous waste turn-in. Mandatory workplace recycling was implemented in November 1996 and a Fort Bliss Recycling Policy, U.S. Army Garrison Regulation 200-2, was signed on March 8, 2005, making recycling mandatory (SEIS U.S. Army 2007). The recycling center currently recycles about 163 tons of material a month. Fort Bliss also has recycling programs for used antifreeze, wet lead acid batteries, used tires, used oil, scrap metal, aluminum cans, and solvents.

3.22 Solid Waste and Hazardous Materials/Wastes: Direct and Indirect Effects

This section identifies the solid waste, hazardous material, and hazardous waste direct and indirect effects of the proposed action and alternatives presented in Chapter 2 with respect to the following three categories: Category 1, stationing and training alternatives; Category 2, land use change alternatives; and Category 3, training infrastructure improvement alternatives.

Numerous federal, state, and local laws regulate the storage, use, recycling, disposal, and transportation of solid wastes, as well as hazardous materials and hazardous wastes. The methods for assessing potential impacts associated with solid wastes and hazardous materials and wastes for each project alternative generally include the following:

- Reviewing and evaluating each of the alternatives to identify the action's potential to generate solid waste, use hazardous materials, or generate hazardous wastes based on the activities proposed
- Comparing the location of each proposed project activity with baseline data on known or potentially contaminated areas and areas that may contain UXO
- Assessing the compliance of each proposed project activity with applicable site-specific hazardous materials and waste management plans
- Assessing the compliance of each proposed project activity with applicable site-specific Army SOPs and health and safety plans in order to avoid potential hazards
- Determining known or suspected contamination potentially affected by each proposed project activity, including ongoing Army IRP remediation activities

The overall methodology, including data sources and assumptions, used to conduct this impact evaluation is consistent with the Army NEPA Manual for Installation Operations and Training. This manual describes the various types of materials and waste that should be considered to identify potential impacts of the proposed project activities.

Factors considered in determining whether hazardous materials and wastes associated with each project alternative would result in significant impacts include the extent or degree to which the alternative's implementation might:

- Endanger the public or environment during the storage, transport, or use of ammunition
- Expose military Soldiers or the public to areas potentially containing UXO without adequate protection
- Cause a spill or release of a hazardous substance (as defined by Title 40, CFR Part 302 [CERCLA], or Parts 110, 112, 116 and 117 [CWA])
- Expose the environment or public to any hazardous condition through release or disposal (for example, open burn/open detonation disposal of unused ordnance)
- Adversely affect contaminated sites or the progress of IRP remediation activities

- Cause the accidental release of friable (easily crumbled by hand pressure) asbestos or lead-contaminated materials during the demolition or renovation of a structure

- Generate either hazardous or acutely hazardous waste, resulting in increased regulatory requirements over the long term

No DU is anticipated to be generated at Fort Bliss under any of the alternatives. Impact analysis was not required for DU.

The potential cumulative effects associated with the direct and indirect effects are discussed in Chapter 4. The potential measures that could be used to mitigate direct, indirect, and cumulative impacts identified as significant, or significant but mitigable to less than significant are discussed in Chapter 5.

Table 3-100 classifies the direct and indirect impacts associated with solid wastes, hazardous materials, and hazardous wastes under implementation of each of the alternatives. The Army follows strict SOPs for storing and using hazardous materials; therefore, no new procedures would need to be implemented to store or use the construction-related or operation-related hazardous materials. Hazardous material and fuel management is described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008).The regulatory and administrative requirements that would be implemented to minimize impacts to the environment or human health and safety are summarized in the following subsections.

Table 3-100. Classification of Direct and Indirect Impacts Associated with Solid Waste, Hazardous Materials, and Hazardous Wastes.

VEC	Stationing and Training				Land Use Changes																				Training and Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1				LU-2				LU-3				LU-4				LU-5				TI-1	TI-2	TI-3	TI-4
					ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4				
Solid Waste	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Hazardous Materials and Hazardous Wastes	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

⊙ Less than significant

3.22.1 Stationing and Training Alternative 1 (ST-1)

Solid Waste

Under ST-1, no new facilities would be constructed other than those analyzed in the 2007 SEIS. For this alternative, solid waste would continue to be generated at rates as described in the 2007 SEIS and would continue to be placed in existing landfills. The capacities of the existing landfills are anticipated to be exceeded in the near future and additional landfills would be constructed. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. The ISWM Plan is designed to minimize the initial input into the waste stream. With continued implementation of the ISWM Plan, Waste Accumulation Point SOP, planned recycling and reuse programs, and other standard Army mitigation, along with construction of additional planned waste facilities, impacts to solid waste management would be less than significant.

Hazardous Materials/Wastes

Under ST-1, hazardous materials would continue to be stored and used for installation maintenance and during training exercises. The amounts of hazardous materials used would remain as described in the 2007 SEIS and 2007 GTA PEIS. The Army follows strict regulations and SOPs for the transport, storage and use of hazardous chemicals and materials. Therefore, no new procedures would need to be implemented to store or use the construction-related or operation-related hazardous materials. Standard spill prevention measures would be implemented during construction.

Hazardous materials would continue to be handled in accordance with existing regulations and installation-wide hazardous materials management and SOPs. The Army would continue to implement regulatory and administrative programs and plans, such as the ISWM Plan, ITAM, the INRMP (including ecosystem management), the AR 350-19, *The Army Sustainable Range Program*, hazardous material and fuel SOPs as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008). Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous materials or wastes or exposure of Army personnel, the public, or the environment to hazardous materials used or hazardous wastes generated during facility maintenance or training.

Unexploded Ordnance and Explosives

Under ST-1, Soldiers stationed at Fort Bliss would continue to conduct live-fire training at the existing training ranges to meet weapon qualification requirements. For training as projected under this alternative, the number of required live-fire user days per year and the amount of ammunition used would remain similar to current conditions. Ammunition handling and storage methods, disposal protocols, and safety procedures would continue to be conducted in accordance with existing regulations; therefore, ammunition use for this alternative is expected to result in less than significant impacts.

The use of munitions during training would continue to generate UXO and lead within the live-fire impact zones. For training as projected under this alternative, range degradation would continue to occur at rates similar to current conditions. The Fort Bliss EOD unit would continue to eliminate explosives hazards on ranges by detonation or removal of UXO. Impact zones would be temporarily closed and remediated as needed. Impacts would be less than significant because current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with UXO and would minimize the potential for human or environmental exposure to UXO or lead.

When Soldiers train at the ranges, safety protocol must be followed in order to protect the public from injury or accidents. SDZs are established in accordance with Army Pamphlet 385-64, *Ammunition and Explosive Safety Standards*. In addition, in order to prevent conflict with recreational activities in areas near the training ranges, land use restrictions are set up to limit access to the areas during range training times. SDZs are included in the design configuration for the proposed ranges.

Additionally, similar safety protocols must be implemented to protect Army Soldiers during range training. Soldiers are given safety manuals with a complete discussion of safety procedures while training. In addition, before training, Soldiers are briefed on range-specific safety measures that may be necessary during the exercise. Finally, Soldiers and officers are provided with field manuals for each specific operation and exercise that give more detailed procedures and protocol to be followed to prevent accidents.

All Soldiers or government contractors accessing impact areas would continue to follow OSHA and Army standards and guidelines to minimize health and safety impacts from exposure to any contaminants or ordnance. The general public would be allowed in or near impact areas only at times and in group sizes approved by Army Command. Army-trained and -certified Soldiers would escort the general public at all times. Access is limited to those areas deemed safe by Army Range Control. With continued implementation of standard Army regulatory and administrative requirements, impacts would be less than significant.

Pesticides and Herbicides

Under this alternative, pesticides and herbicides would continue to be used at the Cantonment and the FBTC at rates similar to current conditions. Pest management would continue in accordance with the IPMP. With continued implementation of standard Army regulatory and administrative requirements, impacts would be less than significant because pesticide and herbicide use would be controlled to minimize the potential for human exposure or endangerment of the environment.

Petroleum, Oils, and Lubricants and Petroleum Storage Tanks

Under ST-1, POLs would continue to be stored and used within the Cantonment and the FBTC and there would be a continued potential for accidental spills of POLs. Under this alternative, Fort Bliss would continue to use both USTs and ASTs for storage of fuels and other petroleum products, but any new tanks would most likely be ASTs. All USTs have been upgraded to meet federal and state environmental requirements. The existing capacity for POL storage at Fort Bliss is expected to be sufficient for this alternative. Fort Bliss maintains compliance through an aggressive inspection and maintenance program to avoid releases and minimize environmental impacts. Best management practices would be practiced at all storage facilities, and Soldiers would follow USEPA and Army protocols for using and handling hazardous materials, such as fuels. Fort Bliss maintains strict SOPs and spill contingency plans for hazardous materials and waste, identifying specific operating responsibilities and procedures. Portable containment systems would be used at in-field refueling points and would be capable of containing potential fuel releases from fuel tanker vehicles. Secondary containment would continue to be used at the vehicle maintenance and repair locations. The continued use of these secondary containment systems would minimize the risk of area contamination from inadvertent POL spills. Existing POL handling and storage methods, and safety procedures would continue to be implemented in accordance with existing regulations. With continued implementation of standard Army regulatory and administrative requirements, impacts are expected to be less than significant because the likelihood of POL spills would be minimized and inadvertent spills would be quickly identified and remediated to avoid exposure of military personnel or the public and to prevent endangerment of the public or environment..

Hazardous Materials/Wastes

Under ST-1, Fort Bliss would continue to use hazardous materials and generate hazardous wastes at rates similar to current conditions and at the same approximate quantities as described in the 2007 SEIS and 2007 GTA PEIS. Hazardous wastes generated would include medical and biohazardous, low-level radioactive, asbestos- and lead-contaminated materials, and PCBs. All operations involving hazardous waste would be accomplished in accordance with Army regulations and the existing Fort Bliss waste management programs, including the ISWM Plan. With continued implementation of Army SOPs, impacts associated with hazardous materials and wastes would be less than significant impacts.

Under implementation of ST-1, the P2 Program at Fort Bliss would continue as described in the MMPDEIS. The ISWM Plan and P2 Plan would be updated as needed to incorporate mission activities associated with the new units stationed at Fort Bliss and expanded training activities on the FBTC.

Current IRP activities would continue similar to current conditions for ST-1. Restoration of currently identified sites would continue and any new sites identified would be added to the program. The contaminated wastes that are removed from IRP sites would be managed in accordance with approved practices and procedures. The overall impact of the MMRP and IRP programs would be beneficial, since contaminated sites would be restored. With continued implementation of Army SOPs for IRP sites, impacts would be less than significant.

3.22.2 Stationing and Training Alternative 2 (ST-2)

Solid Waste

Under ST-2, the quantities of solid waste generated would increase slightly proportionate to the number of additional Soldiers training compared to ST-1; however, solid waste management would continue as described in the 2007 SEIS. With an increase in utilization of the training facilities, more frequent refuse pickup would be required. Solid waste generation would increase compared to ST-1. With continued implementation of the ISWM Plan, Waste Accumulation Point SOP, planned recycling and reuse programs, along with construction of additional planned waste facilities, impacts to solid waste management would be less than significant.

Hazardous Materials/Wastes

For ST-2, the hazardous materials used, hazardous wastes generated and Army SOPs for management of hazardous materials wastes would be similar to those described for ST-1. Under ST-2, the quantities of hazardous materials used and hazardous wastes generated would increase slightly proportionate to the number of additional Soldiers training; however, these amounts would increase minimally compared to ST-1. Standard spill prevention measures would be implemented during construction. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous materials or wastes or exposure of Army personnel, the public, or the environment to hazardous materials used or hazardous wastes generated during construction, facility maintenance or training. For training as projected under this alternative, more ammunition would be used, the amounts of UXO and lead generated within live-fire impact zones would increase, and range degradation would occur at an accelerated rate proportionate to the number of additional Soldiers training compared to the other alternatives. Ammunition, UXO, and lead safety procedures and protocols would continue to be conducted in accordance with existing regulations.

Regulatory and administrative mitigation, such as ISWM Plan, ITAM, INRMP, ecosystem management, AR 350-19, *The Army Sustainable Range Program*, and hazardous material and fuel SOPs as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (U.S. Army 2008) would continue to be implemented. Impact zones would be temporarily closed and remediated as needed. Impacts would be less than significant because current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with UXO and would minimize the potential for human or environmental exposure to UXO or lead. Vehicle and equipment use as projected for this alternative would result in the transport, storage and use of additional quantities of POLs, resulting in a proportionate increase in the potential for inadvertent spills. Best management practices would be practiced at all storage facilities, and Soldiers would follow EPA and Army protocols for using and handling hazardous materials, including fuels. At in-field refueling points portable containment systems would be used and would be capable of containing potential fuel releases from fuel tanker vehicles. This would minimize the risk of area contamination from inadvertent POL release. Secondary containment would also be used at the vehicle maintenance and repair locations.

The existing capacity for storage and disposal of hazardous materials and wastes at Fort Bliss is expected to be sufficient to handle any potential increases in fuel-related materials. All operations involving hazardous materials and wastes would comply with AR 200-1, *Environmental Protection and Enhancement* and TCEQ regulations. Fort Bliss maintains strict SOPs and spill contingency plans for hazardous materials and waste, identifying specific operating responsibilities and procedures. With continued implementation of standard Army regulatory and administrative requirements, impacts are

expected to be less than significant because the likelihood of POL spills would be minimized and inadvertent spills would be quickly identified and remediated.

3.22.3 Stationing and Training Alternative 3 (ST-3)

Solid Waste

ST-3, additional solid waste would be generated compared to the other alternatives. The quantities of solid waste generated would increase proportionate to the amount of new facility construction and the number of additional Soldiers stationed and training at Fort Bliss compared to the other alternatives; however, the increase would be minimal compared to ST-1 because the increase in population (Soldiers and military families) for this alternative would represent an increase of less than two percent compared to the existing population in the ROI. Solid waste management would continue similar to current conditions. With an increase in utilization of the training facilities, additional on-site refuse storage and more frequent refuse pickup would be required. The construction of additional facilities at both the Cantonment and FBTC under this alternative would also generate additional construction waste that would either be recycled or disposed of in the regional landfills. With continued implementation of standard Army waste management, recycling and reuse programs, along with construction of additional planned waste facilities, impacts associated with the generation of greater quantities of solid wastes would be less than significant.

Hazardous Materials/Wastes

Under ST-3, additional quantities of hazardous materials would be used and greater quantities of hazardous wastes would be generated compared to the other alternatives; however, the types of materials and wastes would be similar to those described for ST-1. The Army SOPs for hazardous materials and hazardous waste management would be identical to those described for ST-1. Under ST-3, the quantities of hazardous materials used and hazardous wastes generated would increase proportionate to the amount of new facility construction and the number of additional Soldiers stationed and training at Fort Bliss; however, these amounts would increase minimally compared to ST-1. Under ST-3, the increase in population (Soldiers and military families) would represent an increase of less than two percent compared to the existing population in the ROI. Standard spill prevention measures would be implemented during construction. All operations involving hazardous materials and wastes would comply with AR 200-1, E*nvironmental Protection and Enhancement* and TCEQ regulations. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous materials or exposure of Army personnel, the public, or the environment to hazardous materials.

During renovation or demolition of older buildings to clear the way for construction of new facilities, asbestos and lead-contaminated soils and wastes from lead-based paint may be encountered and removed, and could temporarily generate small amounts of hazardous waste. Construction or other activities within the existing or planned ranges could take place in areas that contain UXO. Excavation activities could result in exposure to IRP sites. The Army SOPs for management of hazardous wastes would be identical to those described for ST-2. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous wastes or exposure of Army personnel, the public, or the environment to hazardous wastes generated during construction.

For training as projected under this alternative, more ammunition would be used, the amounts of UXO and lead generated within live-fire impact zones would increase, and range degradation would occur at an

accelerated rate proportionate to the number of additional Soldiers training compared to the other alternatives. The Army SOPs for ammunition, UXO, and lead would be identical to those described for ST-2. With continued implementation of standard Army regulatory and administrative requirements, impacts would be similar to those described for ST-2 and would be less than significant because current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with UXO and would minimize the potential for human or environmental exposure to UXO or lead.

Vehicle and equipment use as projected for this alternative would result in the transport, storage and use of additional quantities of POLs, increasing the potential for inadvertent spills. Impacts would be similar to those described for ST-2. With continued implementation of standard Army regulatory and administrative requirements, impacts are expected to be less than significant because the likelihood of POL spills would be minimized and inadvertent spills would be quickly identified and remediated.

3.22.4 Stationing and Training Alternative 4 (ST-4)

Solid Waste

Under ST-4, the additional solid waste would be generated proportionate to the amount of new facility construction and to the number of additional Soldiers stationed and training at Fort Bliss. However, this increase would be minimal compared to ST-1 because the increase in population (Soldiers and military families) for this alternative would represent an increase of less than three percent compared to the existing population in the ROI. Solid waste management would continue similar to current conditions. With an increase in utilization of the training facilities, additional on-site refuse storage and more frequent refuse pickup would be required. The construction of additional facilities at both the Cantonment and FBTC under this alternative would also generate additional construction waste that would either be recycled or disposed of in the regional landfills. With continued implementation of standard Army waste management, recycling and reuse programs, along with construction of additional planned waste facilities, impacts associated with the generation of greater quantities of solid wastes would be less than significant.

Hazardous Materials/Wastes

Under ST-4, additional quantities of hazardous materials would be used and greater quantities of hazardous wastes would be generated compared to previous alternatives; however, the types of materials and wastes would be similar to those described for ST-1. Under ST-4, the quantities of hazardous materials used and hazardous wastes generated would increase proportionate to the amount of new facility construction and the number of additional Soldiers stationed and training at Fort Bliss; however, these amounts would increase minimally compared to ST-1. Under ST-4, the increase in population (Soldiers and military families) would represent an increase of less than three percent compared to the existing population in the ROI.

Potential impacts under ST-4 would be the same in nature, but greater in magnitude compared to those described under ST-3. These impacts would be less than significant due to continued implementation of standard Army regulatory and administrative measures to minimize the potential for inadvertent spills or releases of hazardous materials or exposure of Army personnel, the public, or the environment to hazardous materials.

3.22.5 Land Use Changes Alternative 1 (LU-1)

Solid Waste

Under LU-1, there would be minimal impacts to solid waste generation or management within the FBTC because no facilities would be constructed and the percentage of use expressed as percentage of training days scheduled at each FBTC subdivision would not change. Solid waste would continue to be generated within FBTC at rates as described for the stationing and training alternatives. Army administrative and regulatory requirements would continue to be implemented, including the waste minimization as outlined in the ISWM Plan. For any of the stationing and training alternatives under LU-1, impacts to solid waste management would be the same as described under each stationing and training alternative.

Hazardous Materials/Wastes

Under LU-1, there would be minimal impacts to types and quantities of hazardous materials used and hazardous wastes generated within FBTC and because no facilities would be constructed the percentage of training days at each FBTC subdivision would not change under this alternative. For this alternative, the types and quantities of hazardous materials used and hazardous wastes generated within FBTC, as well as the existing programs to manage hazardous materials and wastes, would be similar to those described for training under the stationing and training alternatives. For any of the stationing and training alternatives under LU-1, impacts to hazardous materials and wastes would be the same as described under each stationing and training alternative.

3.22.6 Land Use Changes Alternative 2 (LU-2)

Solid Waste

Under LU-2, impacts associated with solid waste management would be similar to those described for LU-1. Solid waste would continue to be generated at rates as described for the stationing and training alternatives. Army administrative and regulatory requirements would continue to be implemented, including waste minimization as outlined in the ISWM Plan. For any of the stationing and training alternatives under LU-2, impacts to solid waste management would be the same as described under each stationing and training alternative and would be less than significant.

Hazardous Materials/Wastes

Under LU-2, impacts associated with hazardous materials and wastes would be similar to those described for LU-1. Army administrative and regulatory requirements would continue to be implemented. For any of the stationing and training alternatives under LU-2, impacts to hazardous materials and wastes would be the same as described under each stationing and training alternative and would be less than significant.

3.22.7 Land Use Changes Alternative 3 (LU-3)

Solid Waste

Under LU-3, the types and amounts of solid waste generated within FBTC as a whole would be as described for stationing and training alternatives. For this alternative, there may be increased amounts of refuse generated within portions of some FBTC subdivisions as a result of the increased use; therefore, the frequency of waste removal may need to be adjusted proportionate to the increased percentage of use. Percentage of use is expressed in terms of estimated percentage of training days scheduled for each BCT unit within existing FBTC subdivisions. For training as projected for this alternative, the IBCT percentage

of use for the Northeast McGregor Range North of Highway 506 would increase under this alternative; however, the percentage of IBCT use would decrease in the Otero Mesa South of Highway 506 (Table 2-14 and 2-19). For HBCT and SBCT training, the percentage of use would remain the same for all stationing and training alternatives. The percentage of use of the remaining FBTC subdivisions would be similar to current conditions. Within FBTC as a whole, solid waste would continue to be generated at rates similar to LU-1. With continued implementation of standard Army administrative and regulatory requirements, including waste minimization as outlined in the ISWM Plan, this alternative would result in less than significant impacts to solid waste management for any of the stationing and training alternatives.

Hazardous Materials/Wastes

Under LU-3, the types and amounts of hazardous materials used and hazardous wastes generated within FBTC as a whole would be as described for the stationing and training alternatives. For this alternative, the quantities of hazardous materials used and hazardous wastes generated may increase slightly in some FBTC subdivisions proportionate to the percentage of use as described for solid waste. The frequency of waste removal would need to be adjusted based on the rate of waste accumulation; however, this alternative would result in minimal increases in the quantities of hazardous wastes generated because live-fire training as projected would involve weapons that do not produce UXO and the percentage of light off-road vehicle maneuver within the FBTC subdivisions would not change. Within FBTC as a whole, hazardous wastes would continue to be generated at rates similar to current conditions. Under this alternative, additional amounts of LPG would be stored and used for heating the Controlled FTXs established on the FBTC. Impacts would be similar to those described for POLs in ST-1. Existing programs to manage hazardous materials and wastes would be similar to those described for training under ST-1. With continued implementation of standard Army regulatory and administrative requirements, impacts associated with hazardous materials or hazardous wastes would be less than significant for any of the stationing and training alternatives.

3.22.8 Land Use Changes Alternative 4 (LU-4)

Solid Waste

Under LU-4, the types and amounts of solid wastes generated within FBTC as a whole would be as described for the stationing and training alternatives. Under LU-4, there may be increased amounts of refuse generated within portions of some FBTC subdivisions as a result of the increased percentage of use; therefore, the frequency of waste removal may need to be increased for these areas. Compared to the previous land use alternatives, training as projected for LU-4 would result in continued increases in the IBCT percentage of use for the Northeast McGregor Range North of Highway 506, while percentage of use for IBCT would remain the same at Otero Mesa South of Highway 506 and decrease at for South Training Areas in comparison to LU-3 (Tables 2-19 and 2-24). The percentage of use of the remaining FBTC subdivisions would be similar to current conditions. With continued implementation of standard Army administrative and regulatory requirements, including the waste minimization as outlined in the ISWM Plan, impacts to solid waste management would be less than significant for any of the stationing and training alternatives.

Hazardous Materials/Wastes

For this alternative, the types and amounts of hazardous materials used and hazardous wastes generated within FBTC as a whole would be as described for the stationing and training alternatives. Under LU-4, the quantities of hazardous materials used and hazardous wastes generated may increase slightly within some FBTC subdivisions and may be reduced in other FBTC subdivisions proportionate to the percentage of use. The frequency of waste removal would need to be adjusted proportionate to the amounts of wastes

generated within the FBTC subdivisions; however, this alternative would result in minimal increases in the amounts of hazardous wastes generated because live-fire training as projected would involve weapons that do not produce UXO.

Under this alternative, light off-road vehicle maneuver training would be allowed within limited areas in the Northeast McGregor North of Highway 506. Additional fuels would be used in portions of this FBTC subdivision as a result of allowing light off-road vehicle maneuver training and additional amounts of LPG would be stored and used for heating at the Controlled FTXs. With continued implementation of standard Army administrative and regulatory requirements, this alternative would result in less than significant impacts associated with hazardous materials or wastes for any of the stationing and training alternatives.

3.22.9 Land Use Changes Alternative 5 (LU-5)

Solid Waste

Under LU-5, solid wastes within FBTC as a whole would continue to be generated as described for Stationing and training alternatives. Compared to the other land use change alternatives, LU-5 may result in increased amounts of refuse generated within portions of three sites on Otero Mesa South of Highway 506 as a result of allowing Controlled FTX at these sites. The frequency of waste removal may need to be adjusted proportionate to the percentage use of the FBTC subdivisions. With continued implementation of standard Army administrative and regulatory requirements, including waste minimization as outlined in the ISWM Plan, this alternative would result in less than significant impacts to solid waste management for any of the stationing and training alternatives.

Hazardous Materials/Wastes

Under LU-5, the types and amounts of hazardous materials used and hazardous wastes generated within FBTC as a whole would be as described for the stationing and training alternatives. Under this alternative, impacts associated with hazardous materials and wastes would be similar to those described for LU-4; however, additional amounts of LPG may be stored and used within the three Controlled FTX sites on Otero Mesa South of Highway 506. With continued implementation of standard Army regulatory and administrative requirements, impacts associated with hazardous materials or wastes would be less than significant for any of the stationing and training alternatives.

3.22.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Solid Waste

Under TI-1, there would be no impacts to solid waste management and solid waste would continue to be generated similar to current rates and managed as described for training under the stationing and training alternatives. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. The ISWM Plan is designed to minimize the initial input into the waste stream. With continued implementation of the ISWM Plan and other standard Army SOPs, there would be no impacts to solid waste management for this alternative.

Hazardous Materials/Wastes

Under TI-1, hazardous materials would continue to be used and hazardous wastes generated at rates as analyzed in the 2007 SEIS and 2007 GTA PEIS. With continued implementation of standard Army

administrative and regulatory requirements, there would be no impacts associated with hazardous materials or hazardous wastes.

3.22.11 Training Infrastructure Improvements Alternative 2 (TI-2)

Solid Waste

Under TI-2, increased amounts of solid waste would be generated during construction and operation of the 26 new ranges and potential additional future ranges within FBTC. For this alternative, solid wastes would continue to be managed as described for training under stationing and training alternatives. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. The ISWM Plan is designed to minimize the initial input into the waste stream. With continued implementation of the ISWM Plan and other standard Army SOPs, impacts to solid waste management would be less than significant.

Hazardous Materials/Wastes

For TI-2, the hazardous materials used, hazardous wastes generated, and Army SOPs for management of hazardous materials wastes would be similar to those described for ST-1. Range construction as projected for this alternative, would require the use of additional amounts of hazardous materials compared to TI-1. However, contract specifications control the purchased amounts and use of hazardous materials and require compliance with federal, state, and local requirements and with installation policy on hazardous materials. Standard spill prevention measures would be implemented during construction. During operation of the new ranges as projected for this alternative, impacts associated with hazardous materials and hazardous wastes would be similar to the stationing and training alternative selected. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous materials or wastes or exposure of Army personnel, the public, or the environment to hazardous materials used or hazardous wastes generated during construction, facility maintenance or training.

Under TI-2, new ranges would be constructed within areas currently used for Army activities at the FBTC. During range construction, UXO and lead could be encountered. Construction would be preceded by Army-sponsored surface and subsurface clearance and if necessary, followed by ordnance health and safety monitoring during construction in order to reduce potential exposure and impacts from this project. Although UXO presents a significant impact, the Army would follow proper abatement techniques, which would reduce this impact to acceptable. In addition to these mitigation measures, the Army would continue to educate Soldiers on how to identify UXO and the proper safety procedures for handling UXO. Impacts would be less than significant because current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with UXO and would minimize the potential for human or environmental exposure to UXO or lead.

None of the facilities to be constructed as a part of this alternative would be located on land with known contamination. However, construction excavation can expose soils contaminated by historic uses of sites. An Excavation Clearance Request (dig permit) must be obtained prior to any excavation activities. Any discovered contaminated soil or groundwater would not be removed from construction sites without written approval from an authorized Army representative. Should contamination be discovered during preconstruction or construction, appropriate soil remediation would be implemented. These methods would be agreed upon by the Army, USEPA, and TDEQ. Impacts would be less than significant

3.22.12 Training Infrastructure Improvements Alternative 3 (TI-3)

Solid Waste

Compared to TI-2, increased amounts of solid waste would be generating during expansion of existing range camps and construction and operation of 16 COL facilities as proposed for TI-3. The amounts of solid waste generated would increase proportionately with the number of additional facilities installed. For this alternative, solid wastes would continue to be managed as described for training under the stationing and training alternatives. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. The ISWM Plan is designed to minimize the initial input into the waste stream. With continued implementation of the ISWM Plan and other standard Army SOPs, impacts to solid waste management would be less than significant.

Hazardous Materials/Wastes

Compared to TI-2, slightly greater quantities of hazardous materials would be used and hazardous wastes generated during expansion of existing range camps and construction and operation of 16 COL facilities as proposed for this alternative. For TI-3, the amounts of hazardous materials used and hazardous wastes generated would increase proportionately with the number of additional facilities installed; however, impacts associated with hazardous materials and wastes would be similar to those described for range construction under TI-2. With continued implementation of standard Army regulatory and administrative requirements, impacts would be less than significant.

3.22.13 Training Infrastructure Improvements Alternative 4 (TI-4)

Solid Waste

Compared to the other alternatives, larger amounts of solid wastes would be generated for construction and operation of the facilities and rail line as proposed for TI-4. For this alternative, solid wastes would continue to be managed as described for training under the stationing and training alternatives. Waste collection, storage, and disposal processes would remain mostly unchanged, and current waste management programs would continue. The ISWM Plan is designed to minimize the initial input into the waste stream. With continued implementation of the ISWM Plan, impacts to solid waste management would be less than significant.

Hazardous Materials/Wastes

Compared to the other alternatives, construction and operation of the facilities and rail line as proposed for this alternative would use larger amounts of hazardous materials and as a result, greater quantities of solid and hazardous wastes would be generated. For TI-4, the amounts of hazardous materials used and hazardous wastes generated would increase proportionately with the number of additional facilities installed; however, impacts associated with hazardous materials and wastes would be similar to those described for range construction under TI-2. During construction of the new rail line, creosote-treated railroad ties and other hazardous wastes may be encountered. Impacts would be less than significant because continued implementation of standard Army regulatory and administrative measures would minimize the potential for inadvertent spills or releases of hazardous materials or wastes or exposure of Army personnel, the public, or the environment to hazardous materials used or hazardous wastes generated during construction, facility maintenance or training.

3.23 Noise: Affected Environment

3.23.1 Definition of Resource

Noise is defined as a sound that can induce hearing loss or interfere with ordinary daily activities, such as communication or sleep. People's reaction to noise varies according to the duration, type, and characteristics of the source; distance between the source and the listener; listener sensitivity; background noise level; and, time of day. It is important to keep in mind the distinction between the physical characteristics that are used to quantify sound levels versus the more qualitative or subjective aspects of the person, animal, or object on the receiving end. It is the adverse reaction to sound or the annoyance created by sound that is defined as noise. Despite the subjective reaction, however, noise can be measured; that is, sound sources having certain characteristics can reasonably be expected to induce harm or annoyance and this can be quantified in a statistically meaningful manner. Prediction of annoyance is predicated on ensuring that the quantifying or comparing of noise exposure accounts for the intensity, frequency weighting (pitch), and duration of the sound. To quantify noise and describe its effects on the natural and human environment, a basic description of sound terminology is presented below.

3.23.1.1 Characteristics of Sound

Sound is a series of vibrations (energy) transmitted through a medium (such as air or water) that are perceived by a receiver (e.g., humans). It is measured by accounting for the energy level represented by the amplitude (volume) and frequency (pitch) of those vibrations and comparing that to a baseline standard.

3.23.1.1.1 Intensity (Expressed as Decibels [dB])

As a sound wave moves through the atmosphere, it creates a temporary increase in pressure; the pressure change is detected as sound. The magnitude of the pressure change is the loudness and the frequency of those temporary changes is the pitch. The healthy human ear detects pressure differences over a wide range of sensitivities. For example, a whisper heard 2 meters away creates a pressure change from standard atmospheric pressure of approximately 0.0006 Pascals, whereas an M16 rifle at the firer's ear creates a change of 1,000 Pascals. Although one event represents 1,666,666 times more energy than the other, both represent sounds that can be readily heard by a human ear. A handy method for comparing these vast pressure differences is to describe them in exponential rather than linear terms. This simplifies the units and more closely depicts the way humans actually perceive sound levels. The decibel is a logarithmic ratio of the increase in atmospheric pressure a sound event causes compared to a defined reference or baseline pressure, one which happens to be the lowest detectible pressure recognized by the human ear (0.00002 Pascals).[10] When using decibels to depict airborne sound pressure levels, 0 dB is the threshold of human hearing and exponential increases occur every 10 dB. To most listeners a difference of 1 decibel is "just noticeable," 3 decibels is "clearly noticeable," and 10 decibels is "twice as loud." An event that generates 60 dB of sound is considered to be twice as loud as one that generates 50 dB. In the example above, the whisper (0.0006 Pascals) translates to 29 dB and the M16 rifle shot (1,000 Pascals) is 153 dB.

3.23.1.1.2 Weighting Scales

The perception of "loudness" is not consistent across frequencies. At low intensities of energy (low dB), a low-frequency sound is not perceived to be as loud because the human ear simply does not hear it. As

[10] The formula for calculating a decibel level is: $20 \log_{10} \{P/P_0\}$ where P is the pressure level of an event and P_0 is the reference pressure (0.00002 Pascals).

the energy level increases, the perceived loudness increases far more rapidly than it does for mid-frequency sounds. Because of this, the sound pressure level represented by a given decibel value is typically adjusted to make it more relevant to sounds that the human ear hears especially well. For example, an "A-weighted" decibel [dB(A)] is derived by emphasizing mid-range frequencies to which the human ear responds especially well and de-emphasizing, or penalizing, frequencies below 1000 Hertz (Hz) and frequencies above 5000 Hz. The A-weighting scale is the most widely used dB weighting procedure and this weighting is used when assessing subsonic noise from aircraft operations.

The other predominant weighting scale, developed and used in characterizing noise from military operations, particularly from use of artillery and munitions, is the "C-weighted" decibel [dB(C)]. This weighting is commonly used for blast noise, sonic booms, or other low-frequency sounds capable of inducing vibrations in buildings or other structures. The C-weighted sound level de-emphasizes frequencies below 50 Hz and frequencies above 500 Hz that are less perceived by the human ear. This weighting is chosen because most of the sound energy contained within these types of noise sources is a low-frequency content (below 30 Hz), whereas lesser amount of energy (dB) can lead to a greater degree of annoyance that would occur at mid-frequency pitches. The annoyance often occurs both from the impulsive, rapid and explosive onset of the sound which tends to startle, as well as stimulate a result within the receiver of "feeling" the noise. This type of noise also can penetrate buildings or induce secondary noise from windows or walls in a building rattling from the low-frequency energy. An alternative measure for evaluating of blast noise or sonic boom events that sometimes is used is a peak overpressure measurement.

3.23.1.1.3 Duration

Sound levels are further differentiated by factoring in the effect of time since sound levels normally vary in intensity and typically are not continuous. Essentially, the energy from a noise event is summed and then spread over a specified time interval, such as a second. This allows for comparison of events having different intensities and durations by examining the total energy of the event.

3.23.1.2 Noise Metrics

The building block of noise metrics used in describing noise is the Sound Pressure Level. It simply describes in terms of dB a sound pressure level (dB-SPL) at any given instant in time. From this building block, several other noise metrics used by the Army are derived.

The *Maximum Sound Level (L_{max})* is the peak value of all the instantaneous *Sound Pressure Levels* that occur during a noise event. The limitation of this metric for noise (annoyance) analysis is that peak sound level taken out of the context of an event's duration or its time of day does not adequately address annoyance. For example most would agree that a more intense, single event (e.g. 125 dB Lmax) lasting 3 seconds (i.e. an aircraft flyover) that occurs once per day around 1:00 PM is less annoying than a 95 dB Lmax event (a jackhammer in a construction site very close to a house) that lasts for 6 hours, every day and occurs at 11:00 PM, despite the greater peak intensity.

A comparison of a series of peak noise values is useful when noise levels can vary day to day.

The *Peak Noise Exceeded by 15 Percent of Firing Events [PK 15(met*)] metric is the peak noise level, without frequency weighting, expected to be exceeded by 15 percent of all firing events. The advantage of this metric is two-fold: first, when using a contour plot of PK 15(met), noise events would be expected to fall within the contours 15 percent of the time. Second, it is used as a supplemental noise metric to overcome limitations inherent in averaging noise exposures. This metric is for assessing noise impacts arising from both large caliber weapons and small arms ranges.

Although instantaneous peak measurements are useful, particularly from the perspective of occupational health and safety, a means of expressing an average noise level is necessary in order to account for time since the duration of an event is an important factor in predicting annoyance.

The *Equivalent Time Integrated Sound Level (L_{eq})* reflects the average continuous sound in a given continuous time period. It is a metric that takes into account both intensity of an event and duration. The metric considers variations in sound magnitude over periods of time, sums them, and reflects, in a single value, the acoustic energy present during a specified time period. Common time periods for averaging are 1, 8, and 24-hour periods. It is important to note that a resultant L_{eq} can also be expressed in the components of frequency, allowing the user to better define and evaluate a particular noise source.

The *Sound Exposure Level (SEL)* is a specific type of L_{eq} that describes a receiver's cumulative exposure over the course of an event and compresses that energy into a one-second period (Figure 3-35). For noise events whose duration is greater than one second, the *SEL* will be greater than the L_{max}. Conversely events with durations shorter than one second the SEL will be less than the L_{max}. SEL is a very useful metric for predicting short term activity interruption or reaction by wildlife to a noise stimulus. It is used to allow direct comparison of events having varying intensities and durations, such as an aircraft overflight, by calculating SELs of those events. The fact that SEL is a cumulative metric means that louder events have greater SELs than do quieter events and longer events have greater SELs than do shorter events.

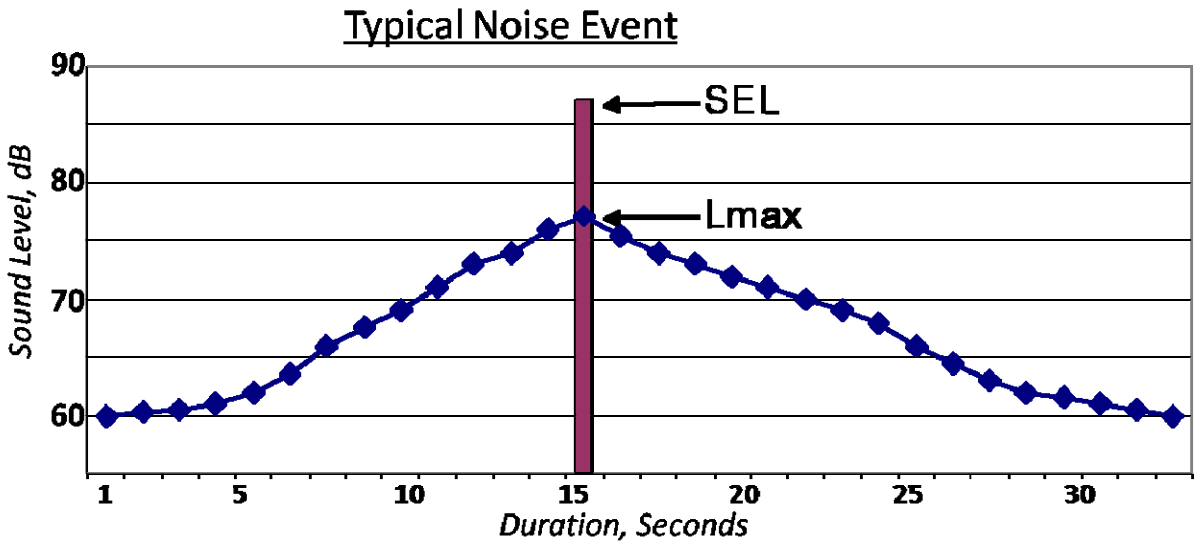


Figure 3-35. Noise Event Showing SEL and Lmax For A Noise Event.

Transportation noise analysis, particularly analysis of linear noise sources, such as railroad operations and highway noise employ the *Equivalent Sound Level (1-hour) [Leq(h)]*.

Although the above metrics allow comparison of instantaneous, peak or even comparative noise events, they do not account for multiple event occurrences (doses), the diminution of background noise that usually occurs during nighttime periods, or the increased annoyance expressed with events that occur during nighttime periods when many people are sleeping. Therefore an additional metric that accounts for cumulative (or repetitive) exposure, time of day, intensity and duration is used.

The *Day-Night Average Sound Level (DNL or L_{dn})* describes a receiver's cumulative noise exposure from all events occurring during a 24-hour period; events occurring between 10:00 PM and 7:00 AM ("environmental

night") are increased by 10 dB to account for greater nighttime sensitivity to noise events. If there were no noise events occurring during the nighttime period, DNL and $L_{eq(24)}$ would be equal.

Because of the logarithmic nature of the decibel, this means that a single nighttime event creates the same DNL as 10 identical events during the day.

For the main activities with the potential to affect the noise environment at Fort Bliss, certain metrics are better suited than others for assessing predicted noise exposure. For subsonic aircraft noise, A-weighted DNL is the preferred metric and it is expressed as dB(A) DNL. Noise impacts arising from the use of large caliber weapons are assessed using the C-weighted DNL, expressed as dB(C) DNL, and the PK 15(met) metrics. Small arms ranges are assessed using A-weighted DNL and PK 15 (met). The preferred metrics for impact analysis from railroad noise is Leq(h). For temporary, intermittent noise events, such as assessing the effect to the noise environment from operation of construction equipment and similar activities, Lmax and SEL are used.

3.23.2 Noise Models

Noise models in general use today in the United States more accurately predict the long-term noise environment in the vicinity of airfields and military ranges than can be measured at a reasonable cost. Noise measuring and monitoring are generally very costly and technically difficult to execute correctly, especially when measuring complex noise settings resulting from military operations. Apart from cost, obtaining a statistically valid sample set from monitoring can take years.

Current noise models used by the DoD to assess predicted noise exposure from operations are based on scientific principles and measured noise data. The underlying algorithms that predict noise propagation are based on empirically derived relationships. The true power of modeling, however, is the flexibility they allow for impact analysis. If physical measurements were required to assess the different alternatives the cost would be too restrictive and timeframes to complete assessments would be significantly longer.

Two categories of outputs are produced by noise modeling: for long-term exposure, noise contour maps (lines connecting points of equal value) are produced. For single-event modeling, calculated values are returned. As with the noise metrics, depending upon the source of the noise in question a particular model is indicated by policy and best practice.

NOISEMAP – This model uses flight profile data (airspeed, power settings, and altitudes), operations counts along particular flight tracks, and time of day to calculate predicting noise exposure from aircraft operations (including rotary-wing). Both the DoD and the FAA use NOISEMAP for calculating the airfield noise environment; however, the FAA uses a different front-end user interface called Integrated Noise Model and has some differences in their data collection techniques. For both DoD and FAA airfield noise analysis, A-weighted DNL is the noise metric used to assess aircraft noise.

BNOISE2 – This model is used for assessing blast noise. It calculates noise exposure contours resulting from specified operations involving large caliber weaponry and high explosive charges. It uses scenario data (weapon type, ammunition, and weather), quantity of rounds fired, and time of day to calculate predicted noise exposure. The C-weighted DNL metric is used to assess blast noise.

SARNAM – Similar to BNOISE2, this model assessing noise arising from the operation of small-arms ranges, again using scenario data, quantity of rounds fired, and time of day. Two noise metrics, A-weighted DNL and an SEL that incorporates a 12-dB increase to account for added annoyance noted with small-arms ranges, are the outputs from this model.

HMMH FTA Noise Impact Assessment Spreadsheet – The Federal Transit Administration has a screening tool for assessing potential impacts from linear transportation corridor noise such as roadways and railway systems. This tool is geared for preliminary noise assessments when a general alignment of a corridor is known but detailed engineering has not been undertaken (FTA 2006). It allows proponents to estimate the width of the moderate impact and severe impact contours prior to developing detailed modeling scenarios. The A-weighted Leq(h) metric is used to assess roadway and railroad noise.

The Army Center for Health Promotion and Preventive Medicine (USACHPPM) assists Army installations in developing environmental noise management plans. USACHPPM also undertakes special noise studies to evaluate noise problems associated with various types of noise sources. When investigating noise conditions related to weapons firing or ordnance detonations, USACHPPM typically measures peak unweighted decibel levels and/or C-weighted SEL levels. However, USACHPPM does not model noise from other modes of transportation such as railroad or highway noise.

3.23.2.1 Department of Defense and Army Noise Guidelines

The DoD began developing noise evaluation programs in the early 1970s. Initial program development involved the Air Installation Compatible Use Zone (AICUZ) program for military airfields. Early application of the AICUZ program emphasized Air Force and Navy airfields. The Army implemented the program as the Installation Compatible Use Zone (ICUZ) program by addressing both airfield noise issues and other major noise sources, such as weapons testing programs and firing ranges. Joint Air Force, Army, and Navy planning guidelines were issued in 1978. The 1978 guidelines use annual average L_{dn} values to categorize noise exposure conditions on military installations.

Apart from compliance with NEPA, the DoD has policies objectives to protect the taxpayer's investment in military infrastructure such as its airfields and training ranges as well as to disclose to the surrounding community potential noise and safety effects that may occur as an everyday part of performing its mission. Within the DoD, the AICUZ program that assesses noise related specifically to aircraft and range operations has been developed and adopted by its services, including the Air Force (DoD 1977). The Army's implementation of AICUZ is called Installation Noise Operational Management Plan (IONMP) program and it consists of data collection, analysis, and community outreach. These studies assess predicted noise exposure from activities on Army installations and ranges, primarily using the DNL metric.

The DNL metric has also been adopted by the U.S. Department of Housing and Urban Development (HUD), the Federal Aviation Administration, and the EPA as a common standard for assessing noise levels for compatibility with land uses, health and human safety, and effects on wildlife. The use of these noise metrics described above for impact analysis is chosen based on Federal guidelines developed in order to be able to quantify noise and the reaction of those exposed to it in a community in a sound, objective, and scientifically valid fashion. The Federal government established a working group to review the science of noise and recommend standards for its agencies to use when assessing the effects from noise. The Federal Interagency Committee on Noise (FICON) reviewed the existing science on the subject of urban, industrial, and aircraft noise, land use compatibility, and health and human safety and validated the use of cumulative metrics such as DNL as the appropriate metric for describing noise from aircraft operations, expenditure of munitions, and transportation noise when assessing its effects.

The DoD AICUZ program outlines compatible land uses by first predicting noise exposure zones or contours depicting lines of equal noise exposure that would result from normal operations at a particular place, and then by recommending land uses that are ordinarily considered compatible with the predicted noise exposure level for those locations contained within the noise contours (DoD 1977). In addition to

assessing land use compatibility from the perspective of noise, the DoD AICUZ program assesses accident potential and outlines compatible uses in those areas nearest to the runway ends.

Army Regulation 200-1 (U.S. Army 2007) defines operational noise goals to include control of operational noise to protect the health and welfare of people, on and off post; and to reduce community annoyance from operational noise to the extent feasible, consistent with Army training and materiel testing mission requirements.

The Army IONMP program is that service's implementation of the DoD AICUZ directive to assess and disclose noise created by operations on an installation with the goal of preventing the encroachment of incompatible uses on the surrounding areas in a way that ultimately compromises the viability of the installation. The Army IONMP program predicts noise exposure by modeling aircraft operations and munitions expenditure, employing four bands of noise exposure (Table 3-101).

Table 3-101. Army Noise Zones and Land Use Planning Zone.

Noise Zones(NZ)	Large Caliber Weapons [dB(C) DNL]	Aircraft Operations [dB(A) DNL]
NZ I	< 62	<65
NZ II	62 – 70	65-75
NZ III	> 70	>75
Land Use Planning Zone (LUPZ)	57 – 62	60-65

dB(A)DNL A-weight day-night average sound level
dB(A) DNL C-weighted day-night average sound level

Within these bands of noise exposure, certain land uses are considered acceptable or unacceptable. For example, residential uses are normally not considered compatible with a predicted noise exposure in excess of 65 dB(A) DNL and an office use is not considered compatible in an area having a predicted noise exposure greater than 75 dB(A) DNL (FICUN 1980). Specific noise exposure contours are developed for each Army installation that has flying or range activities; these contours are released to the surrounding jurisdictions to guide their land use planning or are used to guide facilities planning on Army posts. Areas below the 65-dB(A) or 62 dB(C) DNL are typically categorized as compatible for residential use. In general, sociological studies conducted over the years have concluded that the correlation between DNL and community annoyance strengthens once the DNL reaches 65 dB(A). It is for this reason that DoD and its services do not make particular land use recommendations below this threshold (U.S. Army 2005).

3.23.2.2 Health Considerations

Apart from noise associated with the operation of aircraft and use of large caliber weapons, federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. Occupational safety and health regulations are a primary method of enforcing these guidelines and standards.

Hearing Loss. The potential for permanent hearing loss arises from direct exposure to noise on a regular, continuing long-term basis (16 hours a day for 40 years) to levels above 75 DNL. Based on an EPA report (1974), hearing loss is not expected in people exposed to 75 DNL or less. The Federal Interagency

Committee on Urban Noise states that hearing loss due to noise: 1) may begin to occur in people exposed to long-term noise at or above 75 DNL; 2) would not likely occur in people exposed to noise between 70 and 75 DNL; and 3) would not occur in people exposed to noise less than 70 DNL (FICUN 1980).

Noise Interference. Elevated noise levels can potentially interfere with speech, cause annoyance, or disturb sleep. Annoyance resulting from noise exposure is typically measured via community surveys where the level of tolerance can vary greatly among individuals (EPA 1974). It is estimated that 13.5 percent of the population exposed to 65 DNL would be highly annoyed, while 37 percent would be highly annoyed if exposed to a 75 DNL (EPA 1974). Research also indicates that the "type of neighborhood" a person inhabits influences their noise annoyance level, with instances of noise complaints being greater for those living in rural areas than in suburban or urban residential areas (Schomer 2001).

Interior noise levels are typically lower than exterior levels due to the attenuation of the sound energy by the structure, with the amount of noise level reduction provided by a building depending on the type of construction and the number of openings such as doors, windows, chimneys, and plumbing vents. The approximate reduction in interior noise is 15 dB(A) when windows are open and 25 dB(A) for closed windows (EPA 1974).

3.23.2.3 Army Land Use Guidelines

The Army outlines land use guidelines identify four noise zones to be considered in land use planning in AR 200-1 *Environmental Protection and Enhancement* (Army 2008), summarized below (Table 3-102). In developing noise contours and setting thresholds there are two basic methods. The first is to take the average day, essentially dividing operations by 365. Noise Zones I, II and III employ this method.

Table 3-102. Land Use Recommendations in Noise Zones.

Land Use	Noise Zones		
	Zone I	**Zone II**	**Zone III**
Residential	Compatible	Generally Incompatible	Incompatible
Manufacturing	Compatible	Compatible	Compatible
Transportation, Communications and Utilities	Compatible	Compatible	Compatible
Wholesale & Retail Trade	Compatible	Compatible	Compatible
Public Services	Compatible	Generally Incompatible	Incompatible
Cultural, Recreational and Entertainment	Compatible	Generally Incompatible	Incompatible
Agricultural	Compatible	Compatible	Compatible
Livestock Farming and Animal Breeding	Compatible	Compatible	Incompatible

Source: U.S. Army 2002

Note: In Noise Zone II, "Generally Incompatible" indicates use is discouraged; however if localities permit the use then Noise Level Reduction measures should be incorporated into the design. In Noise Zone III, Manufacturing and Trade Uses should also incorporate Noise Level Reduction measures.

Noise Zone I includes all areas around a noise source in which the DNL is less than 62 dB(C) for large caliber weapons or 65 dB(A) for aircraft operations and small arms ranges. This level of predicted noise exposure is normally compatible with all types of land use activities.

Noise Zone II consists of an area where the DNL is between 62 and 70 dB(C) for large caliber weapons or 65-70 dB(A) for aircraft operations and small arms ranges. Land within Noise Zone II is usually acceptable for industrial, manufacturing, transportation, and resource production. Noise sensitive land uses (such as housing, schools, and medical facilities) are strongly discouraged. Further, if the community determines that land in Noise Zone II areas must be used for residential purposes, then noise level reduction (NLR) features of 25 to 30 decibels should be incorporated into the design and construction of new buildings to mitigate for noise from aircraft operations and use of small arms ranges. For large caliber weapons, NLR features cannot adequately mitigate the low-frequency component of large caliber weapons noise.

Where indicated by the presence of housing in Noise Zone II, the Army's policy has been to implement, if feasible, NLR measures for on-base residential and public use buildings with all new buildings being designed and constructed to comply with the appropriate NLR standards (U.S. Army 2002).

Noise Zone III consists of the area around the noise source where the DNL is greater than 70 dB(C) for large caliber weapons or 75 dB(A) for aircraft operations and small arms ranges. Noise sensitive land uses (such as housing, schools, and medical facilities) are not compatible within Noise Zone III.

The Army also employs a second method of presenting predicted noise exposure in recognition that the noise environment varies daily and seasonally because operations are not consistent all 365 days of the year. To provide a planning tool that could be used to account for days of higher than average operations, the LUPZ contour was developed. It can offer a better prediction of noise impacts when levels of operations are above average. For example, if operations are approximately three times more numerous than the normal daily operations, average noise levels increase approximately 5 dB. By setting the extent of the LUPZ DNL contour at 57 dB(C) and 60 dB(A), the variability can be accounted for in the installation's noise environment. The LUPZ can provide the installation with an adequate buffer for land use planning, and reduce conflicts between the installation noise-producing activities and the civilian community. It encompasses areas where, during periods of increased operations, community annoyance levels can reach those levels associated with Noise Zone II. Calculating and releasing the LUPZ to the community provides the installation with a better means to predict possible complaints, and meet the public demand for a better description of what would exist during a period of increased operations.

The LUPZ DNL noise contours are generated by taking all operations that occur over the year and dividing by the number of training days (typically 250 days) rather than the 365 days used for an average day.

3.23.2.4 Region of Influence

For purpose of describing region of influence and existing conditions, Fort Bliss should be viewed as two distinct areas: the Cantonment Area and the range areas (including Doña Ana and McGregor Range).

Cantonment Area

In the Cantonment Area, fixed-wing aircraft from Biggs AAF and El Paso International Airport along with the rotary-wing aircraft stationed at Biggs dominate the noise setting. Road, railroad and construction noise are also present. Fort Bliss is surrounded by a network of major roadways. Noise levels generated from vehicular traffic are more noticeable at the perimeter of the Cantonment Area.

Noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized. The loudest machinery generally produces peak sound pressure levels (SPLs) ranging from 86 to 95 dB(A) at 50 feet from the source (Table 3-103). For every multiple of this distance, SPL decreases by 6 dB(A). It is important to note that the peak SPL range for construction equipment noise does not take into account the ability of sound to be reflected/absorbed by nearby objects, which would further reduce noise levels. Additionally, interior noise levels would be reduced by 18 to 27 dB(A) due to the NLR properties of the building's construction materials (FAA 1992).

Table 3-103. Peak Sound Pressure Level of Heavy Equipment from a Distance of 50 Feet.

Equipment	Noise Generated[(1)]
Bulldozer	95 dB(A)
Scraper	94 dB(A)
Front Loader	94 dB(A)
Backhoe	92 dB(A)
Grader	91 dB(A)
Crane	86 dB(A)

Source: Reagan and Grant 1977
dBA A-weighted decibel
(1) Noise from a single source

The DNL that would result from operating construction equipment is a function of the frequency, duration, and time of day during which the activity occurs. For example, a bulldozer that generates 95 dBA at 50 feet and is operating continuously for 365 days from 6 AM to 10 PM for an entire year would be operating during all 15 "day" hours and one "night" hour of the DNL metric. Absent other sources of noise (e.g., aircraft operations), such operation would create a predicted noise exposure of 64 DNL.

Range Areas

In the range area of the post, existing 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 en route between Biggs AAF and the McGregor and the Doña Ana Ranges, along a flight track that generally overflies US-54. Impulse noise from small arms artillery and large caliber weapons training also occur at the McGregor and Doña Ana Ranges.

For the affected environment, the ROI similarly varies with the noise source. With respect to aircraft noise, the ROI predominantly falls within the Cantonment Area and includes the area surrounding Biggs AAF, the US-54 flight corridor. Although flight operations and combat aviation training do occur in the ranges, the noise from large caliber weapons overwhelms and masks the noise from aircraft operations.

For large caliber weapon use, the ROI is predominately in the range areas. For transportation noise, specifically railroad noise, the ROI would generally run along the linear corridor that represents a given railroad right-of-way, the width of which is generally one mile, depending upon topography and development patterns.

3.23.2.5 Existing Conditions

Since 2005, USACHPPM has modeled predicted noise exposure at Fort Bliss several times. In 2005 and again in 2007, a baseline IONMP was developed (U.S. Army 2005, 2007). In conjunction with previous and current NEPA analysis of potential stationing actions, USACHPPM conducted Operational Noise Consultations for specific stationing scenarios (U.S. Army 2005, 2006, 2008).

Aircraft Noise

Figure 3-36 shows the predicted noise exposure resulting from current activities at Biggs AAF (U.S. Army, 2005). The airfield supports a supports a mix of fixed-wing and rotary-wing operations. The Army, the Army National Guard, and the Air National Guard use Biggs AAF for training. The flight profile and operations data were provided by the airfield tower.

Noise Zones II and III do not extend beyond the El Paso Noise Contours as shown in Figure 4-7 from the 2007 IONMP.

The contour containing areas of predicted noise exposure greater than 75 dB(A) DNL – Noise Zone III – is confined entirely within the installation. This contour is generally the size and shape of the runway and ramp area of Biggs AAF. For the next level of predicted noise exposure, between 65 dB(A) DNL and 75 dB(A) DNL – Noise Zone II – the contour is also confined to the installation, except for an area extending along US-54 north of Biggs AAF. This portion of the contour reflects a primary flight track that runs between the airfield and the training areas/ranges that follows US-54. The Noise Zone II contour is approximately 1 kilometer wide in this area. The LUPZ –the area of predicted noise exposure between 60 and 65 dB(A) DNL) leaves the post in two areas. To the southwest along the extended centerline of the runway at Biggs AAF the contour extends into residential areas of El Paso. On the installation, the LUPZ also covers a portion of the Cantonment and the Main Post, including troop and family housing areas that may be adversely impacted by the noise. This contour also runs to the northeast, again along the extended runway centerline but remaining on the installation. Similar to the Noise Zone II contour running along US-54, the LUPZ follows a similar course, slightly wider and extending northeast into New Mexico.

It should be noted that aircraft operations from Biggs AAF are not the predominate source of aviation noise in El Paso. Noise from aircraft operations occurring at the El Paso International Airport extends into the community and also carries onto Ft. Bliss. Their contours, taken from a similar noise modeling process, are presented for reference. Neither the Biggs AAF noise modeling nor the El Paso Airport noise modeling takes into account the other's activities; however, the areas of noise overlap between the two overlies the area between the two airfields' runways on lands owned either by Fort Bliss or by the City of El Paso, the operator of the airport.

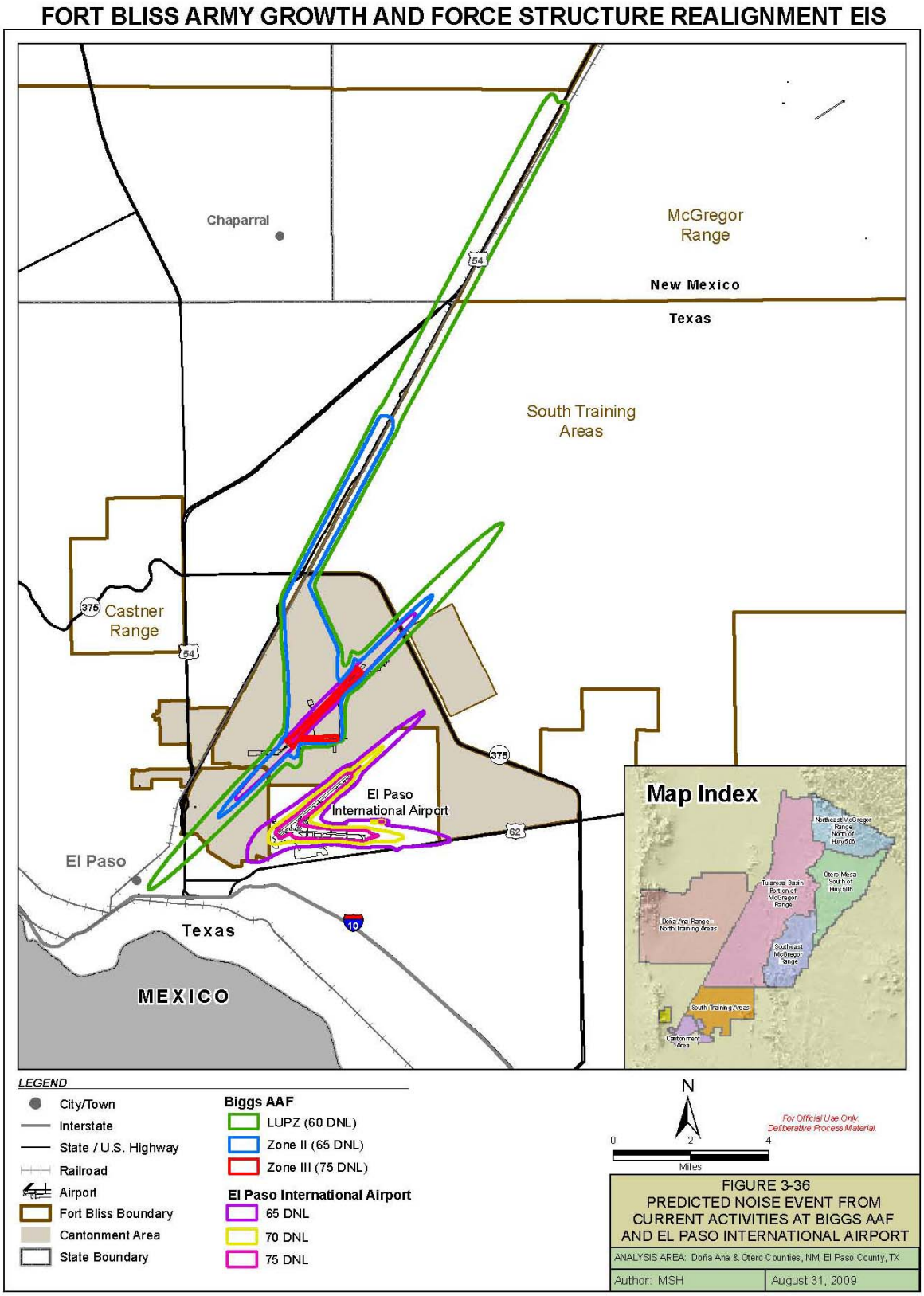


Figure 3-36. Predicted Noise Event from Current Activities at Biggs AAF and El Paso International Airport.

Small Arms Noise

The Army also assessed noise from small arms ranges. Small arms ranges are used year round for training and weapons qualifications. However, ranges are located far enough from the installation boundary that noise impacts were considered negligible. Noise impacts were localized and under most weather conditions, at a distance of 1,000 meters, did not cause annoyance (USACHPPM 2007).

Large Caliber Weapons and Combat Demolition Noise

Figure 3-37 shows large caliber noise contours for the five BCT training scenario on all ranges, including large caliber range changes and modifications anticipated. The Combined Arms and Reconnaissance Battalions are equipped with over 55 M1 Tanks, over 85 BFV, 14 120 mm mortar carriers, and 40 HMMWVs. The Fires Battalion is also equipped with 16 155mm Self-Propelled Howitzers (tracked). Rather than present each range complex and or BCT separately, a combined noise contour was generated to reflect a more accurate assessment of noise based on annual operations (USACHPPM 2007). Table 3-104 presents the baseline predicted noise exposure for off installation acreage and population.

Table 3-104. Baseline Noise Contour for Off-Installation Acreage and Rural and Urban Populations.

Contour Level – dB(C) DNL	Off Installation Acreage	Rural Population Underlying Noise Contour	Urban Population Underlying Noise Contour	Total Population Underlying Noise Contour
LUPZ (57-62)	205,130	10,566	12,441	23,007
NZ II (62-70)	40,335	1,468	100	1,568
Total	245,465	12,034	12,541	24,575

Zone III (>70 dB (C) DNL) large caliber noise contours for all ranges are contained within the installation boundary. Noise Zone II (62 dB (C) DNL) extends beyond the boundary to the north, west and south of the Doña Ana Range. To the north, the contour extends into the WSMR. According to the IONMP for Fort Bliss, there are generally no concerns with incompatibility to the north (USACHPPM 2007). To the south, the contour extends to the northern portion of Chaparral. Any existing residences and new development in the area may experience adverse impact during heavy activity training and when firing occurs at night. To the west, the contour extends approximately five km beyond the boundary at an approximate distance six km north of Lord's Ranch. The contour also extends just beyond the boundary into Lord's Ranch. Incompatibilities were not identified at the time the modeling was analyzed.

With regard to the Chaparral area, the Army (on behalf of Fort Bliss) has purchased land use restrictions through an easement on approximately 5,200 acres (21 square kilometers) of New Mexico State Trust land south of the Doña Ana boundary. The easement restricts certain types of development, such as residential, for 75 years. At this time, the Army has no plans to acquire an interest in additional state land in the vicinity of Chaparral. Nevertheless, Fort Bliss is currently discussing an agreement with BLM through which BLM would retain land in the Chaparral area that is important to the Army as a buffer.

The LUPZ, 57 dB CDNL, contour somewhat mimics the Zone II contour, extending a further distance beyond the installation boundary. The LUPZ extends beyond the western boundary near the Doña Ana Range Complex by approximately 12 km into Lord's Ranch, Vado and El Paso, beyond the northern installation boundary into the WSMR area by approximately 20 km, beyond the south-eastern boundary

into Texas by approximately six km and beyond the southern boundary into the town of Chaparral by approximately 20 km. The Organ Mountain Range in the northwest corner of the Doña Ana region serves as a natural sound barrier to low-frequency noise.

Per AR 200-1 (U.S. Army 2007), noise-sensitive land uses are acceptable within the LUPZ.

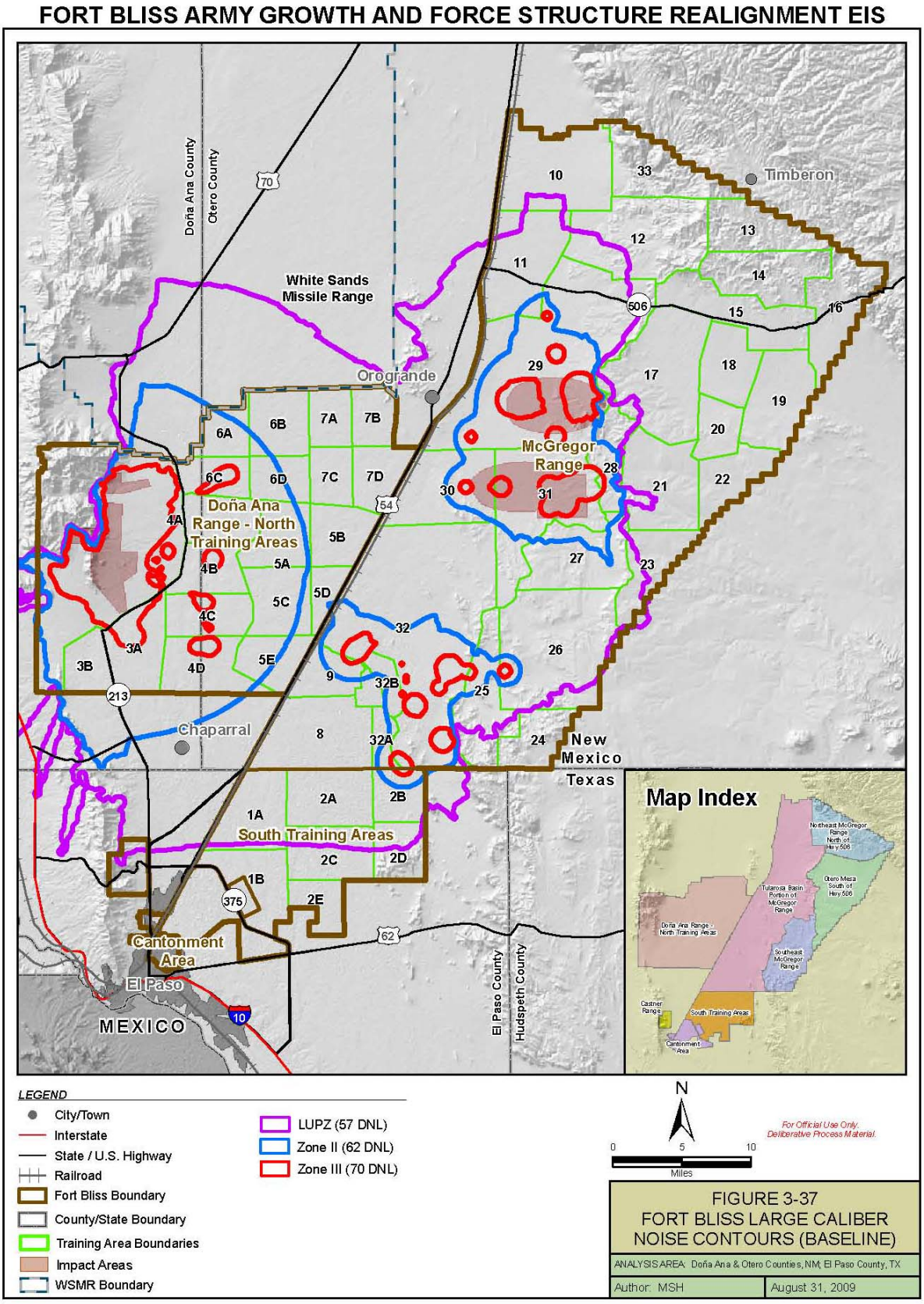


Figure 3-37. Fort Bliss Large Caliber Noise Contours (Baseline).

3.23.2.6 Complaint Risk Guidelines for Large Caliber Weapons and Combat Demolition Activity

Historically, Fort Bliss has received few noise complaints from large caliber weapons training. Between the years 2000 and 2006, Fort Bliss received only one to three noise complaints per year (USACHPPM 2007). This is attributed to the land uses surrounding the training areas with limited residential use.

The peak contours show the expected level that one would get on a sound level meter when a weapon is fired. This metric represents the best available scientific quantification for assessing the complaint risk of large caliber weapons ranges. The complaint risk areas for PK15 (met) noise contours are defined in Table 3-105.

Table 3-105. Summary of Risk for Complaints.

Risk of Complaint	Large Caliber Weapons PK15 (met) dB Noise Contour
Low	<115
Moderate	115-130
High	>130

1 The high risk of complaint consists of the area around the noise source in which PK15 (met) is greater than 130 dB for large caliber weapons.
2 The moderate risk of complaint area is the area where the PK15 (met) noise contour is between 115 dB and 130 dB for large caliber weapons.
3 The low risk of complaint area is area where the PK15 (met) noise contour is less than115 dB for large caliber weapons.

In order to predict risk of noise complaint associated with training, the Installation Operational Noise Management Plan (USACHPPM 2007) modeled a PK15 (met) noise contour for large caliber weapons. The high risk complaint area (130 dB contour) is located almost entirely within the installation boundary. A small portion of the contour extends beyond the installation boundary southeast of the McGregor Range. According to the Installation Operational Noise Management Plan for Fort Bliss, there are no incompatible land uses currently in the area. The moderate risk complaint area (115 dB contour) also extends beyond the boundary south of McGregor Range and also north and west of the Doña Ana Range Complex. There are no incompatible uses currently within the moderate risk contour (USACHPPM 2007).

3.24 Noise: Direct and Indirect Effects

3.24.1 Significance Criteria

When evaluating noise effects, several aspects are examined, including: 1) the degree to which noise levels generated by training and operations, as well as ongoing construction, demolition, and renovation activities are higher than the ambient noise levels; 2) the degree to which there is hearing loss and/or annoyance; and 3) the proximity of noise-sensitive receptors (i.e., residences) to the noise source. An environmental analysis of noise includes the potential effects on the local population. Such an analysis estimates the extent and magnitude of the noise generated by the proposed and alternative actions.

3.24.2 Methodology

As noted in above, the Army has conducted several noise studies in conjunction with proposed stationing actions at Fort Bliss.

Aircraft Noise: Direct and Indirect Effects

As noted in above, the baseline noise setting was established by CHPPM in October 2005 in conjunction with a previous NEPA analysis of Army stationing actions. Results from this 2005 noise study were presented in the 2007 Mission and Master Plan Supplemental EIS. The 2005 noise study presented in the 2007 SEIS depicts the predicted noise exposure arising from stationing two Combat Aviation Brigades at Biggs AAF, (U.S. Army 2007) NOISEMAP was used for this modeling. With respect to noise resulting from aircraft operations in the vicinity of Biggs AAF, the baseline noise setting presented in the No-Action Alternative, and each of the action alternatives is the same. With respect to noise arising from aircraft operations over Fort Bliss' ranges and training areas, the baseline, No Action (Stationing and Training Alternative 1) and action alternatives are similar but not identical. A summary of these results is presented in the Alternatives Analysis, below.

Large Caliber Weapons Noise

Similarly, the baseline noise setting with respect to range operations involving use of large caliber weapons was assessed and presented in 2007 *Fort Bliss Mission and Master Plan Final Supplemental EIS* (U.S. Army 2007). Specifically, LU-4 of that document for which a Record of Decision was signed represents the current baseline and the No-Action alternative. The No-Action Alternative in this EIS includes the baseline and the stationing/transformation alternative (Stationing and Training Alternative 1) in the Grow the Army Programmatic EIS (U.S. Army 2007).

In conjunction with this EIS, CHPPM has conducted additional scenario modeling in support of Fort Bliss' NEPA efforts. The most recent modeling, performed in December 2008 provided Fort Bliss with updated noise contours for the relocation of the Doña Ana light demolition range and two operational scenarios. The first operational concept (Scenario A) includes the operational activity for five HBCTs, the activity for two Light IBCT, and the activity for a Heavy Combat Engineer Battalion. Scenario A represents an updated estimate of predicted noise exposure for the No Action Alternative.

Specifically, Scenario A includes the operational activity for:

- Five HBCTs,
- Two IBCTs,
- One Heavy Combat Engineer Battalion, and

Relocation of the Doña Ana Light Demolition Range

In contrast, Scenario B represents the modeling for LU-2 (No Deployment) in the Stationing/Training Category, where the ARFORGEN model of unit rotation that assumes one BCT from Fort Bliss is always deployed is disrupted and units are no longer deployed from the home station. In this scenario all five HBCTs and both IBCTs are assumed to train at Fort Bliss. Additionally it is assumed that a sixth HBCT is TDY to Fort Bliss for training. Scenario B includes the operational activity for six HBCTs; the activity for four Light IBCTs; and the activity for a Heavy Combat Engineer Battalion (USACHPPM 2008).

Scenario B represents a worst case, covering all ranges for large caliber weapons, including 20 mm and larger, tanks artillery and mortar. The noise analysis assumes that all six HBCTs will be training at Fort Bliss at one time. It is important to note that range throughput on the gunnery ranges only supports five HBCTs, as is reflected below. The analysis does include the artillery and mortars for six HBCTs. Specifically, Scenario B includes the operational activity for:

- Six HBCTs (five HBCTs with all weapons activity, one HBCT with artillery and mortar activity only)
- Four Light IBCTs
- One Heavy Combat Engineer Battalion
- Relocation of the Doña Ana Light Demolition Range

The following noise assumptions, applicable to both scenarios A and B, were used to model the noise contours (Wolters 2008).

- The model considers blast noise only because the small arms ranges are located well within the boundaries of the installation and noise from these ranges will not migrate off the installation.
- For the four BCT option, it was assumed that a max of three brigades would be on the installation at one time. For the six BCT option, it was assumed that two brigades would be deployed each year. For modeling purposes one BCT equivalent was added to account for the mobilization mission and the Fires Brigade.
- Nighttime firing was based on historic firing at other installations between the hours of 2200 and 0700. Based on the modeling completed for other installations, 20 percent of the rounds fired at night were fired during the above hours.
- The rounds used for this model were allocated based on the Army STRAC for FY2006. STRAC changes annually, but the change is minimal. The Army also used the STRAC for a heavy BCT in the 3rd Infantry Division. Those units are organized in the same manner as the heavy BCTs that standup at Fort Bliss. The Army allocates rounds in STRAC the same for all units of one type.
- The installation allows the Paladins to fire from selected firing areas. Artillery firing was modeled by selecting two firing positions within each firing area that were closest to the installation boundary. This represents worst case because the Paladin 155 field artillery weapons systems can fire anywhere on post and are not limited to firing from established, surveyed firing positions.
- Current helicopter approach routes into and out of Biggs Army Airfield were used to model the noise. The current routes appeared to provide a near worst case situation based on their proximity to the installation boundary with the City of El Paso and the civilian housing along the installation southern and western boundary.
- Current Army strategy for tank gunnery were used to allocated tank main gun rounds to two DMPTRs or one DMPTR and one DMPRC.

Procedures for Noise Simulation

Demolition and large caliber noise contouring procedures are described in the noise study (USACHPPM 2008) and in previous sections. The noise simulation program used to assess demolition and large caliber weapons (20mm and greater) noise was the Blast Noise Impact Assessment (BNOISE2) program Existing records on range utilization along with reasonable assumptions were used as BNOISE2 inputs. The BNOISE2 program accounts for the terrain at Fort Bliss when creating the noise contours. The assessment period used to create the Fort Bliss C-weighted Day-Night average sound Level (dB(C) DNL) contours was 250 days.

Results of Noise Simulation

Detailed results (acreage, population affected) are presented in the discussion of impact to noise by alternative. In general, the December 2008 noise study (USACHPPM 2008) concludes implementing the activities at levels outlined in Scenario A or Scenario B of that study (demolition and use large caliber weapons) would increase the size of the predicted noise exposure contours. Further, Fort Bliss may see an increase in the number of complaints received from residents who were previously exposed to noise less frequently or not at all, or were exposed to noise having a lesser intensity.

Figure 3-38 depicts the demolition and large caliber weapons contours for Scenario A. The edge of the Land Use Planning Zone (LUPZ) (57 dB(C) DNL contour) extends beyond the Fort Bliss boundary in most directions. The edge of the Noise Zone II (62 dB CDNL contour) extends beyond the western boundary approximately 4,000 meters, near Interstate I-10; beyond the northern boundary into the WSMR area; beyond the southeastern boundary approximately 1,300 meters; and beyond the southern boundary, encompassing the town of Chaparral. Due to the relocation of the Doña Ana Light Demolition Range, the Noise Zone III (70 dB CDNL) contour no longer extends into WSMR. For residential land uses, depending on attitudes and other factors, a 57 dB(C) DNL may be considered by communities for assessing potential annoyance and land use compatibility. However, below 62 dB(C), all land uses are generally thought to be compatible.

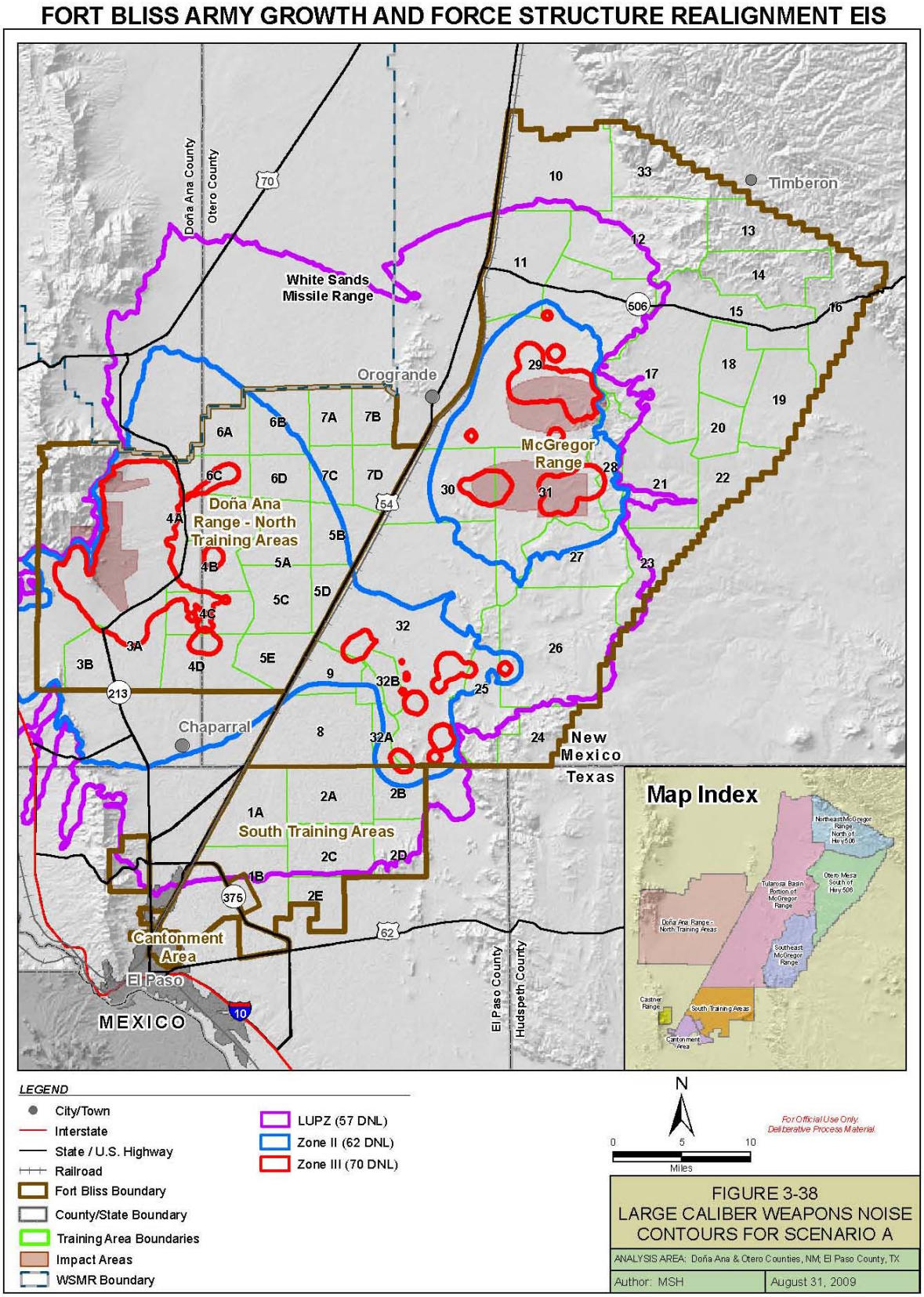


Figure 3-38. Large Caliber Weapons Noise Contours for Scenario A.

Therefore, where the LUPZ extends beyond the Fort Bliss boundary and into residential areas, there would be potential for operational noise from Fort Bliss to have minor effects on nearby populations. As predicted noise exposure levels increase, the likelihood of community annoyance increases. Land uses underlying Noise Zone II should be limited to industrial, manufacturing, transportation and resource production to reflect the general consensus that exposure to noise by sensitive uses (residences, schools, hospitals, areas of public assembly) is considered significant. If the land is used for residential purposes as in the case where some zone II contours exceed the Fort Bliss boundary, then noise reduction features (NRF) should be incorporated in design and construction of new buildings. However, for large caliber weapons NRF cannot be mitigated for the low frequency component. Therefore, Zone II impacts to noise are significant in residential areas. At Fort Bliss, Noise Zone III does not extend to residential areas and therefore are not considered significant.

Figure 3-39 contains the demolition and large caliber weapons contours for scenario B. The edge of the LUPZ (the 57 dB(C) DNL contour) extends beyond the Fort Bliss boundary in most directions. The edge of Noise Zone II (the 62 dB(C) DNL contour) extends beyond the western boundary approximately 4,000 meters, near Interstate 10; beyond the northern boundary into the White Sands Missile Range area; beyond the southeastern boundary approximately 1,300 meters; and beyond the southern boundary, encompassing the town of Chaparral. The edge of Noise Zone III (the 70 dB(C) DNL) contour does not extend beyond the Fort Bliss boundary. The scenario B contours are larger than the scenario A contours. The increased size is due to the additional howitzer and mortar activity of the HBCT and the two additional Light IBCTs. The impacts to noise from Scenario B are higher than Scenario A because the contours extend further from the Fort Bliss boundary.

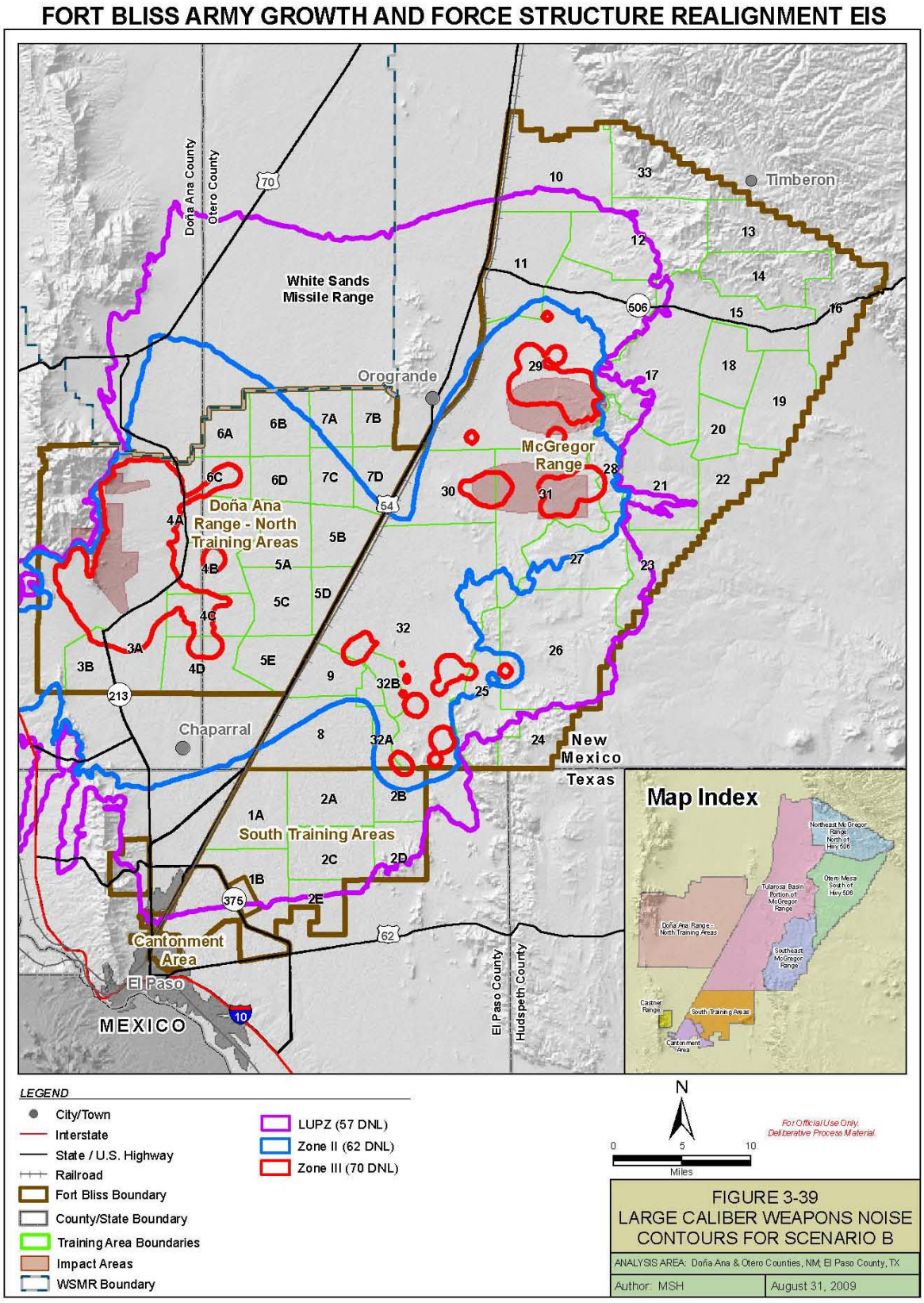


Figure 3-39. Large Caliber Weapons Noise Contours for Scenario B.

Table 3-106 lists the noise impacts for the alternatives by category using the VEC analysis ratings.

Table 3-106. Classification of Direct and Indirect Effects by Noise.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Noise Effects	⊗	⊗	⊗	⊗	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

⊗ Significant
⊙ Less than Significant

3.24.2.1 Stationing and Training Alternative 1 (ST-1)

Under ST-1, as shown in Table 2-3, 4 HBCTs and 2 IBCTs would train on Fort Bliss ranges at any given time. Impacts to this alternative were analyzed as LU-4 in the Master Plan SEIS (2007) and as modified by the GTA decision (2 HBCTs and 2 IBCTs).

Aircraft Noise

Selection of this alternative would entail the stationing of two Heavy Combat Aviation Brigades at Biggs AAF and associated training activity. The noise contours that would be created by two CABs operating at Biggs AAF were modeled by CHPPM and previously assessed in the 2007 Master Plan SEIS. Figure 3-37 shows the predicted noise exposure that would be anticipated from stationing 2 CABs at Biggs AAF. The LUPZ 60 ADNL contour extends off the northern and southwestern boundaries of Fort Bliss into El Paso. The Noise Zone II 65 ADNL contour extends off the northern boundary of Fort Bliss into El Paso. Additionally, the Noise Zone II contour also extends along US-54 reflecting the increased operations to and from Biggs AAF and the ranges. Table 3-107 presents the acreage underlying the Noise Zone Contours and the Population that would be affected if this alternative were selected. Figure 3-37 depicts the locations of lands and populations exposed to elevated noise as a result of aircraft operations at Biggs AAF.

Table 3-107. Off-Installation Acreage and Populations Exposed to Aircraft Noise.

Contour Level – dB(A) DNL	Off Installation Acreage	Rural Population Underlying Noise Contour	Urban Population Underlying Noise Contour	Total Population Underlying Noise Contour
LUPZ (60-65)	3,361	388	2,380	2,768
NZ II (65-75)	889	34	128	162
TOTAL	4,250	422	2,580	2,930

Source: Army 2007; USCB 2001

Approximately 3,361 acres (13.6 square kilometers) of off-post land would be exposed to noise levels between 60 and 65 dB(A) DNL, and 889 acres (3.6 square kilometers) would be exposed to noise levels between 65 and 75 dB(A) DNL. The area in Noise Zone II (65 dB(A) to 75 dB(A) would include some residents, although most housing is to the west of the corridor along US-54 that would be used by helicopters transiting to the restricted airspace. Commercial and industrial parcels in the affected area would generally be compatible with the projected noise levels.

Large Caliber Weapons Noise

The noise contours associated with large caliber weapons training by five HBCTs were mapped and while this modeling scenario is for a greater number of HBCTs than is proposed under ST-1, it represents the best available data. Since the ST-1 alternative represents a lower level of large caliber weapons training than was modeled, it is likely that the predicted noise exposure would also be less. The edge of the LUPZ (57 dB(C) DNL) contour for the 5-HBCT scenario extends off the installation at the northern, southern, and western boundaries of Doña Ana Range, southeast of the boundary where the South Training Areas and McGregor Range meet, and east of TA 23. The Noise Zone II 62 CDNL contour extends off the northern, southern, and western boundaries of Doña Ana Range and south of McGregor Range. Table 3-108 presents the acreage underlying the Noise Zone Contours and the Population that would be affected from large caliber weaponry noise if this alternative were selected.

Table 3-108. Off-Installation Acreage and Populations Exposed to Large Caliber Weapon Noise, Scenario A.

Contour Level – dB(C) DNL	Off Installation Acreage	Rural Population Underlying Noise Contour	Urban Population Underlying Noise Contour	Total Population Underlying Noise Contour
LUPZ (57-62)	281,788	12,811	25,968	38,779
NZ II (62-70)_	82,685	2,520	2,301	4,821
Total	364,473	15,331	28,269	43,600

Source: Army 2008b; USCB 2001

The LUPZ noise levels are generally compatible with residential use although they are calculated and presented because potential effects from operational noise in this area warrant additional consideration in the land use planning process. Noise sensitive land uses are normally not recommended in Noise Zone II.

Based on a comparison of the baseline information contained in Table 3-101 with the increased exposure identified above, a significant impact would result from the increased use of the large caliber weapons.

Complaint Risk

The Army recognizes that cumulative or average noise exposure metrics, while tied to numerous sociological studies predicting annoyance at certain thresholds, do have certain limitations. Inherent in any averaging metric, the peak or extreme events are not presented in a cumulative metric. For that reason, the Army also employs a single-event metric, the $PK15_{(met)}$. Under this metric, areas having a peak noise level exceeded by 15 percent of the firing events are calculated. That is, the noise level for the loudest 15 percent of events is depicted as a set of contours correlating with complaint risk (Table 3-109).

The utility in this metric is primarily in predicting noise complaints. The contours show the predicted peak levels for individual rounds. Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours does not change if the number of rounds fired increases.

Figure 3-40 contains the demolition and large caliber weapons complaint risk contours for a 5-HBCT stationing scenario. Since, the difference between Scenarios A and B of the December 2008 noise study is only in increased activity, only one complaint risk contour was created.

The moderate complaint risk contour, $PK15_{(met)}$ of 115 dB(C) extends beyond the western boundary, near the Doña Ana Range Complex; beyond the northern boundary, near the town of Orogrande; and southern

boundary, at the New Mexico-Texas state line. The high complaint risk contour $PK15_{(met)}$ of 130 dB(C) extends slightly beyond the southern boundary less than 1,000 meters at the New Mexico-Texas state line.

Complaints are predicted in areas where the 115 dB contour would cross the Fort Bliss boundary, especially in residential areas. Complaints would be more likely where the 130 dB contour extends beyond the Fort Bliss boundary. However, the 130 dB contour extends beyond the Fort Bliss boundary only slightly, in one location only, and in an area of low noise-sensitive receptors.

Unlike the DNL metric, the $PK15_{(met)}$ does not include the number of events or time of day in its calculation. However, it would be anticipated that the increase in nighttime noise generation associated with ST-1 may result in an increase in noise complaints from sensitive receptors.

Table 3-109. Off-Installation Acreage and Populations underlying Complaint Risk Thresholds.

Contour Level – dB(C) $PK15_{(met)}$	Off Installation Acreage	Rural Population Underlying Noise Contour	Urban Population Underlying Noise Contour	Total Population Underlying Noise Contour
115-130	34,561	5,197	0	5,197
115-130+	627	0	0	0
Total	35,188	5,197	0	5,197

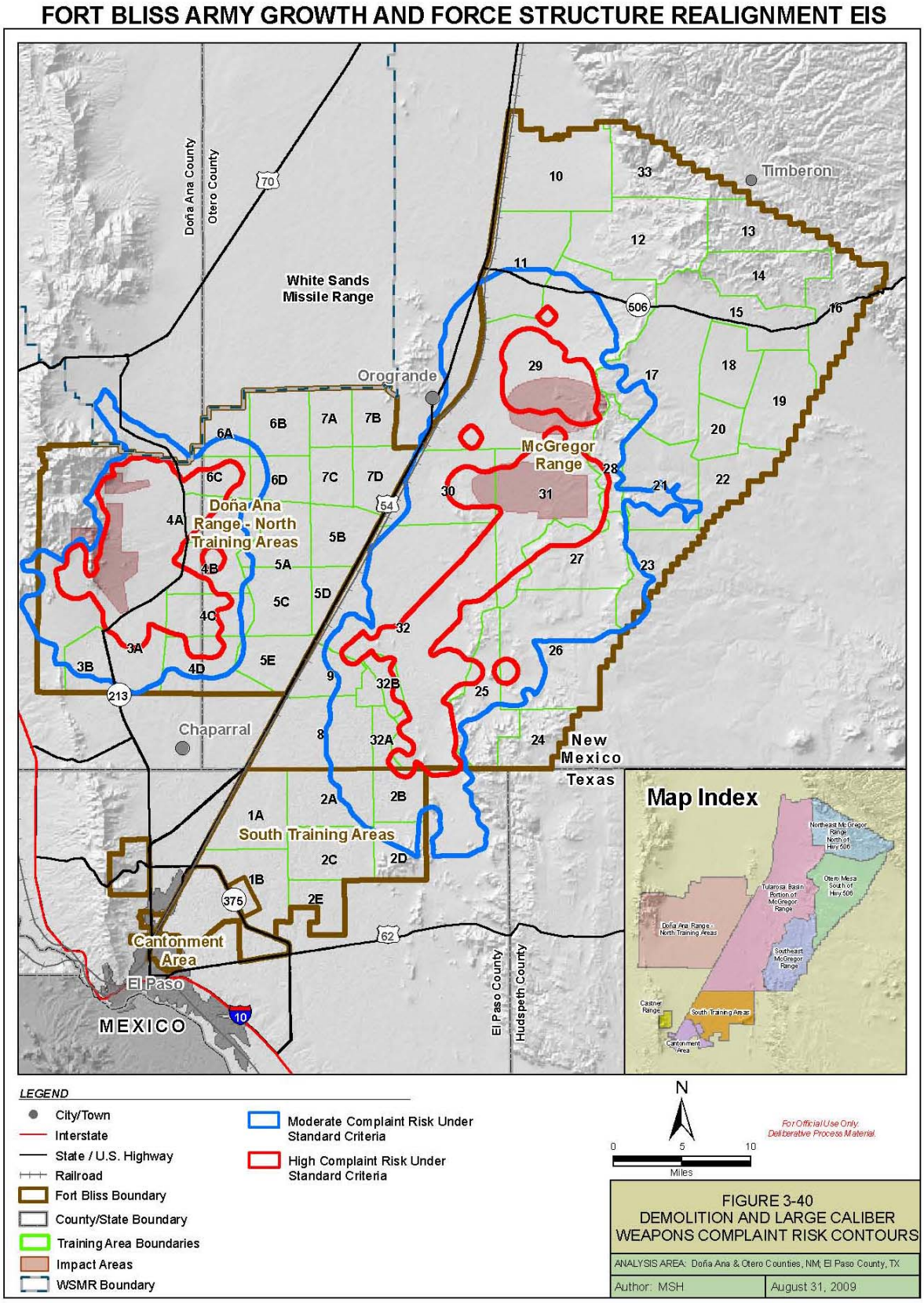


Figure 3-40. Demolition and Large Caliber Weapons Complaint Risk Contours.

Off-road Vehicle Maneuvers

In conjunction with previous NEPA studies for training activities at Fort Bliss and its ranges, noise from off-road vehicle maneuvering was estimated. Maximum noise levels from increased off-road vehicles maneuvers were calculated by evaluating a BCT-level exercise involving nearly 300,000 vehicle miles within a 16-by-31 km maneuver box over a 14-day period. The calculation assumed vehicles would travel along the perimeter of the maneuver box when in fact they would most likely be dispersed throughout the maneuver box. This information results in a more conservative or louder estimate of predicted noise exposure.

The peak sound pressure levels produced by representative military vehicles were measured to be 83 dB(A) at a distance of 100 feet and 65 dB(A) at distance of 800 feet from the source. Converting that single-event metric to a corresponding cumulative average noise exposure metric, Leq(h), indicates that the BCT-level exercise would generate a predicted noise exposure that would form a 75 dB(A) $Leq_{(24)}$ contour paralleling and extending outward from the perimeter of the exercise box a distance of 55 feet. The corresponding 65 dB(A) $Leq_{(24)}$ would extend outward 286 feet.

Similarly, an estimate was also made of the noise from a convoy of tracked Army vehicles traveling to a maneuver area along a tank trail. Assuming an average speed of 30 km/hour, the volume of traffic was estimated to be approximately 300 vehicles per hour. This results in a Leq(h) of 65 dB(A) at a distance of approximately 2,000 feet from the convoy.

Short- and long-term adverse impacts to noise are expected for maneuvers. However, areas of predicted noise exposure would normally be confined to Fort Bliss and its ranges. In general, noise from vehicular maneuvering would not impact residential noise receptors except in those limited instances where maneuvers were conducted at or near those places along the Fort Bliss boundary that also happened to be close (i.e., less than 2000 feet) to sensitive receptors. Because vehicle speeds are low during most maneuver activities and vehicles tend to be relatively dispersed during maneuvers, impacts from vehicular noise would be low. Impacts from vehicle speed and maneuver training are not expected to be significant.

3.24.2.2 Stationing and Training Alternative 2 (ST-2)

ST-2 assumes the ARFORGEN model breaks down and units are no longer deployed from the home station. In this scenario all four HBCTs stationed at Fort Bliss, plus two IBCTs, and one TDY HBCT are assumed to train at Fort Bliss in a given year, exceeding assumptions used for the analysis in the 2007 SEIS. This level of activity corresponds more closely with Scenario B from the December 2008 noise study. In aggregate, as shown in Table 2-1 (5 HBCTs and 2 IBCTs) would train on Fort Bliss ranges at any given time.

Aircraft Noise

Selection of this alternative would entail the stationing of two Heavy Combat Aviation Brigades at Biggs AAF and associated training activity. This alternative is identical to the ST-1. The environmental consequences would be as previously described above for ST-2.

Large Caliber Weapons Noise

The edge of the LUPZ [57 dB(C) DNL] contour would extend beyond the Fort Bliss boundary in most directions. The edge of the Noise Zone II [62 dB(C) DNL] contour would extend beyond the western boundary approximately 4,000 meters near Interstate 10; to the north it would extend into the White

Sands Missile Range area; to the southeast the contour would extend approximately 1,300 meters; and beyond the southern boundary the contour would encompass the town of Chaparral. The Noise Zone III [70+ dB(C) DNL] contour does not exit the installation.

Table 3-110 presents the acreage underlying the Noise Zone Contours and the Population that would be affected from large caliber weaponry noise if this alternative were selected.

Table 3-110. Off-Installation Acreage and Populations Exposed to Large Caliber Weapon Noise, Scenario B.

Contour Level – dB(C) DNL	Off Installation Acreage	Rural Population Underlying Noise Contour	Urban Population Underlying Noise Contour	Total Population Underlying Noise Contour
LUPZ (57-62)	315,309	12,489	35,240	47,729
NZ II (62-70)	107,885	4,527	2,853	7,380
Total	423,194	17,016	38,093	55,109

Source: Army 2008b; USCB 2001

Complaint Risk

Figure 3-40 contains the demolition and large caliber weapons complaint risk contours. The complaint risk anticipated if the Proposed Action were selected and implemented would be identical to the complaint risk associated with ST-1 since complaint risk is a peak, single-event metric, unaffected by increases in activity levels.

Off-road Vehicle Maneuvers

For reasons similar to those given for Complaint Risk, the nature of the predicted noise exposure from maneuver activities does not vary with this alternative. That is, the predicted noise exposure was calculated based on BCT training in a particular maneuver box. Increasing the number of HBCTs or IBCTs stationed at Fort Bliss would increase the number of such maneuver boxes in use at any given time and geographically disperse the maneuver noise. It would not, however, change the distances from the perimeter of the maneuver box at which the noise would fall off to 65 dB(A) $Leq_{(h)}$ or $Leq_{(24)}$. The environmental consequence anticipated from selection and implementation of this alternative would be expected to be similar to those anticipated with ST-1. Noise impacts from vehicular maneuvering would be expected to be largely confined to the installation and the consequences would be similar to but not identical to those previously described above for ST-2.

3.24.2.3 Stationing and Training Alternative 3 (ST-3)

Under ST-3 four HBCTs, two IBCTs, and one SBCT would be stationed at Fort Bliss. Additionally, one transient HBCT would train at Fort Bliss in a TDY status. This represents an increase in units stationed and training at Fort Bliss approaching the effective training throughput capacity of the training ranges and facilities of six HBCT and four IBCTs. Therefore, the Scenario B level of activity from the 2008 noise study would more closely reflect the training events, maneuver activities, and munitions expenditures that would be anticipated if this alternative were selected and implemented.

Two significant differences between the primary weapons system platforms of the HBCT and SBCT are important to note: first, the M1126 Stryker is a wheeled vehicle as opposed to a tracked vehicle; and second, its primary armament (the .50 cal heavy machine gun) would be considered small arms for noise modeling purposes compared to the 105 mm rifled tank gun found on an M-1 Abrams were it not

mounted on a vehicle. These two factors would indicate that low-frequency, impulsive noise associated with the SBCT weaponry is qualitatively less than that associated with a HBCT.

Aircraft Noise

Selection of this alternative would also entail the stationing of two Heavy Combat Aviation Brigades at Biggs AAF and associated training activity. This alternative is identical to ST-1. The environmental consequences would be as previously described above for ST-3.

Large Caliber Weapons Noise

The number of HBCTs and IBCTs that would be stationed at Fort Bliss, in conjunction with the transient units training in a TDY status is approaching the maximum throughput training capacity of the training facilities. Therefore, the predicted noise exposure would be constrained to that associated with Scenario B of the 2008 noise study. The consequences associated with this action would be as previously described for ST-3.

Table 3-110 presents the acreage underlying the Noise Zone Contours and the Population that would be affected from large caliber weaponry noise if this alternative were selected.

Complaint Risk

Figure 3-40 contains the demolition and large caliber weapons complaint risk contours. The complaint risk anticipated if ST-3 were selected and implemented would be identical to the complaint risk associated with ST-1 since complaint risk is a peak, single-event metric, unaffected by increases in activity levels.

Off-road Vehicle Maneuvers

For reasons similar to those given for Complaint Risk, the nature of the predicted noise exposure from maneuver activities does not vary with this alternative. That is, the predicted noise exposure was calculated based on BCT training in a particular maneuver box. Increasing the number of HBCTs or IBCTs stationed at Fort Bliss would increase the number of such maneuver boxes in use at any given time and geographically disperse the maneuver noise. It would not, however, change the distances from the perimeter of the maneuver box at which the noise would fall off to 65 dB(A) $Leq_{(h)}$ or $Leq_{(24)}$. The environmental consequence anticipated from selection and implementation of this alternative would be expected to be similar to those anticipated with ST-1. Noise impacts from vehicular maneuvering would be expected to be largely confined to the installation and the consequences would be similar to but not identical to those previously described above for ST-3.

3.24.2.4 Stationing and Training Alternative 4 (ST-4)

Under ST-4 four HBCT and two IBCTs and two SBCTs would be stationed at Fort Bliss. Additionally, two transient HBCTs would train at Fort Bliss in a TDY status. Although this represents an increase in units stationed and training at Fort Bliss approaching the effective training throughput capacity of the training ranges and facilities of six HBCT and four IBCTs/SBCTs. Therefore, the Scenario B level of activity from the 2008 noise study would reflect the training events, maneuver activities, and munitions expenditures that would be anticipated if this alternative were selected and implemented. The two significant differences between the primary weapons system platforms of the HBCT and SBCT previously mentioned remain important to the analysis: first, the main weapons platform is a wheeled vehicle as opposed to a tracked vehicle; and second, its primary armament would be considered small

arms for noise modeling purposes. These two factors would indicate that low-frequency, impulsive noise associated with the SBCT weaponry is qualitatively less than that associated with a HBCT.

Aircraft Noise

Selection of this alternative would also entail the stationing of two Heavy Combat Aviation Brigades at Biggs AAF and associated training activity. This alternative is identical to the ST-1. The environmental consequences would be as be as previously described above for ST-4.

Large Caliber Weapons Noise

The number of HBCTs and SBCTs/IBCTs that would be stationed at Fort Bliss, in conjunction with the transient units training in a TDY status would be approaching or equal to the maximum throughput training capacity of the training facilities. Therefore, the predicted noise exposure would be constrained to that associated with Scenario B of the 2008 noise study. The consequences associated with this action would be as previously described above for ST-4.

Table 3-110 (above) presents the acreage underlying the Noise Zone Contours and the Population that would be affected from large caliber weaponry noise if this alternative were selected.

Complaint Risk

Figure 3-40 contains the demolition and large caliber weapons complaint risk contours. The complaint risk anticipated if ST-3 were selected and implemented would be identical to the complaint risk associated with ST-1 since complaint risk is a peak, single-event metric, unaffected by increases in activity levels.

Off-road Vehicle Maneuvers

For reasons similar to those given for Complaint Risk, the nature of the predicted noise exposure from maneuver activities does not vary with this alternative. That is, the predicted noise exposure was calculated based on BCT training in a particular maneuver box. Increasing the number of HBCTs, SBCTs or IBCTs stationed at Fort Bliss would increase the number of such maneuver boxes in use at any given time and geographically disperse the maneuver noise. It would not, however, change the distances from the perimeter of the maneuver box at which the noise would fall off to 65 dB(A) $Leq_{(h)}$ or $Leq_{(24)}$. The environmental consequence anticipated from selection and implementation of this alternative would be expected to be similar to those anticipated with the ST-1. Noise impacts from vehicular maneuvering would be expected to be largely confined to the installation and the consequences would be similar to but not identical to those previously described above for ST-5.

3.24.2.5 Land Use Changes Alternative 1 (LU-1)

The LU-1 does not propose a change to land use other than what was selected in the SEIS 2007. With no additional changes to land use, there would be less than significant no impact to the noise setting arising from land use changes. The noise setting would remain as described in the Affected Environment or as described in subsequent iterations of the stationing and training alternatives, should they be selected.

3.24.2.6 Land Use Changes Alternative 2 (LU-2)

Selection and implementation of LU-2 would eliminate the Grassland LUA designation in four sites of 1-square kilometers in Training Areas (TA) 24, 25, 26, and 27. It would also eliminate the Grassland LUA

north of New Mexico State Route 506 in the Sacramento Mountains portion of Northeast McGregor Range.

Aircraft Noise

Selection of this alternative would introduce rotary wing operations into an area where, while currently permitted, they seldom occur. The two CABs associated with each of the stationing alternatives would be bedded down at Biggs AAF in support of BCTs, whether HBCT or IBCT. This alternative allows use of the area north of SR 506 for IBCT dismounted training. Therefore an increase in flight operations would be anticipated in areas that previously did not have the same level.

There would be increased noise levels arising from flight operation associated with this alternative in the area north of SR 506. These effects, however, are anticipated to be confined to the installation. Similar to the linear shaped contour is associated with the flight tracks from Biggs AAF to the ranges, it is expected that similar LUPZ and Noise Zone II contours would occur in TAs north of SR 506, TAs 12E, 13, 14, 15N, 16N, and 33. A similar scenario was modeled and presented in the SEIS and indicated that the Nap of Earth (NOE) training proposed for these TAs would have a less than significant effect with respect to aircraft noise.

Large Caliber Weapons Noise

The land use changes that would occur if this alternative were selected would not appreciably alter the noise contours associated with use of large caliber weapons. Large caliber weapons are associated with impact areas and no change to those is proposed under this alternative. Therefore, the anticipated consequences would be as presented in the stationing and training alternatives.

Off-road Vehicle Maneuvers

The nature of the predicted noise exposure from maneuver activities does not vary with this alternative. That is, the predicted noise exposure was calculated based on BCT training in a particular maneuver box. Selection of this alternative would entail the potential creation of additional on-road maneuver boxes in which BCTs may operate north of SR 506. This may have the effect of increasing the number of such maneuver boxes in use at any given time and geographically disperse the maneuver noise. It would not, however, change the distances from the perimeter of the maneuver box at which the noise would fall off to 65 dB(A) $Leq_{(h)}$ or $Leq_{(24)}$. The environmental consequence anticipated from selection and implementation of this alternative would be expected to be similar to those anticipated with the any of the Stationing Category Alternatives. Noise impacts from vehicular maneuvering would be expected to be largely confined to the installation and the consequences would be similar to but not identical to those previously described above for LU-2.

3.24.2.7 Land Use Changes Alternative 3 (LU-3)

LU-3 adds placement of Controlled FTX sites north of Highway 506 and changes the underlying land use to Land Use Category C, allowing live-fire activities, Controlled FTX, and Mission Support Facilities. Similar to LU-2, the Grasslands LUA would be removed; however, other previously defined LUA designations (i.e., arroyo riparian habitat buffer) would remain in place.

Aircraft Noise

Selection and implementation of this alternative would not vary significantly from LU-2. It is expected that noise arising from rotary-wing and UAS operations generally be as described for LU-2, above.

Large Caliber Weapons Noise

Additional impacts to noise would be minimal with the placement of Controlled FTX sites in the training areas. Training activities could potentially increase noise impacts if training activities were concurrent. While this alternative introduces live-fire as a permitted activity by virtue of changing the Land Use Category to "C", as a practical matter, the HBCT is not apt to use these sites due to their unsuitability for the training they need. The SBCT may use these sites but as wheeled vehicles with limited maneuverability (compared to tracked vehicles) their preference would be to remain on roads and the road network is limited in this portion of the range. Since the SBCT's main armament is not considered large-caliber, training activities would not be expected to exceed the worst case Scenario B modeled in the noise study. Therefore, impacts for LU-3 would be as described for LU-2.

Small Arms Weapons Noise

As the installation develops detailed plans for live-fire facilities in this area, additional small arms noise modeling may be warranted as the detailed inputs necessary for modeling are developed. As noted previously, the nature of small arms noise is that it typically has a small geographic footprint compared to large caliber weaponry and in flat terrain is not likely to propagate more than three to five miles from the firing area. This distance would diminish as the terrain relief increases. Based on the terrain in the area, if firing areas were developed north of SR 506 along the eastern boundary of the installation, small arms noise modeling may be indicated. This modeling would be conducted as part of the site specific analysis required under NEPA when those ranges or firing areas are programmed and funded for construction.

Off-road Vehicle Maneuvers

The nature of the predicted noise exposure from maneuver activities does not vary with this alternative. That is, the predicted noise exposure was calculated based on BCT training in a particular maneuver box. Selection of this alternative would entail the potential creation of additional on-road maneuver boxes in which BCTs may operate north of SR 506. This may have the effect of increasing the number of such maneuver boxes in use at any given time and geographically disperse the maneuver noise. It would not, however, change the distances from the perimeter of the maneuver box at which the noise would fall off to 65 dB(A) $Leq_{(h)}$ or $Leq_{(24)}$. The environmental consequence anticipated from selection and implementation of this alternative would be expected to be similar to those anticipated with the any of the Stationing Category Alternatives. Noise impacts from vehicular maneuvering would be expected to be largely confined to the installation and the consequences would be similar to but not identical to those presented in the stationing and training alternatives.

3.24.2.8 Land Use Changes Alternative 4 (LU-4)

LU-4 adds off-road vehicle maneuver to the Northeast McGregor Range, North of Highway 506 as a permitted military activity, changing the land use classification to allow it. It does not, however, add additional live-fire areas beyond those described in LU-3, nor would it change areas within which rotary-wing and UAS operations would occur compared to LU-3. The effect to the noise environment would therefore be similar to those described in LU-3. With respect to vehicular (maneuvering) noise, there may be some differences, geographically, but the effects would largely be contained to the installation and in

most instances be minor in comparison to noise generated from aviation operations and potential small arms activities.

3.24.2.9 Land Use Changes Alternative 5 (LU-5)

LU-5 adds placement of additional Controlled FTX sites in the Otero Mesa South of Highway 506 by eliminating certain grasslands LUA. With respect to the underlying land use classifications and their permitted military activities, selection and implementation of this alternative would not alter the areas within which aviation operations, live-fire, or off-road maneuver activities could occur compared to either LU-3 or LU-4. The effect to the noise environment would therefore be similar to those described in LU-3. With respect to vehicular (maneuvering) noise, there may be some differences, geographically, but the effects would largely be contained to the installation and in most instances be minor in comparison to noise generated from aviation operations and potential small arms activities.

3.24.2.10 Training Infrastructure Improvements Alternative 1 (TI-1)

Impacts from range construction would be less than significant. Construction projects would temporarily increase human presence and activity at construction sites. Construction equipment typically generates noise levels of 80 to 90 dB(A) at a distance of 50 feet. With equipment operating concurrently, noise levels can be relatively high during the day at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distance of 400 to 800 feet from the site of major equipment operations. Locations more than 1,000 feet from construction sites seldom experience significant levels of construction noise.

Impacts from range construction would be short-term and intermittent. For construction proximate to noise-sensitive receptors such as residential areas, impacts can be mitigated and impacts from construction would be less than significant. Impacts from increased training on new range constructed areas would be as described for the alternatives in Category 1 and Category 2. In general, by virtue of its being temporary, intermittent, and confined to significantly smaller geographic extents as well as of a lesser intensity, the noise associated with construction activities is typically minor compared to noise associated with aviation operations, use of large caliber weapons, and maneuvering activities.

This alternative does not propose any improvements to training infrastructure other than that selected in the SEIS (U.S. Army 2007). With no additional changes to training infrastructure, the impacts to the noise setting arising from selection of this alternative would be the same as previously described in the SEIS (U.S. Army 2007).

3.24.2.11 Training Infrastructure Improvements Alternative 2 (TI-2)

Selection and implementation of this alternative would entail construction of additional ranges to support the GTA stationing decision. Construction of these ranges will use a phased approach, the first phase including 27 ranges constructed in the FY2010- 2016 period with additional ranges constructed as funds are available. As with TI-1 above, there is little potential for a significant impact arising from on-installation construction activities, particularly outside the cantonment area. Construction noise would not significantly affect the noise environment compared to other military activities and therefore impacts to noise would be the same as described in TI-1.

3.24.2.12 Training Infrastructure Improvements Alternative 3 (TI-3)

This alternative includes expansion of existing range camps and construction of COLs in the FBTC. As with TI-1 above, there is little potential for a significant impact arising from construction activities.

Construction noise would not significantly affect the noise environment compared to other military activities and therefore impacts to noise would be the same as described in TI-1. Impacts to the noise environment from ongoing operations and training involving the COLs in the FBTC would vary with and be generally as described in the Stationing and Land Use Changes Categories of the action, above.

3.24.2.13 Training Infrastructure Improvements Alternative 4 (TI-4)

This alternative includes the infrastructure improvements mentioned in TI-2 and TI-3 and adds to that a railroad line connecting the Fort Bliss Cantonment area to the FBTC.

Unlike the other alternatives, in this case construction noise could potentially affect populations and acreages lying off the installation; however the impacts would be temporary, intermittent and would be expected to be minimal. Additionally, construction of most of the rail line would not be proximate to residential areas.

A detailed analysis of the noise impacts anticipated from operation of the rail line itself would require noise measurements of baseline (ambient) conditions at selected points in order to modeling operational data to calculate anticipated effects. Because of the expense and time involved in such measuring and modeling, this typically would not be undertaken until after detailed right-of-way alignments and operational data are developed. In the absence of detailed impact assessment for projects at a preliminary stage, the Federal Transit Authority does offer a screening model for estimating noise impacts from linear transportation projects (FTA 2006). For non-residential sensitive receptors, the $L_{(eq)}$ metric previously presented in the Affected Environment discussion above is used. For residential receptors, DNL is the appropriate metric.

Assuming the right-of-way would generally lie within 200 feet of and parallel to the existing Union Pacific (UP) mainline tracks and also assuming that the ambient noise setting is rural or suburban residential, it would be expected that the ambient noise setting prior to construction is 60 dB(A) DNL (FTA 2006). The threshold of significance for transit or rail projects takes into account and varies with the ambient noise setting. If the ambient noise setting is 60 dB(A) DNL, a moderate impact would occur if the sensitive receptor receiving a noise exposure of between 58 to 63 dB(A) DNL; a severe impact would be expected if the exposure from the project rail operations were greater than 63 dB(A) DNL.

As a rough estimate, appropriate for the screening model, two rail events per day, including one at night (between 10 PM and 7 AM) would yield a DNL for a sensitive residential receptor 50 feet from the rail line of 53 dB(A). This value is the noise attributable to the project. This level of noise is less than the ambient baseline level and due to the logarithmic nature of the dB summing the two values would yield a DNL of 61 dB(A). As noted previously, the human ear is not sensitive enough to discern increases of that magnitude. Based on the significance criteria, this would not create a significant impact. The screening model indicates that for increased noise exposure to be a significant or moderate impact, the sensitive residential receptor would have to be located nine feet or 22 feet from the rail line, respectively.

Considering that the rail line will generally run parallel to the existing UP line and assuming that the lines won't always be operating at the same time, it would be reasonable to assume that the noise for the Fort Bliss train traffic would be masked by the UP rail traffic. However, the frequency of noise events occurring from rail traffic would increase and increased number of may be noticed. The screening model and guidance assume a mainline railroad track like the UP carries between five to ten trains per day. The DNL metric is also particularly sensitive to nighttime operations and therefore if Fort Bliss were only operating during daytime periods (7 AM to 10 PM), the increase in DNL would be even less.

Upon the development of detailed engineering plans and a specific metes and bounds right of way, a project and site specific NEPA analysis would be conducted. As part of that analysis, more comprehensive noise measurement or modeling may indicated if the alignment or intensity of proposed operations warrants it.

3.25 Socioeconomics: Affected Environment

This section describes the affected socioeconomic environment in the region of influence (ROI) under the proposed alternatives. The ROI is defined as the geographic area where the principal direct and indirect socioeconomic effects of actions at Fort Bliss are likely to occur (U.S. Army 2007). By definition, it is resource specific; the geographic area will vary depending on the socioeconomic factor (e.g., employment, law enforcement, housing) being considered. The ROI for Fort Bliss expansion was developed in the PEIS (U.S. Army 2000) and is defined as follows:

- The three counties adjacent to Fort Bliss, consisting of El Paso County in Texas, and Doña Ana and Otero Counties in New Mexico, for population, economic development, and housing
- El Paso, Socorro, and Ysleta Independent School Districts (ISD) in El Paso County, Las Cruces and Gadsden ISDs in Doña Ana County, and Alamogordo ISD in Otero County, New Mexico for education (public schools)
- City of El Paso Police Department and El Paso County Sheriff's Department, with consideration of the Doña Ana County and Otero County Sheriffs' Departments for law enforcement
- City of El Paso Fire Department for fire protection
- City of El Paso and County of El Paso for public finance and government structure
- El Paso County for medical facilities
- El Paso County, Doña Ana, and Otero Counties for quality of life

Socioeconomic factors for the ROI include:

- Demographics
- Housing
- Economic development
- Public finance
- Quality of life
- Environmental justice for minority and low income populations
- Protection of children from environmental health and safety risks.

Much of the justification, data, and analyses have been prepared as part of two previous U.S. Army environmental impact statements at Fort Bliss (U.S. Army 2000 2007). When available, more current data are included in the analysis.

The level of detail available in published data varies within the ROI. There are two other large military installations and the city of Ciudad Juárez, Mexico located adjacent to or near Fort Bliss, and their proximity is within the Fort Bliss ROI.

The most comprehensive data is derived from the 2000 census counts, and demographic and economic estimates between decennial census periods are either broad (county-wide) or directed at the City of El Paso, as it is the only census-designated large metropolitan area in the ROI.

Holloman Air Force Base and White Sands Missile Range are located to the north and adjacent to Fort Bliss. Together, the three installations comprise almost 5,000 square miles and it is difficult to isolate the economic effect of Fort Bliss alone, especially in the New Mexico communities.

Ciudad Juárez, Mexico has about 1.5 million residents and lies adjacent to El Paso, just across the Rio Grande. Through trade, border commerce, and maquiladora industries (American goods manufactured duty free in Mexico), both economies are interconnected.

3.25.1 Demographics

3.25.1.1 Fort Bliss Related Population

From 1991 to 1996, the total population supported by Fort Bliss (defined as the number of active military personnel and civilian employees and their respective dependents, excluding annuitants and their dependents) decreased from 71,399 to about 50,000 (U.S. Army 2000) then remained relatively stable. In 2003, there was a rise in activity that is expected to continue as GTA decisions are implemented. In 2008, the total population supported by Fort Bliss was almost 92,000 people (Table 3-111). Retirees, annuitants, and their dependents comprise another 79,600 people increasing the overall population of Fort Bliss to 147,876 in FY2006. The total population directly supported by Fort Bliss showed a yearly increase of 9.5 percent from 2000 to 2008 and comprised about 6.9 percent and 9.2 percent of the total population of the ROI and El Paso County, respectively. When retirees, annuitants, and their dependents are included, this increases to almost 15 percent of the ROI population.

3.25.1.2 Population in the Region of Influence

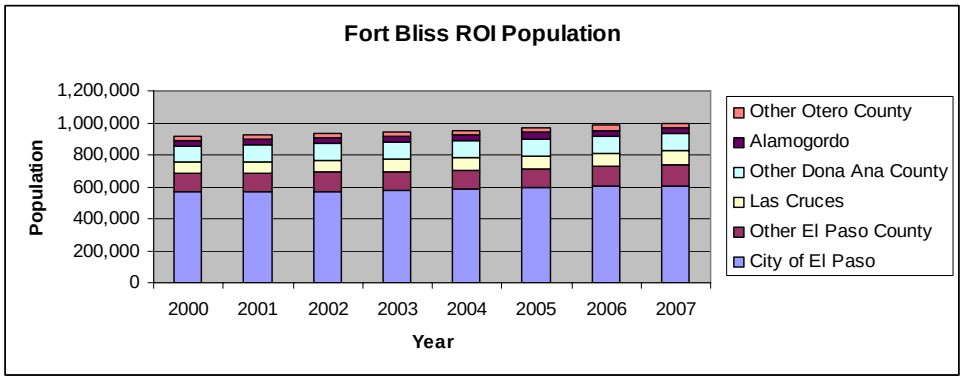
Figure 3-41 shows the population in the three-county ROI over the period 2000 to 2007. According to census estimates, the ROI is approaching a population of almost one million (998,596) of which over half reside in the City of El Paso (606,913 people or 60.77 percent). The Census Bureau does not produce estimates of the Chaparral, New Mexico (unincorporated area) population between census dates, but the 2000 census reported a population of 6,117 or about 0.6 percent of the ROI in 2000.

Table 3-111. Fort Bliss Personnel and Dependents.

FY	Employees			Dependents			Retirees			Grand Total
	Active Duty Military	Civilian	Subtotal	Military	Civilian[5]	Subtotal	Retirees/ Annuitants	Dependents	Subtotal	
2000[1]	11,594	6,507	18,101	14,905	14,641	29,546	32,447	47,787	80,234	127,881
2001[1]	11,992	6,513	18,505	17,109	14,654	31,763	33,484	49,565	83,049	133,317
2002[1]	12,739	6,714	19,453	18,805	15,107	33,912	33,484	47,207	80,691	134,056
2003[1]	15,055	7,102	22,157	16,931	15,980	32,911	33,484	47,207	80,691	135,759
2004[1]	17,605	7,362	24,967	16,998	16,565	33,563	33,464	47,207	80,671	139,201
2005[1]	21,712	7,383	29,095	13,936	16,612	30,548	33,726	49,296	83,022	142,665
2006[2]	20,185	7,917	28,102	20,331	19,793	40,124	31,714	47,935	79,649	147,875
2007[3]	26,400	7,943	34,343	23,742	19,858	43,600	31,714	47,935	79,649	157,592
2008[4]	32,545	9,615	42,160	25,535	24,038	49,573	31,714	55,642	87,356	179,089

[1] U.S. Army 2007
[2] Fort Bliss Garrison Command. 2006, September
[3] Fort Bliss Garrison Command, October 2007
[4] Fort Bliss Garrison Command, September 2008
[5] Assumes 2.5 dependents per civilian employee

Figure 3-41. Total Population in Three-County ROI surrounding Fort Bliss.



Source: U.S. Census 2008, U.S. Army 2007

3.25.1.3 Population Projections

U.S. Census projections for the ROI are presented in Table 3-112. The annual growth rate in the ROI is 1.64 percent for the 2010-2020, slowing to about one percent between 2030 and 2040. Annual growth for 2010-2020 for El Paso, Doña Ana, and Otero Counties is projected to be 1.75 percent, 1.56 percent, and 0.51 percent, respectively. These U.S. Census projections predict that the city of El Paso will experience relatively greater growth in 2040. Doña Ana County is projected to grow at a faster rate than the State of New Mexico, while El Paso and Otero counties are projected to grow at a slower rate than their respective state populations.

These projections do not include Fort Bliss growth from the BRAC/GDPR expansion, but the El Paso Metropolitan Planning Organization has estimated population growth by planning region considering base expansion. They estimate an annual growth rate of about 1.9 percent with most growth expected to occur

in the east, west, and northeast areas of El Paso and the New Mexico portion of their planning area (US Army 2007, El Paso Metropolitan Planning Organization 2005).

3.25.2 Housing

This section addresses both on-post and off-post housing resources. Military housing is divided by family housing units and unaccompanied housing (barracks).

3.25.2.1 Fort Bliss

There are currently 2,395 permanent military family housing units under the control of Fort Bliss. These are all located in the Cantonment among several neighborhoods. Family housing on Fort Bliss has been privatized under the Residential Communities Initiative, and the contractor responsible for Fort Bliss Military Housing indicates that the construction of 1,708 additional homes is well underway (Belfour Beatty Communities 2008). Unaccompanied housing is primarily located on the Cantonment (4,748 units) with some units (2,320) located in the three range camps for temporary use during training exercises (US Army 2007). Fort Bliss also maintains about 1,124 units for temporary use including TDY personnel and active duty families relocating to Fort Bliss.

3.25.2.2 Region of Influence

A summary of housing units in the three county ROI is shown in Table 3-113. Since Otero County is sparsely populated (less than 65,000 people), census estimates are not available for years between the decennial census counts. Currently, only a small fraction (less than one percent) of the Fort Bliss population resides in Otero County. Housing units increased 2.1 percent per year between the 1990 and 2000 census. Excluding Otero County, housing units increased by an average 1.9 percent yearly. Percent of owner occupied housing increased from 2000 to 2006, but remains slightly less than the national average (67 percent in 2006). Table 3-114 provides detailed characteristics of housing for the counties and communities in the ROI based on 2000 census data.

Table 3-112. Population Projections, 2010 to 2040.

Geographical Area	Population							Annual Rate of Change		
	2010	2015	2020	2025	2035	2035	2040	2010-2020	2020-2030	2030-2040
Texas	26,058,593	29,213,821	32,736,685	36,682,181	41,117,590	46,105,944	51,707,489	2.31%	2.31%	2.32%
El Paso County	824,786	904,596	981,274	1,051,853	1,118,871	1,181,836	1,237,030	1.75%	1.32%	1.01%
City of El Paso	684,058	750,250	813,845	872,381	927,964	980,186	1,025,963	1.75%	1.32%	1.01%
New Mexico	2,112,986	2,251,319	2,383,116	2,507,548	2,626,553	2,761,313	2,889,650	1.21%	0.98%	0.96%
Doña Ana County	218,523	238,044	255,057	270,761	286,741	304,571	321,486	1.56%	1.18%	1.15%
City of Las Cruces	92,906	101,206	108,439	115,116	121,909	129,490	136,682	1.56%	1.18%	1.15%
Otero County	67,018	68,896	70,508	71,981	73,348	75,074	76,648	0.51%	0.40%	0.44%
City of Alamogordo	38,278	39,351	40,271	41,113	41,893	42,879	43,778	0.51%	0.40%	0.44%
Three-County ROI	1,110,327	1,211,536	1,306,839	1,394,595	1,478,960	1,561,481	1,635,165	1.64%	1.24%	1.01%

Source: Reprinted from US Army 2007

Table 3-113. Units in Fort Bliss Region of Influence.

	Total Housing Units			Percent Change		Percent Owner Occupied		Percent Vacant	
	1990	2000	2006	1990-2000	2000-2006	2000	2006	2000	2006
Doña Ana County	49,148	65,210	74,661	2.90	2.20	62	64	9	10
Otero County	23,177	29,272	N/A	2.40	N/A	49	N/A	22	N/A
El Paso County	187,473	224,447	249,289	1.80	1.80	56	64	6	8
Total ROI	259,798	318,929	N/A	2.10	N/A	N/A	N/A	N/A	N/A

N/A Not available.
Source: U.S. Census 2008, U.S. Army 2007.

Table 3-114. Detail of Housing Units in Fort Bliss Region of Influence by Community.

Community	Total Housing Units	Occupied Housing Units	Owner-occupied Housing Units	Percent Owner-occupied Units	Renter-occupied Housing Units	Percent Renter-occupied Units	Housing Units in Structure				Mobile & Trailer	Median Home Value	Median Gross Rent
							1	2–4	5–9	10 +			
Doña Ana County, New Mexico													
Anthony CDP	2,191	2,050	1,390	68%	660	32%	1,221	211	22	51	666	$54,900	$350
Chaparral CDP	2,134	1,837	1,498	82%	339	18%	721	0	0	0	1,382	$73,300	$407
Doña Ana CDP	506	501	350	70%	151	30%	205	7	0	0	294	$68,800	$375
Hatch Village	636	535	322	60%	213	40%	346	34	94	10	159	$59,700	$265
Las Cruces City	31,652	29,137	17,047	59%	12,090	41%	18,770	3,615	1,143	4,076	3,930	$91,200	$470
Mesilla Town	1,031	933	645	70%	288	30%	910	40	21	4	19	$132,800	$502
Sunland Park	3,579	3,335	2,314	69%	1,021	31%	1,866	289	39	145	1,240	$58,700	$334
University Park CDP	622	0	0	N/A	421	N/A	373	106	13	122	8	$0	$426
White Sands CDP	668	454	5	1%	449	99%	634	24	0	0	10	$0	$610
Total County	65,210	59,515	40,201	68%	19,355	32%	36,616	4,732	1,409	4,484	17,584	$90,900	$445
Otero County, New Mexico													
Alamogordo City	15,818	13,626	8,250	61%	5,376	39%	10,118	938	365	685	3,560	$75,400	$456
Boles Acres CDP	603	535	462	86%	73	14%	338	0	0	0	265	$161,400	$403
Cloudcroft Village	922	318	237	75%	81	25%	839	22	0	22	36	$119,300	$508
HAFB CDP	438	403	19	5%	384	95%	381	18	0	0	31	$0	$514
La Luz CDP	736	655	522	80%	133	20%	447	0	0	0	289	$92,000	$380
Mescalero CDP	389	347	201	58%	146	42%	311	11	0	0	67	$50,600	$195
Tularosa Village	1,311	1,139	844	74%	295	26%	869	27	26	43	335	$64,200	$349
Total County	29,272	22,984	15,377	67%	7,607	33%	18,275	1,054	441	764	8,487	$78,800	$441
El Paso County, Texas													
Anthony Town	722	684	516	75%	168	25%	561	4	4	26	127	$57,900	$308

Community	Total Housing Units	Occupied Housing Units	Owner-occupied Housing Units	Percent Owner-occupied Units	Renter-occupied Housing Units	Percent Renter-occupied Units	Housing Units in Structure				Mobile & Trailer	Median Home Value	Median Gross Rent
							1	2–4	5–9	10 +			
Canutillo CDP	1,592	1,427	1,104	77%	323	23%	801	51	42	0	698	$47,100	$373
Clint Town	337	309	246	80%	63	20%	293	19	0	0	25	$68,300	$337
El Paso City	193,780	182,177	111,808	61%	70,369	39%	134,710	12,862	10,939	28,622	6,426	$71,300	$474
Fabens CDP	2,252	2,088	1,473	71%	615	29%	1,310	208	11	186	537	$43,600	$236
Fort Bliss CDP	2,310	1,527	25	2%	1,502	98%	1,523	72	0	715	0	$61,700	$815
Homestead Meadows North CDP	1,308	1,154	993	86%	161	14%	635	10	0	10	653	$63,000	$442
Homestead Meadows South CDP	1,590	1,498	1,328	89%	170	11%	1,043	42	0	0	505	$46,500	$399
Horizon City	1,780	1,680	1,514	90%	166	10%	1,597	0	6	42	135	$83,800	$709
San Elizario CDP	2,780	2,579	2,173	84%	406	16%	1,715	29	9	0	1,020	$46,600	$371
Total County	224,447	210,222	133,596	64%	76,426	36%	153,241	13,659	11,083	29,705	16,479	$69,600	$468
Three-County ROI	**318,929**	**292,562**	**189,174**	**65%**	**103,388**	**35%**	**208,132**	**19,445**	**12,903**	**34,953**	**42,550**	**N/A**	**N/A**

N/A Either not available or not applicable.

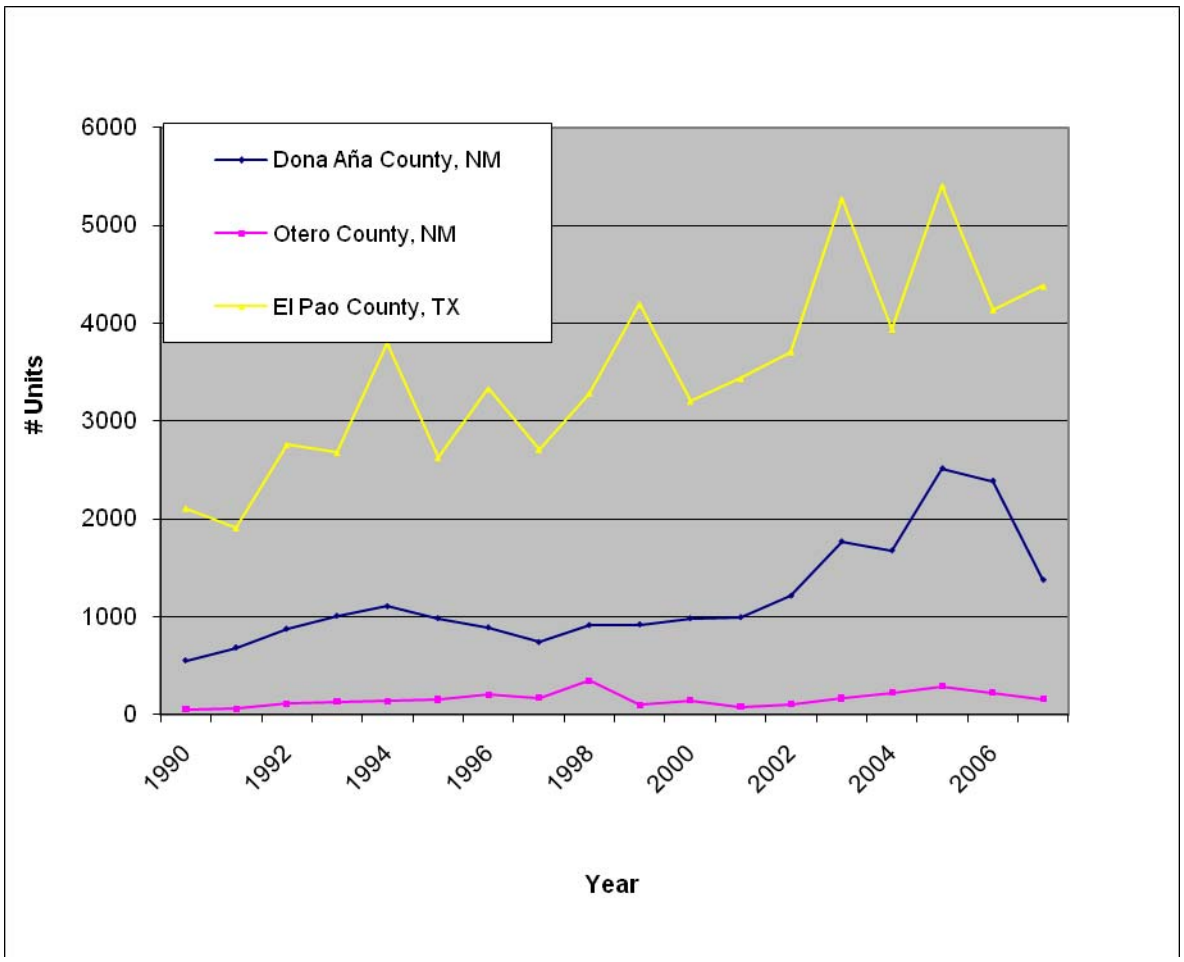
1. Source U.S. Army 2007

2. CDP Census Designated Place (www.ci.el-paso.tx.us)

3. County and three-county ROI totals include rural areas.

Future trends in housing are evaluated from housing permits granted by each county. Building permits from 1990 to 2007 in each of the three counties within the ROI are presented in Figure 3-42. Doña Ana County showed accelerated growth during 2003 to 2006 then a sharp decline in building permits during 2007. El Paso County demonstrated an upward but cyclical growth pattern throughout the period.

Figure 3-42. Building permits in Fort Bliss ROI from 1990 to 2007.



Source: US Census Bureau, 2006 & 2007 building permits, U.S. Army 2007

Table 3-115 shows the change in median housing costs from 2000 to 2006. Both home value and rents increased at a yearly rate between four percent and five percent during this time period. The one exception is Doña Ana County rents, which had a relatively low increase (2.4 percent).

Table 3-115. Change in Housing Costs in El Paso and Doña Ana Counties.

	Median Home Value			Median Monthly Rent		
	2000	2006	Yearly Increase	2000	2006	Yearly Increase
El Paso County	$69,600	$88,000	4.0%	$445	$592	4.9%
Doña Ana County	$90,000	$117,000	4.5%	$468	$539	2.4%

Source U.S. Census 2008, U.S. Army 2007.

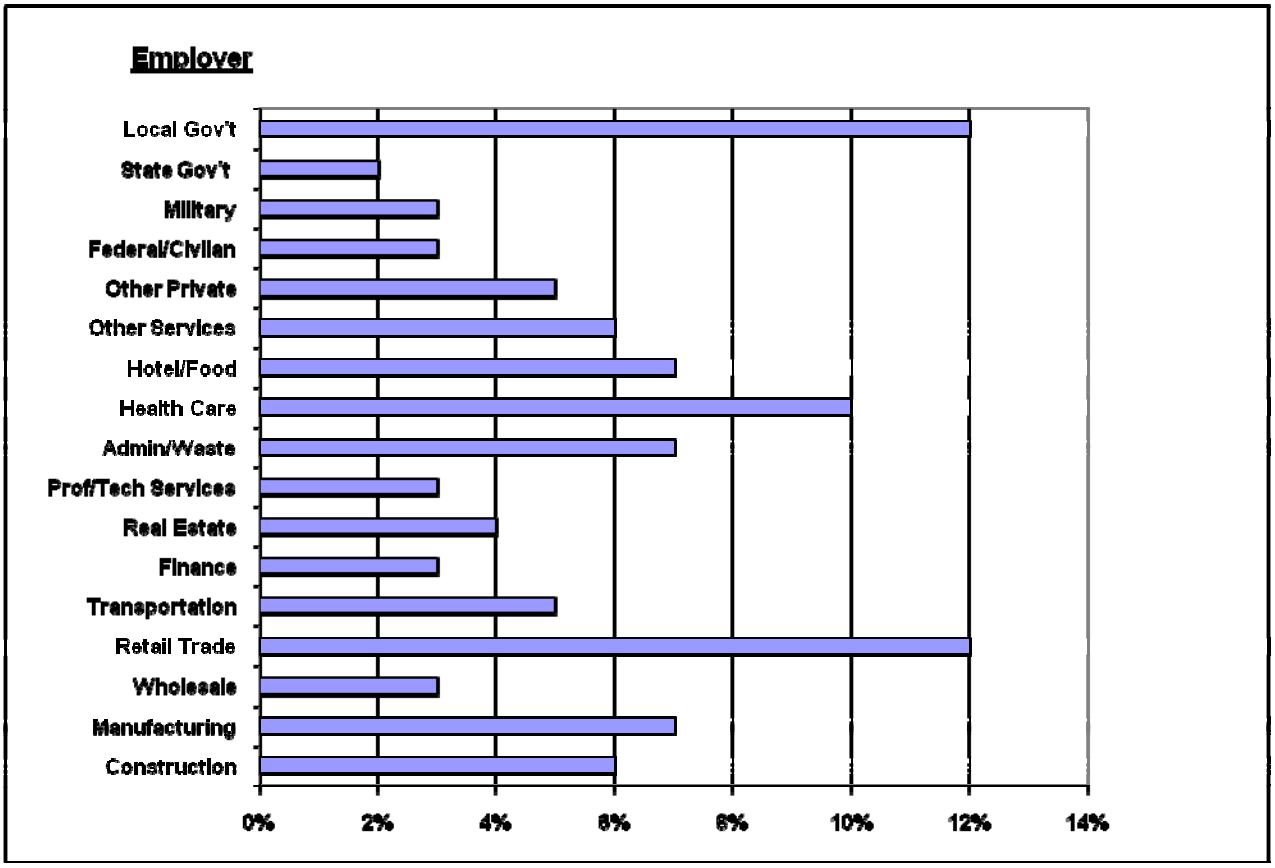
3.25.2.3 Economic Development

The economy in the three county ROI is dominated by the City of El Paso, and Fort Bliss's economic impact is concentrated in this area. The three county ROI and the City of El Paso, in particular, are heavily influenced by government expenditures and employment along with multinational commerce due to their location along the border between the United States and Mexico. A detailed analysis of the impact to the City of El Paso's economy from base expansion was performed by the University of Texas, El Paso Institute for Policy and Economic Development (IPED) (Schauer et. al. 2002). This research used a regional economic input/output model modified for the border region (REMI). The SEIS (U.S. Army 2007) described the results of this research relative to Fort Bliss GTA decisions. This section summarizes their findings and provides additional data when available.

3.25.2.4 Employment, Earnings, and Income

Total employment and median income in the three county ROI for 2005 was 463,948 and $22,907,415, respectively (U.S. BEA 2008). This reflects a 1.5 percent annual growth rate for employment and 3.9 percent for income. Figure 3-43 shows the distribution of the employed workforce in El Paso County in 2005. Fort Bliss reported 21,712 active duty military and 7,383 civilian employees (Fort Bliss 2008), most of who reside in the City of El Paso.

Figure 3-43. Distribution of Employment in El Paso County for 2005.



Source: US BEA 2008

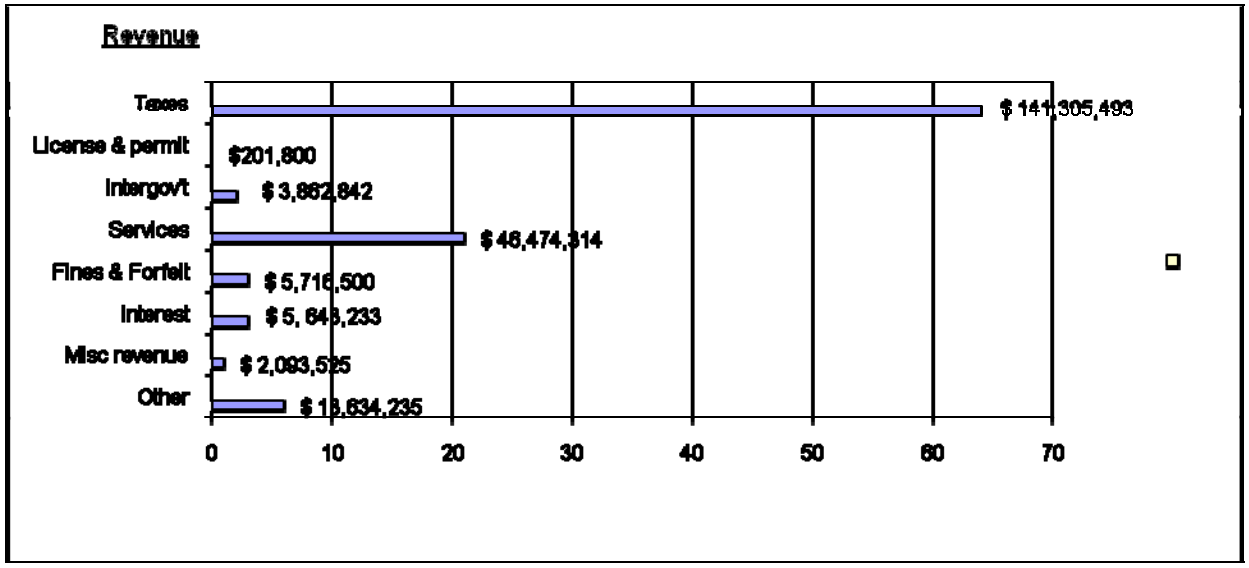
3.25.2.5 Military Activities

Military installations affect the local economy directly through payroll expenditures, procurement of goods and services, and contract awards to local businesses. Because three conterminous military installations are located in the three-county ROI—White Sands Missile Range, Holloman Air Force Base, and Fort Bliss—it is difficult to separate the effects of each. The impact Fort Bliss has on the City of El Paso economy was examined in detail using the REMI model analysis (UTEP 2002), and Fort Bliss was found to be a significant contributor to the local economy. It was estimated that, in 2002, Fort Bliss was responsible for $1.6 billion in increased sales volume and $112 million in government outlays. In 2005, using an average military salary of $43,500 (U.S. Army 2007), payroll for active duty personnel is estimated at $944 million. Likewise, payroll to civilian employees is estimated to be $332 million using an average civilian salary of $45,000. In 2002, it was estimated that Fort Bliss was responsible for $1.7 billion in increased sales in the City of El Paso Area.

3.25.3 Public Finance

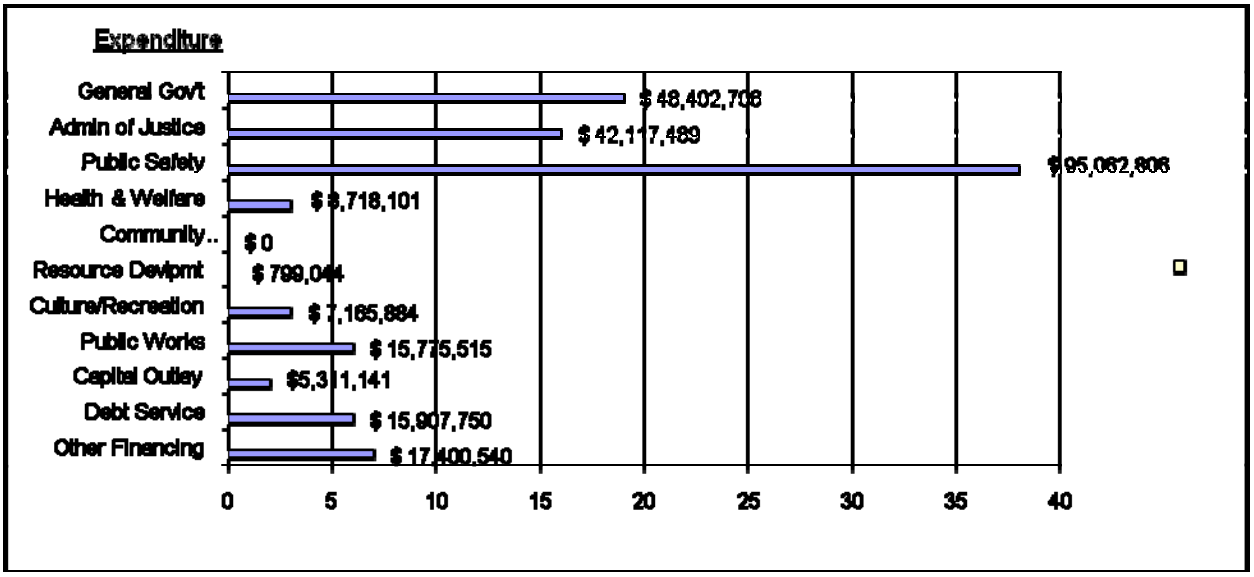
Budgeted revenues and expenditures for El Paso County and the City of El Paso in 2008 are shown in Figures 3-44 and 3-45 and 3-46 and 3-47, respectively. In El Paso County, revenues increased about five percent annually and expenditures increased about 10 percent from the 2005 budget. The City of El Paso saw more rapid growth with about a 12 percent annual increase in both revenues and expenditures. Compared to 2005, the county saw a greater percentage of its 2008 revenues in the form of taxes while the city's distribution of revenues remained about the same as in 2005. The distribution of expenditures remained roughly constant in both the county and city.

Figure 3-44. El Paso County 2008 Budgeted Revenues.



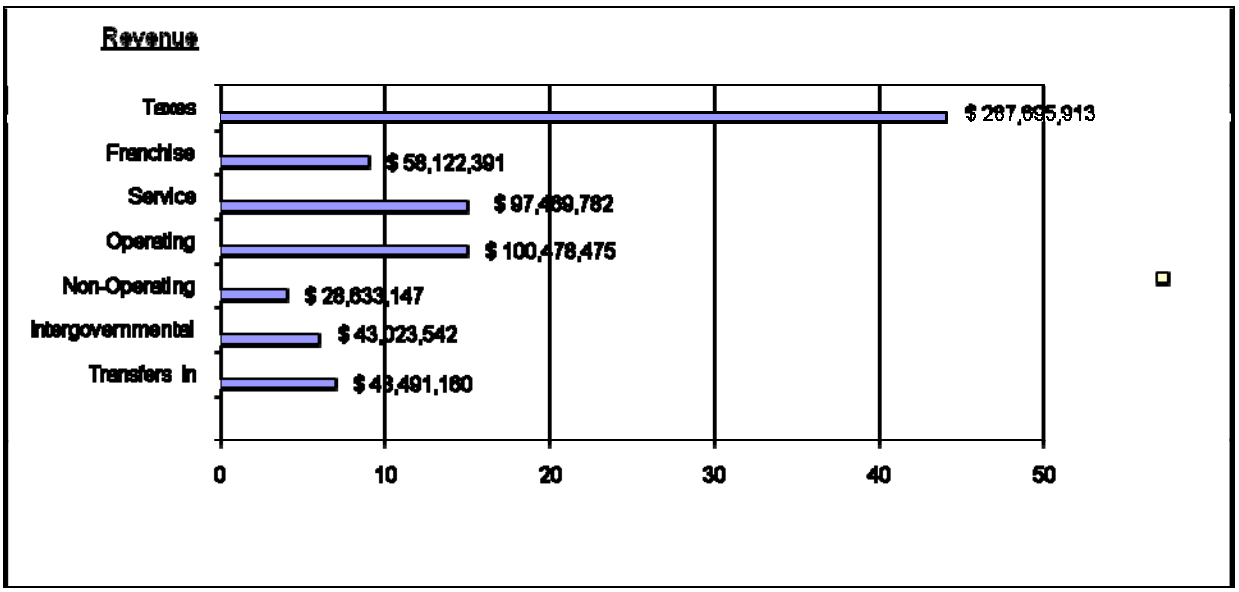
Source: County of El Paso 2008

Figure 3-45. El Paso County 2008 Budgeted Expenditures.



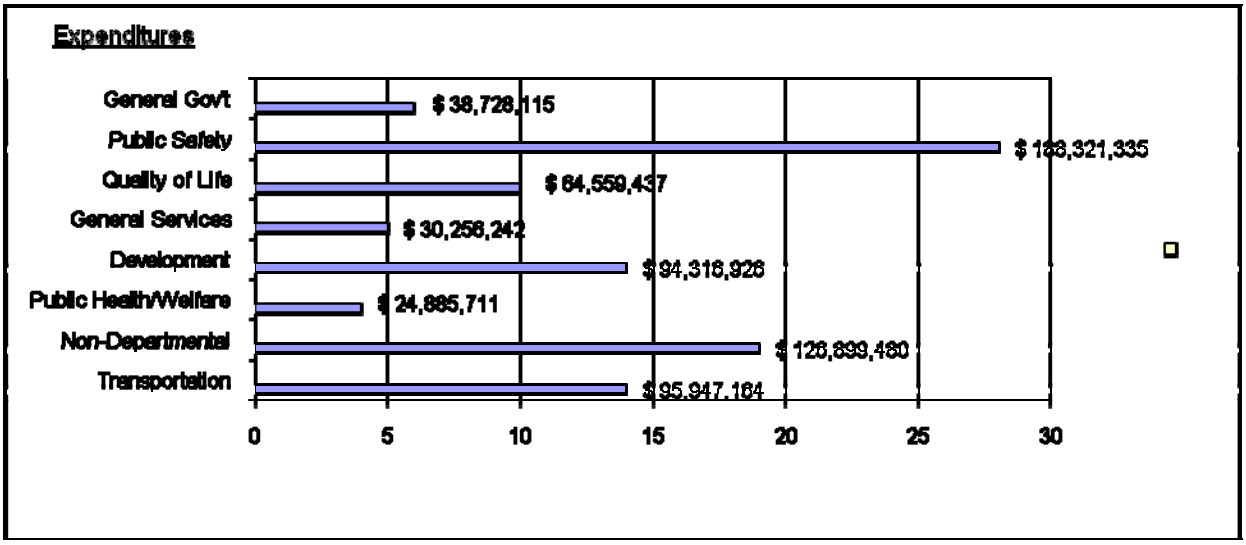
Source: County of El Paso 2008

Figure 3-46. Revenues for City of El Paso, Fiscal Year 2008.



Source: City of El Paso 2008

Figure 3-47. Expenditures for City of El Paso, Fiscal Year 2008.



Source: City of El Paso 2008

3.25.4 Quality of Life

3.25.4.1 On-Post

Residents of Fort Bliss live in the Cantonment located in the southwest corner of the installation, surrounded by the City of El Paso and the FBTC. This area contains numerous facilities and services that contribute to the quality of life of Fort Bliss residents. Quality of life services were described in SEIS, and these findings are summarized here along with descriptions of various programs that affect quality of life for Fort Bliss personnel and the surrounding communities.

Child Care

Fort Bliss has a well established child care program under its Child Development Services program (CDS). Child care services exist in two centers located in the Cantonment and in the Logan Heights area. Both are open from 5:30 AM to 6:00 PM during the workweek, and the Logan Heights center is open Saturday from 1:00 pm to midnight (Fort Bliss MWR 2008).

Public Schools

Students residing on base attend the El Paso, Socorro, and Ysleta ISDs. Three elementary schools located on-post also serve off-post, civilian residences. Chapin High School is located on a leased parcel in the Logan Heights area and serves the resident population of Fort Bliss, as well as the surrounding region. Section 3.1.1.5.2 addresses off-post schools.

Health Care

William Beaumont Army Medical Center is an Army regional hospital and serves the needs of over 400,000 beneficiaries. In addition, it is one of two trauma centers in the ROI. Adjacent to WBAMC is the Veterans Affairs Health Care Center. Additional clinics are located at the troop medical center in the

Cantonment, Biggs AAF, and smaller facilities associated with each unit. There is also a dental clinic and a veterinary clinic located in the Cantonment.

Law Enforcement & Fire Protection

Fort Bliss has exclusive jurisdiction over the Cantonment and much of the Doña Ana Range. Fort Bliss has proprietary jurisdiction in Logan Heights and lands withdrawn from other government entities such as McGregor Range. Primary jurisdiction in the Fort Bliss area for law enforcement is with the City of El Paso Police Department. In 2005, there was one law enforcement officer for every 100 people located on-post. The Fort Bliss Fire Department responds to fires within the installation. They work cooperatively with BLM to fight fires on McGregor Range.

3.25.4.2 Off-Post

Public Schools

Nine school districts surround Fort Bliss, but the majority of students from Fort Bliss (70 percent) attend El Paso ISD public schools. About 15 percent attend Socorro ISD public school, and about 12 percent attend Ysleta ISD public schools. Current total enrollment for Pre-K through 12 is 62,619 for the El Paso ISD (El Paso ISD 2009), 39,800 for the Socorro ISD (Socorro ISD 2009), and 44,386 for Ysleta ISD (Ysleta ISD 2009). Attendance in other El Paso county school districts is negligible (U.S. Army 2000). New Mexico schools serving Fort Bliss include the Las Cruces and Gadsden ISDs. Alamogordo ISD serves Otero County, but the residents of Otero County living in the Chaparral region attend Gadsden ISD public schools under a cost agreement between the school districts. School district boundaries are shown in Figure 3-48. The child development services program in Fort Bliss lists the following El Paso area schools as most affected by Fort Bliss: Nixon Elementary School, Travis Elementary School, Milam Elementary School, Logan Elementary School, Bliss Elementary School, Burnet Elementary School, Hughey Elementary School, MacArthur Elementary/Intermediate School, Ross Middle School, Bassett Middle School, Richardson Middle School, Chapin High School, Andress High School, and Austin High School. Additionally, the New Mexico Military Institute in Roswell, New Mexico is also within the Fort Bliss ROI.

Healthcare

Excluding WBAMC, El Paso County has seven acute care medical hospitals totaling almost 2,000 beds and four specialty medical centers with about 170 beds. Las Cruces has two acute care hospitals with about 300 beds. Alamogordo has one hospital. The City of Cuidad Juárez, Mexico is a significant factor to this quality of life component both from the standpoint of added Mexican demand for higher quality health care services in the United States and from United States residents seeking less expensive health care in Mexico.

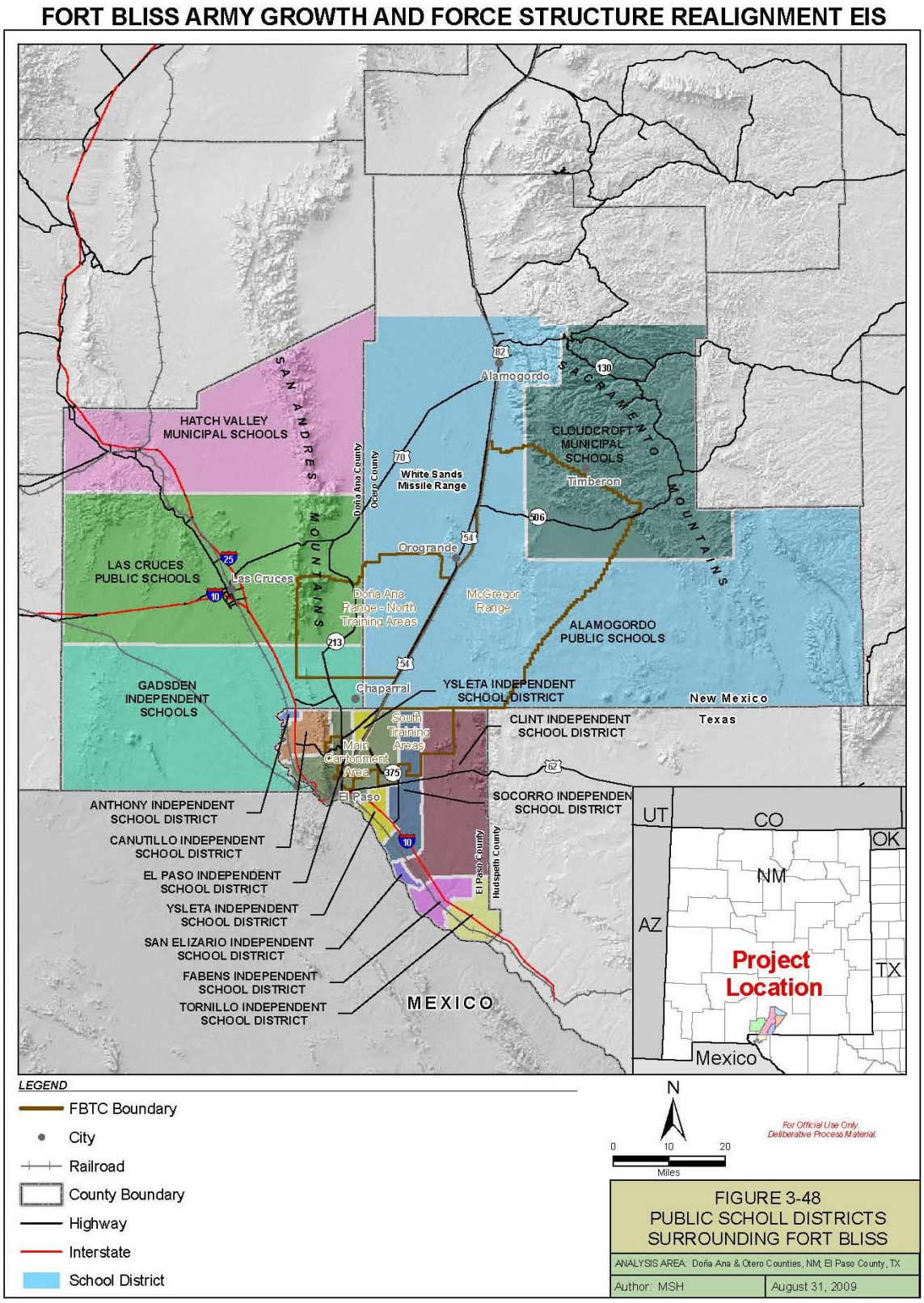


Figure 3-48. Public School Districts Surrounding Fort Bliss.

Law Enforcement and Fire Protection

Law enforcement in the ROI includes county sheriff departments in each of the three counties in ROI and the police departments in the cities of El Paso, Las Cruces, and Anthony. The City of El Paso Police Department is the largest, employing about 1,200 commissioned officers operating out of six stations. Being a border region, there is a large federal law enforcement presence that includes the Drug Enforcement Agency, Immigration and Customs Enforcement, and FBI personnel, all assigned to maintain border and homeland security. The City of El Paso Fire Department has 31 neighborhood fire stations, almost 900 employees, and provides fire suppression and emergency support services to the city.

3.25.5 Environmental Justice

The SEIS summarized minority and low income populations in the three-county ROI based on 2000 census data. Detailed estimates of these populations by census tracts were tabulated in the SEIS (U.S. Army 2007). In general, the ROI contains a largely Hispanic, minority, and low income level population. Table 3-116 summarizes the percent minority and low income populations for the ROI and El Paso, Doña Ana, and Otero counties. In El Paso County, 83 percent of the population was minority, and 24 percent were living below the poverty line. Doña Ana County was comprised of 67 percent minorities, and 25 percent were living below the poverty level. Otero County had a 44 percent minority population, and 20 percent of its residents were living below the poverty line. Figure 3-49 shows the relative distribution of minorities and poverty highlighting the census tracts where either rate is above the average for the ROI. In addition, there is one Indian tribe on the Tigua Reservation located near Fort Bliss. The Isleta del Sur Pueblo and the Muscalero Apache Tribes have reservations near Fort Bliss near Socorro, Texas and Riodoso, New Mexico, respectively.

EO 13045, Protection of Children From Environmental Health Risks and Safety Risks requires that each federal agency identify and assess environmental health risks and safety risks that may disproportionately affect children, and address such risks in their policies, programs, activities and standards. Further, for regulatory sections subject to the EO, agencies must now conduct an evaluation of environmental health and safety effects on children and include an explanation of why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the agency. Neither the proposed action nor alternatives would have the potential to cause environmental health risks or safety risks that would disproportionately affect children.

Table 3-116. Percent Minority and Low Income Populations for the ROI.

County	Number of Census Tracts	Percent Minority	Number of Census Tract Exceeds 50 Percent Minority	Number of Census Tract Exceeds ROI Percent Minority	Percent Low Income	Number of Census Tract Exceeds ROI Percent Low Income
ROI	166	77.4%	148 (89.2%)	97 (58.4%)	23.8%	81 (48.8%)
Doña Ana County	32	83.0%	28 (87.5%)	10 (31.3%)	23.8%	17 (53.1%)
El Paso County	121	67.5%	117 (96.7%)	86 (71.1%)	25.4%	61 (50.4%)
Otero County	13	44.3%	3 (23.1%)	1 (7.7%)	19.3%	3 (23.1%)

3.26 Socioeconomics: Direct and Indirect Effects

The socioeconomic analysis addresses four main topics or VECs: population and housing, economic activity, public services, and environmental justice. The implications of the first three VECs are driven by the U.S. Army's Economic Impact Forecast System (Webster and Bragdon 2001). Through continual refinement and successful litigation, EIFS has become an integral part of the NEPA process. Being an omnipresent standard, it provides a consistent and uniform methodology for forecasting economic activity. EIFS is an aggregate economic model that integrates data from the U.S. Census Bureau and Bureau of Economic Analysis to create an export-based multiplier to distinguish between direct and indirect effects of proposed military actions. Further descriptions of the model can be found in the Fort Bliss Mission and Master Plan (U.S. Army 2000) and SEIS (U.S. Army 2007) as well as the U.S. Army GTA PEIS (2007). Detailed documentation can be found in the EIFS user guide (Webster and Bragdon 2001).

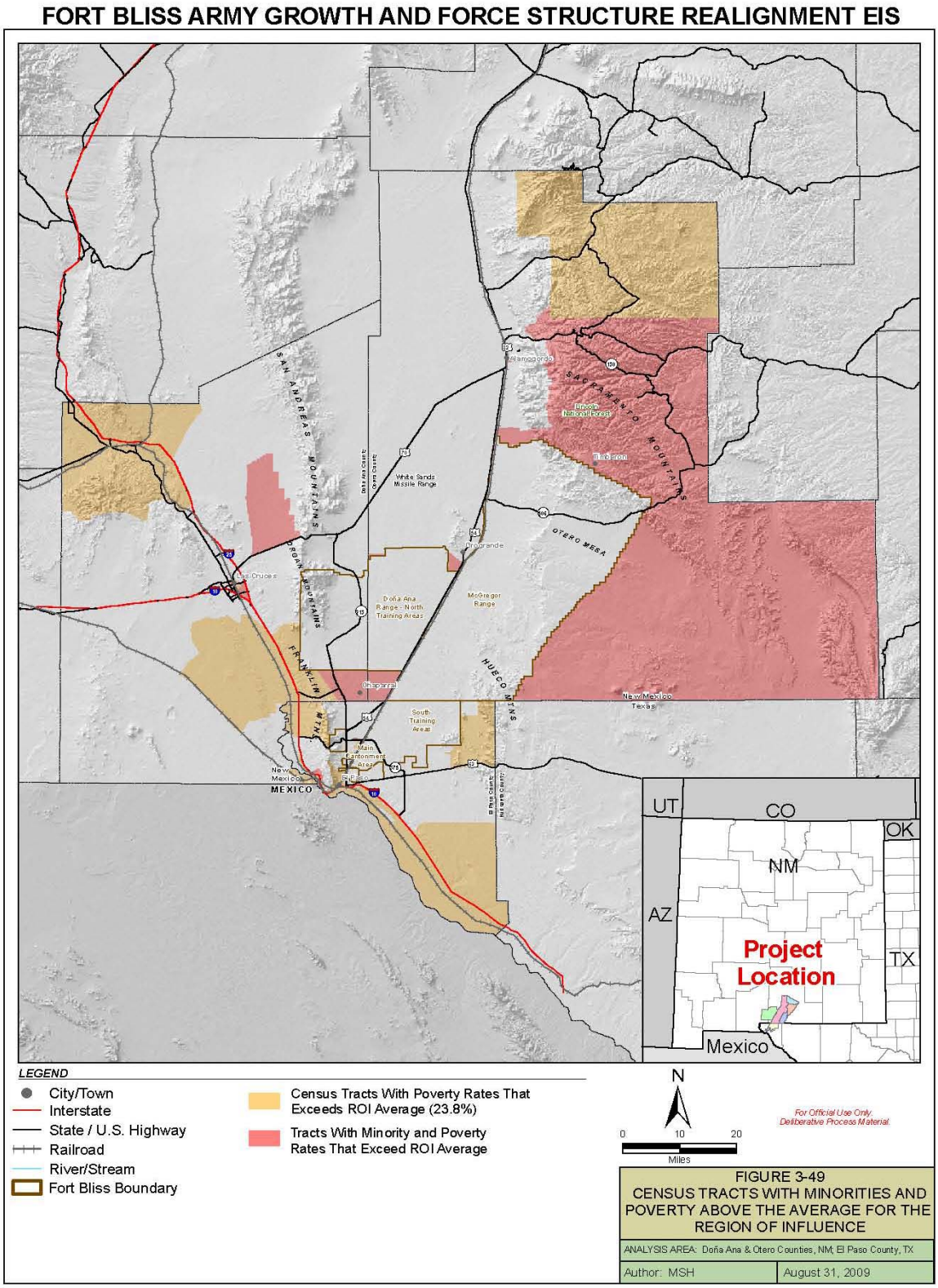


Figure 3-49. Census Tracts with Minorities and Poverty above the Average for the Region of Influence.

Analysis of impacts using the EIFS model requires the following inputs: change in local expenditures, change in the number of military personnel and civilian employment, average wage of affected military personnel and civilian employees, the percent of civilians expected to relocate, and the percent of military personnel expected to live on post. ST-1 for this analysis details the conditions expected to exist following completion of the implementation of the selected stationing and training alternative from the 2007 ROD for the SEIS (Alternative 4) as modified by the 2007 ROD for the GTA PEIS. Those conditions were analyzed in detail by Webster (2006) and summarized in the 2007 SEIS. Full implementation of the selected alternative in the ROD for the SEIS (Alternative 4) as modified by the 2007 ROD for the GTA PEIS is expected to be complete in FY2013. Therefore, FY2013 serves as the "baseline condition" for this analysis for all stationing and training alternatives except ST-1. The timing of each action (except for ST-1) is assumed to occur over four years with the increases occurring evenly throughout the years. Table 3-117 shows the inputs to the EIFS model used for the stationing and training alternatives analysis. They are expressed as differences from ST-1. Hence, the model outputs are the effects in addition to the ST-1. While not exact, these results serve general planning and analysis purposes and can be modified as expansion plans continue to evolve. Since ST-1 reflects conditions that have not been completely implemented, the predicted economic consequences of base expansion are included in the analysis.

Significance of the results is determined through the use of the Rational Threshold Methodology. It relies on yearly U.S. Census and Bureau of Economic Analysis (BEA) time series data to determine a range of baseline values called rational threshold values (RTVs) that are expected without the proposed changes. If EIFS model predictions fall outside of this range, the economic effect is deemed to be significant. Likewise, if the predictions fall within this range, the effect is deemed insignificant. A detailed discussion of the derivation of the RTVs can be found in the EIFS user guide (Webster and Bragdon. 2001).

The stationing and training alternatives in this EIS would increase economic activity in the ROI, and these effects would be concentrated in the City of El Paso. This is generally regarded as good for the region, as long as the region can accommodate the increased demand for housing and social services. In particular, housing was the only resource identified in the VEC analysis where substantial analysis was warranted.

There would be direct and indirect effects to the rural way of life that is historical to the area that are not addressed by the EIFS model. Growth in the baseline population increases the potential that the rural lifestyle associated with ranches that raise cattle and are associated with the open range will diminish from urban development. Over time, development has the potential to fragment grazing lands and reduce the quantity of land available, and thus contribute to a change in the existing rural way of life. Portions of the population closely associated with this lifestyle could as a result be permanently displaced. The areas affected from this change would be localized and could be isolated instances. Given the expansive rural setting within the Fort Bliss ROI, this impact would less than significant.

Table 3-117. Inputs used for EIFS Modeling of Stationing and Training Alternatives.

Variable	ST-1- No Action	ST-2	ST-3	ST-4
Change in Local Expenditures	$3,895,000,000	-	$34,290,000[4]	$94,505,000[4]
Change in Civilian Employment[1]	-	-	1,800	4,900
Average Income of Affected Civilians[2]	$45,000	$45,000	$45,000	$45,000
Percent Expected to Relocate[2]	50	50	50	50
Change in Military Employment[1]	-	-	3,475	3,775
Average Income of Affected Military[2]	$43,500	$43,500	$43,500	$43,500
Percent Living On-Post[3]	32	32	32	32
Multiplier[2]	2.39	2.39	2.39	2.39

[1] Change is expressed as an average yearly difference from ST-1 – No Action Alternative and would be implemented over a four-year period.

[2] Values are same as Webster (2006) to facilitate comparisons.

3 Source: U.S. Army 2007.

4Assumes additional construction costs are equal to the cost of three extra brigade team complexes found in Webster (2006).

3.26.1 Summary of Results

The results of the socioeconomic analysis are summarized in Tables 3-118 to 3-120. The results for ST-1 include projected increases in economic activity and demand for social services that would be generated as a result of the ROD based on the 2007 SEIS (U.S. Army 2007). The results of the other stationing and training alternatives are projected increases over and above the significant effect of this decision. Table 3-118 presents the increase in population estimated by the EIFS model and the associated increase in demand for housing and public services. Since ST-1 includes unrealized socioeconomic expansion, Table 3-118 indicates predicted population size and increase from known size in 2005. As the EIFS model addresses only direct changes in population, a factor of 2.98 was used for each new military personnel to calculate induced population change (UTEP 2002). Table 3-119 summarizes the forecasted economic activity generated by each stationing and training alternative.

Table 3-118. Population Impacts for Stationing and Training Alternatives.

	ST-1 (increase from 2005 baseline)[1]	ST- 2[2]	ST-3[2]	ST-4[2]
Military	40,500 (30,300)	None	4,100	11,300
Military Dependents[3]	66,495 (49,995)	None	6,765	18,645
Civilians	11,300 (3,800)	None	1,800	4,900
Civilian Dependents[4]	15,820 (5,320)	None	2,520	6,820
Students and TDY	6,000 (-1,700)	None	None	None
Subtotal Direct Population	140,115 (87,715)	None	15,185	41,705
Induced Population	120,764 (90,396)	None	12,218	33,674
Total	260,879 (178,083)	None	27,403	75,339
Off-post Residents	224,956 (159,315)	None	22,196	61,025
Off Post Housing Demand	59,544[5]	None	5,771	15,877
Health Care[6]	715	None	123	339
Law Enforcement[7]	270	None	47	128
Fire Protection[8]	227	None	39	108
Schools[9]	2,680	None	343	941

1 Total includes 2005 Fort Bliss population and predicted total increase in parentheses (U.S. Army 2007).
2 Expressed as an increase in population size from the No Action Alternative.
3 Assuming a ratio of 1.65 dependents per military employee.
4 Assuming a ratio of 1.4 dependents per civilian employee.
5 Predicted increase in households over 2005 baseline (U.S. Army 2007).
6 Based on a demand factor of 4.5 beds per 1,000 population (Rau and Wooten 1980).
7 Based on a demand factor of 1.7 personnel per 1,000 population (Rau and Wooten 1980).
8 Based on a demand factor of 1.43 firemen per 1,000 population (Rau and Wooten 1980).
9 Based on existing ratio of 14.6 students to 1 teacher (U.S. Army 2007).

Table 3-119. Average Yearly Projected Changes in Economic Activity.

	ST-1- No Action[1]	ST-2[2]	ST-3[2]	ST-4[2]	RTV
Total Business Volume $M (%RTV)	5,694.9 (2.94%)	None	671 (0.72%)	1,750 (1.87%)	4.74%
Income $M (%RTV)	2,431.8 (2.26%)	None	357 (0.62%)	959 (1.64%)	5.00%
Employment No. (%RTV)	71,978 (2.17%)	None	9,371 (0.58%)	25,065 (1.55%)	4.01%

1 Total over an eight-year period 2006-2013, From U.S. Army 2007
2 Total is assumed to be realized over four-year period
3 RTV based on 1969 to 2003 time series (Webster 2006)

Table 3-120 classifies the socioeconomic impacts for the alternatives using the VEC analysis categories. Each alternative is discussed in detail in the following sections.

Table 3-120. Classification of Direct and Indirect Effects for Socioeconomic Resources.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Population and Housing	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Business, Employment, and Income	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Public Services	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Environmental Justice	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○

○ No impact
⊗ Significant
⦸ Significant but mitigate to less than significant
\+ Beneficial impact
NA Not applicable, refer to stationing and training alternatives.

3.26.1.1 Stationing and Training Alternative 1 (ST-1)

This alternative was analyzed in detail by Webster (2006), summarized in the SEIS (U.S. Army 2007), and serves as a baseline for comparing the other stationing/training alternatives. This alternative is assumed to be implemented during an eight year period from FY2006 to FY2013.

Population and Housing

The SEIS (U.S. Army 2007) projected that the Fort Bliss population, including dependents, would increase to 140,115 people by 2010 (U.S. Army 2007). Additionally, the action would create an induced population of 120,764 people. This results in a total population of 260,879, of which 224,956 would reside off-post (Table 3-118). This would be beneficial to the regional economy but would provide a challenge for planners responsible for providing community services to citizens in the ROI.

Assuming an average household size of 3.07 people, this represents an increased demand for about 73,276 households off-post. This is a large number but it would occur over a nine-year period resulting in an average yearly increase of about 3.3 percent. Under the RCI agreement, new on-post family housing would increase by about 1,231 units. This would alleviate some of the need for military families to find private housing. In addition, the fraction of military personnel seeking family housing may be overestimated. Historical experience at Fort Bliss has shown that previous Fort Bliss populations have a relatively larger number of people using unaccompanied housing (barracks).

Economic Activity

Predicted economic activity is summarized in Table 3-119. The activity under ST-1 would occur during 2005-2013 and would create, on average, modest gains in economic activity when compared to RTV but the activity is not uniform throughout the eight-year period and is summarized in Webster (2006). It is projected that some years would show a significant (values greater than the RTV) increase in economic

activity. Most activity would occur between 2007 and 2009. Year 2008 was projected to have a large effect on business volume, and 2009 was projected to show a significant change in employment. The continuous positive impacts would be substantial and may strain the labor base and other components of the local economy (U.S. Army 2007).

Public Services

Revenues

Tax revenues would increase substantially under ST-1. The total increase in tax revenues due to the Fort Bliss off-post population and induced population increase is estimated to be up to $50.7 million for El Paso County and $118 million for the City of El Paso. Total costs for providing services to the off-post population, based on the FY2005 per capita average appropriations, are estimated to be $52.4 million in the county and $119.4 million in the city (U.S. Army 2007).

Law Enforcement & Fire Protection

ST-1 could generate a need for up to 270 additional law enforcement officers and 227 fire protection personnel an increase of about 25 percent. El Paso County Sheriff, and the City of El Paso Police and Fire Department are expected to increase their recruitment and training efforts to accommodate this population increase (U.S. Army 2007).

Medical Services

It is expected that ST-1 would generate a demand for 172 additional physicians and up to 715 additional hospital beds, a significant increase in demand (U.S. Army 2007).

Schools

The predicted student population would increase by more than 39,000 under the ST-1. Assuming that 80 percent would attend schools in the El Paso, Socorro, and Ysleta ISDs, this represents a 27 percent increase over the October 2008 baseline scenario of 146,805 enrollments at the three schools. This is projected to result in an increase in military impact aid and taxes by approximately $59 million and increase tax-funded costs by $80 million.

Environmental Justice

Under ST-1, the region near Chaparral, New Mexico, would experience noise levels from large caliber weapons exceeding 62CDNL. This includes census tracts 12.02, 18.02, and 18.04 in Doña Ana County, the portion of Census Tract 9 in Otero County that lies west of Fort Bliss near Chaparral, and Tract 102.06 in El Paso County (Figure 3-49). Almost all of the population in Doña Ana County tracts 12.02 and 18.02 reside west of the Organ Mountains where noise levels would be minimal. Therefore, only Tract 18.04 in Doña Ana County would be affected. This tract shows a higher than average poverty rate for the ROI as does Tract 9 in Otero County. The El Paso County tract has a poverty rate greater than the ROI average but the minority population is no greater than the ROI average. Large caliber weapons noise would have a disproportionate adverse impact on low-income populations in the Chaparral area (U.S. Army 2007). Impacts from aviation noise would not disproportionally affect minority or low income populations.

EO 13045, Protection of Children From Environmental Health Risks and Safety Risks, requires that each federal agency identify and assess environmental health risks and safety risks that may disproportionately

affect children, and address such risks in their policies programs, activities and standards. Neither the proposed action nor any of the alternatives would have the potential to cause environmental health risks or safety risks that would disproportionately affect children.

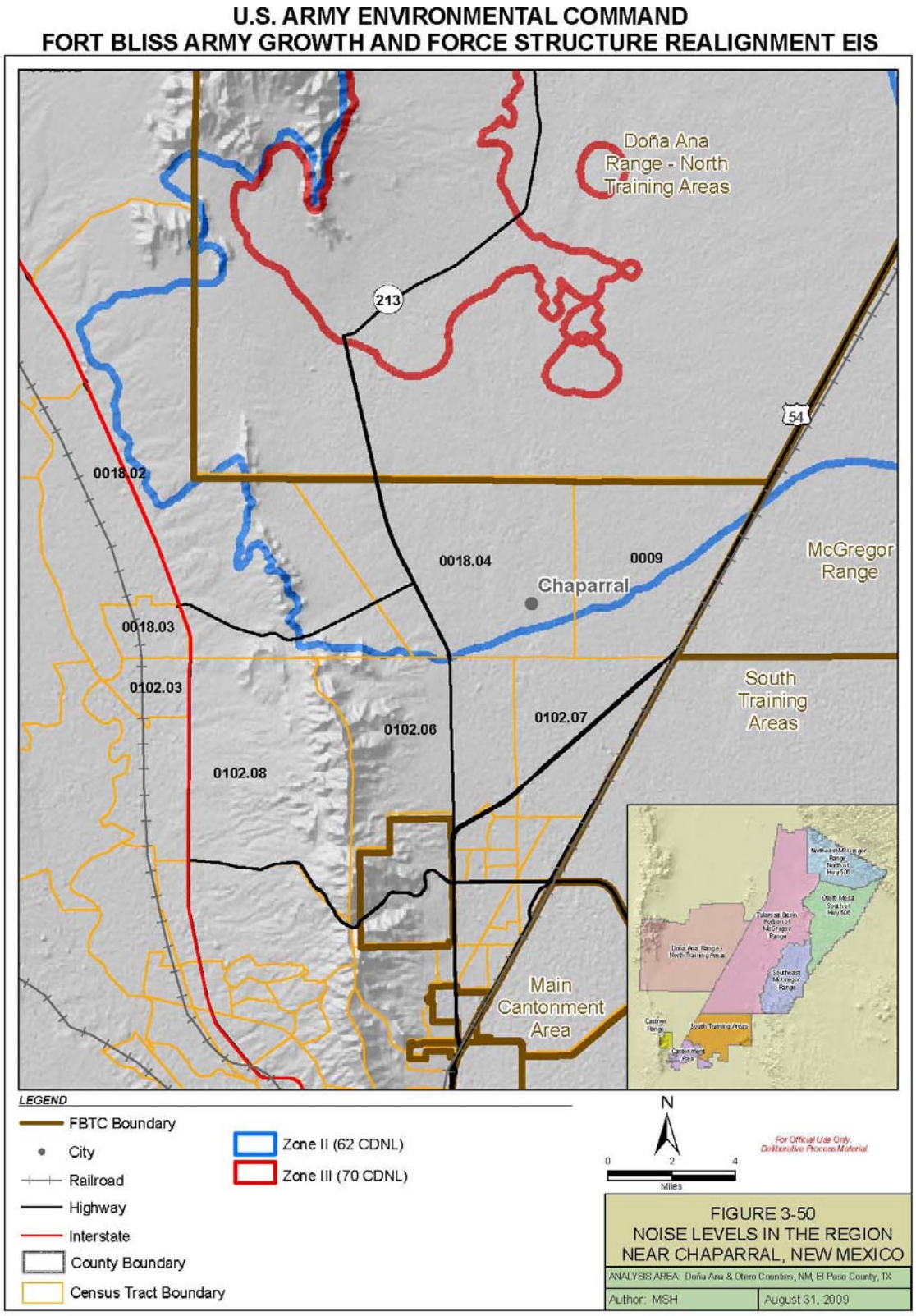


Figure 3-50. Noise Levels in the Region near Chaparral, New Mexico.

3.26.1.2 Stationing and Training Alternative 2 (ST-2)

This alternative is the same as ST-1 with one exception: no HBCTs would be deployed for training. Most of the activity of the deployed troops will still occur in the City of El Paso and is included in the ST-1; therefore, it would not have additional socioeconomic consequences beyond those described for ST-1. Population numbers would not change. In addition, because the noise analysis already assumes maximum throughput in the ranges, noise levels would remain the same and environmental justice impacts would not change.

3.26.1.3 Stationing and Training Alternative 3 (ST-3)

This alternative increases the number of military personnel at Fort Bliss by stationing one SBCT. The number of Soldiers stationed at Fort Bliss would increase by approximately 4,100 to a total of 44,600 and the overall stationed population of Fort Bliss (including military families) would increase to approximately 131,600 people. One additional HBCT not stationed at Fort Bliss would conduct training at Fort Bliss. Increased business volume was computed using the same assumptions as ST-1. In other words, average civilian and military salaries as well as the percent civilians relocating and the associated economic multipliers remain the same in the EIFS model, and the changes were assumed to occur uniformly throughout a four-year period.

3.26.1.4 Stationing and Training Alternative 4 (ST-4)

Under this alternative, two SBCTs and four Other Units (support) would be stationed at Fort Bliss. The number of Soldiers stationed at Fort Bliss would increase by approximately 11,300 to 51,800, and the overall stationed population of Fort Bliss (including military families) would increase to approximately 152,800 people. Two additional HBCTs not stationed at Fort Bliss would conduct training at Fort Bliss. Increased business volume was computed using the same assumptions as ST-1. In, other words, average civilian and military salaries as well as the percent civilians relocating and the associated economic multipliers remain the same in the EIFS model, and the changes were assumed to occur uniformly throughout a four-year period.

3.26.2 Stationing and Training Direct and Indirect Effects

Population and Housing

ST-3 and ST-4 are projected to increase population in the ROI by approximately 27,400 and 75,300 people respectively. This represents population increases of approximately 2.7 percent and 7.5 to the ROI population in 2000 of 998,596 for ST-3 and ST-4 respectively. About 80 percent would reside off post. This would result in an increased demand of 7,200 homes for ST-3 and 19,900 homes for ST-4. This represents an increase in the demand for housing of 2.3 percent and 6.2 percent to the ROI total number of housing units of 318,929 in 2000 for ST-3 and ST-4 respectively. The adverse impacts of this market stimulation could be mitigated by implementing this option after the ST-1 has been completed, extending the time period for implementation from four years to something longer, and creating more on-post family housing. It is assumed that enough barracks would be available as part of the BCT complex construction.

Economic Activity

The EIFS model projects increased economic activity for ST-3 and ST-4, but all results are well within their respective RTVs. ST-3 and ST-4 would produce significant but mitigable to less than significant impacts to the local economy. Different timing of the implementation could change these conclusions.

Public Services

Revenue/Expenditures

Using the same assumptions as for ST-1, ST-3 and ST-4 are projected to produce increased revenues of $16.7 million and $46.8 million for the City of El Paso and $7.2 and $20.1 million for El Paso County respectively. Expenditures are estimated to increase by $16.9 million and $7.4 million for the city and county respectively under ST-3 and $47.4 million and $20.7 million with ST-4.

Law Enforcement & Fire Protection

Using the Rau and Wooten demand factor (Rau and Wooten 1980) of 1.7:1000 for law enforcement and 1.43:1000 for fire protection, results in an estimated need for 47 additional law enforcement personnel and 39 additional Fire Protection Personnel for ST-3 and 128 additional law enforcement personnel and 108 additional Fire Protection Personnel with ST-4. The El Paso County Sheriff, City of El Paso Police Department, and City of El Paso Fire Department would be expected to increase their recruitment and training efforts in anticipation of this population influx.

Medical Services

Using the Rau and Wooten Factor of 4.5 beds per 1,000 people, ST-3 could generate a demand of 123 hospital beds with a concurrent need for doctors and other health care workers. ST-4 would generate a demand of 339 hospital beds with a concurrent need for doctors and other health care workers.

Schools

Using the multipliers in the SEIS (U.S. Army 2007), public school enrollment would increase by 5,095 and 12,737 students for St-3 and ST-4 respectively primarily attending the public schools in the ROI. This would be an increase of about 3.5 percent and 8.7 percent for ST-3 and ST-4 respectively over October 2008 enrollments and would require 349 additional classrooms for ST-3 and 872 additional classrooms for ST-4. This is predicted to result in an increase in military impact aid and taxes by approximately $7.5 million and 21 million for ST-3 and ST-4 respectively. Likewise, tax-funded costs will increase and by $9.9 million and $27.7 million.

Environmental Justice

ST-3 and ST-4 would increase the frequency of large caliber weapons fire and aircraft noise contours produced by Fort Bliss training maneuvers and increase the noise contours slightly (USACHPPM 2008). The 62 CDNL contours will extend a little west of I10 in Doña County and extend, slightly, into some of El Paso Tracts lying adjacent to the Fort Bliss' southern boundary (Figure 3-50). These New Mexico tracts have higher than average minority and low-income populations while the El Paso tracts have population tracts that have minority and low-income populations no greater than the ROI average. Therefore, ST-3 and ST-4 may have adverse impacts in minority and low-income populations occurring in New Mexico adjacent to the southwest border of Fort Bliss.

EO 13045, Protection of Children From Environmental Health Risks and Safety Risks, requires that each federal agency identify and assess environmental health risks and safety risks that may disproportionately affect children, and address such risks in their policies programs, activities and standards. Neither the proposed action nor any of the other alternatives would have the potential to cause environmental health risks or safety risks that would disproportionately affect children.

3.26.3 Land Use Changes Alternative 1 (LU-1)

This alternative would have no land use changes and therefore no additional socioeconomic effects in the ROI. There would be no net increase in personnel and no construction. There would be no change in the noise footprint. The noise footprint over the Chaparral area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. The region near Chaparral, New Mexico would experience noise levels from large caliber weapons exceeding 62CDNL and have a disproportionate adverse impact on the low-income populations in this area (U.S. Army 2007). Impacts from aviation noise would not disproportionally affect minority or low income populations. There would be no impact associated with this alternative.

3.26.4 Land Use Changes Alternative 2 (LU-2)

This alternative would have no additional socioeconomic effects in the ROI, because it is limited to land use changes supporting military operations within the boundaries of the FBTC. There would be no net increase in personnel and any additional construction would be minimal. Any change in the noise footprint would involve either public lands to the north and east of McGregor Range or WSMR to the west. The noise footprint over the Chaparral, New Mexico area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.5 Land Use Changes Alternative 3 (LU-3)

This alternative would have no additional socioeconomic effects in the ROI, because it is limited to land use changes supporting military operations within the boundaries of the FBTC. There would be no net increase in personnel and any additional construction would be minimal. Any change in the noise footprint would involve either public lands to the north and east or McGregor Range or WSMR to the west. The noise footprint over the Chaparral, New Mexico area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.6 Land Use Changes Alternative 4 (LU-4)

This alternative would have no additional socioeconomic effects in the ROI, because it is limited to land use changes supporting military operations within the boundaries of the FBTC. There would be no net increase in personnel and additional construction costs would be minimal. Any change in the noise footprint would involve either public lands to the north and east or McGregor range or WSMR to the west. The noise footprint over the Chaparral, New Mexico area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.7 Land Use Changes Alternative 5 (LU-5)

This alternative would have no additional socioeconomic effects in the ROI, because it is limited to land use changes supporting military operations within the boundaries of the FBTC. There would be no net increase in personnel and additional construction would be minimal. Any change in the noise footprint would involve either public lands to the north and east or McGregor Range or WSMR to the west. The footprint over the Chaparral area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.8 Training Infrastructure Improvements Alternative 1 (TI-1)

This alternative would have no training and infrastructure improvements and therefore no socioeconomic effects in the ROI. There would be no net increase in personnel and no construction. There would be no change in the noise footprint. The noise footprint over the Chaparral, New Mexico area would not change therefore the environmental justice conclusions would be the same as the selected stationing and training alternative. Under this alternative, the region near Chaparral, New Mexico would experience noise levels from large caliber weapons exceeding 62CDNL and therefore would have a disproportionate adverse impact on the minority and low-income populations (U.S. Army 2007). Impacts from aviation noise would not disproportionally affect minority or low income populations. There would be no impact associated with this alternative.

3.26.9 Training Infrastructure Improvements Alternative 2 (TI-2)

This alternative would have no socioeconomic effects in the ROI as it involves adding infrastructure for training exercises. There would be no net increase in personnel and additional construction would be minimal. Any change in the noise footprint would involve either public lands to the north and east of McGregor Range or WSMR to the west. The noise footprint over the Chaparral, New Mexico area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.10 Training Infrastructure Improvements Alternative 3 (TI-3)

This alternative is presumed to have no socioeconomic effect in the ROI as it involves adding infrastructure for training exercises. There would be no net increase in personnel and additional construction costs would be minimal. Any change in the noise footprint would involve either public lands to the north and east or McGregor Range or WSMR to the west. The footprint over the Chaparral, New Mexico area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no impact associated with this alternative.

3.26.11 Training Infrastructure Improvements Alternative 4 (TI-4)

This alternative would have no socioeconomic effect in the ROI as it involves adding infrastructure for training exercises. The noise footprint over the Chaparral area would not change; therefore, environmental justice conclusions would be the same as the selected stationing and training alternative. There would be no associated impact.

CHAPTER 4 CUMULATIVE EFFECTS

This section presents cumulative effects and recognizes the 2007 GTA PEIS as the basis for this analysis. Each resource area was evaluated to identify the direct and indirect environmental impacts of their actions. The CEQ NEPA Regulations require federal agencies to address cumulative impacts related to their proposals. A cumulative impact is defined in the CEQ Regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time [emphasis added]." (40 CFR 1508.7) This section describes the process used to identify potential cumulative impacts related to the proposed actions at Fort Bliss and discusses those impacts for each of the resources addressed in Chapter 3.

4.1 Process for Identification of Cumulative Effects

CEQ has published guidance for assessing cumulative impacts in *Considering Cumulative Effects under the National Environmental Policy Act* (January 1997). In summary, the process outlined by CEQ includes identifying significant cumulative effects issues, establishing the relevant geographic and temporal (time frame) extent of the cumulative effects analysis, identifying other actions affecting the resources of concern, establishing the cause and effect relationship between the proposed actions and the cumulative impacts, determining the magnitude and significance of the cumulative effects, and identifying ways in which the agency's proposal might be modified to avoid, minimize, or mitigate significant cumulative impacts. The identification of cumulative impacts follows the analysis contained in the FB GTA EIS (Army 2007) document. Public comment related to this EIS was obtained in scoping meetings. A summary of the comments received for the purpose of accounting for cumulative effects is identified below:

4.2 Identification of Significant Issues

Issues to be addressed in this cumulative effects analysis were identified based on (1) concerns expressed by the public during scoping and (2) issues identified through the analysis of direct and indirect effects that have the potential to combine with other past, present, or reasonably foreseeable future actions to produce a larger impact.

Relevant comments related to the proposed action received during scoping for this EIS are presented below:

4.2.1 Land Use and Visual Resources

- Impacts to neighboring lands
- Fire control from training fires
- Accessibility to highways
- Issues affecting cattle ranching, including munitions caused fires destroying range grasses

4.2.2 Natural Resources

- Continual implementation management plans and protection, conservation, preservation, and management of habitats and species.
- Potential changes in land use that would negatively impact the Otero Mesa desert grasslands.

4.2.3 Cultural Resources

- Address impacts to archaeological resources
- Preservation of the custom and cultures of locals

4.2.4 Transportation and Infrastructure

- Effects of heavy equipment maneuvers on county roads, particularly on County Road 506.
- Improvements to Highway 54 and safety issues with increased traffic.

4.2.5 Air Space

- Consideration of impacts from the proposed actions to civil and commercial aviation.

4.2.6 Energy

- Consideration of alternative sources of energy.

4.2.7 Socioeconomics

- Preservation of the customs and cultures of the local community (rural way of life).
- Potential growth that may occur in Chaparral and Oro Grande, New Mexico.
- Impacts to families, schools, businesses, and the environment.

4.3 Cumulative Effects Analysis Considerations

Like the 2007 SEIS (Army, 2007) cumulative effects analysis, impacts were evaluated as they may or would contribute to issues of national or international scope, such as depletion of non-renewable fossil fuel resources, energy shortages and increasing costs. It continues to be appropriate to consider that these issues have a national or global scale and they are neither feasible nor practical to be addressed in this EIS beyond conservation and green purchasing (recycled and energy efficient products). Analyses may be detailed for applicable resource areas and are presented as appropriate in the direct and indirect effects or the mitigation and monitoring chapter of this EIS. These issues are not discussed in further detail in this section due to their large scale scope and variability of scope and associated impacts.

Climate Change is also largely of a national or international scope. The USEPA is moving forward with proposed legislation to require mandatory reporting of greenhouse gas (GHG) emissions above appropriate thresholds in all sectors of the economy beginning in 2010. EPA's proposal was published in the Federal Register April 10, 2009, and was open for public comment until June 9, 2009. It is the

Administration's intent to have the registry established to ensure that reporting begins in 2010. Congress requested EPA include reporting of emissions resulting from upstream production and downstream sources to the extent that the Agency deems appropriate and establish a registry for mandatory GHG reporting.

Executive Order 13423 (January 2007) addresses energy related activities at the federal level and commits federal agencies to the primary goal of energy efficiency and reduction of greenhouse gas emissions through reduction of energy intensity by 3 percent annually through the end of fiscal year 2015, or 30 percent by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003.

For this EIS, the proposed action and alternatives were not contemplated for net emissions increase and considers that the emissions analysis, environmental impacts, cumulative effects, and mitigation and monitoring are addressed in environmental documentation that addresses the Army transformation on a national and international scale. The climate change assessment would then address this national and global impact from carbon dioxide emissions associated with stationing and training, land use changes, and infrastructure changes.

Other national and international issues that could affect resources also affected by the proposed actions at Fort Bliss are outside the scope of this analysis because (1) the actions at Fort Bliss would not change the significance of the cumulative effects, (2) there is no clear cause and effect relationship between the actions proposed at Fort Bliss and the impacts of those other actions, or (3) the cumulative effects are too speculative to allow for meaningful analysis. These issues include the following:

- Cumulative impacts of the overall Army 2005 BRAC decisions.
- Cumulative impacts from all Army Transformation and IGPBS activities.
- Impacts of the Global War on Terrorism, military actions in Iraq and Afghanistan, or potential future military deployments and engagements.
- Immigration policies and border programs that may affect El Paso and/or Ciudad Juárez.
- Growth, development, and economic activity in Mexico.

In following with a consistent analysis following the 2007 SEIS (Army, 2007) cumulative effects were evaluated in context of geographic and temporal extent of analysis, identification of other actions, and establishment of cause and effect relationship. Impacts were evaluated in substantially the same process as documented in the 2007 SEIS. This includes impacts evaluated based on their magnitude and if they were considered significant. This section analyzes past actions taken at Fort Bliss and includes additional cumulative impacts that occur from changing HBCTs to either IBCTs or SBCTs with concomitant changes in off-road training requirements. Table 4-1 classifies the cumulative effects for alternatives evaluated. The alternative and the cumulative effects associated with the alternative are summarized in Table 4-2. The table only identifies those alternatives where a cumulative effect has been identified.

Table 4-1. Classification of Cumulative Effects Associated with the Proposed Action Alternatives.

Resource	Stationing and Training				Land Use					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Land Use	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Earth Resources	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Natural Resources	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Cultural Resources	○	○	○	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○
Air Quality	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○
Water Resources	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Facilities	○	○	○	○	○	○	○	○	○	○	○	○	○
Transportation and Traffic	⦸	⦸	⦸	⦸	○	○	○	○	○	○	○	○	○
Air Space	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Energy	○	○	⊙	⊙	○	○	○	○	○	○	○	○	○
Solid Waste and Hazardous Materials/ Waste	⊙	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	⊙	⊙
Noise	⊙	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	⊙	⊙
Socioeconomics	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○

⦸ Significant but mitigate to less than significant.
⊙ Less than Significant
○ No Impact

Table 4-2. Description of Cumulative Effects Associated with the Proposed Action Alternatives.

Land Use	
Alternative(s)	**Cumulative Effect Description**
ST-1 through ST-4	Land Use changes within the ROI include the increased development and urbanization of those lands available for development. The region projects a population growth of approximately 1.64 percent between 2010 and 2020 and continued growth forward from 2020. Within the City of El Paso, population growth is expected to continue at an average rate of 2.9 percent per year; independent of Fort Bliss expansion. As discussed in the SEIS, the Metropolitan Planning Organization forecasts future this city growth would be concentrated to the northeast and east. Growth within Dona Ana and Otero counties is in addition to that from mission changes at Fort Bliss and WSMR. Future development and urbanization will be within the limited amount of privately owned lands. In Dona Ana county, over 90 percent of the land is publicly held. (Vision 2040). In Otero County, approximately 78% of the land is publicly owned (Otero County Comprehensive Plan, 2002). Projected growth includes residential growth along US 54 and south of US 70. Commercial/retail growth would occur southwest of Alamogordo along US 70/82, while industrial growth would be north of and including the Alamogordo-White Sands Regional Airport (WSMR DEIS). All of this growth would result in continued development and urbanization. As identified in the 2007 SEIS and summarized below, numerous land use strategies and initiatives could combine with actions at Fort Bliss to produce substantial cumulative land use impacts: • *Smart Growth Plan for the Northeast*, a proposed 6,750 acre development between U.S. Highway 54 and the New Mexico State line, and in proximity to the western border of the South Training Areas, will include mixed commercial-industrial-residential uses. Due to the current economic downturn, definitive dates for the development are pending. • The City of El Paso with assistance from the DoD Office of Economic Adjustment is developing a *Regional Growth Management Plan (RGMP)* under a collaborative planning effort with the City of El Paso, El Paso County, Fort Bliss, and City of Las Cruces and Doña Ana County. The RGMP indicates that by 2025, the City of El Paso's current land base of 161,000 acres with development on 50 percent of the land, is expected to increase to 171,000 acres with development of 63 percent of the land. The RGMP is targeting the development of selected buffer areas adjacent to Fort Bliss where development and uses currently and/or potentially could conflict • Doña Ana County's current planning effort, entitled *Vision 2040*, is a guide for future land use planning through 2040 and beyond, which will include comprehensive plan updates for Doña Ana County. Between 2000 and 2040, the County population is expected to grow by 77 percent, with the primary growth areas located in the southern sector of the county, including Sunland Park, Mesilla, and Anthony. One of the policy strategies of *Vision 2040* is to share the Comprehensive Plan with the US Department of Defense to ensure that all parties have access to information as planning decisions occur.

ST-1 through ST-4 (continued)	• In 2006, Otero County initiated the development of a Community Economic Action Plan to address infrastructure and growth in Chaparral. Located between the Northeast planning area of El Paso and the Doña Ana Training Range of Fort Bliss, Chaparral is divided by Otero and Doña Ana Counties. Both counties are participating in the planning effort. The growth of Fort Bliss under the BRAC 2005 mandates taken together with the ST-3 and ST-4 alternatives and projected natural growth, would accelerate the rate of population growth in the region, and would stimulate more rapid development especially in the northeastern and eastern sections of El Paso, where growth is already projected, in towns in southern New Mexico, and in communities in Otero County bordering the installation. In context of all the land use influences, the contribution from any of the alternatives evaluated together with past and foreseeable actions is considered significant but mitigable and manageable based on planning initiatives by the Army and local governments as outlined above.
Earth Resources	
Alternative(s)	**Cumulative Effects Description**
ST-2 through ST-4	Future development within the ROI presents the potential increased surface water runoff, soil erosion, and subsequent sedimentation from areas downstream of construction sites and new impervious surfaces. Since 2006, the City of El Paso has passed legislation authorizing the El Paso Water Utilities to study, plan, and where necessary, construct to mitigate storm water capacity and drainage issues. These mandates include planning for increases in storm water run-off due to the increased construction associated in part with the expansion of Fort Bliss. Fort Bliss engineering designs and requirements for any road construction now require water bars to re-direct run-off, retention and sedimentation ponds, and hardened low water crossings or culverts to reduce erosion impacts. Along with potential erosion and sedimentation, development and construction create greater amounts of fugitive dust resulting from the disturbance or removal of protective soil covers such as vegetation and soil veneers during construction Increases in soil erosion will occur not only from water erosion but wind erosion as well. With regard to construction, BMPs on Fort Bliss together with the City of El Paso, City Plan Commission ordinances to include soil blankets, rock covers, hardening of range roads and maintenance of tank trails. In Dona Ana County the Natural Events Action Plan (NEAP) (Vision 2040) calls for controlling significant sources of human-caused windblown dust with the understanding that nature can sometimes override dust control efforts. These measures combined with the Fort Bliss and City of El Paso initiatives would mitigate much of this cumulative impact associated with erosion.
LU-1 through LU-5	Much of the undeveloped land in the ROI, including Fort Bliss is already partially degraded as a result of past and current uses and weather conditions. Off road recreational vehicles also disturb vegetation and soil crusts. Much of the land is characterized by degraded shrub communities, mesquite coppice dunes, and bare soils. The cumulative effects of multiple disruptions over time have been significant as each subsequent disruption has prevented recovery to a pre-disturbance state (SEIS). Within the ROI, contributions to soil loss through erosion from development of infrastructure and projects by federal land management agencies including the BLM, Forest Service, and WSMR (SEIS). Soil erosion and deposition is a naturally occurring phenomenon in any landscape, but especially in desert environments, adverse impacts may increase when erosion rates are accelerated by human disturbance. Military training activities that include off road maneuvers and weapons firing, and nonmilitary agricultural grazing and off road recreational vehicles all contribute to soil erosion and soil compaction within the ROI.

LU-1 through LU-5 (continued)	Since the FBTC is set within a closed basin, any existing or increased water erosion is not anticipated to contribute to cumulative surface water effects. Within the Fort Bliss ROI, the management strategies employed by the DoD, include practices to limit the scope of contribution to the ROI and therefore cumulative effects are considered less than significant.
TI-1 through TI-3	Military training outside of Fort Bliss includes activities associated with White Sands Missile Range. WSMR is a test range and weapons testing involving explosive munitions that create dust and affect soil surfaces are intermittent and infrequent. These events and activities are sufficiently separated in time and location and although identified as an additional component to the overall cumulative effect, are considered less than significant.
Natural Resources	
Alternative(s)	**Cumulative Effects Description**
ST-1 through ST-4	Population increase within the ROI can cumulatively result in development of open lands to provide infrastructure needed to support new temporary and permanent residents and result in loss of natural resources. The construction for buildings, roads, and utilities would reduce or eliminate native vegetation in the affected areas and allow introduction and/or expansion of exotic or invasive species. As identified in the SEIS, natural resources in the ROI have been in a state of transition since the beginning of livestock grazing in the region. Developed areas like the City of El Paso and other communities have undergone the most change, with complete alteration of ecological conditions and habitat and concomitant loss of indigenous vegetation and wildlife. The present and future development at Fort Bliss is a small contribution to the overall development within these changed areas of the ROI and impacts are considered less than significant.
LU-2 through LU-5	Undeveloped areas of Fort Bliss, as well as WSMR and adjacent public lands, were altered by past and present uses. Land in the FBTC supported livestock grazing prior to military use, and much of the transition from historic grasslands to shrub lands and mesquite coppice dunes predates military presence. Drought conditions have also contributed to increased desertification of the land in the region. Land use on military installations is substantially less intensive than urban development or agriculture, and as a result, military lands within the ROI have been able to maintain high species richness, compared to other parts of the region. The implementation of land management plans contributes to this status. Cumulative ecosystem impacts are determined by the effects that occur over the broader regional landscape/ecosystem. Many wildlife species are tolerant of and adaptive to change, moving from stressed to more desirable habitats. Large scale ecological transitions will incrementally decrease options for relocation and may reduce or eventually eliminate species from their natural or current range. This may result in regional population impacts over a long term period of time. This change , from both human activities and weather conditions, will be affected by land development that alters water consumption (from irrigation to municipal use), and the economic viability of continuing livestock operations if drought and diminishing grasslands persist. Regionally, cumulative effects on natural resources will continue. Urban growth and the associated land development, increased use of recreational lands from increased population, military training, and other land use changes all contribute to continued, decreasing available grassland habitat, transitioning ecological status, and increasing desertification.

LU-2 through LU-5 (continued)	Actions taken for the BRAC mandated together with the Army Growth and Force Structure Realignments would result in decreased habitat for wildlife and possible reductions in a variety of vegetative communities due to the cumulative effects of training infrastructure expansion on the FBTC and urban growth, private land development, population growth and the potential oil and gas extraction on lands off Fort Bliss. Drought conditions along with off road training maneuvers may cumulatively contribute to loss of vegetation habitat.. However, LUA protection covered degraded and overgrazed land in many areas and training on actual grasslands would be intermittent and infrequent in most areas. Additionally, Fort Bliss manages wildlife per the INRMP and provides training for and requires soldiers to not disturb wildlife. Cumulative effects from these land use changes although substantial are considered as less than significant.An increase in military training and population growth in outlying areas such as Timberon could cumulatively increase the chance of wildfires. Management of wildfires becomes more complex once it includes protection of private property and the need to keep public roads available. Infrastructure development from an increased population associated with growth would require fire protection and is cumulative to the growth at the installation. Fort Bliss would expand a fire station at McGregor and currently trains unit soldiers to respond to fires when training in the field. Fort Bliss and the BLM have cooperating agreements to fight wildfires and keep them from spreading outside the installation. Fort Bliss is currently actively working on fuel reduction and fire breaks on Forest Service land within the FBTC
Cultural Resources	
Alternative(s)	**Cumulative Effects Description**
LU-1 through LU-4	Opening up the FTX sites and maneuvers north of Hwy 506 when taken together with increased training and off-post population growth may have cumulative adverse effects on cultural resources on and off post. As a result, archaeological sites may be lost over time due to not only maneuvers but also construction of new businesses and subdivisions on previously undeveloped land within the region. TCPs and sacred sites may also be threatened or lost during this expansion. At Fort Bliss, the PA and its SOPs ensure that a process is in place to avoid, reduce, or mitigate adverse effects to historic properties. Cultural resources are not always protected by Federal or state law, during development on private property. This private development has a high potential for adversely affecting cultural resources that may be eligible for the National Register. Tribes are not party to the Fort Bliss PA. Fort Bliss is in consultation with interested Tribes in preparation of an Agreement similar to the PA in addressing impacts to TCPs and Sacred sites. FTX sites and new off-road areas will be surveyed for TCPs that will be evaluated and/or mitigated as applicable. Additionally, Fort Bliss will work with trainers to open up areas with the least impacts to cultural resources but that still meet the requirements to adequately train Soldiers. Based on the information presented, cumulative effects are considered less than significant.

LU-1 through LU-4 (continued)	Federal land managing agencies, including the Bureau of Land Management, Forest Service, and WSMR, adjacent to or overlapping the FBTC, carry out activities that have the potential to impact archaeological sites, TCPs, and sacred sites. These activities include issuance of permits for grazing, well installation, construction of infrastructure, and other projects that can cause adverse effects. These activities are in addition to the potential effects from the Proposed Action alternatives. These effects are considered less than significant because these agencies also have responsibilities under federal cultural resource laws and follow processes to avoid, reduce, or mitigate adverse effects to properties eligible for the National Register.
Air Quality	
Alternative(s)	**Cumulative Effects Description**
ST-1 through ST-4	The important cumulative effects related to air quality is the potential for increased emissions similar to that described in the 2007 SEIS. These emissions, a factor of an increased population growth have the future potential to result in air quality rated non-attainment for the National Ambient Air Quality Standards. The SEIS presented a comprehensive discussion regarding the potential future air quality from stationing actions. The combination of proposed actions at Fort Bliss and adjacent military facilities and growth planned from border economic conditions all contribute to future air quality. Increased emissions from a growing population would result in stationary and mobile sources of air pollutant emissions. These impacts are derived from construction of the infrastructure to support a growing population and the increased traffic from all these new residents. The short term emissions that include PM10 from construction are in addition to fugitive dust from off-road vehicle maneuvers. Other emissions from combustion of fossil fuels for maneuvers are in addition to the mobile and stationary sources from vehicles and industries that would be expected from the stationing actions. There would be cumulative effects to air quality if other projects or anticipated activities: are in close proximity; affect the same air shed; lead to a number of associated projects with air pollutant emissions; and/or are similar in effect to those of the project under review. There are no other projects or activities that have been identified in the reasonable foreseeable future with this category of activity that meet any of these criteria. The cumulative effect from the stationing and training alternatives is considered less than significant. Off-post, continued improvements in vehicle fuel efficiency and pollution control, upgrade of construction standards for housing and industrial development to reduce energy use, better pollution control equipment and technology, and enforcement of pollution control regulations for industry should help to reduce air emissions regionally, but the degree of this beneficial offset is not known.

Water Resources	
Alternative	**Cumulative Effects Description**
ST-1 through ST-4	The important cumulative effects for water resources are similar to those described in the 2007 SEIS and address the importance of past management regarding the Rio Grande and its numerous dams, channels and other infrastructure. Historical drawdown of the freshwater aquifers in the Hueco Bolson and Tularosa Basin has resulted in decline in water levels. Drawdown has also caused a decline of water quality due to increasing salinity. Increased water consumption within Alamogordo and WSMR could cumulatively affect groundwater aquifers within the Tularosa Basin, the regional basin that provides water for Orogrande Range Camp. Increased population in El Paso could cumulatively affect groundwater resources in the Hueco Bolson and Mesilla Basin which provide the majority of water to Fort Bliss, the City of El Paso, and surrounding communities. The future growth and increased water consumption in these communities could be offset by water management initiatives, including water conservation, the future Alamogordo Desalination Plant, the proposed desalination plant at WSMR, a recently constructed desalination plant in the Fort Bliss South Training Areas, water ranches in Dell City and other locations in West Texas, and the Las Cruces water reclamation facility. An evaluation of the stationing and training alternatives and those alternatives considered under the SEIS was conducted to obtain information for a cumulative effects discussion. With each alternative, increased wastewater treatment demand will take up some of the EPWU capacity. Within the EPWU, the Haskell Street and Northwest Wastewater Treatment Plants have the greatest capacity. Other EPWU plants have lesser capacity and will reach their operational limits from future development; some which will be attributed to military actions. Additionally, plans to extend EPWU water supply and wastewater treatment capabilities to currently unserviced areas including Colonia's, have the potential to further contribute to cumulative effects. Wastewater loads from Fort Bliss combined with those associated with baseline population growth may exceed the EPWU existing treatment capacity by approximately 13 percent by 2015 (U.S. Army 2007a). These estimates are described as conservative given the water conservation measures that are expected to be in place. Even with water conservation, additional treatment capacity will likely be required to be developed by EPWU, which would be a significant but mitigatable cumulative effect on water resources. Past management and use have dramatically affected regional surface and groundwater resources. This includes channelization of surface waters for irrigation; impoundment of surface waters and groundwater extraction for domestic, commercial, agricultural, and industrial use; and erosion and sedimentation due to surface disturbing activities. Surface disturbance may be associated with construction activities, including vegetation removal and topsoil stockpiling, road construction, and shallow excavations and would contribute to erosion and sedimentation. These impacts are now being addressed within the EPWU city-wide storm water management program. Cumulative effects on surface water resources would be highest shortly after construction begins and would decrease over time in response to reclamation efforts. BMPs to control erosion would be implemented to ensure that surface-disturbing activities have minimal effect on surface water resources.

Transportation and Traffic	
Alternative(s)	**Cumulative Effects Description**
ST-2 through ST-4	Traffic analyses are required to assume a worst case scenario for build-out conditions, which can include, but is not limited to the additional traffic generated by additional civilian and military dependents. The traffic generation factor used for analysis takes this additional traffic by a predetermined rate to determine the implementation year background traffic, which accounts for the cumulative effect of regular population growth not attributed to the increased stationing. Traffic generation for development always assumes immediate full build-out, which accounts for the cumulative effect of phased construction. Roads that are underutilized could now become congested as the population increases in and around El Paso and smaller communities served by Highway 213 and US 54 in New Mexico.(2007, Army). Cumulative effects could be further impacted by increased trans-border traffic on US 54. Increased stationing and training would result in increased usage of public roads to transport military vehicles and equipment in an around the FBTC. The cumulative effects from the stationing and training alternatives would be considered significant but mitigatable through road construction and traffic management. Military convoys (some of which could be long, requiring several days to transport equipment to and from the training areas) include heavy equipment transporters that tend to slow overall traffic speed. These convoys have the potential to reduce level of service especially on two-lane roads because they limit passing opportunities. The increased size and frequency of convoys traveling to the training areas under Alternatives 2, 3, and 4 would have an additive impact on traffic. However, because impacts from convoy traffic would be temporary (although recurring) and hardening and expansion of the Main Supply Routes or range roads will allow travel of these convoys up to and from the ranges, resulting cumulative effects on traffic and transportation would be less than significant. The increased size and frequency of convoys traveling to the training areas under Alternatives 2, 3, and 4 along with the potential growth in east El Paso and El Paso County, and the *Smart Growth Plan for the Northeast* may result in an additive impact accelerating the rate of road degradation and increasing maintenance costs, primarily for gravel and dirt roads. County Road 506 is a gravel road that would experience increased military convoy traffic. This road connects ranchers on east Otero Mesa to their county seat in Alamogordo. However, most convoys would cross the road through range tank trails and have limited frequency of driving the entire length of the road. Additionally, traffic from ranches and Timberon is very sparse on Hwy 506. This and the on-going management of convoys by Fort Bliss would result in cumulative effects that are less than significant. All of the impacts associated with the selection of any of the alternatives are in accord with the 2035 TransBorder Metropolitan Transportation Plan. This plan takes into account the growth of Fort Bliss. The imminent completion of Spur 601 would eliminate the need for stationed military personnel to travel along Montana Blvd. to access the Cantonment Area. It is assumed that approximately 90% of the traffic currently using Montana would now use Spur 601, which would potentially bring nine segments back into acceptable levels of service.

Air Space	
Alternative(s)	**Cumulative Effects Description**
All Alternatives	Cumulative effects of stationing the CAB elements to Fort Bliss were addressed in the 2007 SEIS. See Section 3.18 for additional discussion of cumulative effects.
Energy	
Alternative(s)	**Cumulative Effects Description**
ST-3 and ST-4	The main regional cumulative action that could affect energy demand within the ROI would be the increasing regional population growth and urban development by the civilian sector. In addition, ongoing Army construction and activities at Fort Bliss and WSMR would continue to increase energy consumption compared to current conditions. To offset some of these affects, new Army facilities would be designed with energy saving features and construction to comply with AR 11–27, *Army Energy Program*, EO 13123, *Greening the Government through Efficient Energy Management*, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and the requirements under the new Energy Independence and Security Act of 2007. The Army would continue to implement energy conservation measures as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (US Army 2008) to reduce energy demand. Cumulative effects from the stationing and training alternatives to energy demand and infrastructure would be less than significant.
Solid Waste and Hazardous Materials/Wastes	
Alternative(s)	**Cumulative Effects Description**
ST-1 through ST-4 TI 1-4	In less than two years the Fort Bliss onsite landfill cell that accepts general refuse is projected to be filled at maximum capacity. At that point offsite disposal will be required for solid waste generated by domestic, commercial, military training and support activities. Licensed disposal sites for solid waste used by other private and public parties would be used. This new contribution would be in addition to all of the other private and public parties utilizing regional landfills for waste disposal. The Army regulatory and administrative requirements would result in waste minimization and recycling, and would generate far less solid waste when compared to the overall generation by the ROI (less than 3% of total). Based on this, the cumulative effects from the stationing and training alternatives to solid waste and hazardous materials are considered less than significant.
Noise	
Alternative(s)	**Cumulative Effects Description**
ST-1 through ST-4	When examining cumulative effects to the noise setting at Fort Bliss, the context varies with the geographic location of the sensitive receptor, the time of day, and whether a noise source predominates over other sources. The noise setting at the cantonment area differs markedly from the noise setting in the training ranges. The noise setting in the Cantonment area is typical of a small city with transportation noise (aircraft, vehicles) predominating, and machinery noises (construction equipment, heating and ventilation systems, transformers) as secondary factors. The proposed alternatives analyzed in this EIS would not increase noise perceptibly in the Cantonment or surrounding urban areas. In the Cantonment area, the background noise setting already is significantly influenced by large aircraft operations at El Paso International and fixed and rotary-wing operations at Biggs AAF. These operations typically predominate over vehicular and machinery noise. The cumulative effect of stationing additional rotary wing aircraft at Biggs AAF is not significant when compared to the ongoing operations of El Paso International airport and Biggs AAF.

ST-1 through ST-4 (continued)	By contrast, the noise setting in the areas surrounding the large caliber weaponry noise ranges is more rural. Transportation noise (aircraft, vehicles, railroads) still predominate but occurrences are less frequent and machinery noise is less influential due to the sparse settlement patterns off-installation. The cumulative noise impacts associated with Proposed Action Alternatives would typically overwhelm other sources of noise. The nature of noise generally is such that events are not additive in a linear fashion. That is, the logarithmic nature of noise measurement does not lend itself to a "tipping point" concept where addition of a small number of events as part of any action in an area already having a high level of predicted noise exposure would create a significant impact as part of a summing of otherwise less than significant impacts. Rather, it is more likely that the Proposed Action and its alternatives would by themselves be significant or that the background noise setting would already is considered high.
Noise	
Alternative(s)	**Cumulative Effects Description**
TI-1 through TI-4	To the extent that the construction of training facilities supporting new units stationed at Fort Bliss due to BRAC and Force Structure realignments increases the noise events occurring on Fort Bliss, it also increases the likelihood of noise propagating to sensitive receptors. The noise setting at Fort Bliss, particularly noise resulting from large caliber weaponry usage on Dona Ana and McGregor Range, is already fairly high and significant in its own right. Construction of additional large caliber weaponry ranges within the confines of the FBTC would create significant impacts as previously discussed in the alternatives analysis, but it is important to note that the background context and intensity against which the events are compared and summed for a cumulative effects analysis is essentially the same military activity. As with the stationing alternatives, the non-military noise events are not consequential in a cumulative sense. The Army is actively working on setting up training buffer zones through the Army Compatible Use Buffer (ACUB) program in concert with the BLM and the State of New Mexico, This program sets aside undeveloped land at the boundaries of installations to act as a non-encroachable zone for civilian and military ground activities. Currently a substantial buffer zone has been established to limit high impact noise to acceptable levels within the developed areas of Chaparral based on Army noise modeling. Once ranges to accommodate the increase in training for the growth and force structure realignment are constructed, there are no foreseeable future plans to increase range construction near Chaparral due to lack of space and limits on the number of troops that can train at any given time there. For these reasons, the cumulative effects of expanding the range camps are considered less than significant.

Socioeconomics	
Alternative(s)	**Cumulative Effects Description**
ST1-ST-4	The most significant cumulative socioeconomic effect would be related to baseline population growth independent of Fort Bliss-related increases. Baseline population growth, would impact the demand for housing, community services, and quality of life. Cumulative population effects from the actions at Fort Bliss will have relatively minimal impacts on the community's ability to meet the increasing housing demand for the baseline population growth, given the housing construction forecast and housing surplus currently existing at Fort Bliss. Fort Bliss related increases would require relatively minimal staffing and facility increases in law enforcement and fire protection relative to those required by baseline population growth. Medical services would also have to increase to meet the demands of the combination of baseline growth and to a lesser extent Fort Bliss-induced population increases. The additional Soldiers and dependents from the stationing actions at Fort Bliss would also minimally increase the demand for classrooms and teachers at all levels of education from elementary to high school due to the baseline population growth in the ROI. The cumulative effect of multiple construction projects in the region to meet both military needs and facilities and infrastructure needs associated with the baseline population growth would minimally increase demand on the available labor pool. It would attract additional temporary workers from out of the area to take advantage of the job opportunities. This would increase demands on the area's capacity to accommodate the temporary influx of personnel and saturate the commercial lodging market. The economic activity stimulated by the changes at Fort Bliss would have beneficial effects that would improve the quality of life by increasing job opportunities and income. Competition for housing, utilities, and community services would increase due to cumulative population growth that includes the growth at Fort Bliss. Demand for housing utilities and community services would increase. Costs for housing, utilities, and community services would increase if demand outpaced supply. (U.S. Army 2007). An irreversible cumulative effect in the ROI would be to the rural way of life that is historical to the area. Growth in the baseline population increases the potential that the rural lifestyle associated with ranches that raise cattle and are associated with the open range will diminish from urban development. Farmland within the Rio Grande irrigated corridor will also be pressured to be developed. Over time, development has the potential to fragment agricultural lands and reduce the quantity of land available, thus contributing to a change in the existing rural way of life. Portions of the population closely associated with this lifestyle would as a result be permanently displaced. The areas to be affected by this potential future effect are expected to be localized to a relatively small area (Fort Bliss ROI) compared to the west, southwest United States. The cumulative effects to socioeconomics from the stationing and training alternatives are for the most part considered beneficial and result in less than significant cumulative effects.

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CHAPTER 5 MITIGATION AND MONITORING

This chapter presents a summary of mitigation measures that have the potential to reduce adverse environmental impacts from the Proposed Action and other alternatives analyzed in this EIS. Many mitigation measures have already been incorporated in the alternatives to decrease impacts, as described in this EIS. Table 5.1 presents a broad range of possible additional mitigation and monitoring measures to be considered by the Army and other entities, consolidated from the sections in Chapters 3 and 4. The ROD for this EIS will identify those mitigation measures that the Army will implement.

A number of mitigation measures have been incorporated in the alternatives through site selection, design, and management procedures. They include five primary avenues for avoiding or reducing adverse environmental impacts: (1) the Fort Bliss Mitigation and Monitoring Plan produced as a result of the SEIS, (2) siting, design, and construction of facilities and training infrastructure, (3) the Real Property Master Plan and other master planning processes, (4) the installation environmental compliance program and associated plans and procedures, and (5) the environmental impact analysis process.

The existing land use planning and management framework at Fort Bliss supports an active environmental management program to ensure that operations, physical development, and training activities are performed in compliance with all applicable laws and regulations. The RPMP, Training Development Concept/Range Complex Master Plan, Integrated Cultural Resources, Management Plan, Integrated Natural Resources Management Plan, and Integrated Training Area

Management provides processes for sustaining environmental stewardship in future use and development of Fort Bliss lands. These plans include surveying and monitoring installation lands and natural and cultural resources and documenting their conditions for use in developing adaptive management processes. These activities will continue to be utilized on a regular basis to provide feedback on the need for mitigation measures and the success of their implementation.

The Fort Bliss Directorate of Environment is responsible for achieving and maintaining compliance with all applicable laws and regulations governing air and water quality, waste management, and pollution prevention. The SEIS describes various compliance plans and SOPs, which contain specific activities and requirements for ensuring compliance. They include the following (Loman 2009):

- Asbestos Management Plan, which defines procedures for minimizing releases of and exposure to asbestos fibers.
- Fort Bliss Integrated Pest Management Plan (IPMP),
- Hazardous Waste Management Plan, which documents procedures for classifying wastes to ensure compliant management of all waste streams generated at Fort Bliss.
- Integrated Solid Waste Management Plan, which includes an active recycling program.
- Lead Hazard Management Plan, which specifies procedures for identifying lead-based paint, reviewing any activity that might disturb lead-based paint, and protecting housing occupants and workers from exposure to sources of lead poisoning.
- Pollution Prevention Plan, which identifies specific targets for reducing or eliminating use of hazardous and ozone depleting chemicals; water consumption and energy use; and generation of air pollutants, non-hazardous solid waste, and toxic and hazardous waste.

- Spill Prevention, Control, and Countermeasures Plan, which establishes responsibilities, duties, procedures, and resources for containing, mitigating, and cleaning up oil and hazardous substance spills.

- Storm Water Management Plan, which specifies BMPs for minimizing storm water pollutants.

- Waste Accumulation Point SOPs, which establishes quantity thresholds and responsibilities for the handling of hazardous waste streams.

The Fort Bliss Range Management SOP contains specific requirements and restrictions for all users of the FBTC, including measures for prevention of and response to environmental damage. Chapter 14 of the Range SOP addresses Environmental Stewardship and Protection, and Chapter 15 addresses Hazardous Material and Hazardous Waste Management. Included are checklists to be used in the field for items such as fuel bladder sites and inspection of waste accumulation points. The Range SOP will be updated as needed to incorporate the selected alternative and adopted mitigation measures in the ROD for this EIS.

All requests for use of the FBTC are scheduled through the Range Facility Management Support System (RFMSS) and are reviewed for compliance with the Range SOP, safety procedures, and environmental requirements and restrictions, including observation of restricted areas and limited-use areas. Restricted areas are clearly marked on all range maps as "restricted areas" and are uploaded into the GIS section of RFMSS for use by training planners, so they can be considered when RFMSS and Form 88 requests are submitted. The requester provides grid coordinates for any fixed sites, bivouac areas, and troop/vehicle concentrations. All requests for off-road maneuver and field training exercises are sent to Fort Bliss Environmental Division for approval prior to scheduling. Fort Bliss Environmental Division checks to see if any protected biological resources or historic properties are present at the requested locations. If they are, the unit is provided alternative near-by locations that avoid protected resources/sites. This procedure is briefed to all incoming units, the Commanders Training Course, and the Environmental Compliance Officers course. In the field, restricted areas are marked around the perimeter with siebert stakes (t-post with reflector tubes) and "Off Limits" signs. Periodic inspections of units in the field are conducted by Range Liaison personnel to monitor for compliance with site restrictions and other environmental requirements and to identify any adverse effects from training.

A majority of impacts from the Proposed Action alternatives can be mitigated to less than significant using mitigation and monitoring measures that would be implemented based on the selected alternatives. Table 5-1 lists alternatives, resulting impacts and summarizes potential mitigation and monitoring measures

Table 5-1. Summary of the Impacts and Potential Mitigation and Monitoring Measures.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
Land Use and Visual Resources		
All Stationing and Training Alternatives	Training day schedule requirements would be close to, equal, or exceed 100 percent in the South Training Areas. Under ST-4, training requirements also would equal or exceed 100 percent in the North Training Areas and in the Tularosa Basin of McGregor Range.	Practice concurrent use in FBTC subdivisions with percent training days scheduled at or over 100 percent would result in less than significant impacts. Continue to coordinate with BLM and USFS to ensure they have the opportunity to accomplish their resource management obligations on the FBTC.
Earth Resources		
ST-2, ST-3, and ST-4	Training days scheduled and vehicle maneuver training in the FBTC would result in soil erosion.	The ITAM work plan will continue to be annually updated account for the selected alternative and will continue to use adaptive measures based on the actual number of BCTs training.
ST-3 and ST-4	Construction activities on the cantonment to accommodate the additional stationing of Soldiers would result in increased soil erosion.	Construction contract terms and conditions would include installation and maintaining BMPs, erosion and sediment controls, and stormwater management measures during and immediately following construction; minimizing the area of exposed soil during construction and use soil stockpiling methods that minimize dust generation; and installation ground cover on remaining exposed areas after construction is complete.
TI-4	Construction of rail line would interfere with natural drainage over time and would impact surrounding soils with creosote from the railroad ties.	Rail line construction plans would include a storm water management plan and a soil management plan to address creosote impacted soils.
Natural Resources		
ST-2, ST-3, and ST-4	Increased in training days scheduled would result in increased impacts to vegetation, wildlife, and sensitive species.	Impacts are reduced by integrating training needs with natural resource management. Modifications in the ITAM and INRMP may be necessary so that the flora and fauna as well as the sensitive species are minimally affected.
LU-3, LU-4, and LU-5	Potential impacts of Controlled FTX upon wildlife and livestock use of water sources.	Controlled FTX sites will be at least 300 meters away from the water sources to allow access for wildlife and livestock.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
LU-3, LU-4, and LU-5	Live fire training and off-road vehicle maneuver in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 might impact nesting season of the Gray Vireo.	Periodic surveys of the known Grey Vireo nesting areas will be conducted to monitor impacts to habitat and populations and ensure impacts stated in document are correct.
Cultural Resources		
ST-3, ST-4	Increased percent training days scheduled could increase soil erosion in areas that are known to contain prehistoric sites with good integrity and the potential to be eligible for the National Register. As described in the *Fort Bliss Mitigation and Monitoring Plan* (US Army 2008), Fort Bliss has processes in place to monitor the effectiveness of mitigation measures to avoid, minimize, and reduce adverse impacts of training on the environment. One of these is the monitoring of soils and vegetation in all ecosites on the installation. At present, the amount and intensity of soil erosion that could impact archaeological sites is unknown.	A parallel monitoring of archaeological sites is needed. Two archaeological sites eligible for the National Register should be chosen in each ecosite. Where possible, one site would be in an OLA and one in a nearby area available for use in maneuvers. Monitoring of archaeological sites in OLAs would provide needed control information on the extent to which natural processes (not associated with maneuvers) affect site stability. Monitoring would measure type and frequency of use and percent of soil loss with the objective of correlating intensity of use for off-road maneuver with increase in erosion of the sites for each soil type/geographic area. If ground cover were reduced more than 20 percent from baseline (existing) conditions, adjustments could be made in permitted level/intensity of use, or alternative erosion control mechanisms (e.g., physical stabilizers, wind breaks) can be employed. This objective (20 percent) could be adjusted either upward or downward if the archaeological site is deeply buried or if monitoring finds more or less soil loss occurring and the area is more or less resilient to disturbance.
ST-3, ST-4	Increased on-road training on unpaved roads would result in greater potential to create temporary bypasses when the road deteriorates. Cultural resources eligible for the National Register within the bypass would be adversely affected.	Based on soils and topography, identify sites eligible for inclusion in the National Register that are adjacent to or bisected by roads in locations likely to degrade and prompt bypasses. Develop and implement a plan for appropriate treatment (data recovery specialized road stabilization, etc) in those locations.
ST-3, ST-4	Increased percent training days scheduled could increase soil erosion in areas that are known to contain prehistoric sites with good integrity and the potential to be eligible for the National Register. If erosion occurs, such sites would be adversely affected.	Programmatic approaches to mitigate adverse effects could be taken to avoid or lessen adverse effects. These include: A. Increase monitoring of existing OLAs, LUAs, and known National Register sites after completion of training exercises. If adverse effects are found, Fort Bliss could use SOP 7 to resolve them. B. Establish new OLAs when multiple sites eligible for the National Register are identified in a concentrated area; C. In consultation with federally recognized tribes and the SHPO, consider off-site mitigation; In consultation with the SHPO and other parties, identify unique treatment measures such as sampling strategies for specific individual types of sites.
LU-4/ST-3, LU4/ST-4, LU5/ST-3, and LU-5/ST-4	Increased dismounted maneuver training in the Sacramento Foothills North of Highway 506 and Otero Mesa South of Highway 506 may lead to impacts to rock art sites that are sacred sites and/or eligible for the National Register.	Include avoidance of impacts in individual soldier training. Monitor individual sites to identify sites that may benefit from new techniques for rock art preservation. Consider these new techniques in a periodic monitoring and adaptive management program.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
TI-2	Construction of new ranges could potentially impact sites eligible for the National Register.	As a programmatic approach, Fort Bliss could identify areas within the FBTC that are ideal candidates for these types of construction activities. If eligible sites are present within these areas and avoidance during construction or shifting the training activity to another location would reduce the quality of training, the sites could be mitigated through data recovery.
LU-2, LU-3, LU-5, and TI-3	Construction of FTX sites, COLs and expansion of existing range camps could potentially impact sites eligible for the National Register.	During the NEPA process for siting of new FTX sites, COLs, or other construction in the FBTC, avoidance of sites eligible for the National Register could be the preferred alternative. If the site cannot be avoided, then data recovery could be used to mitigate the impacts of the construction.
ST-4	Increased training in South TAs, North TAs, and Tularosa Basin, could potentially restrict or limit Native American access to TCPs or sacred sites.	Continued consultation with tribes would be required to schedule for access.
Air Quality		
ST-3 and ST-4	Construction activities on the cantonment to accommodate the additional stationing of Soldiers would result in increased fugitive dust emissions.	Dust control practices in the construction contract terms and conditions would include maintaining moisture in aggregate materials, limiting vehicle speeds on unpaved areas, prompt cleanup of tracked out materials and covering haul trucks when possible.
ST-3 and ST-4	Completion of additional buildings on the cantonment to accommodate the additional stationing of Soldiers would result in increased demand for fuel; thereby, increasing the associated air pollutant emissions. Additional air pollutant sources associated with building operations would increase emissions.	The use of energy efficient building and support facilities designs would reduce the amount of fuel that must be burned to supply energy and thereby reduce the associated air pollutant emissions.
Water Resources		
ST-3 and ST-4	Water demands would increase with additional population influx in the region and the stationing of additional Soldiers at Fort Bliss.	Implementation of water conservation measures, such as using more reclaimed water for on post landscaping would reduce the consumption of potable water. Utilization of desalination plant that significantly increases availability of potable water in the area and decreases the amount of water needed to meet demand.
ST-2, ST-3, ST-4, TI-2, TI-3, and TI-4	Increase in stationed Soldiers, maneuver, range training, and rail transportation would result in increased spills throughout Fort Bliss.	Impacts from spills would be addressed effectively through SWP3 and standard procedures, including training personnel in spill prevention and control techniques and requirements, maintaining appropriate spill control equipment in areas where refueling may occur, and complying with all hazardous materials management regulations. Preventative measures would also include safe driving practices, and the proper way to transport hazardous materials in compliance with Army, state, and federal regulations.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
ST-2, ST-3, and ST-4	Increased maneuver training in the FBTC may result in increased degradation of waterways and watershed.	
ST-3, ST-4, TI-2, TI-3, and TI-4	Cantonment and FBTC construction activities would increase impacts associated with stormwater runoff.	Construction contract terms and conditions would include the following BMPs: dredging, filling, or grading in or adjacent to streams and riparian areas would be scheduled to occur during low-flow periods and would be in compliance with the Clean Water Act. No project-related materials (such as fill, revetment rock, and pipe) would be stockpiled in the water or in riparian areas. All project-related materials and equipment placed in the water would be cleaned prior to use to ensure that they are free of pollutants. Trash or debris would be collected and disposed of properly. Project vehicles and equipment would be fueled away from streams and riparian areas. Turbidity and siltation from project-related work would be minimized and contained to the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse weather conditions. Application of dust-suppressing materials would occur according to industry standards.
ST-3 and ST-4, TI-3 and TI-4	Increase waste-water demand associated with range construction and range camp expansion.	Upgrade waste water treatment as required to support the added population.
LU-3, LU-4, and LU-5	Live fire training in the Northeast McGregor Range North of Highway 506 could impact waterways.	Continue implementation of arroyo riparian Limited Use Areas.
Transportation and Traffic		
ST-2, ST-3, ST-4	Additional training BCTs would result in potential adverse effects due to an increase in military convoys within the more developed areas near the Cantonment area.	Work cooperatively with State, County, and City transportation agencies so that their planning takes into account unique military traffic requirements.
ST-3 and ST-4	Additional stationing units would result in significant back-ups at the gates during peak hours. In addition, the level of safety would decrease along the U.S. 54 turning lanes as large amounts of traffic exit the highway.	Size gates to mitigate back-ups and increase the level of safety where traffic exits highways. Follow Army regulations regarding the size, spacing, etc for convoys. Continue to provide the media with information regarding anticipated high traffic events and other actions that could adversely affect traffic when consistent with security concerns.
Air Space Use and Management		
All Stationing and Training Alternatives and Training Infrastructure Improvement Alternatives	Airspace in the ROI is constrained.	Constraints can be minimized through careful scheduling and management of Fort Bliss will need to schedule and manage airspace.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
Energy Demand and Infrastructure		
ST-3, ST-4, TI-2, TI-3, and TI-4,	Energy demand associated with construction and operation of new facilities in the cantonment and FBTC.	New Army facilities would be designed with energy saving features and would comply with current Army Regulations, Executive Orders, etc. Currently those include AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management;* and the requirements under the new Energy Independence and Security Act of 2007. Energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (US Army 2008).
Solid Waste and Hazardous Waste/Materials		
ST-3, ST-4, TI-2, TI-3, and TI-4	Cantonment and range construction projects would require the use of additional amounts of hazardous materials.	Contract specifications would control the purchase amounts and use of hazardous materials and require compliance with federal, state, and local requirements and with installation policy on hazardous materials. Standard spill prevention measures would be implemented during construction.
Noise		
All Stationing and Training Alternatives	Large caliber weapon firing on ranges in the FBTC may result in increased noise complaints.	Participation in public outreach and continued use of noise complaint hotline.
Socioeconomics		
All Stationing and Training Alternatives	Increased housing demand from Fort Bliss military personnel	Continue quarterly meetings with realtors and apartment associations to ensure they have the best available planning information. Work with the privatized housing partner at Fort Bliss to consider the advisability of constructing more housing on the Installation.
All Stationing and Training Alternatives	Impact of increase in student population on area schools	Military student impact aid.
All Stationing and Training Alternatives	Impact of increased demand for medical services.	Cooperate with local entities in plans to address shortfalls in healthcare.

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This EIS was prepared by ARCADIS U.S., Inc. under the direction of the U.S. Army. The following tables present the names of individuals and their area or areas of responsibility in preparing this EIS.

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CHAPTER 9 ACRONYMS LIST

AADT	Annual Average Daily Traffic
AAF	Army Airfield
AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Material
ACUB	Army Compatible Use Buffer
ADNL	Aircraft Day-Night Average [Sound] Level
ADT	Average Daily Traffic
AEC	Army Environmental Command
af	Acre-Feet
afy	Acre-Feet Per Year
AGL	Above Ground Level
AH	Attack Helicopter
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AM	Amplitude Modulation
AMP	Asbestos Management Plan
AOPA	Aircraft Owners and Pilots Association
APE	Area of Potential Effect
APM	Asbestos Program Manager
AR	Army Regulation
ARFORGEN	Army Force Generation
ARPA	Archeological Resources Protection Act
ARTCC	Air Route Traffic Control Center
AST	Above Ground Storage Tanks
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATSC	Army Training Support Center
ATV	All-Terrain Vehicle
AUM	Animal Units Per Month
AUTODIN	Automated Digital Network
BCT	Brigade Combat Team
BFV	Bradley Fighting Vehicle
BLM	Bureau of Land Management
BMP	Best Management Practice
BNOISE	Blast Noise
BRAC	Base Realignment And Closure
btu	British Thermal Unit
CAB	Combat Aviation Brigade
CARC	Chemical Agent Resistance Coating
CC	Compliance-Related Cleanup

CDNL	C-Weighted Day-Night Average [Sound] Level
CDP	Census-Designated Place
CDS	Child Development Services
CEA	Cumulative Effects Analysis
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEV	Combat Engineer Vehicle
cfh	Cubic Feet Per Hour
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CH	Cargo Helicopter
CIS	Capital Investment Strategy
cm	centimeter
CO	Carbon Monoxide
COA	Certificate of Authorization
COB	Contingency Operating Base
COL	Contingency Operating Location
CRMP	Cultural Resource Management Plan
CS	Combat Support
CSS	Combat Service Support
CWA	Clean Water Act
DAGIR	Digital Air/Ground Integration Range
DAMO-TR	Department of Army Military Operations, Training
dB	Decibel
dB SPL	Decibel Sound Pressure Level
dBA	Decibel Area
DCA	Director of Community Activities
DE	Directorate of the Environment
DEIS	Draft Environment Impact Statement
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DMPRC	Digital Multipurpose Range Complex
DMPTR	Digital Multipurpose Training Range
DOC	Directorate of Contracting
DoD	Department of Defense
DoDI	Department of Defense Instruction
DOE	Department of Energy
DOI	Department of the Interior
DOT	Department of Transportation
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
DRM	Directorate of Resource Management
DRMO	Defense Reutilization and Marketing Office

DSN	Defense Switched Network
DU	Depleted Uranium
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EMU	Ecological Management Units
EO	Executive Order
EOD	Explosives Ordnance Disposal
EPA	U.S. Environmental Protection Agency
EPACT	Energy Policy Act
EPCRA	Emergency Planning and Community Right-To-Know Act
EPEC	El Paso Electric Company
EPGC	El Paso Gas Company
EPIA	El Paso International Airport
EPWU	El Paso Water Utilities
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FAW	Forward Area Weapon
FBTC	Fort Bliss Training Complex
FEIS	Final Environmental Impact Statement
FICON	Federal Interagency Committee on Noise
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FOB	Forward Operating Base
FR	Federal Register
ft^2	Square Foot/Feet
FTX	Field Training Exercise
FY	Fiscal Year
GDPR	Global Defense Posture Realignment
GFS EIS	Fort Bliss Army Growth and Force Structure Realignment EIS
GIS	Geographic Information System
gpd	Gallons Per Day
gpm	Gallons Per Minute
gps	Gallons Per Second
GRVI	Gray Vireo
GTA	Grow the Army
GTA PEIS	Final Programmatic EIS for Army Growth and Force Structure Realignment
HBCT	Heavy Brigade Combat Team
HETT	Heavy Equipment Tactical Trucks
HH	Heavy Helicopters
HMMWV	High Mobility Multipurpose Wheeled Vehicles
HPO	Historic Preservation Officer
HPP	Historic Preservation Plan
HUC	Hydrologic Unit Code

HWSF	Hazardous Waste Storage Facility
IBCT	Infantry Brigade Combat Team
ICRMP	Integrated Cultural Resources Management Plan
ID	Identification Number
IDG	Installation Design Guide
IGPBS	Integrated Global Presence and Basing Strategy
IHWMP	Installation Hazardous Waste Management Plan
IMCOM	Installation Management Command
IMCOM-W	Installation Management Command - West
INRMP	Integrated Natural Resources Management Plan
IONMP	Installation Operational Noise Management Plan
IPED	Institute for Policy and Development
IPMP	Integrated Pest Management Plan
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
ISD	Independent School District
ISDN	Integrated Switch Digital Network
ISWM	Integrated Solid Waste Management
ITAM	Integrated Training Area Management
JO	Joint Order
kg/cm^2	Kilogram Per Square Centimeter
km	Kilometers
km^2	Square Kilometers
km^{2}d	Square Kilometer Days
kV	Kilovolt
kVA	Kilovolt Amperes
kW	Kilowatt
KWH	Kilowatt Hours
LAV	Light Armored Vehicles
LOS	Level of Service
LPG	Liquefied Petroleum Gas
LRAM	Land Rehabilitation and Maintenance
LRC	Long Range Components
LU	Land Use
LUA	Limited Use Area
LUPZ	Land Use Planning Zone
m	Meter
MEC	Munitions and Explosives of Concern
mg/L	Milligrams Per Liter
mgd	Millions of Gallons Per Day
MLRS	Multiple Launch Rocket Systems
mm	Millimeters
MMPDEIS	Mission and Master Plan Preliminary Draft EIS, 2000
MMRP	Military Munitions Response Program

MMsf	Million Square Feet
MOA	Military Operations Area
MOG	Maximum on Ground
MOU	Memorandum of Understanding
MOUT	Military Operations in Urban Terrain
mph	Miles Per Hour
MRF	Modified Record Fire (Range)
MSDS	Material Safety Data Sheet
MSL	Mean Sea Level
MTR	Military Training Routes
MVA	Megavolt Amperes
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Airspace System
NEAP	Natural Events Action Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NLR	Noise Level Reduction
NM	Nautical Miles
NMDGF	New Mexico Department of Game And Fish
NMED	New Mexico Environment Department
NOA	Notice of Availability
NOE	Nap of the Earth
NOI	Notice of Intent
NOTAM	Notice to Airman
NO_x	Nitrous Oxide
NPDES	National Pollution Discharge Elimination System
NRF	Noise Reduction Feature
NRHP	National Register of Historic Places
OLA	Off-Limits Area
ORV	Off-Road Vehicle
ORVDF	Off-Road Vehicle Disturbance Factor
ORVM	Off-Road Vehicle Maneuver
OSHA	Occupational Health and Safety Administration
P2	Pollution Prevention
PA	Programmatic Agreement
PA	Proposed Action
PCBs	Polychlorinated Biphenyls
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
PM	Particulate Matter
POL	Petroleum, Oil, and Lubricants

PPA	Pollution Prevention Act
R-	Restricted
RCI	Residential Communities Initiative
RCMP	Range Complex Master Plan
RCRA	Resource Conservation and Recovery Act
REMI	Regional Economic Input/Output Model
REPI	Readiness and Environmental Protection Initiative
RFMSS	Range Facility Management Support System
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
RMPR	Resource Management Plan Revision
ROD	Record of Decision
ROI	Region of Influence
ROW	Right of Way
RPM	Resource Management Plan
RPMP	Real Property Management Plan
RTLA	Range and Training Land Assessment
RWA	Rotary Wing Aircraft
SARA	Superfund Amendments and Reauthorization Act
SBCT	Stryker Brigade Combat Team
SBE	Sustainment Brigade Equivalent
SDZ	Safety Danger Zone
SEIS	Fort Bliss Texas and New Mexico Mission and Master Plan Final Supplemental Programmatic EIS
SHORAD	Short Range Air Defense
SHPO	State Historic Preservation Office
SM	Statute Miles
SO_2	Sulfur Dioxide
SOC	Species of Concern
SOP	Standard Operating Procedure
SPCCP	Spill Prevention Control and Countermeasures Plan
SPL	Sound Pressure Levels
SRA	Sustainable Range Awareness
SRC	Short Range Component
ST	Stationing and Training (used with specific alternative numbers)
STRAC	Southwest Texas Regional Advisory Council
SUA	Special Use Airspace
SWMP	Stormwater Management Plan
SWMU	Solid Waste Management Units
TA	Training Area
TAC	Texas Administrative Code
TADC	Training Area Development Concept
TC	Training Circular
TCEQ	Texas Commission Environmental Quality

TCP	Traditional Cultural Properties
TDEQ	Texas Department of Environmental Quality
TDS	Total Dissolved Solids
TDY	Temporary Duty
THPO	Tribal Historic Preservation Office
TI	Training Infrastructure Improvement
tpd	Tons per Day
TRACON	Terminal Radar Approach Control
TRADOC	Training and Doctrine Command
TRI	Training Requirements Integration
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
U.S.	United States
UAS	Unmanned Aerial Systems
UFC	Unified Facilities Criteria
UH	Utility Helicopter
UP/SP	Union Pacific/Southern Pacific Railroad
USACAS	U.S. Army Combined Arms Support
USACAS BN	U.S. Army Combined Arms Support Battalion
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center For Health Promotion and Preventive Medicine
USAF	U.S. Air Force
USASMA	U.S. Army Sergeants Major Academy
USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
UST	Underground Storage Tanks
UXO	Unexploded Ordnance
VEC	Valued Environmental Component
VFR	Visual Flight Rules
VHF	Very High Frequency
VOC	Volatile Organic Compound
VRM	Visual Resource Management
WAP	Waste Analysis Plan
WBAMC	William Beaumont Army Medical Center
WRPA	Waste Reduction Policy Act
WSA	Wilderness Study Area
WSMR	White Sands Missile Range
WWTP	Wastewater Treatment Plant

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CHAPTER 10 INDEX

APPENDIX A

Descriptions of primary ranges needed for BCTs training at Fort Bliss and additional ranges that would be part of the "growth package."

This appendix provides descriptions of the Programmed Future Ranges needed for training the BCTs at Fort Bliss and additional ranges that would be part of the "Growth Package" that would be constructed as needs arise and funds become available.

PRIMARY RANGES NEEDED FOR BCTS TRAINING FORT BLISS

KNOWN DISTANCE RANGE (KD)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in both basic and advanced rifle marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation. This range is designed for training advanced rifle marksmanship and target engagement techniques with immediate downrange feedback and competition. This range is used to train and familiarize Soldiers on the skills necessary to identify, calculate distance, engage, and hit targets in a static array with small arms weapons systems out to 1,000 meters. It is also used for Squad Designated Marksmanship (SDM) training and certification. The range firing points are graduated in 100-meter increments from 100 to 1,000 meters. Additionally, the KD range can be used for automatic rifle practice; basic and advance rifle marksmanship, designated marksman; and sniper training.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live fire, rifle marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient, modernized individual marksmanship ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM) which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires one KD range to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a KD range designed to train and test individual Soldiers in the small arms weapons systems live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 32 target lifting devices and 32 firing lanes. All targets are sliding target frames, paraleg carrier or fully automated based on installation Army Command and the installation senior mission commander. (NOTE: Location of Miss and Hit (LOMAH) is authorized for TRADOC installations only.) In addition the range will include two 800- square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. The actual range is 1,000

meters in depth. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

SNIPER FIELD FIRE RANGE (SFF)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of sniper teams in the (Light or Heavy) Brigade Combat Teams (BCT), Fires, SBEs, CABs, other reserve, units, and National Guard units. The SFF range provides training that sniper teams need to build marksmanship skills in weapons use, and to detect, identify, engage, and defeat stationary and moving infantry targets in a tactical array. This range is designed to satisfy the training and qualification requirements of the M24 sniper rifle equipped teams. The SFF range provides sniper teams the capability to meet all live training tasks as outlined in Standards in Training Commission (STRAC) live-fire tasks for Army sniper teams. The range would train sniper teams to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

The Army has responded to recent changes in land combat operations, information and technology, and contemporary operating environments by restructuring the U.S. Armed Forces.

For installations with heavy BCTs: For installations with Light or Heavy BCTs: The restructuring of Army Forces has dramatically increased the number of snipers by forming sniper teams in Heavy Brigade Combat Teams where none had previously been assigned. For installations that have Stryker vehicles: Each Stryker battalion contains five sniper teams. In addition the range could be use by the designated marksman in each infantry squad to train marksmanship skills necessary to meet their battlefield marksmanship tasks. Although the SFF range is used to train sniper teams on live-fire tasks, this range is not used for the qualification firing of snipers. Qualification is conducted on another range on the installation.

There are no sniper ranges at Fort Bliss that meet current Army TC 25-8 standards to support the sniper teams. An automated SFF range has individual Soldiers engage a series of targets in a tactical array. This training enhances a Soldier's ability to identify and to engage targets, working in a realistic training environment. Moving and stationary infantry targets with natural vegetation in the target area provide a realistic training environment. This range's targets and the range operating system provide immediate performance feedback to the using participants.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a SFF range designed to train FORSCOM sniper teams in the basic live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 40 stationary infantry targets, 8 moving infantry targets (MITs) and 4 firing positions. In addition the range will include five administrative buildings, two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, and one 500-square-foot range operations tower. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

MULTI-PURPOSE MACHINE GUN RANGE (MPMG)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in basic marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation.

The range would be used to train and test individual Soldiers on the skills necessary to identify, engage with a machine gun, and defeat stationary infantry targets. Weapons used on this range include the M249 squad automatic weapon (SAW) (5.56mm), the M60 machine gun (7.62mm), the M240B machine gun, the MK19 automatic grenade launcher, the M42 sniper weapon and the M2 machine gun (.50 caliber).

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers to be proficient in individual live-fire, marksmanship skills with their assigned machine guns in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient modernized machine gun ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires MPMG to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a MPMG range designed to train individual Soldiers in the basic machine gun live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 180 stationary infantry targets, 20 moving infantry targets, 20 stationary armor targets, and 10 firing lanes. All targets are fully automated and the event specific target scenario is computer driven and scored from the range operations center. The range provides immediate performance feedback to the Soldiers using the range. In addition the range will include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. The actual range will be 320 meters in width by 300 meters in depth.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

SCOUT RECONNAISSANCE/GUNNERY RANGE (Reece)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range complex that would be used to train and test scout reconnaissance crews on the skills necessary to zero the bore sight of weapons systems and to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. The range would be used by both active and reserve component units that are assigned to or habitually train on the installation. Weapons used on this range include small arms up to and including the M-50 machine gun and the MK-19 grenade launcher.

Need for the Proposed Action

There is not an Army standard Scout Reece/Gunnery complex on Fort Bliss. Soldiers must enter engagements with the best possible assurance of success and survival. The U.S. Army requires Soldiers to be proficient in individual live-fire, marksmanship skills with their assigned weapons in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

The Scout Reece/Gunnery complex has been designed to support the live-fire collective training needs of Army reconnaissance units and crews. This range is an essential element of their training and readiness in that the Scout Reece/Gunnery complex provides training that reconnaissance units need to build crew skills in weapons use, target observation and engagement, team building and leadership development. The Scout Reece/Gunnery complex provides reconnaissance units the capability to meet live training tasks, as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train the individual crews and units to meet mission-essential livefire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

To produce a realistic training environment, this range uses thermal targets, night illumination devices, and visual flash simulators. This simulation technology provides Soldiers with the best realistic training environment. This range will incorporate state-of-the-art technology to support all phases of training, from ground maneuver and target engagement to the critical after-action review (training feedback) phase. This support and timely feedback are critical to effective training. Because of the training on this range, Soldiers will go into battle with the best possible training for threats the Army expects to encounter during combat operations. The range provides the Army a capability to safely and effectively train to control lethal fires from diverse combat platforms without intrusion into unit command integrity. The range provides a realistic combat environment to reconnaissance crews and units.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a SFF range designed to train FORSCOM sniper teams in the basic live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 40 stationary infantry targets, 8 moving infantry targets (MITs) and 4 firing positions. In addition the range will include five administrative buildings, two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, and one 500-square-foot range operations tower.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

LIGHT DEMOLITION RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic range facility for the training and certification of soldiers in the task of employment techniques of explosives and demolitions. The range also provide soldiers confidence in their ability to employ live explosives and demolitions in a combat environment. Prior to deploying to an overseas theater of operation, soldiers are required to certify their ability to employ explosives and demolitions annually as well as during pre-deployment training to Army standard.

Need for the Proposed Action

EOD soldiers must enter combat environment with the best possible assurance of success and survival. Therefore, the U.S. Army requires soldiers to be proficient in the employment of explosives and demolitions in order for them to conduct operations effectively in a wartime environment or where ever EOD soldiers are required for disposal operations. Fort Bliss does not have a Light Demolition range constructed to Army standard to train and certify soldiers on the task of effectively employing explosives and demolitions in a combat environment.

In addition to the need for soldiers to employ explosives and demolitions effectively prior to deployment or disposal operations, the Standards in Training Commission (STRAC) has also established a requirement for each these soldier to certify annually with explosives and demolitions. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training and certification requirements of the soldiers assigned to or that habitually certify on the installation, shows that Fort Bliss requires two Light Demolition range to meet its annual explosive and demolition training and testing requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Light Demolition range designed to train and certify soldiers in the basic live-fire training task of the employment of explosives and demolitions they require to sustain combat proficiency and disposal operations. The Light Demolition range allows soldiers to use live explosives and demolitions in natural terrain under simulated combat conditions. No automation is required for this facility. Primary features include seven individual stations:

- Six demolition points
- Safety berms (on each side of six demolition points)
- Three missile-proof shelters
- Class V issue storage bunker

In addition, the range will include one air-vaulted latrine. Additional features and information include:

(a) Wire obstacle: width – 7 meters; length – 20 meters; use one Bangalore kit to breach the obstacle.

(b) Minefield: width – 10 meters; length – 20 meters. Mines may be placed on the surface or buried.

(c) Steel-cutting chamber has a ledge to mount steel or concrete beams. Steel and concrete beams vary in width and length.

(d) Timber-cutting site: width 10 - meters; length 35 - meters. There are eight concrete base supports (four on each side of road) for placement of logs. Poles should be no longer than 36 centimeters in diameter, and no taller than 10 meters.

(e) Charges should be placed to prevent damage to the concrete base.

(f) Concrete obstacle is constructed with concrete cubes or tetrahedrons. It is 10 x 30 meters.

(g) The road crater site must be refilled after each use.

Supporting facilities include parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, and gates. Sustainable design will be incorporated where possible.

INFANTRY PLATOON BATTLE COURSE (IPBC)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic live-fire training and range facility for the training of infantry platoons. The IPBC would support the collective live-fire training of active and reserve component infantry platoons assigned to or that habitually train at the installation.

The IPBC range complex is used to train and test infantry platoons on the skills necessary to conduct tactical movement techniques, detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. The IPBC range would provide platoons the ability to train collective tasks in a live-fire mode as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train the infantry platoons to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment. To produce a realistic training environment, this range uses thermal targets, night illumination devices, and visual flash simulators. This simulation technology provides Soldiers with the best realistic training environment. This range will incorporate state-of-the-art technology to support all phases of training, from ground maneuver and target engagement to the critical after-action review (training feedback) phase. This support and timely feedback are critical to effective training. Because of the training on this proposed IPBC, infantry platoons will go into battle with the best possible training for threats the Army expects to encounter during combat operations.

Need for the Proposed Action

Infantry platoons must train in a live-fire mode to accurately replicate those tasks they must perform in combat operations. The IPBC range has been designed to support the live-fire collective training needs of active and reserve component infantry platoons. This range is an essential element of infantry platoon training and readiness requirements prior to deployment into a theater of operations. There is not an IPBC at Fort Bliss to support the live-fire training of infantry platoons assigned to active component units stationed there or those units that habitually train on the installation.

Description of Proposed Action

The proposed action is the construction of a standard Infantry Platoon Battle Course (IPBC) range to support the infantry platoon live-fire collective training. This complex is used to train and test infantry platoons, either mounted or dismounted, on the skills necessary to conduct tactical movement techniques, and detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. In addition to live fire, this range can also be used for training with sub-caliber and/or laser training devices. All targets are fully automated and the event specific target scenarios are computer driven and scored from the range operations center on the range. The range operating system is fully capable of providing immediate performance feedback to the using units. The IPBC includes six stationary armor targets, one moving armor target, 43 stationary infantry targets, 14 moving infantry targets, one trench obstacle, nine machine-gun bunkers (with sound effects simulator), two landing zones and one assault/defend house. All targets are fully automated, and the event-specific target scenario is computer-driven and scored from the range operations center. The range operating system is fully capable of providing immediate performance feedback to the using participants.

Target locations are site adapted to meet established training requirements. All trenches, bunkers, and target emplacements must simulate typical threat scenarios. Eight mortar simulation device emplacements

are located in areas from which unfriendly mortar fire is to be simulated. Each emplacement will contain one battle/sound effects simulator.

Primary facility structures at the range include large two 800-square-foot buildings, an air-vaulted latrine facility, ammo breakdown area, a range tower, enclosed bleachers, and a covered mess facility . American Disability Association (ADA) requirements will be met in two 800-square-foot buildings. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

The range would be embedded with the necessary information and telecommunications technologies to safely manage all personnel undergoing crew and unit live-fire training. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring. Targets will receive and transmit digital data from the range operations center. Scoring of engagement scenarios against established standards including audio and video imagery is captured and then compiled to conduct after-action reviews of all live-fire exercises. The range provides the Army a capability to safely and effectively train to control lethal fires of the weapons assigned to infantry platoons without intrusion into unit command integrity.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

MULTI-PURPOSE MACHINE GUN RANGE (MPMG)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in basic marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation.

The range would be used to train and test individual Soldiers on the skills necessary to identify, engage with a machine gun, and defeat stationary infantry targets. Weapons used on this range include the M249 squad automatic weapon (SAW) (5.56mm), the M60 machine gun (7.62mm), the M240B machine gun, the MK19 automatic grenade launcher, the M42 sniper weapon and the M2 machine gun (.50 caliber).

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers to be proficient in individual live-fire, marksmanship skills with their assigned machine guns in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient modernized machine gun ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires two MPMG to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a MPMG range designed to train individual Soldiers in the basic machine gun live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 180 stationary infantry targets, 20 moving infantry targets, 20 stationary armor targets, and 10 firing lanes. All targets are fully automated and the event specific target scenario is computer driven and scored from the range operations center. The range provides immediate performance feedback to the Soldiers using the range. In addition the range will include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. The actual range will be 320 meters in width by 300 meters in depth.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

HEAVY SNIPER RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of heavy weapons equipped sniper teams that train on the installation. The Heavy Sniper Range provides training that sniper teams need to build marksmanship skills in weapons use, and to detect, identify, engage, and defeat stationary targets as well as stationary and moving vehicle targets. This range is designed to satisfy the training and qualification requirements of the M107 long range sniper rifle equipped sniper teams. The range provides sniper teams the capability to meet all live training tasks as outlined in Standards in Training Commission (STRAC) livefire tasks for Army sniper teams. The range would train sniper teams to meet mission-essential livefire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

The Army has responded to recent changes in land combat operations, information and technology, and contemporary operating environments by restructuring the U.S. Armed Forces. Heavy sniper teams are an integral part of these changes to meet the contemporary operating environment. On a heavy sniper range, sniper teams engage a series of targets in a tactical array. This training enhances a Soldier's ability to identify and engage targets, working in a realistic training environment. Moving and stationary infantry targets with natural vegetation in the target area provide a realistic training environment. This range's targets and the range operating system provide immediate performance feedback to the using participants.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a heavy Sniper range designed to train M107 equipped sniper teams in the basic live-fire training tasks they require to sustain combat proficiency. Primary features of this range include three stationary infantry targets, 14 stationary Armor targets, two moving armor targets, and one zero target at 200 meters. All targets (excluding permanent iron targets) are fully automated and the event-specific scenario is computer driven and scored from the range tower. Dud producing munitions are not fired on this range. The range operating system is fully capable of proving immediate performance feedback to the using participants. In addition the range will include seven administrative buildings, two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, a covered bleachers, and one range operations center Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

DIGITAL MULTI-PURPOSE RANGE COMPLEX (DMPRC)

Purpose of the Proposed Action

The purpose of the proposed action is to provide a year-round, comprehensive and realistic training and range facility for the training of mechanized infantry, armor, and aviation crews, sections, squads, and platoons. The range would be used primarily by the Heavy Brigade Combat Teams of the (Mechanized) stationed at Fort Bliss. In addition, this range would support the individual crew training of National Guard Heavy Brigade Combat Teams (HBCT) that habitually train on the installation.

The DMPRC provides training that mechanized infantry, armor, and aviation units need to build skills in weapons use, target observation and engagement, team building and leadership development. The DMPRC provides mechanized infantry, armor, and aviation units the capability to meet live-fire collective training tasks in a digital mode, as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train the units to meet mission-essential live-fire collective training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

As a part of Transformation, the Army has responded to changes in land combat operations, information and technology, and contemporary operating environments by modernizing and restructuring the U.S. Army. The modernization of Army forces has provided a digital command and control and battlefield awareness capability down to and including each tank, Bradley, and aviation platform. Mechanized infantry, armor, and aviation units must train with this digital capability in a live-fire mode to accurately replicate those tasks they must perform in combat operations.

The DMPRC has been designed to support the digital training needs of FORSCOM and National Guard units. There is not a DMPRC at Fort Bliss to support the digitally capable units stationed or those that habitually train on the installation. IF APPLICABLE: One Multi-Purpose Range Complex does exist on the installation but this range is not capable of supporting the digital capabilities required of the modernized force.

Description of the Proposed Action

The proposed action is the construction of a standard Digital Multi-Purpose Range Complex (DMPRC) to support the unit collective qualification tasks of M1A1 tank crews, M2 and M3 Bradley vehicle crews, and aviation crews. This complex is used to train and evaluate armor, mechanized infantry and aviation crews, sections, squads, and platoons on skills necessary to detect, identify, engage, and defeat an enemy doctrinal tactical array of stationary and moving infantry and armor targets. Company live-fire exercises would also be conducted on this range complex. Command and control of the vehicles firing is done in a digital manner replicating how the vehicle crew would actually operate in a combat situation. In addition to live-fire, this range complex can also be used for training with sub-caliber and/or laser training devices. The range complex supports dismounted infantry platoon tactical live-fire operations either independently of, or simultaneously with, supporting vehicles.

The DMPRC would contain 100 stationary armor targets (SATs); 15 moving armor targets (MATs); 45 infantry target emplacement clusters with a total of 315 stationary infantry targets (SITs) and 45 Moving infantry Targets (MITs); four trenches; two breach obstacles; three lanes with six course roads; and, 36 defilade vehicle fighting positions. The range would provide the digital interface needed by digitally

equipped forces to properly exercise command and control on the modern battlefield. The range would have television cameras strategically placed on the range to aid in the after-action review process.

Primary facility structures at the range include large Range Operations Control Area (ROCA) facility, a large AAR facility, an air-vaulted latrine facility, ammo breakdown area, an ops storage building, an instrumentation loading dock, a general instruction building, a bivouac area, and a surfaced staging area. The project would include a screening range that is required to support the armor and infantry fighting vehicle systems alignment and synchronization of their weapons systems, weapons sights, and computer systems. The screening range would be capable of functioning simultaneously with the DMPRC and will have the minimum required targetry and instrumentation. American Disability Association (ADA) requirements would be met in the ROCA and AAR facilities. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, a water storage tower, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

The range would be embedded with the necessary information and telecommunications technologies to safely manage all personnel undergoing crew live-fire training and qualification. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring. Targets receive and transmit digital data from the range operations center. Scoring of engagement scenarios against established standards including audio and video imagery is captured and then compiled to conduct after-action reviews of all live-fire exercises. The DMPRC accommodates the full range of target practice munitions employed by the armor, Bradley, and aviation platforms. Dud-producing ammunition would not be fired on this range.

The range is required to provide extended breadth and depth of unit collective live-fire engagements against a wide variety of targetry. The range provides the Army a capability to safely and effectively train to control lethal fires from diverse combat platforms without intrusion into unit command integrity. The range provides a realistic digital environment; synthetically generating all the situational awareness and relevant common picture data for the unit's battle space to train and maintain digital system proficiency at crew level prior to higher level live-fire training.

Anti-terrorism/force protection includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

LIVE-FIRE SHOOTHOUSE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in their ability to enter and clear a building in a livefire mode. The range would be used to train and evaluate units on their ability to move tactically, enter and clear a building with the skills necessary to identify, practice target discrimination, engage, and defeat stationary enemy targets. Weapons used on this range include the M4 and M16 rifles and the standard issue pistol.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires units and Soldiers to be proficient in individual live-fire, marksmanship skills and their ability to enter and clear a building in an urban environment in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient, modernized shoothouse ranges to conduct the live-fire building entry and clearing training and testing required of units. The Standards in Training Commission has established a requirement for units and Soldiers to train building entry and clearing techniques in a live-fire mode. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires one live-fire shoothouse to meet its training requirements. Fort Bliss does not have a standard Army live-fire shoothouse.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a live-fire shoothouse range designed to train units and individual Soldiers in the basic building entry and clearing techniques to sustain combat proficiency. Primary features of this range include a two-story building with a roof. The building is divided into eight rooms with two hallways on the ground floor, one room on the second floor with two separate stairways gaining entrance into the second-floor room, 20 target camera outlets, and 13 precision human urban targets (HUT). All targets are fully automated and the event specific target scenario is computer driven and scored from the range operations center. The roof provides weather protection to the building, enhances realism, reduce light, and provides a superstructure for an overhead crane needed for construction and maintenance of the shoothouse. The range provides immediate performance feedback to the Soldiers using the range. In addition the range will include one 800-square-foot building, one ammunition breakdown building, one air-vaulted latrine, and one small after-action review (AAR) facility. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting. If necessary, an unexploded ordnance survey would be conducted prior to range construction. Sustainable design will be incorporated where possible.

SQUAD DEFENSE RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facility for the training of individual Soldiers and squads on employing mutually supporting fires from defensive positions against stationary infantry targets. This training range facility will be used by active and reserve component units and other joint forces Soldiers that are assigned to the installation or that habitually train at the installation. The facility would provide Soldiers the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

There is not an Army standard Squad Defense range at Fort Bliss. Soldiers and squads must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers and squads to be proficient in employing mutually supporting fires from defensive positions in a realistic live-fire environment for them to conduct operations effectively in wartime and to be prepared for future global combat operations. The Squad Defense range has been designed to support the individual and squad training tasks. The Infiltration Course provides Soldiers and squads the capability to meet live-fire training tasks as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train Soldiers and squads to meet mission-essential training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

The primary features of the Infiltration Course include:

- 5 two-man fighting positions (foxholes)

- 31 stationary infantry targets (SIT's)

All targets are fully automated and the event specific target scenario is computer-driven and scored from the range operations center. The range operating system is fully capable of providing immediate performance feedback to the using participants.

Primary facility structures at the range include a General Instruction building (800 square feet), Range Operations/Storage building (800 square feet), an air-vaulted latrine facility (120 square feet), bleacher enclosure (536 square feet), one Range Operations Tower (248 square feet), ammunition breakdown (12 square feet),and a covered mess (800 square feet). The range is 300 meters in depth. American Disability Association (ADA) requirements will be met in the ROCA facilities. Primary facility force protection measures consist of laminated and safety glass. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, fiber optic cable connections, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Squad Defense range designed to train Soldiers on combat movement techniques in a realistic live-fire environment.

MODIFIED RECORD FIRE RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in basic marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation. The range would be used to train and test individual Soldiers on the skills necessary to identify, engage, and defeat stationary infantry targets for both day and night qualification requirements with both the M16 and M4 rifles.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live-fire, marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient, modernized individual marksmanship ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires three MRF to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain an MRF range designed to train individual Soldiers in the basic live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 144 stationary infantry targets and 16 foxholes. In addition the range will include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. The actual range will be 320 meters in width by 300 meters in depth.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

TANK/FIGHTING VEHICLE STATIONARY GUNNERY RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide a year-round, comprehensive and realistic training and range facility that would be used to train and test tank/fighting vehicle crews on a stationary gunnery range on the skills necessary to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. In addition to live-fire, the Tank/Fighting Vehicle Stationary range can also be used for training with sub-caliber and/or laser training tasks. The range would be used by primarily by TRADOC-IET schools.

Need for the Proposed Action

There is not a Tank/Fighting Vehicle Stationary Gunnery range on Fort Bliss. Tank/fighting vehicle crews must enter battlefield engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires tank/fighting vehicle crews to be proficient in crew weapon systems skills with their assigned combat vehicle in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations. The Tank/Fighting Vehicle Stationary Gunnery range has been designed to support the live-fire crew served weapons training needs of Army armor/ fighting vehicle crews. This range is an essential element of their training and readiness in that the Tank/fighting Vehicle Stationary Gunnery range provides training that crews need to build skills in weapons use, target observation, and engagement. The Tank/Fighting Vehicle Stationary Gunnery range provides crews the capability to meet live training tasks, as outlined in Standards in Training Commission (STRAC) live-fire tasks and TRADOC School Program of Instructions. The range would train the individual crews to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Tank/Fighting Vehicle Stationary Gunnery range designed to train and test crews on the skills necessary to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array with either live fire, sub-caliber, or laser systems. Primary features of this range include 25 stationary armor targets (SATs), four moving armor targets (MATs), 42 stationary infantry targets (SITs) (seven clusters of six SITs each), seven moving infantry targets (15 meters each with 6-man SIT cluster), and one lane.

To produce a realistic training environment, this range uses thermal targets, muzzle flash simulators and hostile-fire/target-kill simulators. This simulation technology provides crews with the best realistic training environment. This range will incorporate state-of-the-art technology to support armor/ fighting vehicle crew training, from target detection, identification, and target engagement to the critical after-action review (training feedback) phase. All targets are fully automated, using event-specific, computer driven target scenarios and scoring. Targets will receive and transmit data from the range operations center-tower. The captured data is then compiled and available to the unit during the after action review. This support and timely feedback are critical to effective training.

A standard boresight line with target will be place on the footprint. Gunnery tasks requiring the usage of dud-producing ammunition cannot be fired on these ranges. Provisions for these tasks must be made in impact areas adjacent to the ranges. Because of the training on this range, TRADOC tank/fighting vehicle students will be able to progress to full vehicle fighting capability training and unit armor/fighting vehicle

crews will go into battle with the best possible training for threats the Army expects to encounter during combat operations.

Primary facility structures at the range include a range operations center tower (248 square feet), general instruction building (800 square feet), one operations storage building (800 square feet), an air-vaulted latrine facility, ammo loading dock (282 square feet), covered mess (800 square feet), bleacher enclosure (536 square feet), a bivouac area, and a unit staging area. Primary facility force rotection measures consist of laminated and safety glass. Supporting facilities include electric service, fiber optic cable connections, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction. The range footprint is 1,000 meters wide with a depth from the baseline out to 3,000 meters.

HAND GRENADE QUALIFICATION COURSE (HGQC)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic range facility for the training and testing of soldiers in the task of throwing hand fragmentation hand grenades. The range also provides soldiers confidence in their ability to employ hand grenades in a combat environment. Prior to deploying to an overseas theater of operation, all soldiers are required to demonstrate the ability to throw hand grenades during pre-deployment training to Army standard.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires soldiers be proficient in the employment of fragmentation hand grenades in order for them to conduct operations effectively in a wartime environment.

The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training and testing requirements of the Soldiers assigned to or that habitually train on the installation, shows that Fort Bliss requires a HGQC to meet its annual fire fragmentation hand grenade training and testing requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a HGQC designed to train and test individual soldiers in the basic training task of the employment of fragmentation hand grenades they require to sustain combat proficiency. The hand grenade qualification course allows soldiers to use fused practice hand grenades to engage targets in natural terrain under simulated combat conditions. No automation is required for this facility. All targets/facades are fixed at required distances.

Primary features include seven individual stations:

Station 1 – Engage a group of F-Type silhouettes in open form 2-man foxhole.

Station 2 – Engage a bunker with one or two firing positions.

Station 3 – Engage a fortified 82 millimeter mortar position from 20 meters.

Station 4 – Engage a group of targets behind cover at a 20 meter distance.

Station 5 – Clear an entry point to a trench line at a 25 meter distance.

Station 6 – Engage troops in halted, open type wheeled vehicle at a 25 meter distance.

Station 7 – Identify hand grenades by shape, coloring, markings, and capabilities.

In addition the range will include one air-vaulted latrine, one covered mess, and covered bleachers with enclosure. Supporting facilities include parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, and gates. Sustainable design will be incorporated where possible.

HAND GRENADE FAMILIARIZATION RANGE (HGFR)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facility for the training of Soldiers in the task of throwing live hand fragmentation hand grenades. The range also provides Soldiers confidence in their ability to employ live hand grenades in a combat environment. Prior to deploying to an overseas theater of operation, all Soldiers are required to demonstrate the ability to throw a live hand grenade during pre-deployment training.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in the employment of live fragmentation hand grenades in order for them to conduct operations effectively in a wartime environment. In addition to the need for each Soldier to throw a live fragmentation hand grenade effectively prior to deployment, the Standards in Training Commission (STRAC) has also established a requirement for each Soldier to annually throw a live fragmentation hand grenade. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or that habitually train on the installation, shows that Fort Bliss requires one HGFR to meet its annual live-fire fragmentation hand grenade training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a HGFR designed to train individual Soldiers in the basic live-fire training task of the employment of live fragmentation hand grenades they require to sustain combat proficiency. Primary features of this range include four throwing bays each with a lane for the throwing of fragmentation hand grenades, a 1.8 meter high, 50 meter long earthen berm between lanes, and a minimum of one static target per a lane targets (targets may be a simple as a 55 gallon drum filled with dirt. No automated targets are required on this range. In addition the range will include a control bunker, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, and covered bleachers with enclosure. Supporting facilities include parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, and gates. Sustainable design will be incorporated where possible.

COMBAT PISTOL QUALIFICATION COURSE (CPQC)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in basic pistol marksmanship skills. This range would be used by the Soldiers assigned to units on the installation and reserve component Soldiers that are assigned a pistol as a side arm. The range would be used to train and test individual Soldiers on the skills necessary to identify, engage, and defeat stationary infantry targets with a pistol.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live-fire, marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations. Live-fire marksmanship skills include the firing of the pistol. In addition, the CPQC also serves as the installation's military police firearms qualification course range.

Fort Bliss does not have sufficient, modernized pistol marksmanship ranges to conduct the marksmanship training and testing required of Soldiers and military police assigned the pistol as a side arm. The Standards in Training Commission (STRAC) has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or that habitually train on the installation, shows that Fort Bliss requires one CPQC to meet its annual pistol live-fire training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a CPQC range designed to train individual Soldiers and military police in the basic live-fire training tasks they require to sustain combat proficiency. Primary features of this range include 105 stationary infantry targets, 15 firing lanes and 15 stationary silhouette targets. In addition the range will include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. The actual range would be 120 meters in width by 31 meters in depth. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

INFANTRY SQUAD BATTLE COURSE (ISBC) RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic live-fire training and range facility for the training of infantry squads. The range would be used primarily by the infantry squads of the Infantry OR Heavy Brigade Combat Teams stationed at Fort Bliss. In addition, this range would support the live-fire training of National Guard infantry OR Heavy Brigade Combat Teams (HBCT) that habitually train on the installation. The ISBC range complex is used to train and test infantry squads on the skills necessary to conduct tactical movement techniques, detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. The ISBC range provides to train collective tasks in a live-fire mode as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train the infantry squads to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

Infantry squads must train in a live-fire mode to accurately replicate those tasks they must perform in combat operations. The ISBC range has been designed to support the live-fire collective training needs of FORSCOM and National Guard infantry units. There are no ISBCs at Fort Bliss to support the live-fire training of infantry squads assigned to active component units stationed or those that habitually train on the installation.

Description of the Proposed Action

The proposed action is to construct a standard Infantry Squad Battle Course (ISBC) range to support the infantry squad live-fire collective training. This complex is used to train and test infantry squads on the skills necessary to conduct tactical movement techniques, detect, identify, engage, and defeat an enemy doctrinal tactical array of stationary and moving infantry and armor targets. In addition to live-fire, this range can also be used for training with sub-caliber and/or laser training devices. All targets are fully automated and the event specific target scenarios are computer driven and scored from the range operations center on the range. The range operating system is fully capable of providing immediate performance feedback to the using units. The ISBC includes six different objective areas and will contain a total of 20 stationary infantry targets (SITs), six stationary armor targets (SATs), one moving armor targets (MATs), six Moving infantry Targets (MITs), two trench obstacles, and five machinegun/observation bunkers with sound effects simulators.

Primary facility structures at the range include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248-square-foot range operations tower, and covered bleachers with enclosure. American Disability Association (ADA) requirements will be met in the Range Operations Center facility. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

To produce a realistic training environment, this range uses thermal targets, night illumination devices, and visual flash simulators. This simulation technology provides infantry squads with the best realistic training environment. This range will incorporate state-of-the-art technology to support all phases of training, from ground maneuver and target engagement to the critical afteraction-review (training feedback) phase. This support and timely feedback are critical to effective training. Because of the

training on this proposed ISBC, infantry units will go into battle with the best possible training for threats the Army expects to encounter during combat operations. The range is required to provide extended breadth and depth of infantry squad live-fire engagements against a wide variety of targetry. The range provides the Army a capability to safely and effectively train to control lethal fires of the infantry squad

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

GRENADE LAUNCHER RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facility for the training of Soldiers in grenade launching marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation. The range would be used to train and test individual Soldiers on the skills necessary to identify, engage, and defeat stationary target emplacements with the M203 40-milimeter grenade launcher.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live fire, grenade launcher marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations. Fort Bliss does not have sufficient, modernized individual marksmanship ranges to conduct the marksmanship training and testing required of each Soldier assigned with the M203 grenade launcher. The Standards in Training Commission has established a requirement for each Soldier assigned with a grenade to qualify with his individual weapons twice annually, once annually for Reserve Component. The Army Range Requirements Model (ARRM) which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires one Grenade Launcher range to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Grenade Launcher range designed to train and test individual Soldiers in the M203 live-fire training tasks they require to sustain combat proficiency. Primary features of this range include four Individual firing stations. No automation is required for this facility. All targets/facades are fixed at required distances. Zero targets are at least two meters high and two meters wide. The Zero target is clearly marked with a large "Z". Targets are made of long-lasting, durable material that can withstand constant use with little maintenance. Salvaged oil drums filled with sand make excellent semi-permanent target material for this range. High Explosive (HE) 40mm rounds can only be fired on stations 1, 3, and 4. In addition the range will include one ammunition breakdown building (120 square feet), one air-vaulted latrine (120-square-feet), one covered mess facility (800 square feet), one range operations tower (248 square feet), and covered bleachers with enclosure ((536 square feet). The actual range is 350 meters in depth.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

ANTI-ARMOR TRACKING and LIVE FIRE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training testing, and qualification of anti-armor Soldiers and crews in anti-armor engagement skills. This range will be used by the anti-armor Soldiers and crews assigned to units on the installation and reserve component Soldiers that habitually train at the installation.

The range would be used to train, test, and qualify individual anti-armor Soldiers and crews on the skills necessary for anti-armor weapon systems and to identify, track, engage, and defeat stationary and moving armor targets presented individually or as part of a tactical array. The range complex is designed to satisfy the training, testing, and qualification requirements of medium and heavy anti-armor weapon systems.

Need for the Proposed Action

Soldiers and crews must enter battlefield engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires assigned Soldiers and anti-armor crews to be proficient in anti-armor engagement skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient Anti-Armor Tracking and Live Fire ranges to conduct the anti-armor training, testing, and qualification required of Soldiers and crews assigned to anti-armor weapon systems. The Standards in Training Commission has established a requirement for each anti-armor Soldier and/or crew to qualify with their assigned anti-armor weapons system twice annually (the TOW anti-armor weapons system qualification must be fired on a anti-armor capable live fire range. The Army Range Requirements Model (ARRM) which projects how many ranges by type are needed to meet the training requirements of the Soldiers and crews assigned to or habitually training on the installation, shows that Fort Bliss requires one Anti-armor Tracking and Live Fire range to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain an Anti-armor Tracking and Live Fire range designed to train, test, and qualify anti-armor individual Soldiers and crews in the anti-armor weapon systems live-fire training tasks they require to sustain combat proficiency. Primary features of this range include five moving armor targets (MATs), 12 stationary armor targets (SATs), and one course road. All targets are fully automated, computer driven, and scored from the range operations center. The range operating system is fully capable of providing immediate performance feedback to the using participants. Anti-armor gunnery task requiring the usage of dud-producing ammunition cannot be fired on this range. Provisions for these tasks must be completed on other installation ranges adjacent to duded impact areas.

In addition the range will include one range operations center tower (248 square feet), general instruction building (800 square feet), operations storage building (800 square feet), one ammunition loading dock (282 square feet), one air-vaulted latrine, one covered mess facility ((800 square feet), covered bleachers with enclosure (536 square feet), bivouac area, and unit staging area. The actual range is 1,000 meters wide by 4,000 meters in depth with a circular course road, with six battle positions, extending 1,000 meters into the down range area. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

ENGINEER QUALIFICATION RANGE

A range designed to meet the training and qualification requirements of combat engineer crews. This range is used to train and test engineer crews on the skills necessary to zero and/or bore sight weapons systems and to identify, classify, and reduce obstacles. Targets are not fully automated and/or the scenarios are not computer driven or scored. Count each firing position on the stationary firing line as one FP. Standard facilities associated with this range are the same as those listed in TC 25–8 for 17889, Engineer Qualification Range, Automated/Standardized.

The size in shape of the range would be two-by-two kilometers in size, the areas would be rotated from one kilometer blocks due to the intensity of the training conducted both obstacle reduction and construction Please refer to FM 3-34.2 for in depth explanation of combined–arms breaching operations and the associated documents in the bibliography, Annex C has a detailed equipment listing and Annex D shows a basic Mission concept and execution.

The EQR is intended to assist the combat engineer battalion and the engineer Units in the development of a standard methodology required to sequentially train individuals, Squads and platoons. It encompasses the tasks required for small-unit engineer-mission success.

Since few battalions have the same equipment or mission, the commanders provided an opportunity to focus the EQR on the unit's mission by adding or deleting tasks based on the unit's mission-essential task list (METL). The concept of the EQR is the capability to build scenario's that can be used by all units or tailored to a specific unit. The range would be able to incorporate all 12 engineer qualification tables which mirror the infantry and armor tables. For example, Tank Table VIII is the Intermediate Qualification Course; Engineer Table VIII is the Intermediate Proficiency Course. They begin at the individual/crew level by qualifying all unit members on their weapons. They then qualify the unit leaders on the demolition and mine tasks they will be required to evaluate. The unit leaders then train and evaluate their Soldiers on demolitions and mines. Tables V through VIII train and evaluate an engineer squad on the skills it is required to execute in support of its maneuver forces; Tables IX through XII train and evaluate an engineer platoon on the skills it will be required to execute in support of its maneuver forces. Each table builds on the previous table or group of tables. The qualification tables are designed to allow a unit to execute its engineer tasks in the most demanding conditions available during peacetime. The tables require a unit to execute the tasks at night with live ammunition and demolitions. A unit is combat ready and qualified once it has completed Table VIII or XII. (Reference TC 5-150 Engineer qualification drills reference FM 5-250 (Explosives and Demolitions) and DA PAM 350-38 as this is where their training requirements come from. (Source: Department of the Army, Pamphlet 415-28).

Additional ranges that would be part of the "growth package."

BASIC 10-METER/25-METER FIRING RANGE (ZERO)

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facility for the training of Soldiers in basic rifle marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation.

This range is used to train individual Soldiers on the skills necessary to align the weapon sights to the strike of the projectile and practice basic marksmanship techniques against stationary targets. The range is designed for training shot-grouping and zeroing exercises with the M16 and M4 series rifles as well as crew served machine guns. This range is also used for short range marksmanship (SRM) training and qualification.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live fire, rifle marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations. Fort Bliss does not have sufficient, modernized 10-meter/25-meter marksmanship ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM) which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires one Basic 10-meter/25-meter Firing Range to meet its training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Basic 10-meter/25-meter Firing Range designed to train individual Soldiers and zero weapons in the basic M-16 and M-4 rifle live-fire training tasks and crew served machine guns they require to sustain combat proficiency. Primary features of this range include 32 frames at 25 meters, 16 target frames at 10 meters, and 32 foxholes. This range requires no automation. All targets are fixed at 25 meters from the firing line for M16/M4 and fixed at 10 meters for machine gun. In addition the range will include one ammunition breakdown building (120 square feet), one air-vaulted latrine (120 square feet), one covered mess facility (800 square feet), one range operations tower (248 square foot), and covered bleachers with enclosure (800 square feet). The actual range footprint is 25 meters in depth. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

CONVOY LIVE-FIRE RANGE/ENTRY CONTROL POINT

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic live-fire training and range facility for the training of all combat, combat support and combat service support units. This range will be used by the active and reserve component unit and other joint forces Soldiers that are assigned to the installation or that habitually train at the installation. The current contemporary operating environment requires all Soldiers and units to participate in a convoy live-fire exercise prior to deploying into the overseas theaters of operation.

This complex is used to train and test Soldiers, crews, and units on the skills necessary to detect, identify, engage, and defeat stationary and moving vehicle and infantry targets from moving vehicles using all assigned weapons and weapon systems. The targets may be presented individually or as part of a tactical array in an open or urban environment. In addition, this complex is also used to train Soldiers to engage and defeat vehicle and infantry targets from multiple firing points as part of an Entry Control Point (ECP) of a Forward Operating Base (FOB). The CLF/ECP range provides units a capability to train collective tasks in a live-fire mode as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train the individual crews and units to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

To produce a realistic training environment, this range uses thermal targets, night illumination devices, and visual flash simulators. This simulation technology provides Soldiers with the best realistic training environment. This range will incorporate state-of-the-art technology to support all phases of training, from ground maneuver and target engagement to the critical after-action review (training feedback) phase. This support and timely feedback are critical to effective training. Because of the training on this proposed range, Soldiers will go into battle with the best possible training for threats the Army expects to encounter during combat operations.

Need for the Proposed Action

Soldiers, crews, platoons, and companies must train in a live-fire mode to accurately replicate those tasks they must perform in combat operations. Prior to deploying to an overseas area of operations, all personnel and all units are required to participate in a CLF exercise on an Army standard CLF/ECP range. The CLF/ECP range has been designed to support the live-fire collective training needs of units stationed on or that habitually train on Fort Bliss. This range is an essential element of their training and readiness.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a CLF range designed to train individual Soldiers, crews, platoons, and companies in the basic live-fire training tasks they require to sustain combat proficiency during convoy operations. These include the skills necessary to detect, identify, engage and defeat stationary and moving vehicle and infantry targets from a stationary or moving vehicle using all assigned weapons and weapons systems. The range also trains Soldiers and units to identify Improvised Explosive Devices (IED) and procedures for dealing with IEDs. This complex is also used to train and test Soldiers to engage and defeat vehicle and infantry targets from multiple firing points as part of an Entry Control Point (ECP). Primary features of this range include five stationary armor targets, four moving armor target, 43 stationary infantry targets, three moving infantry targets, six facades, one entry control point (ECP), and one course road. The ECP targets are fully automated, and the event-specific target scenario is computer-driven and scored from the range operations center. The range operating

system is fully capable of providing immediate performance feedback to the using participants. All other targets are reconfigurable/RF and controlled with a hand-held device.

Gunnery tasks requiring the use of dud-producing ammunition cannot be fired on this range. Primary facility structures at the range include one 800-square-foot building, an air-vaulted latrine facility, and ammo breakdown area. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

The range would be embedded with the necessary information and telecommunications technologies to safely manage all personnel undergoing crew and unit live-fire training. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring. Targets will receive and transmit digital data from the range operations center. The range provides the Army a capability to safely and effectively train to control lethal fires from vehicles in convoy without intrusion into unit command integrity.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

URBAN ASSAULT COURSE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facility for the training of individual Soldiers, squads, and platoons on the tasks necessary to operate within a built-up/urban area. This training range facility will be used by the active and reserve component units and other joint forces Soldiers that are assigned to the installation or that habitually train at the installation.

The UAC provides a capability to train individual and collective tasks using Multiple Integrated Laser Engagement System (MILES) for stations 1, 2, 4, and 5 and a live-fire, non dud producing, grenadier station, station 3, as outlined in Standards in Training Commission (STRAC) live-fire tasks. The facility would train Soldiers, squads, and platoons to meet mission-essential built-up/urban operations training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

Soldiers, squads, and platoons must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers, squads, and platoons to be proficient in building/room clearing, subterranean operations, and use of the M203 in an urban environment in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations. The UAC has been designed to support the individual and collective built-up/urban area training tasks of Army Soldiers, squads, and platoons. This range is an essential element of their training and readiness in that the UAC provides training that Soldiers, squads, and platoons need to build basic skills in clearing buildings and rooms, multiple buildings, attacking and defending a building, and subterranean operations, team building, and leadership development.

The UAC provides grenadiers assigned as M203 gunners the capability to meet live-fire training tasks, as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train Soldiers, squads, and platoons to meet mission-essential training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment. The UAC is used by units to train Soldiers on the basic building clearing skills prior to conducting live fire training in a live fire shoot house. To produce a realistic training environment, this range uses human urban (HUT's), stationary infantry targets (SIT's), and 36 muzzle flash simulators. This range will incorporate state-of-the-art technology to support all phases of training, including building/room clearing, building attack and defend operations, subterranean operations, and grenadier target engagements. Because of the training on this range, Soldiers, squads, and platoons will go into battle with the best possible training for threats the Army expects to encounter during combat operations.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain an UAC designed to train and test Soldiers, squads, and platoons on the skills necessary to clear buildings/rooms, conduct subterranean operations, and master M203 target engagements in an urban environment. Primary features of this range include 26 human urban targets (HUT's) and 10 stationary infantry targets (SITs), and 1 façade. The UAC consist of five stations:

Station 1: Individual and Team Trainer. This station is a three-room trainer where team leaders and squad leaders train the basics of building and room clearing.

Station 2: Squad and Platoon Trainer. This station is a four-structure trainer with multiple rooms. Squads build upon tasks learned at Station 1 and begin to learn the concepts of clearing multiple buildings. The station is designed in such a way that it can be used as individual buildings with a narrow street or as rooms inside a building with a long connecting hallway.

Station 3: Grenadier Gunnery Trainer. This station is a live fire station where M203 gunners master target engagements in an urban area, move tactically, and respond to the fire commands.

Station 4: Offense/Defense House. This station is where a platoon can train to attack and/or defend a building. This station can also be divided into a number of smaller training stations to reinforce training or to train tasks not yet trained at the other stations.

Station 5: Underground Trainer. This station provides training for subterranean operations.

Targetry Requirements:

Station 1 – Six human urban targets (Hut's)

Station 2 – 10 human urban targets (Hut's)

Station 3 – 10 stationary infantry targets (SIT's)

Station 4 – 10 human urban targets (HUT's)

Station 5 – No instrumentation required.

Targetry in Stations1, 2, and 4 are precision interior targets that need to be manually reset, reconfigured and scored after each use. Station 3 targets are fully automated, and the vent-specific target scenario is computer-driven and scored from an individual pedestal at the station. Station 1, 2, 4, and 5 are not intended for live fire training. Station 3 is live fire range for 40 millimeter training rounds. No 40 millimeter high explosive (HE) rounds will be used. At Station 5, smoke/pyrotechnics will not be employed inside the underground trainer.

Primary facility structures at the range include an 800-square-foot Range Operations/Storage building, a 120-square-foot air-vaulted latrine facility, a 120-square-foot ammo breakdown building, and one facade. American Disability Association (ADA) requirements will be met in the ROCA and AAR facilities. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, fiber optic cable connections, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

DIGITAL AIR/GROUND INTEGRATION RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide a year-round, comprehensive and realistic aviation training range facility for the training of aviation crews, teams, platoons, and companies/troops. The range would be used primarily by the Combat Aviation units stationed at Fort Bliss. The primary focus of the range is to train aviation units and crews on the skills necessary to detect, identify, and effectively engage stationary and moving infantry and/or armor targets in a tactical array. Company combined arms live fire exercises (CALFEX) and fully integrated advanced table may be fired by mechanized infantry and armor crews and units (Tables 10 and 12). In addition, this range would support the individual crew training of National Guard aviation units that habitually train on the installation.

The DAGIR provides training that aviation units need to build skills in weapons use, target observation and engagement, team building and leadership development. The DAGIR provides aviation units the capability to meet live-fire individual crew and unit collective training tasks in a digital mode, as outlined in Standards in Training Commission (STRAC) live-fire tasks. The range would train aviation crews and units to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Need for the Proposed Action

As a part of the Transformation, the Army has responded to changes in land combat operations, information and technology, and contemporary operating environments by modernizing and restructuring the U.S. Army. The modernization of Army forces has provided a digital command and control and battlefield awareness capability including each helicopter in the Army's arsenal. Aviation units must train with this digital capability in a live-fire mode to accurately replicate those tasks they must perform in combat operations.

The DAGIR has been designed to support the digital training needs of FORSCOM and National Guard units. There is not a DAGIR at Fort Bliss to support the digitally capable units stationed or those that habitually train on the installation.

Description of the Proposed Action

The proposed action is the construction of a standard Digital Air/Ground Integration Range to support the individual crew and unit collective qualification tasks of aviation units. This complex is used to train and evaluate aviation crews, teams, platoons, and companies/troops on the skills necessary to detect, identify, effectively engage, and defeat an enemy doctrinal tactical array of stationary and moving infantry and armor targets. Company combined arms live-fire exercises (CALFEX) would also be conducted on this range by tank and Bradley vehicle crews and units.

Command and control of the vehicles firing is done in a digital manner replicating how the individual crew or unit would actually operate in a combat situation. In addition to live-fire, this range complex can also be used for training with sub-caliber and/or laser training devices. The range complex supports dismounted infantry platoon tactical live-fire operations either independently of, or simultaneously with, supporting helicopters or vehicles. Military operations on urban terrain (MOUT) and convoy live-fire facilities are required to enable helicopter diving engagements to specified streets and intersections and for engagement in close proximity on adjacent terrain. The DAGIR also enables critical air-ground

integration tactics, techniques, and procedures (TTP) training to ensure the optimum teaming of ground and air, both Army and Joint aircraft.

The DAGIR would include the range itself (threshold) two objective areas titled A and B. The range or threshold footprint is 4 kilometers wide by 6 kilometers deep and would contain 50 stationary armor targets (SATs); 8 moving armor targets (MATs); 35 infantry target emplacement clusters with a total of 246 stationary infantry targets (SITs) and 35 moving infantry targets (MITs); 12 facades; four stationary 3D diving fire targets; two lanes with four course roads; and, one non-live-fire urban cluster town of 14 buildings with a mixture of 1, 2, and 3 story buildings. The range would provide the digital interface needed by digitally equipped forces to properly exercise command and control on the modern battlefield. The range would have television cameras strategically placed on the range to aid in the after-action review (AAR) process.

Primary facility structures at the range include a large Range Operations Control Area (ROCA) facility, a large AAR facility, an air-vaulted latrine facility, ammo breakdown area, an ops storage building, a forward aerial rearm and refuel point (FARRP), an ammunition holding area (AHA) a general instruction building, a bivouac area, and a surfaced staging area. American Disability Association (ADA) requirements would be met in the ROCA and AAR facilities. Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, a water storage tower, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

The range would be embedded with the necessary information and telecommunications technologies to safely manage all personnel undergoing crew live-fire training and qualification. All targets are fully automated, utilizing event-specific, computer-driven target scenarios and scoring. Targets receive and transmit digital data from the range operations center. Scoring of engagement scenarios against established standards including audio and video imagery is captured and then compiled to conduct after-action reviews of all live-fire exercises. The DAGIR accommodates the full range of target practice munitions employed by aviation units. The range is required to provide extended breadth and depth of unit collective live-fire engagements against a wide variety of targetry. The range provides the Army a capability to safely and effectively train to control lethal fires from diverse combat aviation platforms without intrusion into unit command integrity. The range provides a realistic digital environment; synthetically generating all the situational awareness and relevant common picture data for the unit's battle space to train and maintain digital system proficiency at crew through company/troop level training.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

LIVE-FIRE EXERCISE BREACH FACILITY

Purpose of the Proposed Action

The purpose of the proposed action is to provide a year-round, comprehensive and realistic training and range facility for the training of Soldiers on the skills necessary to breach windows, walls, and doors. It is used to train TTP's and explosive techniques not trained on any other type facility. The range also provides Soldiers confidence in their ability to employ live demolition charges in a built-up/urban area combat environment.

Need for the Proposed Action

Soldiers must enter into combat operations with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in the employment of demolitions as part of breaching operations in order for them to conduct built-up/urban operations effectively in a wartime environment. The range would train Soldiers to meet breaching mission-essential livefire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment.

Fort BLISS does not have Live-Fire Exercise Breach Facility constructed to Army standard to train Soldiers on the task of effectively employing demolitions in a built-up/urban area combat environment. The Live-Fire Exercise Breaching Facility provides Soldiers a capability to train individual tasks in a live-fire mode as outlined in Standards in Training Commission (STRAC) livefire tasks. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or that habitually train on the installation, shows that Fort Bliss requires one Live-Fire Exercise Breaching Facility to meet its built-up/urban operations training requirements.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a Live-Fire Exercise Breach Facility designed to train individual Soldiers in the basic live-fire training task of breaching windows, walls, and doors they require to sustain combat proficiency. Primary features of this range include three stations:

Station 1 – Door breaching structure

Station 2 – Window breaching structure

Station 3 – Wall breaching structure

Two berms, three meters high and one meter wide on top, separate the three stations. Slope of the berms varies depending on the soil. The Range Operations and Control facilities includes one air-vaulted latrine. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey will be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, and gates. Sustainable design will be incorporated where possible.

QUALIFICATION TRAINING RANGE

Purpose of the Proposed Action

The purpose of the proposed action is to provide year-round, comprehensive and realistic training and range facilities for the training of Soldiers in basic marksmanship skills. This range will be used by the Soldiers assigned to units on the installation and reserve component Soldiers that habitually train at the installation. The range would be used to train and test individual Soldiers on the skills necessary to identify, engage, and defeat stationary infantry targets for both day and night qualification requirements with both M16 and M4 rifles, the standard issue pistol, machine guns, and M24 sniper weapons.

Need for the Proposed Action

Soldiers must enter engagements with the best possible assurance of success and survival. Therefore, the U.S. Army requires Soldiers be proficient in individual live-fire, marksmanship skills in order for them to conduct operations effectively in wartime and to be prepared for future global combat operations.

Fort Bliss does not have sufficient, modernized individual marksmanship ranges to conduct the marksmanship training and testing required of each Soldier. The Standards in Training Commission has established a requirement for each Soldier to qualify with his/her individual weapons twice annually. The Army Range Requirements Model (ARRM), which projects how many ranges by type are needed to meet the training requirements of the Soldiers assigned to or habitually training on the installation, shows that Fort Bliss requires one QTR to meet its training requirements. Fort Bliss does not have sufficient ranges to train Soldiers in basic rifle, pistol, machine gun, and sniper marksmanship skills.

Description of the Proposed Action

The proposed action is to construct, operate, and maintain a QTR designed to train individual Soldiers in the basic live-fire training tasks they require to sustain combat proficiency. This range is used to train Soldiers on the skills necessary to detect, identify, engage, and defeat stationary and moving infantry targets in a tactical array with their prescribed weapons. This range enhances throughput capability for units with multiple weapons densities by consolidating unit efforts to operating one live-fire training facility. This range combines the capabilities of a Modified Record Fire (MRF) range, an Automated Sniper Field Fire (SFF) range, a combat pistol qualification Course (CPQC) range, and the Multipurpose Machine Gun (MPMG) range . Primary features of this range include 429 stationary infantry targets (SITs), 20 stationary armor targets (SATs), 20 moving infantry targets (MITs), and 10 stationary infantry target emplacements with multiple targets. All targets are fully automated and the event specific target scenario Is computer driven and scored from the range operations center. In addition the range will include two 800-square-foot buildings, one ammunition breakdown building, one air-vaulted latrine, one covered mess facility, one 248- square-foot range operations tower, and covered bleachers with enclosure.

Primary facility force protection measures consist of laminated and safety glass. Supporting facilities include electric service, transformers and lighting, surfaced roads and tank trails, parking, drainage ditch, and latrine facility. Supporting facility force protection includes security fencing and gates. If necessary, an unexploded ordnance survey would be conducted prior to range construction.

Anti-terrorism/force protection (AT/FP) includes vehicle barriers, appropriate vehicle parking setbacks, security lighting, and gates. Sustainable design will be incorporated where possible.

Appendix B

Airspace Classification and Air Traffic Control Service

Appendix B – Airspace Classification and Air Traffic Control Service

The Federal Aviation Administration (FAA) is both the regulator of aeronautical activities in the United States and operator of the air traffic control (ATC) system. The agency licenses airmen and aircraft, regulating the standards to which pilots are trained and the standards to which equipment is manufactured prior to licensing. In addition, the FAA constructs and operates a system of navigational facilities that facilitate aircraft operations that can occur without a pilot having visual reference to the ground. These facilities define air routes along which aircraft may operate, providing an all-weather capability and outlining predictable flight tracks.

The FAA also operates the ATC system, which prevents collisions of participating aircraft by separating their operations within *controlled* airspace where ATC jurisdiction is exercised. To facilitate provision of ATC service, the FAA categorizes airspace and establishes rules governing operations therein. Airspace is categorized first according to whether any level of separation is provided, whether any type of clearance authorizing an operation is required. This first level of division of airspace is *controlled or uncontrolled.* The FAA does not require or provide ATC clearances in uncontrolled airspace because ATC cannot assume responsibility for separation without having the ability to control operations.

By definition, once an aircraft commences operation for the purpose of taking flight it is operating within the National Airspace System (NAS) and is always located within one or the other major types of airspace, controlled or uncontrolled. Controlled airspace is subdivided into classes that correlate to the types of ATC separation that is provided within them. The divisions correlate to the degree of participation required and levels of service provided. Which particular classification of controlled airspace is chosen depends upon the nature of the services to be provided. Airspace classes are mutually exclusive; however, they frequently overlie one another.

Separation of aircraft operating on ATC clearances is accomplished through equipment (radio, radar and transponders), procedures and personnel. The FAA develops and enforces procedures to standardize operations within the National Airspace System (NAS) and it employs personnel to actively control the traffic flow by conveying instructions to pilots.

Prior to the development of an ATC system, separation was simply a matter of pilots visually identifying other aircraft and avoiding them by changing course. This method, *see and avoid,* remains the cornerstone of separation technique when operating in some weather conditions. Operations conducted under Visual Flight Rules (VFR) primarily rely upon *see and avoid* for separation. However, operations in clouds or during periods of limited visibility required the development of different separation techniques. Instrument Flight Rules (IFR) and ATC were developed to address the challenge of separating air traffic in Instrument Meteorological Conditions (IMC).

Over time, the *see and avoid* method was also found to be deficient as a separation technique in areas with a high density of operations even when IMC was not present. In response, ATC service evolved over time in order to overcome those deficiencies by developing and enforcing procedures for air traffic in areas with a high density of operations.

A *clearance* is defined as an authorization and a set of instructions from ATC to a particular aircraft to proceed under specified traffic conditions within controlled airspace, for the purpose of preventing

collision between known aircraft. Aircraft crews utilize ATC pre-defined routes at varying altitudes or positions and report their positions periodically, thus ensuring separation. Prior to the advent of radar, controllers relied on position reports from aircrews to determine routings available for other aircraft. Now, radar and on-board transponders identify unique aircraft, enabling the ATC to determine the bearing and distance of an aircraft from a known point as well as its altitude and groundspeed.

The FAA defines minimum separation standards applied in the control of air traffic. Standards applied in a given situation depend upon whether the ATC is being exercised with or without the benefit of radar. An example of a separation standard in a non-radar environment is not issuing a clearance to an aircraft operating under IFR closer than 5 miles horizontally to another aircraft on an IFR clearance unless separated by at least 1000 vertical feet. An alternative standard could be to provide 20 minutes of in-trail separation for aircraft operating on the same published route. Widespread use of radar allows for reduced separation distances and thereby the accommodation of greater numbers of aircraft in the same geographic area. In a radar environment, standards also reflect the varied capabilities of the equipment in use and the distance of aircraft from the ground station. ATC also separates aircraft on the runway by clearing only one aircraft at a time to enter the taxiway or to land. These activities are called movement area (runway environment) separation and sequencing for landing, respectively. Sequencing is not the same as in-flight separation; ATC makes no assurance of collision avoidance for VFR traffic approaching for landing and there is no defined distance or time standards applied to sequencing. Instead, *see and avoid* is applied by the pilots of aircraft operating under VFR in the airport environment. Because no separation service is provided, it is not considered a clearance, meaning a pre-defined route and authorization. Despite the fact that it is not a clearance, there is a requirement to maintain communications with ATC for sequencing and movement area control.

Regardless of what standard is applied or the environment (radar or non-radar) under which control is exercised, ATC is only able to assure separation if those aircraft being separated are required to participate in the system and pilots are trained in how to do so. So for example, the Federal Aviation Regulations (FAR) prohibit operations in controlled airspace during IMC unless they are conducted under IFR, and are conducted by pilots and aircraft rated for such operations. The FARs also require the receipt of a specific clearance prior to beginning the operation and adherence to the terms of that clearance during the operation. Also, to put all users on notice of when IFR operations are required in controlled airspace, the regulations define what weather conditions (cloud clearance distance and forward visibility) would constitute IMC. This definition varies depending upon the airspace classification. For example, when operating in uncontrolled airspace near the surface of the earth, aircraft must remain clear of clouds and forward visibility must be at least one mile during daylight hours.

If it is desired to provide separation of IFR traffic in all phases of a flight from takeoff to landing, it is necessary to have controlled airspace exist from an airport surface to the pre-defined air navigation route, along the route itself, and down to the surface of the airport of intended landing. It also is necessary to have a method of determining whether Instrument Meteorological conditions are present; unlike uncontrolled airspace, a specific dimension distance requirement from clouds exists for VFR flight. For example, VFR operations in one class of controlled airspace (Class C) require a minimum ceiling, the distance from the surface to the base of a cloud deck, of no less than 1,000 feet and ground visibility of 3 miles. Designating controlled airspace at the surface requires either a trained weather observer on duty, using specialized equipment or automated weather observing equipment continuously reporting the

conditions. In less populated areas and at less congested airports, controlled airspace will begin at a point in space of a fixed dimension above ground level (AGL) or at a specific altitude above sea mean level (MSL).

Air Traffic Control Airspace Classes

Class A airspace exists from 18,000 MSL to 60,000 MSL generally above the territorial limits of the United States. Within these altitude strata, all aircraft must operate under IFR and on an ATC clearance. Positive control of all aircraft movement is therefore exercised by ATC and all aircraft are separated from each other. This airspace generally embraces the high-altitude en route structure used by commercial air traffic, high performance general aviation and the military.

In areas with an extremely high density of aircraft operation and having high volumes of scheduled airline service, the FAA designates *Class B* airspace. Functionally, it is similar to Class A airspace; it is a positive control environment meaning that a specific clearance is required prior to entry and ATC separation of all aircraft from each other is provided. However, unlike Class A airspace, aircraft operating under VFR are authorized if certain equipment and pilot experience requirements are met. Class B airspace has a typical design shape; it generally is cylindrical centered upon the high density airport and goes outward in tiers, generally to a ring about 25 miles from the primary airport. It usually is described as looking like an upside down wedding cake because close in at the airport, the floor of the airspace is at the surface as one moves outward the floor steps up to varying altitudes. The ceiling of the airspace rings is invariably uniform, normally up to 10,000 AGL. Because VFR traffic does not operating under IFR, separation is dependent upon radar; in the event of an outage, no separation of VFR traffic is provided.

Class C airspace is established around medium sized hub airports that have significant numbers of operations but are not as busy as major metropolitan area airports. While participation is mandatory, separation is only provided if one of the aircraft is operating under IFR. No clearance is required for VFR operations within Class C airspace but sequencing services are provided and separation in the runway environment is provided. Therefore, a communications requirement exists. Less stringent equipment and pilot experience levels are required than for operations within either Class A or Class B airspace. The airspace is similar in design to Class B, but smaller and simpler. Two concentric cylinders 10 nautical miles in radius centered on the primary airport extending from the surface to a uniform ceiling, generally 4,000 AGL is the standard design. Like Class B above, the separation provided to VFR aircraft requires operational radar service; however, in the event of an outage the services provided revert to Class D airspace and service.

Class D airspace is established around smaller airports having sufficient operations to warrant an air traffic control tower. Participation is mandatory in that communication is required; however, only IFR aircraft are separated from each other. No in-flight separation of aircraft operating under VFR is provided by ATC. Sequencing and separation of aircraft in the runway environment are provided. The airspace normally is a circle having a five statute mile radius extending from the surface to 2,500 AGL.

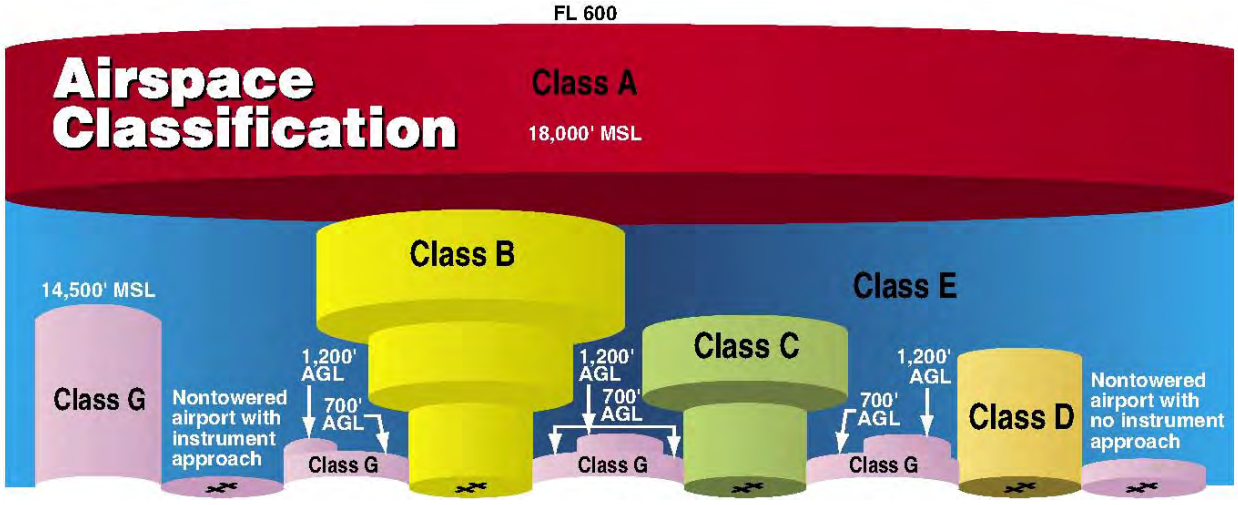
Class E airspace represents the least restricted end of the controlled airspace continuum; only aircraft operating under IFR must obtain an air traffic control clearance and the separation provided is only from other IFR traffic. For VFR traffic, no communications requirement exists and no separation of air traffic

is provided. Class E airspace can be established from the surface upward at an airport, provided a weather observing capability exists. Otherwise, it generally begins either 700 feet or 1200 feet above the surface.

The designations of airspace conform to conventions adopted by the International Civil Aviation Organization (ICAO). In the United States, there is no airspace equivalent to Class F airspace; therefore none is designated.

Class G airspace is the only category of uncontrolled airspace. No ATC separation is provided within Class G airspace and no clearance is required for IFR flight. General aviation airports without published instrument approach procedures and weather observation capability would lie within Class G airspace.

Figure B-1 visually depicts airspace classifications in summary form.



Source: FAA 2008d

Figure B-1 Air Traffic Control Airspace Classifications (Profile View)

Rulemaking and public notice are required to establish or change the boundaries of types of controlled airspace such as Class A, Class B, Class C, Class D or Class E airspace. Class G airspace is uncontrolled airspace; it is defined as any airspace not designated in any of the foregoing controlled airspace categories. See Tables B-1 and B-2 for airspace classifications.

Table B-1 Controlled Airspace Classifications

Designation	Types of Operations Permitted	Participation Req'd/ Clearance Required/ Communication Req'd.	ATC Services Provided	Altitudes	Lateral Sizes
Class A	IFR Only	Yes / Yes / Yes	IFR – Separation from other IFR traffic	18,000 MSL (referred to as FL 180) to 60,000 MSL (FL 600)	Overlies Continental United States & Territorial Waters
Class B	IFR/VFR	Yes / Yes / Yes	IFR – Separation from other IFR traffic	Surface to 10,000 AGL (typical); tiered rings	25 nautical miles from primary airport
Class C	IFR/VFR/ SVFR	IFR – Yes / Yes / Yes VFR – Yes / No / Yes	Separation of IFR traffic, sequencing; separation of surface operations	Surface to 4,000 AGL (typical); tiered rings	10 nautical miles from primary airport
Class D	IFR/VFR/ SVFR	IFR – Yes / Yes / Yes VFR – Yes /No/ Yes	Separation of IFR traffic, sequencing; separation of surface operations	Surface to 2,500 AGL (typical); single ring	5 statute miles from primary airport
Class E	IFR/VFR/ SVFR	IFR – Yes / Yes / Yes VFR – No / No / No	Separation of IFR traffic	700/1200 AGL to 17,999 MSL (typical), may extend to surface	Varies

Table B-2 Uncontrolled Airspace Classifications

Designation	Type of Operations Permitted	Participation Required	ATC Services Provided	Altitudes	Lateral Sizes
Class G	IFR/VFR	N/A	No Air Traffic services provided	Surface to 700/1200 AGL (typical)	Varies

NOTE: These classifications correspond to categories promulgated by the International Civil Aviation Organization (ICAO). There is no Class F airspace equivalent in the United States.

Special Use Airspace Types

In addition to the classifications above, airspace may also lie within *special use airspace (SUA)*. This term refers to airspace defined for a particular purpose and for the benefit of a particular user, usually the military. *Prohibited Areas, Restricted Areas, Warning Areas, Military Operations Areas (MOA), Military Training Routes (MTR)* and *Air Traffic Control Assigned Airspace* are examples of special use airspace. *Prohibited Areas* and *Restricted Areas* are established by a public rulemaking process; they exist to exclude non-participating and incompatible aircraft; their presence is depicted on aviation charts and operating regulations forbid entry to non-participating aircraft without the permission of the controlling agency. Operations within Restricted Areas would normally include artillery firing, aerial gunnery and bombardment and high speed and density aerial operations. A Warning Area performs a similar function for the military services; however, it is defined and depicted in those areas outside the territorial jurisdiction of the United States and therefore does not prohibit or restrict aircraft operations.

As part of the provision of ATC service, a speed limit for aircraft operating in certain airspace classes and in certain altitude strata was established. Below 10,000 MSL, no aircraft may exceed 250 nautical miles per hour (knots) unless it cannot safely be flown that slowly. In Class B, Class C and Class D airspace, the speed limit is 200 knots. The purpose of MOAs and MTRs is to authorize and disclose military operations that exceed the speed limit of 250 knots that would ordinarily exist below 10,000 MSL. Civilian aircraft operating under VFR may operate within MOAs and along MTRs without a clearance or communication requirement; in practice, these areas are often avoided by civilian traffic. However, ATC will not issue a clearance to IFR traffic that crosses an active MOA or MTR because it cannot provide separation. Instead, the civilian IFR traffic would be routed around the MOA or MTR. Special use airspace classifications are not mutually exclusive; an MTR can traverse a MOA that can underlie a restricted area.

A rulemaking is required to establish any airspace that excludes civil aircraft operations; that is, defining an airspace unit that no would no longer exist for the benefit of all users. The two types of airspace that exclude civil aircraft operations are Restricted Areas and Prohibited Areas. Designation of a military training route (MTR), a military operations area (MOA), an alert area or a warning area does not require a rulemaking action because the airspace remains in the public domain and no regulatory restriction prevents its use by all users. See Table B –3 for special use airspace classifications.

1 Table B-3 Special Use Airspace Classifications

Designation	Purpose	Regulatory Airspace?	Available to Civilian / Non-Participating Users?	ATC IFR Separation Services Provided	VFR Permitted	Typical Dimensions
Prohibited Areas	To protect the President or other High Value National Assets	Yes	Only with permission of using agency (usually US Secret Service)	No	No	Varies in lateral shape and vertical dimensions. Example: P-40 (Camp David) is 5 miles in diameter up to 5,000 AGL
Restricted Area	To prevent harm to non-participating aircraft by excluding their entry; to authorize use of munitions; to authorize operations above 250 knots below 10,000 MSL	Yes	Joint Use –With permission of Controlling Agency (ATC) when released by using agency (usually DoD) Non Joint Use – Only with permission of using agency	Joint Use – Only when released by using agency Non-Joint Use – No	Joint Use – Only when released by using agency Non Joint Use – No	Varies in lateral shapes and vertical dimensions as needed to contain activities hazardous to non-participating aircraft
Warning Area	To prevent harm to non-participating aircraft by disclosing potentially hazardous activities; to authorize use of munitions and operations above 250 knots below 10,000 MSL	No	Yes / Yes (Warning Area airspace lies outside of territorial limits of United States and is not subject to FAA regulation)	Joint Use – Only when released by using agency Non-Joint Use – No	Yes, at own risk	Varies in lateral shapes and vertical dimensions as needed to contain activities hazardous to non-participating aircraft
Military Training Route	To authorize operations in excess of 250 knots below 10,000 MSL; to disclose low altitude navigation and training corridors	No	VFR – Yes / Yes IFR – Only when released by using agency (DoD)	Only when released by using agency	Yes, at own risk	Linear route corridors, typically 5-10 miles wide; route length can be hundreds of miles and altitudes vary from the surface to 3000 AGL (typical)
Military Operations Area	To authorize operations in excess of 250 knots below 10,000 MSL; to disclose areas with high density military operations and military acrobatic activity	No	VFR – Yes / Yes IFR – Only when released by using agency (DoD)	Only when released by using agency	Yes, at own risk.	Varies in lateral shapes and vertical dimensions as needed to contain activities hazardous to non-participating aircraft

Air Traffic Control Assigned Airspace (ATCAA)	To contain military operations within a defined area, often overlying a Restricted Area or MOA	No	VFR – Not Applicable (Airspace only exists above 18,000 MSL in Class A airspace) IFR – Only when released by using agency (DoD)	Only when released by using agency	N/A	Varies in lateral shapes and vertical dimensions as needed to contain activities hazardous to non-participating aircraft

NOTE: Except for ATCAAs, all other SUA is not designated above 17,999 MSL as it is unnecessary to preclude VFR operations above that altitude and ATC can reroute any conflicting IFR operations occurring within controlled airspace.

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Tables

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APPENDIX C RESPONSES TO COMMENTS ON THE GFS DRAFT ENVIRONMENTAL IMPACT STATEMENT

This appendix presents all comments received by the Army on the GFS Draft EIS during the public review period. The GFS Draft EIS was distributed (via hard copy or CD) for public review and comment on October 30, 2009, and public comments were accepted through December 30, 2009 for inclusion in the GFS Final EIS. During the 60-day review period, four public meetings were held (one in Texas and three in New Mexico) where participants provided oral statements that were recorded. In addition, a variety of agencies, elected officials, businesses, organizations, and individuals submitted letters, comment forms, and e-mails containing comments on the GFS Draft EIS.

This appendix summarizes the public meetings, and number of oral and written comments received during the public meetings and the review period, respectively. Verbatim transcripts of the four public meetings and copies of all written comments received during the review period are included. Comments applicable to the GFS Final EIS were identified in the oral statements and written comments, with responses provided on the subsequent page. Responses were provided to comments that contained questions or raised issues needing clarification of or expansion on the findings in the GFS Draft EIS. All comments will be considered by the decision-maker.

C.1 Summary of Comments on the GFS DRAFT EIS

Table C–1 below summarizes the public involvement at the four meetings held during the review period for the GFS Draft EIS. The number of attendees listed reflects the count of people who signed in. The number listed as court reporter statements reflects the total number of individual speakers that provided oral statements to the court reporter. The number listed as oral comments reflects the total number questions or clarifications on the findings in the GFS Draft EIS contained in a speaker's oral statement.

In addition to the nine oral comments recorded at the public meetings, the Army received 11 letters, one comment form, and nine e-mails, which contained a total of 61 written comments. Therefore, a total of 70 oral and written comments are addressed in this appendix.

Table C–1. Summary of Public Comment Meetings for the GFS Draft EIS,

November 16, 2009, 6:30-8:00 p.m., Otero County Commission, Room 123, Alamogordo, New Mexico	
Number of Attendees	7
Court Reporter Statements	1
Oral Comments	3
November 17, 2009, 6:30-7:15 p.m., Mesilla Park Community Center, Las Cruces, New Mexico	
Number of Attendees	0
November 18, 2009, 6:30-8:00 p.m., Multi-Purpose Center, Chaparral, New Mexico	
Number of Attendees	6
Court Reporter Statements	2
Oral Comments	2
November 19, 2009, 6:30-8:00 p.m., Chapin High School, Theatre, El Paso, Texas	
Number of Attendees	6
Court Reporter Statements	3
Oral Comments	4

C.2 Comment Statements and Responses

Table D-2 identifies the individuals, organizations, and agencies that provided either oral comments (at the public meetings) or written comments during the review period. The table lists each respondent alphabetically and identifies the numbered response statement or statements attributed to the respondent's letter, e-mail, or oral comment. Written comments were responded to and arranged by date received by Fort Bliss, to avoid redundant responses. Therefore, several comments are addressed by one response. The table includes the page numbers where the comments are located in this Appendix. The response numbers in the table are identified in the public meeting transcripts and written comments and help facilitate reference back to Table D-2.

The Army thanks all commenters for participating in the NEPA process and for providing input.

Table C–2. Summary of Comments Submitted on the Draft Environmental Impact Statement by Individuals and Organizations,

Name	Representing	Delivery Method/ Date	Response Number(s)	Page Number(s) of Response
Oral Comments				
Gonnell, Charles	Self	Chaparral Public Meeting/ November 18, 2009	2.1 and 2.2	31 and 32
Moore, Doug	Otero County	Alamogordo Public Meeting/ November 17, 2009	1.1, 1.2, 1.3 and 1.4	16, 17 and 18
Moore, Taylor	Sunland Park Grassroots Environmental Group	El Paso Public Meeting/ November 19, 2009	3.1	45

Table C–2. Summary of Comments Submitted on the Draft Environmental Impact Statement by Individuals and Organizations,

Name	Representing	Delivery Method/ Date	Response Number(s)	Page Number(s) of Response
Pinon, Gilbert	Sierra Club	El Paso Public Meeting/ November 19, 2009	4.1 and 4.2	47
Walker, Lisa	Self	Chaparral Public Meeting/ November 18, 2009	NA	NA
Vega, Armando	Self	El Paso Public Meeting/ November 19, 2009	5.1	48
Written Comments				
Ackerman, Judy	Self	Email/ December 24, 2009	8.1	56
Arterberry, Jimmy	Comanche Nation	Email/ November 17, 2009	6.1, 6.2 and 6.3	50
Backstrom, Ray	Otero County	Letter/ December 2, 2009	1,1, 7.1, 7.2 and 7.3	16, 52 and 53
Beene, Debra	Texas Historical Commission	Email/ December 30, 2009	NA	NA
Clary, Karen	Texas Parks and Wildlife	Letter December 29, 2009	8.1	56
Cutler, Scott	Franklin Mountains Wilderness Coalition	Email/ December 28, 2009	8.1	56
Escobar, Veronica	El Paso County Commissioner	Letter/ December 21, 2009	8.1	56
Geyer, Bob	El Paso Regional Group of the Sierra Club	Email/ December 29, 2009	2.1 and 13.1	31 and 87
Joe, Tony	Navajo Nation	Letter/ December 3, 2009	NA	NA
LoBello, Rick	Self	Email/ December 27, 2009	8.1	56
Montgomery, Christine	Self	Email/ December 23, 2009	8.1	56
Nelson, Katherine	Texas Commission on Environmental Quality	Letter/ December 16, 2009	NA	NA
Pena, Carlos	International Boundary and Water Commission, United States and Mexico	Letter/ December 7, 2009	NA	NA
Norwick, Jim	State of New Mexico, Commissioner of Public Lands	Letter/ December 22, 2009	1.1, 7.2, 10.3, 10.15, 11.1 and 11.2	16, 53, 60, 63 and 67
Polk, E. Barnard and Lynn	Self	Email/ December 16, 2009	9.1	58

Table C–2. Summary of Comments Submitted on the Draft Environmental Impact Statement by Individuals and Organizations,

Name	Representing	Delivery Method/ Date	Response Number(s)	Page Number(s) of Response
Seymour, Deni and Ruscavage-Barz, Samantha	New Mexico Archeological Council	Letter/ December 28, 2009	12.1 through 12.16	78, 79, 80, 81, 82, 83 and 84
Shyne, Michael	Westsource Corporation	Letter/ December 14, 2009	7.2	53
Spencer, Stephen	United States Department of the Interior	Letter/ December 22, 2009	10.1 through 10.33	60, 61, 62, 63, 64 and 65
Teschner, Richard	Frontera Land Alliance	Comment Card/ December 6, 2009	8.1	56
Wunder, Matt	State of New Mexico Department of Game and Fish	Letter/ December 30, 2009	10.14, 14.1 and 14.2	63 and 89
Yturralde, Efren	Gadsden, New Mexico ISD	Email/ November 19, 2009	2.2	32

PUBLIC MEETING

FOR COMMENTS ON DRAFT SEIS

HELD ON

NOVEMBER 16, 2009

AT

OTERO COUNTY COMMISSIONERS ROOM

1100 NEW YORK AVENUE

ALAMOGORDO, NEW MEXICO

MR. BARRERA: We begin the evening with a welcome and a brief overview of the purpose and need by the Garrison Commander, Colonel Manning, and a brief explanation of the NEPA process by Mr. Maillet and
06:33:51 results of the EIS by the meeting facilitator, Mr. Perry. After the presentation, you are invited to visit the poster stations at the back of the room.

If you have questions, please hold them for after the presentations, and staff from the installation
06:34:08 and project team will be on hand to help you during the poster-viewing portion of this meeting. After the break, Mr. Perry will facilitate the verbal comment portion of the meeting. Thank you for your cooperation.

It is now my pleasure to introduce Colonel
06:34:23 Edward Manning, Garrison Commander of Fort Bliss.

COLONEL MANNING: That's me. Okay. Here I am.

MR. BARRERA: Okay.

COLONEL MANNING: I'm confused. I know I
06:35:02 read this on the way up here. I think it's a different book, but it's probably the same script, I hope.

But good evening, folks. I'm Colonel Ed Manning, the Garrison Commander of Fort Bliss. I think I've met some of you here before, as I'm here last year
06:35:15 in -- about this time last year to talk about the EIS in

another forum, so thanks for having me up here. And before I begin, I just say thank you for the support that all the folks here in New Mexico and El Paso and the southwest area of the United States support -- do to
06:35:32 support soldiers and families of Fort Bliss. So let me go on and talk to this.

On behalf of Major General Bromberg, Commanding General at Fort Bliss, and the whole U.S. Army, I thank you for being here tonight and
06:35:45 participating in this important National Environmental Policy Act, or NEPA, process.

In response to recent congressional mandates and presidential directives, generally referred to as "Grow the Army initiatives," or GTA, the Army has
06:36:00 increased the number of troops assigned to Fort Bliss. These troops must be trained to exacting standards to increase survivorship in warfare. To do this, trips -- I'm sorry. To do this, troops must take advantage of all terrain types available as part of their training.
06:36:13 Fort Bliss is an important resource for the Army when varied terrain is considered.

For this reason, the Army has chosen to station troops at Fort Bliss and is generating this environmental impact statement to assess the impacts of
06:36:24 doing so. This EIS, or environmental impact statement,

before you now is tied to or connected to a programatic -- I'm sorry -- programatic EIS, called "Grow the Army," or GTA EIS completed by the Army in 2007. Your input is an important part of this overall
06:36:44 EIS process.

This draft EIS has evaluated a range of reasonable alternatives that support new training and infrastructure that will support Army growth beyond the requirements known when we evaluated changes brought
06:36:58 about by the base realignment and closure decisions for Fort Bliss in previous NEPA documents.

The draft EIS will be followed by the final EIS with -- within which preferred alternatives will be chosen by the Army. The purpose of this meeting is to
06:37:14 give you, the public, an opportunity to provide comments on this draft EIS that will help us choose the best alternatives.

Army decision-makers will use the findings of the final EIS to decide how we will support training
06:37:27 and infrastructure needs for new troops assigned to train at Fort Bliss. The draft EIS explains the environmental consequences of these forthcoming Army decisions and your input will assure us that these consequences are documented accurately to the greatest
06:37:42 extent possible.

Now, I've brought with me tonight additional members of my staff and the project team. They will present to you information about the framework within which this process operates, followed by a description of the specific mission alternatives and key findings. Following this presentation, there will be a poster session during which you can -- during which you can review information from the EIS and ask our subject matter experts questions.

06:38:08 We're asking tonight that you, members of the community in which we live and work, provide us with your formal comments on the proposal alternatives included in the draft EIS. As I'm sure you're aware, the Army is in a period of critical transition. 06:38:26 Civilian leadership has mandated that the Army increase or grow in size. In addition, Army leadership has begun the 30-year process of transforming away from a cold war focus to meet new, unconventional threats to national security. Transformation efforts continue by fielding a 06:38:41 force best configured to meet the evolving national security and defense requirements of the 21st century.

To further Army growth and transformation, meet the increased national security and defense requirements of the 21st century, maintain training and 06:38:56 operational readiness levels, and preserve a high

quality of life for U.S. Army soldiers and families, the Army will increase its overall size, while continuing to restructure its forces in accordance with modular transformation decisions.

06:39:12 The Army has taken action to realign existing forces and increase its strength to a size and configuration capable of meeting national security and defense objectives, sustains unit equipment and training readiness, and eases the deployment burden on its 06:39:28 soldiers and families.

The growth of the Army allows for the -- for the adjustment of the composition of its forces to continue to accommodate the transformation objectives and create additional unit capabilities in high-demand 06:39:41 areas where mission requirements exceed current manning authorizations. The implementation of Army growth will allow the Army to field a sustainable force, matching mission requirements of the current security environment.

06:39:52 The Army's proposed action includes Fort Bliss support for the growth of the Army and allows for reasonably foreseeable future stationing actions, taking advantage of the training opportunities at this installation. This draft EIS has evaluated a range of 06:40:10 reasonable alternatives that support the record of

decision for the 2007 Grow the Army problematic EIS.

That 2007 record of decision directed the stationing and training of two infantry brigade combat teams at Fort Bliss, also known as IBCTs. The two
06:40:30 IBCTs, along with the four heavy brigade combat teams, also known as HBCTs, stationed at Fort Bliss in accordance with the Base Realignment and Closure, or BRAC, resulted in a total of six BCTs brigade combat teams, scheduled for stationing and training at
06:40:46 Fort Bliss. The Army has further directed that Stryker brigades augment or replace one or more of the HBCTs that were scheduled for stationing at Fort Bliss. This draft EIS before you now addresses the impact of these initiatives.

06:41:02 I'll now introduce Mr. Brian --

I'm sorry. Brian, help me pronounce your name. Maillet?

MR. MAILLET: That's right. Very good, Colonel.

06:41:13 COLONEL MANNING: I do pretty good with accents. Mr. Brian Maillet, who will give an overview of this process and draft EIS.

Thanks.

MR. MAILLET: Thank you, Colonel Manning.

06:41:32 My name is Brian Maillet, and I will be --

I am the EIS project manager for ARCADIS. This evening, I will summarize the draft EIS and inform the public of the EIS schedule and provide an opportunity to comment on the draft EIS.

06:41:55 NEPA is a federal law and is the legal framework in which this planning effort is operating. NEPA requires a comprehensive analysis of potential direct, indirect, and cumulative effects of each alternative proposed to support the training of troops
06:42:10 at Fort Bliss.

NEPA also requires public and multi-agency participation in the review process. Fort Bliss is collecting comments from the Bureau of Land Management and other federal, state, and local agencies and the
06:42:27 public, using this public meeting forum, comment cards, and the availability of the draft EIS document to interested parties, which is this document right here. We also have it on CD.

The EIS process can be broken down into
06:42:49 four general phases: Public scoping meetings, publication of a draft EIS, publication of a final EIS, and publication of a record of decision. We are currently in the draft EIS phase.

In October 2008, Fort Bliss conducted
06:43:06 public scoping meetings to provide information on the

proposed action and invited public comment on key issues. The public scoping meetings were conducted in the same areas as the current public meetings: Alamogordo, Las Cruces, El Paso, and Chaparral.

06:43:25 During the October 2008 public scoping meetings, Fort Bliss received comments from various agencies, organizations, and the public on the proposed action. Following a review of the comments, Fort Bliss identified the following key issues that were of primary
06:43:45 concern during scoping and were therefore addressed during the studies conducted for the draft EIS: potential closing of Highway 506 due to military training activities, potential impacts to grasslands and threatened and endangered species, potential impacts to
06:44:04 Otero Mesa, potential increase in wildfires in the northeast McGregor Range north of Highway 506, potential archaeological impacts associated with the increase in the number of controlled FTX sites and ranges, and potential impacts associated with aircraft, airspace,
06:44:23 and noise.

These key issues are addressed in this draft EIS and will be discussed later in this presentation. If you have specific questions about these issues, please participate in the poster session
06:44:36 following this presentation.

The Army has analyzed three categories of alternatives: stationing and training, land-use changes, and training infrastructure improvements. Each category contains a no-action alternative and several
06:44:56 action alternatives. The no-action alternative is alternative number four, in the 2007 BRAC-related supplemental EIS that is currently being implemented at Fort Bliss. Each of these three categories -- from each of these three categories, one individual alternative
06:45:17 would be selected. In this so-called cafeteria approach, you may think of it as choosing from three different kinds of foods from a menu that, when combined, make up a complete meal.

Category 1, stationing and training, is
06:45:36 comprised of four alternatives. The first of these is the no-action alternative. Under this option, no additional units would be stationed or train at Fort Bliss, current deployment of at least one heavy BCT within a three-year period would continue, and one
06:45:55 visiting or temporary-duty heavy BCT would complete training at Fort Bliss.

Alternative 2 is the no-deployment alternative. Under this alternative, no additional troops would be stationed at Fort Bliss. However, the
06:46:14 cessation -- cessation of heavy BCT deployment would

occur. The TDY, or temporary duty, training of one heavy BCT would continue. This results in an increase of one heavy BCT training on the Fort Bliss training complex.

06:46:33 Under altern- -- under alternative 3, no deployment and the temporary-duty training of the heavy BCT would continue. In addition, one Stryker BCT would be stationed and train at Fort Bliss. This results in a net increase of two BCTs training on the Fort Bliss

06:47:07 training complex.

The fourth alternative in this category adds reasonably foreseeable future stationing actions that may affect Fort Bliss. These stationing actions are assumed, for the sake of analysis, to include two

06:47:24 Stryker BCTs with various support units. In addition, this alternative further assumes an additional heavy BCT would travel to Fort Bliss for temporary-duty training.

While Fort Bliss has not received any indication that these actions would take place, in the

06:47:43 face of increasing maneuver and training requirements, we feel it appropriate to plan for the future. This alternative would result in the highest number of BCTs at Fort Bliss, with eight units stationed and ten units training.

06:47:59 This table summarizes a number of military

personnel, as well as associated family members and civilian support personnel. Note that the total number of soldiers may be as high as 51,800, under the "Military" column.

06:48:21 The second category of alternatives covers land-use changes proposed at Fort Bliss. Again, the first of these is the no-action alternative. Under this alternative, no land-use changes would occur in the Fort Bliss training complex.

06:48:41 The second alternative in this category would allow four square kilometers of defined bivouac or logistical support sites, known as controlled FTX sites. "FTX," we've been using that term a lot. It's an acronym for "field training exercise."

06:49:02 In the southeast McGregor Range, we would allow these four square kilometers of FTX sites. It would also -- under this alternative, we would also allow the establishment of controlled FTX sites in the Sacramento Mountains in the northeast McGregor Range

06:49:18 north of Highway 506. The controlled FTX sites would place concentrations of vehicles and personnel in discrete areas to support training activities in the surrounding areas.

The third alternative in this category

06:49:36 allows controlled FTX, mission support, and live fire

for the entire northeast McGregor Range north of Highway 506. It also adds five square kilometers of controlled FTX sites in this area, specifically in the foothills south of the Sacramento Mountains, and it also
06:49:59 establishes a controlled FTX zone in the Sacramento Mountains in the northeast McGregor Range north of Highway 506. This alternative would support dismount infantry training. The broken terrain in the northeast McGregor Range north of Highway 506 is valuable to
06:50:20 support realistic infantry training; whereas, the open terrain of the Tularosa Basin is preferred for heavy BCTs.

The fourth alternative allows light-wheeled, off-road vehicle maneuver to limited
06:50:40 areas in the northeast McGregor Range north of Highway 506. More specifically, HMMWV would be permitted to off-road within 500 meters of an existing road on slopes of less than 30 percent. This would only affect 27 percent of the northeast McGregor Range north
06:51:02 of Highway 506. This specifically does not allow tracked vehicles in this area.

The last alternative in this category adds three square kilometers of controlled FTX sites in the Otero Mesa southeast of Highway 506. As in previous
06:51:24 alternatives, these sites would concentrate vehicles and

personnel in discrete areas, so as to maximize [sic] the potential damage from such concentrations in sensitive national communities. These sites would supplement similar existing sites in this area and be placed to
06:51:44 support dismounted infantry training.

The third category of alternatives focuses on training infrastructure improvements in the Fort Bliss training complex. As with previous categories, the first alternative is no action, which
06:52:09 only improvements are allowed by BRAC EIS would be made to training infrastructure at Fort Bliss.

The second alternative in this category analyzes range construction to support scheduled units' training to standard at Fort Bliss.

06:52:26 The third alternative in this category adds expansion of range camps and development of contingency operating locations, known as COLs. COLs are encampments with defensive berms that more closely simulate conditions found in the current military
06:52:52 conditions in Afghanistan and Iraq.

The fourth alternative in this category adds construction of a rail line connecting the Fort Bliss main cantonment to the Fort Bliss training complex. A rail line would provide a more efficient and
06:53:07 greener method for units to reach the training ranges.

Now, I will now turn it over to our meeting facilitator, Mr. Steven Perry.

MR. KNOPP: Did everyone get a copy of tonight's handout?

06:53:58 MR. PERRY: Thank you.

Good evening. My name is Steven Perry. I appreciate everyone being here this evening. John is going to wait a minute, but we're handing out this background piece that's titled "About Tonight's 06:54:08 Meeting." It gives a brief description. Also, there is a glossary with some of the key terms that are being used, which will be helpful. And the last page is a map, also for reference. This is straight out of the draft EIS document, similar to the map we have over 06:54:31 here. So if you didn't get one of those, John is hoping to pass those out.

Go ahead.

The resources analyzed under all the alternatives were -- now, I realize this is difficult to 06:54:54 see, but we do have a poster very similar to this right over here, so you can follow up in more detail after our presentation.

The resources analyzed under all alternatives were land use, earth resources, natural 06:55:09 resources, cultural resources, air quality, water

resources, facilities, airspace, energy demand, solid and hazardous waste, noise, and socioeconomics. The results of detailed studies of each of these resources indicate that a majority of the significant impacts to 06:55:35 certain resources would be mitigated to what is considered less than significant. This is done so under the current Fort Bliss land-use management planning documents and protocols. There would be some unavoidable significant impacts, and we're going to 06:55:54 further explain those in the next couple of slides.

Under all alternatives, including the no-action alternatives, the impacts associated with airspace and noise would continue. These impacts, however, would continue to be monitored and mitigated 06:56:17 through ongoing coordination with local airports and continued use of the noise complaint hotline.

Under stationing and training alternative 4, increased training on the Fort Bliss training complex would require continued coordination with Native 06:56:36 Americans to ensure access to sacred sites.

It's important to note that these analyses in the draft environmental impact statement of increased military activities in the northeast McGregor Range north of Highway 506 would have no significant impacts 06:56:59 beyond current levels.

Under stationing and training alternatives 3 and 4, training infrastructure improvements, alternative 1 would not be viable, would not be sufficient, because it cannot accommodate the scheduled incoming units of soldiers. Alternative 2, at the minimum, would have to be implemented. This results in additional ranges on the Fort Bliss training complex.

The results of this analysis indicated the majority of significant impacts to certain resources can be mitigated to less than significant under current ongoing land-use management and planning protocols. Also, through ongoing communication and coordination with affected parties between the installation and units training at the ranges.

Moving now, I'd like to provide a summary of the EIS schedule going forward. The notice of availability of this draft EIS document was published in the Federal Register on October 30th. This started the review period for this document, which, in this case, was 60 days long. This public meeting and three others we're doing this week fall within that 60-day period, and the -- that 60-day period ends on December 29th, which is also the deadline for submitting public comments on the draft document.

The next step in the process is publication

of a preliminary final EIS, which will reflect the careful consideration of comments made by you here tonight and others during the public comment period. That preliminary final EIS will be reviewed by all the cooperating agencies, resulting in the final EIS. And you can see here, we're targeting that for March of 2010.

The notice availability of that final EIS -- again, is scheduled for March 2010 -- that will document the Army's preferred alternatives within those three categories that Brian went through. Following a 30-day public review period of the final EIS now, a record of decision on the alternatives chosen for implementation would be published in the Federal Register.

We now are going to take a 30-minute break, so that you can review the posters around the room, and importantly, ask questions of the EIS project team, including several subject matter experts that we have here this evening.

Your comments on the draft EIS document can be submitted in a number of ways. In writing, just point out in the back table, there, there is a -- this is for written comments, the form and instructions. We also have -- if you plan to provide verbal comments,

after the break, we will reconvene, in about 30 minutes, and you can provide verbal comments, and the court reporter, here, will enter them into the record, just like they were written comments.

07:00:54 If you plan to provide verbal comments after the break, if you haven't done so already, this is a signup card, the small card. I need your name and address and a few other things here. This'll help us have an orderly process, so that all speakers will have

07:01:11 a chance to be heard.

We will take comments from public officials first, and then by you, the public, in the order that you registered to comment as you came in to comment this evening. If you do not wish to speak or provide a

07:01:27 written comment tonight, you're welcome to take one of the comment forms and return that by regular mail, or you can send an e-mail, and the address is provided on that form.

Please remember the public comment period

07:01:41 will end December 29th, so please provide your comments by that deadline so that they can be considered during preparation of the final EIS. The final EIS is scheduled to be available for your review in the spring.

Thank you for joining us this evening.

07:02:02 We'll take approximately a 30-minute break, and then

we'll reconvene for verbal comments.

MR. BARRERA: If you want to do a verbal comment, but you don't want to stand up in front of people, you can also sit down by the court reporter, and

07:02:15 she will take your verbal comments and put them in the public record, okay?

MR. PERRY: Thank you, John.

Thank you, everyone.

MS. HAMILTON: If there's a consensus of

07:02:32 the folks that are here that they want to start the comment period in less than 30 minutes, we'll be more than happy to do that.

(Break taken from 7:02 p.m. to 7:24 p.m.)

MR. PERRY: Thank you. We will now begin

07:24:14 the oral comment portion of this meeting. Again, my name is Steven Perry. We will start with elected officials, and any others that, if you wish to speak, now is going to be the time. We ask that -- well, we have one commenter, Commissioner Moore. And we would

07:24:35 normally limit comments to approximately five minutes, but --

COMMISSIONER MOORE: And that's -- and that's fine. First of all -- and I'm not going to stand up, if it suits everybody.

07:24:44 I applaud the military for trying to be

flexible in their training environment and realizing what we need for our folks that are going to be deployed. Some of those are my kids. So the structure of changing EIS and what we had on the ground five years ago, seeing that there's new developments around the world, and we need to be flexible in our training, I applaud you guys for looking at that.

A big concern has always been, in Otero County, activity north of 506. During the presentation -- and I don't know if this is question and answer or just comments, so I'll give you a comment, but I've got some questions, if there's time for that later. And I can do it after the --

MR. PERRY: Yes, after you give us your --

COMMISSIONER MOORE: Sure.

MR. PERRY: -- verbal comment that's entered into the record, the -- some of the team will stay around after, to answer your specific question.

COMMISSIONER MOORE: I've seen a lot of these documents, and I think this one is well put together. There's a variety of options. Instead of your normal, just there's four options, I think you've looked at -- I think you've broken it down to land-use requirements for training, so it's a really good job, one of the better ones I've ever seen.

My -- my concern is, when we go -- when I start to look at the documents -- certainly, I haven't read it all -- is the comments made here this evening are that you think you've mitigated at least to a level of beyond substantial on activities and impacts that will be new activities north of 506.

07:26:01

And when I -- when I say that, I don't oppose the training or the type of training or the look at the terrain that you're wanting. I don't oppose any of that. My main concern is closure of 506. There's a lot of folks that that's their only way in and out of town. I know if we start doing infantry training and have live fire over there, that's going to enhance closures on 506.

07:26:16

See Response 1.1

So those are my concerns. I'm going to look real heavily at what you guys propose as mitigation. When I -- when I'm reading your numbers, though, the way you're -- the way you're balancing that out is, you're saying, if we go north to 506, the total impact on grassland and roads will be decreased south to a factor of .43, increased to the north to a factor of 1.5; so, overall, it's not that big a change, so you say that's unsubstantial. It's unsubstantial until you close 506.

07:26:31

07:26:43

The other thing I can't figure out is,

07:26:58

Response 1.1 The Proposed action is not expected to result in additional road closure. Opening Training Areas (TAs) 12 through 15 to live-fire training allows establishment of live-fire areas without a safety requirement closing Highway 506. Opening these additional live-fire Training Areas allow orientation of target arrangements and fields of fire so the safety fans do not overlap Highway 506. The IBCTs will increase traffic on Highway 506 when training, but are not expected to cause closures for road crossings. Traffic may be delayed for a few minutes as the vehicles cross, similar to waiting for pickups or livestock to cross the road, but road closures are not expected. Currently, only the firing of longer range missiles, such as the Patriot missile, requires closure of Highway 506.

See Response 1.2

you're saying it's a factor, depending on which scenario you take, of 1.53. Well, I don't know how you drive down a road and turn around and drive back and that not be two. That's two trips over that road. So I'm
07:27:15 concerned about the way you came up with that impact. I'm concerned about the roads getting beat out, you know, and there being a lot of dust, and those kinds of issues. And, certainly, we -- the County will make a formal written comment on the -- on the whole deal.

See Response 1.3

07:27:37 I think another misleading statement this evening that was made was, if you choose 4, then that's just limited to the description you gave, and 4 actually includes 3. So it's a -- if you choose 4, you get everything above you, except no action. So where you
07:27:55 said, if we take 2, we're going to have a little bit more activity; if we take 3 a little bit more; if we take 4, a little bit more, but all those little bits stack up.

Certainly, 4 is -- gives you the most
07:28:06 flexibility as an Army and as an ability to train, and as you guys weigh -- as the military weighs what is the best alternative for their activity, certainly, 4 is the best in a lot of -- in a lot of those cases.

So that's what we're going to concentrate
07:28:23 our review on, is what we believe to be the alternative

Response 1.2 Fort Bliss understands the importance of Highway 506 to the citizens of Otero County and surrounding areas. Fort Bliss will work diligently to prevent impediment of traffic along Highway 506 due to military training. Training must take place; however, any events that cause closure of Highway 506 or portions of the roadway will be announced as far in advance as possible and for as short a time as possible. Where military training causes pitting, rutting, and/or erosion of the roadway, Fort Bliss will work with Otero County Roads and Grounds to identify best practices in repairing/maintaining the roadway as a cooperative effort. All traffic can cause noticeable amounts of dust, but the projected levels are not expected to violate regulatory levels for particulates.

Response 1.3 The proposed changes described in each alternative are additive to the previous alternative. Likewise, the analysis of each alternative includes the impacts to resources associated with the previous alternatives, plus any new impacts associated with the new alternative. To see the change in activity from a specific alternative one must subtract the measure for the previous alternative. For example, under ST-4, an estimated 2,449 vehicle trips may occur in NE McGregor under LU-4 (Table 2-26), and 2,155 under LU-3 (Table 2-21). Therefore the additional activity associated with just the change LU-4 over LU-3 in terms of on-road vehicle trips differs by 294 vehicle trips.

of choice, and how that will impact the lives and the livelihood of the custom and culture of Otero County. I know you guys have always been responsive to any requests we've ever had, and I'll -- we enjoy that -- we enjoy that relationship and hope that continues.

I know that you've made every effort to try to minimize activity north of 506 and will continue to do that. I know what you're looking for is that terrain, and I could see where that will be very helpful for your infantry guys in training.

See Response 1.4

Another statement that was made tonight that I don't believe is correct is there would be no tracked vehicles north of 506. In fact, there will be -- in that pink area, if you look at this map over here, through that upper section, that's 506, that black line. The pink area that's out by Highway 54/70 is still -- would still be an active track vehicle. You'd still have tanks, I believe, in there. And then the blue area, that's the new activity that's over on the escarpment and takes in part of the slope and the mountaintop, that would be the infantry training site, if I understand the map correctly.

So just to clarify, there's still the ability to have tanks and track vehicles in a big chunk north of 506, as there always has been. And I'll leave

Response 1.4 Tracked vehicles are currently allowed to off-road maneuver north of Highway 506 in Training Areas 10, 11, 29 and the western portion of 12, which is part of the Tularosa Basin portion of McGregor Range. The 2007 SEIS addressed the impacts associated with this land use. Off-road maneuver by tracked vehicles is neither part of the proposed activities for the Northeast McGregor Range North of Highway 506, nor on Otero Mesa South of Highway 506. Under the land use changes in the Proposed Action, a limited number of tracked vehicles would continue to complete on-road maneuver training only in the Northeast McGregor Range North of Highway 506.

it at that.

MR. PERRY: Thank you very much. Thank you.

Anyone else like to speak?

07:30:05 All right. Again, we've got a summary here. Also, in the back, here, the comment form and instructions, in terms of a variety of ways of submitting comments, until the deadline of December 29th. And any comments submitted up until that date

07:30:23 will be considered in preparation of the final EIS.

Thank you very much for being here.

COMMISSIONER MOORE: Thank you guys for coming out.

MR. PERRY: Good night.

07:30:36 (Pubic meeting concluded at 7:30 p.m.)

PUBLIC MEETING

FOR COMMENTS ON DRAFT SEIS

HELD ON

NOVEMBER 17, 2009

AT

MESILLA PARK COMMUNITY CENTER

304 BELL AVENUE

LAS CRUCES, NEW MEXICO, 88005

RASBERRY & ASSOCIATES CERTIFIED COURT REPORTERS
300 E. MAIN, SUITE 1024, EL PASO TX 79901 (915) 533-1199

MR. BARRERA: My name is John Barrera, B-A-R-R-E-R-A. I'm the project manager for the Army Growth and Force Structure Realignment EIS at Fort Bliss.

On Tuesday, November 17th, 2009 Fort Bliss EIS public meeting commenced at 6:30 p.m., no members of the public were present. At 7:15 p.m. the public meeting was adjourned with still no members of the public present.

The meeting was held at the Mesilla Park Community Center, 304 Bell Avenue, Las Cruces, New Mexico, 88005. We will convene in Chaparral at the same time, 6:30, for another public meeting.

(Meeting concluded at 7:15 p.m.)

CERTIFICATE

State of Texas)
)
County of El Paso)

I, Rachel Simons, a Certified Shorthand Reporter, in and for the State of Texas, do hereby certify that this transcript is a true record, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on this _____ day of _____, 2009.

_____
Rachel Simons, CSR, Texas #8247
Expiration Date: 12/31/09
Firm Registration #384
300 E. Main, Suite 1024
El Paso, Texas 79901
(915) 533-1199

REPORTER'S CERTIFICATION

State of Texas)
)
County of El Paso)

I, Ginger G. Zachary, Registered Professional Reporter, Certified Realtime Reporter, and Certified Shorthand Reporter in and for the State of Texas, do hereby certify that this transcript is a true record of the above-entitled Public Meeting, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on December 12, 2009.

_____
Ginger G. Zachary, RPR, CRR, CSR Texas #5710
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PUBLIC MEETING

FOR COMMENTS ON DRAFT SEIS

HELD ON

NOVEMBER 18, 2009

AT

MULTIPURPOSE CENTER

190 COUNTY LINE ROAD

CHAPARRAL, NEW MEXICO

MR. BARRERA: Welcome to the public meeting for the draft environmental impact statement, or EIS, for the Army growth and force structure realignment at Fort Bliss. Thank you for attending our meeting, and we
06:33:09 appreciate your assistance. I am John Barrera, project manager for EIS, and I will be introducing the participants of this meeting.

Tonight, you will learn about actions proposed at Fort Bliss that have the potential to impact
06:33:24 the natural and human environment in and around Fort Bliss. These actions include the additions of military units, new facility construction, and different military uses of the Fort Bliss training complex.

We begin the evening with a welcome and an
06:33:46 overview of the purpose and need for the action by the Fort Bliss Deputy Garrison Commander, Colonel Wells, and an explanation of the NEPA requirements and results of the EIS by Mr. Maillet, and then the EIS process and schedule by the meeting facilitator, Mr. Perry.

06:34:07 After the presentation, you are invited to visit the poster sessions at the back of the room. If you have questions, please hold them for after the presentation, and staff from the installation and project team will be on hand to help you during the
06:34:24 poster-viewing portion of this meeting. After the

break, Mr. Perry will facilitate the verbal comment portion of the meeting.

And now, here comes the fun part: (Speaking in Spanish.) Please stand up. Okay?

06:34:56 Thank you for your cooperation. It's now my pleasure to introduce Colonel Leonard Wells.

COLONEL WELLS: Thank you, sir.

Good evening, ladies and gentlemen. I am Colonel Leonard Wells, the Deputy Garrison Commander of
06:35:20 Transformation at Fort Bliss. On behalf of the United States Army, I want to thank you for coming out tonight and participating in this important NEPA process.

Next slide.

In response to recent congressional
06:35:33 mandates and presidential directives, generally referred to as the "Grow the Army initiative," the Army has increased the number of soldiers assigned to Fort Bliss. We must train these soldiers to exacting standards to increase survivability in warfare. To do this, troops
06:35:47 must take advantage of all types of terrain that are available for training. With the varied terrain at Fort Bliss, it is an important resource for our Army.

For this reason, the Army has chosen to station troops at Fort Bliss and has generated this
06:36:04 environmental impact statement to assess the impacts of

doing so. This EIS is linked to a programatic EIS, called the "Grow the Army," or GTA PEIS, which was completed for the Army in 2007. Your input is an important part of this overall EIS process.

06:36:25 This draft EIS was evaluated -- well, it evaluated a range of reasonable alternatives supporting new training and infrastructure which will support Army growth beyond the requirements known during the BRAC for Fort Bliss in the previous NEPA documents.

06:36:44 Next slide.

The final EIS will follow the draft EIS within which the Army will choose from preferred alternatives. The purpose of this meeting is to give you, the public, an opportunity to provide comments on 06:37:00 this draft EIS to help us choose the best alternatives. Army decision-makers will use the findings of the final EIS to decide how we will support training and infrastructure needs for the new troops assigned to train at Fort Bliss. The draft EIS explains the 06:37:19 environmental consequences of these forthcoming Army decisions, and your input will ensure that we have documented these consequences accurately and to the greatest extent possible.

Next slide.

06:37:32 I have brought with me tonight additional

members of the Garrison staff and the project team. They will present to you information about the framework within which this process operates, followed by a description of the mission alternatives and key 06:37:48 findings. Following this presentation, there will be a poster session, during which you can review the information from the EIS and ask our subject matter experts questions.

We are asking tonight that you, members of 06:38:03 the community in which we live and work, provide us with your formal comments on the proposed alternatives included in the draft EIS.

Next slide.

The Army is in a period of transition. 06:38:16 Civilian leadership has mandated the Army increase in size. Also, Army leadership has begun the process of transforming away from a cold war focus to meet new, unconditional threats to national security. Transformation efforts continue by fielding a force best 06:38:35 configured to meet the evolving national security and defense requirements of the 21st century.

To further Army growth and transformation, meet the increased national security and defense requirements of the 21st century, maintain training and 06:38:50 operational readiness levels, and preserve a high

quality of life for U.S. Army soldiers and families, the Army will increase its overall size, while continuing to restructure its forces in accordance with modular transformation decisions.

06:39:06 The Army has taken action to realign existing forces and increase its strength to a size and configuration that is capable of meeting national security and defense objectives, sustains unit equipment and training readiness, and eases the burden on its

06:39:22 soldiers and families.

The growth of the Army allows for the adjustment of the composition of its forces to continue to accommodate transformation objectives and create additional unit capabilities in high-demand areas where

06:39:37 mission requirements exceed current manning authorizations. The implementation of Army growth will allow the Army to field a sustainable force matching mission requirements of the current security environment.

06:39:52 Next slide.

The Army's proposed action includes Fort Bliss support for the growth of the Army and allows for future stationing actions, taking advantage of the training opportunities at this installation. The draft

06:40:05 EIS has evaluated a range of reasonable alternatives

supporting the record of decision for the 2007 Grow the Army programatic EIS.

That 2007 record decision directed the stationing and training of up to two infantry brigade

06:40:25 combat teams at Fort Bliss, also known as infantry BCTs. The two infantry BCTs, along with combat teams, also known as heavy BCTs, stationed at Fort Bliss per the BRAC resulted in a total of up to six BCTs scheduled for stationing and training at Fort Bliss. The Army has

06:40:48 further directed Stryker brigades augment or replace one or more of the heavy BCTs scheduled for stationing at Fort Bliss. This draft EIS addresses the impacts of these initiatives.

I will now introduce Mr. Brian Maillet, who

06:41:05 will give an overview of this EIS process and specifics of the draft EIS. Thank you.

MR. MAILLET: Thank you, Colonel Wells.

My name is Brian Maillet, and I am the EIS project manager for ARCADIS. This evening, I will

06:41:31 summarize the NEPA process, the EIS alternatives, and consequences.

NEPA is a federal law and the legal framework within which this planning effort is operating. NEPA requires a comprehensive analysis of

06:41:50 potential direct, indirect, and cumulative effects of

each alternative proposed to support the training of troops in Fort Bliss.

NEPA also requires public and multi-agency participation in the review process. Fort Bliss is collecting comments from the Bureau of Land Management and other federal, state, and local agencies and the public, using this public meeting forum, comment cards, and the availability of the draft EIS document to interested parties. Here's a draft EIS document. We also have electronic deliverables that you're free to take with you.

The NEPA process can be broken down into four general phases: public scoping meetings, publication of a draft EIS, publication of a final EIS, and publication of a record of decision. We are currently in the draft EIS phase.

In October 2008, Fort Bliss conducted public scoping meetings to provide information on the proposed action and invited public comment on key issues. The public scoping meetings were conducted in the same areas as the current public meetings: Alamogordo, Las Cruces -- which occurred last night -- Chaparral, and El Paso.

During the October 2008 public scoping meetings, Fort Bliss received comments from various

agencies, organizations, and the public on the proposed action. Following a review of the comments, Fort Bliss identified the following key issues that were of primary concern during scoping and were, therefore, addressed during studies conducted for the final EIS -- the draft EIS.

They were the potential closing of Highway 506 due to military training activities, potential impacts to grasslands and threatened and endangered species, potential increase in wildfires in the northeast McGregor Range north of Highway 506, potential archaeological impacts associated with increase in number of controlled FTX sites and ranges, and potential impacts associated with aircraft, airspace, and noise.

These key issues are addressed in this draft EIS and will be discussed later in this presentation. If you have any specific questions about these issues, please participate in the poster session following this presentation.

The Army has analyzed three categories of alternatives: stationing and training, land-use changes, and training infrastructure improvements. Each category contains a no-action alternative and several action alternatives. The no-action alternative is

alternative 4 in the 2007 BRAC-related supplemental EIS that is currently being implemented at Fort Bliss. From each of these three categories, one individual alternative will -- would be selected. This so-called 06:45:25 cafeteria approach, you may think of it is as choosing three different kinds of food from a menu that, when combined, will make up a complete meal.

Category 1: Stationing and training, is comprised of four alternatives. The first of these is 06:45:46 the no-action alternative. Under this option, no additional units would be stationed or trained at Fort Bliss, current deployment of at least one heavy BCT within a three-year period would continue, and one visiting or temporary-duty heavy BCT would complete 06:46:08 training at Fort Bliss.

Alternative 2 is the no-deployment alternative. Under this alternative, no additional units would be stationed at Fort Bliss. However, cessation -- cessation of heavy BCT deployment would 06:46:26 occur. The temporary-duty training of one heavy BCT would continue. This results in an increase of one heavy BCT training on the Fort Bliss training complex.

Under alternative 3, no deployment and the temporary-duty training of heavy BCTs would continue. 06:46:50 In addition, one Stryker BCT would be stationed and

train at Fort Bliss. This results in a net increase of two BCTs training on the Fort Bliss training complex.

The fourth alternative in this category adds reasonably foreseeable future stationing actions 06:47:12 that may affect Fort Bliss. These stationing actions are assumed, for the sake of this analysis, to include two Stryker BCTs with various support units. In addition, this alternative further assumes an additional heavy BCT that would travel to Fort Bliss for training.

06:47:30 While Fort Bliss has not received any indication these actions would take place, in the face of increasing maneuver and training requirements, we feel it appropriate to plan for the future. This alternative would result in the highest number of BCTs 06:47:46 at Fort Bliss, with eight units stationed and ten units training.

This table summarizes the number of military personnel, as well as associated family members and civilian support personnel. The total number of 06:48:04 soldiers may be as high as 51,800.

The second category of alternatives covers land-use changes proposed at Fort Bliss. Again, the first of these is the no-action alternative. Under this alternative, no land-use changes would occur in the 06:48:28 Fort Bliss training complex.

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The second alternative in this category would allow four square kilometers of defined bivouac and logistical support sites, known as controlled FTX sites, in the southeast McGregor Range. It would also
06:48:48 allow the establishment of controlled FTX sites in the Sacramento Mountains in the northeast McGregor Range north of Highway 506. The controlled FTX sites -- "FTX," field training exercise -- would place concentrations of vehicles and personnel in discrete
06:49:09 areas to support training activities in the surrounding areas.

The third alternative allows controlled FTX, mission support, and live fire for the entire northeast McGregor Range north of Highway 506. It also
06:49:29 adds five controlled FTX sites in this area; specifically, in the foothills south of the Sacramento Mountains -- in here -- and establishes a controlled FTX zone in the Sacramento Mountains in the northeast McGregor Range north of Highway 506. It also adds
06:49:51 five square kilometers of controlled sites in this area. This alternative would support dismounted infantry training. The broken terrain in the northeast McGregor Range north of Highway 506 is valuable to support realistic infantry training; whereas, the more open
06:50:13 terrain of the Tularosa Basin is preferred for the heavy

BCTs.

The fourth alternative allows light-wheeled, off-road vehicle maneuver to limited areas in the northeast McGregor Range north of
06:50:30 Highway 506. More specifically, a HMMWV would be permitted to off-road within 500 meters of an existing road on slopes of less than 30 percent. This would only affect 27 percent of the northeast McGregor Range north of Highway 506. This specifically does not allow
06:50:48 tracked vehicles to off-road in the northeast McGregor Range north of Highway 506.

Land use alternative 5 adds three square kilometers of controlled FTX sites in the Otero Mesa south of Highway 506. These sites concentrate vehicles
06:51:09 and personnel in discrete areas, so as to minimize the potential damage from such concentrations in sensitive natural communities. These sites would supplement similar existing sites in this area and would be located to support dismount infantry training.

06:51:28 The third category of alternatives focuses on training infrastructure improvements in the Fort Bliss training complex. As with previous altern- -- categories, the first alternative is no action, in which only improvements approved by the BRAC
06:51:47 SEIS would be made to the training infrastructure at

Fort Bliss.

The second alternative in this category analyzes range construction to support scheduled units' training to standard at Fort Bliss.

06:52:00 The third alternative in this category adds expansion of range camps and development of contingency operating locations, known as COLs. COLs are encampments with defensive berms that more closely simulate conditions found in current military operations

06:52:23 in Afghanistan and Iraq.

The fourth alternative in this category adds construction of a rail line connecting the Fort Bliss cantonment to the Fort Bliss training complex. A rail line would provide a more efficient and

06:52:40 greener method for units to reach the training ranges.

The resources analyzed under all alternatives were land use, earth resources, natural resources, cultural resources, air quality, water resources, facilities, airspace, energy demand, solid

06:53:06 and hazardous waste, noise, and socioeconomics. The results of detailed studies of each of these resources indicate that a majority of the impacts to certain resource areas would be mitigated to what is considered less than significant under the current Fort Bliss

06:53:27 land-use management and planning documents. There would

be some unavoidable impacts, which are further explained on the next slides.

Under all alternatives, including the no-action alternatives, the impacts associated with

06:53:45 airspace and noise will continue. These impacts will continue to be monitored and mitigated through ongoing coordination with local airports and use of the noise complaint hotline.

Under stationing and training alternative

06:54:03 4, increased training on the Fort Bliss training complex would require continued coordination with Native Americans to ensure access to sacred sites.

It is important to note that analyses of increased military activities in the northeast McGregor

06:54:23 Range north of Highway 506 indicate that no significant impacts would occur beyond current levels.

Under stationing and training alternatives 3 and 4, training infrastructure improvements alternative 1 would not be viable, because it's not

06:54:43 sufficient to accommodate scheduled incoming units of soldiers. Alternative 2, at the minimum, would have to be implemented, which results in additional ranges on the Fort Bliss training complex.

As previously stated, the results of this

06:55:02 analysis indicate that a majority of the significant

impacts to certain resource areas can be mitigated to less than significant under the current Fort Bliss land-use management and planning protocols and through ongoing communication and coordination between the
06:55:22 installation and units training at the ranges.

I'd like to now introduce Mr. Steven Perry, who will now take over as the meeting facilitator and present the EIS schedule and also facilitate the public comments. Thank you.

06:55:50 MR. PERRY: Thank you, Brian.

My name is Steven Perry, and as Brian said, I am the meeting facilitator from this point forward. But, first, I'm going to summarize the EIS schedule and then coordinate the public comment session after our
06:56:15 break.

The notice of availability of the draft EIS was published in the Federal Register on October 30th of this year. This started the review period for the draft EIS, which, in this case, would be 60 days. This public
06:56:37 meeting is occurring within that 60-day review period, which ends on December 29th, 2009. The deadline for public comments on the draft EIS document is also December 29th of this year.

The next step in the process is publication
06:56:56 of a preliminary final EIS, which will reflect the

careful consideration of comments made by you and others during the public comment period. The preliminary final EIS will be reviewed by all cooperating agencies, resulting in the publication of a final EIS.

06:57:18 The notice of availability for the final EIS is currently scheduled for March of 2010. The final EIS will document the Army's preferred alternatives within the three categories of actions that Brian reviewed. Following a 30-day public review period of
06:57:37 the final EIS, a record of decision on the alternatives chosen for implementation will be published in the Federal Register.

We will now take a 30-minute break, during which you can review the posters behind you, in the back
06:57:55 room here, and ask questions of the EIS project team, including several subject matter experts that we have on hand tonight.

Your comments on the draft EIS document can be submitted in a number of ways, including writing on
06:58:11 the comment forms available out at the front table, or when we reconvene in 30 minutes, I'll facilitate verbal comments that will be entered into the record by the court reporter. All verbal comments provided to the court recorder will be included in the public record,
06:58:32 just like written comments.

If you plan to provide oral comments after the break, please sign up. And I believe we've got two or three folks that are here tonight, and you can fill out the cards so you can speak later. That will allow us to maintain an orderly process and make sure everyone is heard and recorded. If there are any public officials in the room, we'll take comments from them first and then others.

06:58:49

If you do not wish to speak or provide a written comment tonight, you're welcome to take a comment form with you, return that by regular mail or send an e-mail to the address listed on that form. Also, if you're feeling a little shy this evening and would not like to make a public comment in the group setting, during the break, we can arrange to have you speak directly to the court recorder.

06:59:03

06:59:19

Please remember that the public comment period will close on December 29th. Please provide your comments by that deadline, so they can be considered during the preparation of the final EIS document. That document is scheduled to be available for your review in the spring of next near.

06:59:35

So thank you for joining us this evening. We'll take a break, and I encourage you to ask questions of the subject matter experts in the back with the

06:59:53

posters. Thank you very much.

(Break taken from 7:00 p.m. to 7:29 p.m.)

MR. PERRY: If I can have your attention, we'll reconvene and now begin the -- here we go. We'll reconvene and now begin the oral comment portion of this meeting. Again, my name is Steven Perry, and I will facilitate the remainder of this evening. We have two speakers. I ask that you provide your comments within about five minutes. There's only two of us, so you really can speak as much as you'd like, but we'll shoot for about five minutes.

07:29:12

07:29:34

So, Charles? Charles Gonnell, would you like to start?

MR. GONNELL: Yes.

07:29:46

MR. PERRY: You can come up here, if you're comfortable, or whatever you'd like.

MR. GONNELL: Thanks. It's just that I've already talked to some of your folks in the back --

MR. KNOPP: The recorder needs to hear you.

07:29:56

MR. GONNELL: Okay. I'm saying this for the benefit of the record.

I have three concerns that I have gone over with with the gentlemen in the back. The biggest concern is about the use of depleted uranium in the ammunition. Okay. The use of depleted uranium in the

07:30:15

ammunition, the so-called penetrators that the Bradleys, the Strykers, the heavy Abrams tanks, a lot of the armor uses, it -- these shells are for the large part -- part of the wars with Iraq and in Serbia, they were used in those -- in that case there. They use heavy uranium to disable and destroy other tanks.

07:30:50

See Response 2.1

But my concern was that other -- aside from the shell itself being radioactive, I wanted to make sure that the armor that we'll be using here in this project will not be using the depleted uranium that's also used in other ammunitions, 25-millimeter, 30-millimeter. The Bradleys used it. The Strykers use it. It's not only used for ammunition. It's used as a armor -- actual part of the armor on the Abrams, the heavy-duty Abrams tanks, and some of the other vehicles. And so my concern is that this depleted uranium does not get into our water supply through the Tularosa Water Basin, into the Hueco Water Basin, and into the Chaparral area, our water supply.

07:31:18

07:31:45

I understand that the depleted uranium ammunition will not be used here, but that the armor, if it's going to be used here, that it will be removed prior to any activation here in this area. And I want to find out from the military how they're going to monitor this situation, because depleted uranium not

07:32:12

07:32:34

Response 2.1 As discussed in Section 3.21.2.1.7 of the GFS Draft EIS, current Army policy prohibits the use of DU ammunition for training worldwide (AR 385-63). The Army thoroughly cleans its vehicles and equipment prior to shipment from one location to another as part of the extensive list of procedures required to deploy military equipment. In addition, vehicles undergo a rigorous inspection process prior to their return from overseas deployments. Armored vehicles determined to have damaged armor are sent to an Army Depot for repair. Armored vehicles at Fort Bliss that require more than routine mechanical repair are also evacuated to an Army Depot. Fort Bliss is not an Army equipment repair depot and is not expected to be designated as such in the foreseeable future. These actions ensure vehicles are not returned to United States with DU materials or residues. Since there are no DU materials present at Fort Bliss there are no potential environmental impacts from DU materials at Fort Bliss.

See Response 2.1

only has poisonous radioactively, but it's a toxic poison, perhaps even more poisonous than radioactive. That's the first concern that I have. And, also, that armor of the depleted uranium is used in helicopters and, like I said, other ammunitions. That's the first thing.

See Response 2.2

The second thing is that the -- I'd like to find out what kind of impact the deployment of this many troops and military families is going to have on our schools here in Chaparral. We've got five schools here. They're all loaded to capacity. The school district here doesn't address problems until they become a problem, and I'd like to know if the Department of Defense can, in some way, assist to either expand our schools or build more, or whatever needs to be done, so that we won't -- we'll have the sufficient schools for them, for the kids that are coming with the military families.

And then the last thing is the schools that I just mentioned. Three of the schools are on one street, Lisa, and Lisa is a street between 213 and -- now, it's being extended all the way out to 54 through a little bit of a maze, but, eventually, I imagine it's going to go all the way.

And my question is, would it be possible

Response 2.2 As discussed in Section 3.26 of the GFS Draft EIS, the increase in student population associated with the Proposed Action would be mitigated by an increase in military impact aid and taxes, and an increase tax-funded costs. As discussed in Section 3.25 of the GFS Draft EIS, approximately 70 percent of the students from Fort Bliss would attend El Paso ISD public schools. The Chaparral schools are part of the Gadsden Independent School District (ISD). A representative from the Gadsden ISD indicated that the Chaparral area schools have room to accommodate additional children resulting from the Proposed Action. According to the representative, the Gadsden ISD 5-Year Plan also includes building a new school in the Chaparral area. Army funding for a road near this school is not part of the current military budget or this EIS.

See Response 2.2

for the military to, perhaps, alleviate some of this traffic by building a road behind, north of all of the schools, so that bus traffic and kids going to and from school could use, and their parents would use this road, which is -- it's north of Lisa, north of the schools, and it runs parallel to Lisa.

07:34:46

So those are my concerns, and I want -- I want to close by saying I appreciate you-all coming down here very, very much. The effort of the military here, I feel, is extraordinary. I -- I want to encourage the military to come into our community, and I hope that they do. And in no way are we trying to -- am I trying to hinder the military.

07:35:06

I want to thank you-all for coming tonight and good luck.

07:35:28

MR. PERRY: Thank you for your comments. And for the record, that was Charles Gonnell, G-O-N-N-E-L-L, from here in Chaparral.

Next, Lisa Walker, also from here in Chaparral.

07:35:56

MS. WALKER: Yes. The only comment I have is that through my job and the time I've lived in Chaparral and El Paso, I've dealt with the military hundreds of times. They've always been polite, respectful, good neighbors. When a crisis arises with

07:36:09

them, they are -- although they are a bureaucracy, they're quick to respond.

The noise level -- I live close to the Dona Ana Range Camp, so the noise level is probably bigger for me than anybody else in this room, and it doesn't -- it's not a big deal. Yes, they rattle my windows occasionally, but the entertainment value of them is much greater than the actually nuisance of the troops out here. They -- and I hope that our community can embrace and welcome all the -- any of the troops that want to move here. The schools will make the sacrifices they have to make to make it capable for the -- to handle the kids.

07:36:28

07:36:47

The roads, the military is going to take care of what they have to do to get their equipment. Whether it be a railroad spur or a bypass road, they're going to take care of that. That's not going to be an issue. So I'm welcoming the rail- -- the military to expand in this area, and I hope that some of these issues can be addressed before this all happens.

07:37:02

07:37:23

Thank you.

MR. PERRY: Thank you. Is there anyone else that would like to speak this evening?

Well, thank you for your comments. I appreciate everyone coming out this evening. We'll now

07:37:41

conclude this portion of the meeting. The EIS staff will stay around a few more minutes, in the back, if you have more questions. And I just want to remind you that you're welcome to submit additional written comments between now and December 29th. If you'd like to submit the written comments today, there are the comment forms, and also attached to that, the address and other means of submitting comments before December 29th. Comments postmarked by December 29th will be addressed in the final EIS.

07:37:58

07:38:27

Thanks again everyone for being here, and have a safe drive home.

(Public Meeting concluded at 7:38 p.m.)

REPORTER'S CERTIFICATION

State of Texas)
)
County of El Paso)

I, Ginger G. Zachary, Registered Professional Reporter, Certified Realtime Reporter, and Certified Shorthand Reporter in and for the State of Texas, do hereby certify that this transcript is a true record of the above-entitled Public Meeting, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on December 12, 2009.

_____
Ginger G. Zachary, RPR, CRR, CSR Texas #5710
Expiration Date: 12/31/09
Firm Registration #384
300 E. Main, Suite 1024
El Paso, Texas 79901
(915) 533-1199

PUBLIC MEETING

FOR COMMENTS ON DRAFT SEIS

HELD ON

NOVEMBER 19, 2009

AT

CHAPIN HIGH SCHOOL

7000 DYER STREET

EL PASO, TEXAS

MR. BARRERA: Welcome to this public meeting for the draft environmental impact statement, or EIS, for the Army growth and force structure realignment at Fort Bliss. Thank you for attending our meeting, and
06:33:34 we appreciate your assistance. I am John Barrera, project manager for the EIS, and I will be introducing the participants of this meeting.

Tonight, you will learn about actions proposed at Fort Bliss that have the potential to impact
06:33:51 natural and human environment in and around Fort Bliss. These actions include the additions of military units, new facility construction, and different military uses of the Fort Bliss training complex.

We begin the evening with a welcome and a
06:34:11 brief overview of the purpose and need for the action by the Fort Bliss Garrison Commander, Colonel Manning, and an explanation of the NEPA requirements and results of the EIS by Mr. Maillet, and then the EIS process and schedule by the meeting facilitator, Mr. Steve Perry.

06:34:33 After the presentation, you are invited to visit the poster stations at the back of the room. If you have questions, please hold them for after the presentation, and staff from the installation and project team will be on hand to help you during the
06:34:53 poster-viewing portion of this meeting. After the

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break, Mr. Perry will facilitate the public comment portion of the meeting.

Thank you for your cooperation.

It is now my pleasure to introduce Colonel 06:35:09 Edward Manning, Garrison Commander, Fort Bliss.

COLONEL MANNING: Okay. We're all up front that needs to hear. I think that's most of my staff in the back. Can you hear me okay? Tell me to speak up if you -- and we'll get a microphone.

06:35:37 Good evening, folks, ladies and gentlemen. I'm Colonel Ed Manning, Garrison Commander of Fort Bliss. And on behalf of the United States Army and Major General Bromberg, our Major General at Fort Bliss, I thank you for being here tonight and participating in 06:35:50 this important National Environmental Policy Act, or NEPA process.

And before I go on, the rest of you appearing tonight, again, like I said in other audiences, thank you for being here and thank you for 06:36:04 the support that you and the rest of the El Paso community show for the soldiers and families of Fort Bliss, and this is an important part of this, so thanks.

Now, in response to recent congressional 06:36:15 mandates and presidential directives, generally referred

to as "Grow the Army initiatives," the Army has increased the number of troops assigned to Fort Bliss. We must train these troops to exacting standards to increase survivorship in warfare. To do this, troops 06:36:29 must take advantage of all terrain types available as part of that training. With the varied terrain available, Fort Bliss is an important resource for the Army.

For this reason, the Army has chosen to 06:36:41 station troops at Fort Bliss and is generating this environmental impact statement to assess the impacts of doing so. This EIS before you now is tied to or connected to a programatic EIS called the "Grow the Army," or GTA PEIS, completed by the Army in 2007. Your 06:37:02 input is an important part of this overall EIS process.

This draft EIS has evaluated a range of reasonable alternatives supporting new training and infrastructure which will support Army growth beyond the requirements known when we evaluated changes brought 06:37:17 about by the base reassignment and closure decisions, or BRAC, for Fort Bliss in previous NEMA documents.

Final EIS -- sorry. The final EIS will follow the draft EIS within which the Army will choose preferred alternatives. The purpose of this meeting is 06:37:36 to give you, the public, an opportunity to provide

comments on this draft EIS to help us choose the best alternatives. The Army decision -- Army decision-makers will use the findings of the final EIS to decide how we will support training and infrastructure needs -- how we
06:37:54 will support training and infrastructure needs for new troops assigned to train at Fort Bliss. The draft EIS explains the environmental consequences of these forthcoming Army decisions, and your input will assure us we have documented these consequences accurately, to
06:38:09 the greatest extent possible.

I brought with me tonight additional members of my staff and the project team. They'll present to you information about the framework within which this process operates, followed by a description
06:38:24 of the specific mission alternatives and key findings. Following this presentation, there will be a poster session, during which you can review information from the EIS and ask our subject matter experts questions.

We're asking tonight that you, members of
06:38:40 the community in which we live and work, provide us with your formal comments on the proposal turnovers included in the draft EIS.

The Army is in a period of critical transition. Civilian leadership has mandated the Army
06:38:57 increase or grow in size. Also, Army leadership has

begun the 30-year process of transforming away from a cold war focus to meet new, unconventional threats to national security. Transformation efforts continue by fielding a force best configured to meet the evolving
06:39:15 national security and defense requirements of the 21st century.

To further Army growth and transformation, meet the increased national security and defense requirements of the 21st century, maintain training and
06:39:27 operational readiness -- maintain training and operation -- operational readiness levels, and preserve a high quality of life for U.S. Army soldiers and their families, the Army will increase its overall size, while continuing to restructure its forces in accordance with
06:39:42 modular transformation decisions.

The Army has taken action -- the Army has taken action to realign existing forces and increase its strength to a size and configuration capable of meeting national security and defense objectives, sustains unit
06:39:59 equipment and training readiness, and eases the deployment burden on its soldiers and families.

The growth of the Army allows for the adjustment of the composition of its forces to continue to accommodate transformation objectives and create
06:40:13 additional unit capabilities in high-demand areas where

mission requirements exceed current manning authorizations. The implementation of Army growth will allow the Army to field a sustainable force, matching mission requirements of the current security
06:40:28 environment.

The Army's proposed action includes Fort Bliss support for the growth of the Army and allows for reasonably foreseeable future stationing actions, taking advantage of the training opportunities at this
06:40:42 installation. This draft EIS has evaluated a range of reasonable alternatives supporting the record of decision for the 2007 Grow the Army programatic EIS.

That 2007 record of decision directed the stationing and training of two infantry brigade combat
06:41:02 teams at Fort Bliss, also known as infantry I -- sorry -- also known as infantry BCTs, or IBCTs. The two infantry IBCTs, along with the four heavy brigade combat teams, also known as heavy, or HBCTs, stationed at Fort Bliss per the basic realignment closure document,
06:41:25 resulted in a total of six BCTs scheduled for stationing and training at Fort Bliss. The Army has further directed Stryker brigades augment or replace one or more of the heavy BCTs scheduled for stationing at Fort Bliss. This draft EIS before you now addresses the
06:41:40 impact of these initiatives.

I'd like to now introduce Mr. Brian Maillet, who will give you an overview of this EIS process and specifics of the draft EIS. Thanks.

MR. MAILLET: Thank you, Colonel Manning.

06:42:06 My name is Brian Maillet, and I am the EIS project manager from ARCADIS. This evening, I will summarize the NEPA process, EIS alternatives, and consequences.

NEPA is a federal law and is the legal
06:42:22 framework within which this planning effort is operating. NEPA requires a comprehensive analysis of potential direct, indirect, and cumulative effects of each alternative proposed to support the training of troops at Fort Bliss.

06:42:40 NEPA also requires public and multi-agency participation in the review process. Fort Bliss is collecting comments from the Bureau of Land Management and other federal, state, and local agencies and the public, using this public meeting forum, comment cards,
06:42:58 the availability of the draft EIS document to interested parties. This report here, and it's also available on a CD deliverable.

The EIS process can be broken down into four general phases: public scoping meetings,
06:43:18 publication of a draft EIS, publication of a final EIS,

and publication of a record of decision. We are currently in the draft EIS phase.

In October 2008, Fort Bliss conducted public scoping meetings to provide information on the 06:43:37 proposed action and invited public comment on key issues. The public scoping meetings were conducted in the same areas as the current public meetings: Alamogordo, Las Cruces, Chaparral, and El Paso, which is the last public meeting location.

06:43:53 During the October 2008 public scoping meeting, Fort Bliss received comments from various agencies, organizations, and the public on the proposed action. Following a review of the comments, Fort Bliss identified the following key issues that were of primary 06:44:11 concern during scoping and were, therefore, addressed during studies conducted for the draft EIS.

They were the potential closing of Highway 506 due to military training activities, potential impacts to grasslands and threatened and 06:44:29 endangered species, potential impacts to Otero Mesa, additional increase in wildfires in the northeast McGregor Range north of Highway 506, potential archaeological impacts associated with increase in number of controlled FTX sites and ranges, and potential 06:44:48 impacts associated with aircraft, airspace, and noise.

These key issues were addressed in this draft EIS and will be discussed later in this presentation. If you have specific questions about these issues, please participate in the public poster 06:45:08 session following this presentation.

The Army has analyzed three categories of alternatives: stationing and training, land-use changes, and training infrastructure improvements. Each category contains a no-action alternative and several 06:45:29 action alternatives. The no-action alternative is alternative number 4 in the 2007 BRAC-related supplemental EIS, and it is currently being implemented at Fort Bliss. From each of these three categories, one individual alternative will be selected. This so-called 06:45:51 cafeteria approach, you may think of it as choosing three different kinds of food from a menu, when combined, make up a complete meal.

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Alternative 2 is the no-deployment alternative. Under this alternative, no additional units would be stationed at Fort Bliss. However, cessation of heavy BCT deployment would occur. The 06:46:52 temporary duty of -- training of one heavy BCT would continue. This results in an increase of one heavy BCT training on the Fort Bliss training complex.

Under alternative 3, no deployment and the temporary-duty training of heavy BCTs would continue. 06:47:13 In addition, one Stryker BCT unit would be stationed and train at Fort Bliss. This results in a net increase of two BCTs training on the Fort Bliss training complex.

The fourth alternative in this category adds reasonably foreseeable future stationing actions 06:47:33 that may affect Fort Bliss. These stationing actions are assumed, for the sake of analysis, to include two Stryker BCTs with various support units. In addition, this alternative further assumes an additional heavy BCT would travel to Fort Bliss for temporary-duty training.

06:47:55 While Fort Bliss has not received any indication these actions would take place, in the face of increasing maneuver and training requirements, we feel it appropriate to plan for the future. This alternative would result in the highest number of BCTs 06:48:11 at Fort Bliss, with eight units stationed and ten units

training.

This table summarizes the number of military personnel, as well as associated family members and civilian support personnel. Note that the total 06:48:30 number of soldiers may be as high as 51,800.

The second category of alternatives covers land-use changes proposed at Fort Bliss. Again, the first of these is a no-action alternative. Under this alternative, no land-use changes would occur in the 06:48:52 Fort Bliss training complex.

The second alternative in this category would allow four square kilometers of defined bivouac and logistical support sites, known as controlled FTX sites. "FTX" is a field training exercise site. The 06:49:12 four square kilometers would be in the southeast McGregor Range and would also allow the establishment -- this alternative would also allow the establishment of controlled FTX sites in the Sacramento Mountains and the northeast McGregor Range north of Highway 506. The 06:49:28 controlled FTX sites would place concentrations of vehicles and personnel in discrete areas to support training activities in the surrounding areas.

The third land-use alternative allows controlled FTX, mission support, and live fire for the 06:49:48 entire northeast McGregor Range north of Highway 506.

RASBERRY & ASSOCIATES CERTIFIED COURT REPORTERS
300 E. MAIN, SUITE 1024, EL PASO TX 79901 (915) 533-1199

It also adds five controlled FTX sites in this area, specifically in the foothills south of the Sacramento Mountains, and establishes a controlled FTX zone in the Sacramento Mountains in the northeast McGregor Range north of Highway 506.

Land-use alternative 3 supports dismounted infantry training in the broken terrain in the northeast McGregor Range north of Highway 506. It is valuable to support realistic infantry training; whereas, the more open terrain of the Tularosa Basin is preferred for the heavy BCTs.

The fourth alternative allows light-wheeled, off-road vehicle maneuver to limited areas in the northeast McGregor Range north of Highway 506. More specifically, a HMMWV would be permitted to off-road within 500 meters of an existing road on slopes of less than 30 percent. This would only affect 27 percent of the northeast McGregor Range north of Highway 506. This specifically does not allow tracked vehicles to off-road in the northeast McGregor Range north of Highway 506.

Land-use alternative 5 adds three square kilometers of controlled FTX sites in the Otero Mesa south of Highway 506. These sites concentrate vehicles and personnel in discrete areas, so as to minimize the

potential damage from such concentrations in sensitive natural communities. These sites would supplement similar existing sites in this area and would be located to support dismount infantry training.

The third category of alternatives focuses on training infrastructure improvements in the Fort Bliss training complex. As with previous categories, the first alternative is no action, in which only improvements approved by the BRAC EI- -- BRAC SEIS would be made to the training infrastructure at Fort Bliss.

The second alternative in this category analyzes range construction to support scheduled units' training to standard at Fort Bliss.

The third alternative in this category adds expansion of range camps and development of contingency operating locations, known as COLs. COLs are encampments with defense berms that more closely simulate conditions found in current military operations in Afghanistan and Iraq.

The fourth alternative in this category adds construction of a rail line connecting Fort Bliss cantonment to the Fort Bliss training complex. A rail line would provide a more efficient and greener method for units to reach training ranges.

The resources analyzed under all alternatives were land use, earth resources, natural resources, cultural resources, air quality, water resources, facilities, airspace, energy demand, solid and hazardous waste, noise, and socioeconomics. The results of detailed studies of each of these resources indicate that a majority of the impacts to certain resource areas would be monitored and mitigated under the current Fort Bliss land-use management and planning documents. There would be some unavoidable impacts which are further explained on the next slides.

Under all alternatives, including the no-action alternatives, the impacts associated with airspace and noise will continue. These impacts will continue to be monitored and mitigated through ongoing coordination with local airports and use of the noise complaint hotline.

Under stationing and training alternative 4, increased training on the Fort Bliss training complex would require continued coordination with Native Americans to ensure access.

Increased military activities in the northeast McGregor Range north of Highway 506 will reduce public access to the northeast McGregor Range. Military impacts to wildlife habitat and stocking rates

appear to be low and recoverable through natural succession.

Under stationing and training alternative 3 and 4, training infrastructure improvements alternative 1 would not be viable because it is not sufficient to accommodate scheduled incoming units of soldiers. Alternative 2, at a minimum, would have to be implemented, which results in additional ranges on the Fort Bliss training complex.

As previously stated, the results of this analysis indicate that a majority of the impacts would be mitigated and monitored through Fort Bliss land management and planning protocols and through ongoing communication and coordination between the installation and units training at the ranges.

I will now turn the remainder of the meeting over to Mr. Steven Perry. Thank you very much.

MR. PERRY: Thank you, Brian.

My name is Steven Perry, the meeting facilitator for the rest of this evening, and I welcome you-all here. I will first summarize the EIS schedule, and then coordinate the public comment session, after we take a short break for reviewing the posters out in the lobby, okay?

The notice availability of the draft EIS

was published in the Federal Register on October 30th, 2009. This started the review period for the draft EIS, which, in this case, will be 60 days. This public meeting is occurring within that 60-day review period, which ends December 29th, 2009. The deadline for public comments on this draft EIS document is also December 29th.

06:56:57

The next step in the process is a publication of a preliminary final EIS, which will reflect the careful consideration of comments made by you and others during the public comment period. That preliminary final EIS will be reviewed by all cooperating agencies and result in the publication of a final EIS document.

06:57:15

The notice of availability for the final EIS is currently scheduled for March next year, 2010. The final EIS will document the Army's preferred alternatives within the three categories of actions that Brian summarized for you. Following the 30-day public review period of that final EIS, the record of decision on the alternatives chosen for implementation will be posted in the Federal Register.

06:57:32

06:57:51

We'll now take a 30-minute break, during which you can go to the lobby and review the posters we have set up there. We have several subject matter

06:58:11

experts available from the installation and the project team available to answer your questions.

Your comments on the draft EIS can be submitted in writing on the comment forms available, or when we reconvene in 30 minutes, you can provide verbal comments that will be entered into the record by the court recorder. All verbal comments provided to the court recorder will be included in the public record, just like written comments.

06:58:37

06:58:51

If you plan to provide verbal comments after the break, make sure you've signed up on one of the comment cards that we had out in the lobby, and that way, we can maintain an orderly process and make sure that everyone is heard. If there are any public officials in the room, we ask them to comment first, and then any others are welcome to join us.

06:59:10

If you are -- if you do not wish to speak or provide a written comment tonight, you're welcome to take a comment form with you, and you can return that by regular mail. You can also send an e-mail to the address listed on that form. If you are uncomfortable, also, in making a verbal comment in this public setting, with all these people watching, during the break, you're welcome to give your comment directly to the court reporter, if that would make you feel more comfortable.

06:59:27

06:59:47

And please remember that the public comment period will close on December 29th, so please provide your comments by that deadline, so they can be considered during preparation of the final EIS. And
07:00:03 that final EIS, again, is scheduled to be available for review in the spring of next year.

So thank you very much for joining us this evening. I welcome you to come out to the hallway, if you have any further questions. We'll reconvene in
07:00:18 about 30 minutes for verbal comments. Thank you very much.

(Break taken from 7:00 p.m. to 7:32 p.m.)

MR. PERRY: All right. If I could have your attention again, please, we'll reconvene. I hope
07:32:41 you had a chance to get your questions answered. There was a very vigorous debate in the hallway.

We'll now begin the oral comment portion of this meeting. Again, my name is Steven Perry. And we'll start with -- well, we have two speakers who have
07:32:59 indicated an interest in making a verbal comment. The court reporter, here, will record that information. And we ask that you keep your comments to approximately five minutes, but there's only two of you speaking, so, essentially, speak your mind.

07:33:19 MR. PINON: Excuse me. On my card, I put

"maybe," but I would like to make a statement.

MR. PERRY: I was going to ask you whether you wanted to, okay? Very good. We've got time to do that.

07:33:28 Okay. If there's no questions, we'll start with Mr. Taylor Moore.

Taylor?

MR. MOORE: My name is Taylor Moore. I'm with the Sunland Park Grassroots Environmental Group. I
07:33:44 live in Sunland Park, and so do each of the kids on this row. This is Manuel. This is Josh.

MANUEL: How are you doing?

MR. MOORE: This is Miguel. This is -- my mind's going.

07:34:06 LESLIE: Leslie.

MR. MOORE: Leslie. This is Desiree. It's her birthday here. She's having a birthday party here. The other one missing is April, and this is Everett. We're all part of Sunland Park Grassroots Environmental
07:34:21 Group.

And none of your environmental impact statement is directed to the impact that you're going to have on the other side of the mountain. There's a landfill in Sunland Park. We all live right underneath
07:34:39 it. And as I understand it, in your environmental

See Response 3.1

impact statement, you-all have a 106-acre landfill that's filled up or about to be filled up.

I ask first that your contract -- each contract, not the contract -- each contract that you have with El Paso Disposal, or any other company that will result in waste from Fort Bliss, of any type or character, that will end up in Sunland Park, be attached as an appendix to your environmental impact statement. I'd like to see the contracts themselves attached as an appendix.

Second, I'd like to know the amount and character of the waste that is anti- -- that you anticipate will go to Sunland Park.

Third, in Sunland Park, they take the groundwater. We have been dealing with this landfill for a long time. We can't get answers, straight answers, to the impact that that landfill has had on Sunland Park's groundwater. We get contact -- or conduct that tells us something is radically wrong, because they duck, and they dodge, and they won't produce -- they won't shoot straight.

For example, there's a key well -- they -- they monitor. That well is surrounding the landfill, and they monitor it. The key well right dead center downgrade from the landfill they quit sampling in 1996.

Response 3.1 Fort Bliss contracts only with state and federally licensed waste disposal facilities and will continue to do so under the Proposed Action. Those contracts are a matter of public record. Fort Bliss does not intend to attached these contracts to the FEIS. Fort Bliss does not currently ship solid waste to the Sunland Park Landfill, please refer to Section 3.13.2.1.8 for further discussion on solid waste disposal at Fort Bliss under this Proposed Action. Potential groundwater impacts at this landfill are not part of this EIS.

When it came time to renew their permit -- and we had a permit hearing last year -- they went in and trashed that well. Not that we had any money and would have been able to check it. We wanted to check it, but we
07:37:36 have no money. What we have is our sensibilities to their corrupt conduct.

In October -- I think it was the 16th or the 26th of 2006, Governor Richardson of New Mexico came to Sunland Park on a campaign stop. We had a protest,
07:38:07 and we also had a letter, two-page letter with -- well, it was more than two pages, with several exhibits to it, where we asked -- we laid out our evidence, and we asked that each item of that evidence be addressed.

What we got, instead of a straight-up
07:38:37 response, was ducking and dodging. We still don't have an honest response to that letter. That conduct is just as bad as the conduct trashing that well, so it would be impossible, even if we had the money, to check the water.

See Response 3.1

07:38:58 Now, that's the groundwater underneath that landfill. We ask that you address the question -- I'll -- I'll furnish you a copy of the letter to Governor Richardson. We want to know the environmental impact of dumping your trash in that landfill that
07:39:16 affects our groundwater.

But most important at all -- of all is El Paso's water supply. Four miles below the landfill is the outtake for the American canal. From March, each
07:39:48 year, until October, the end of October, the middle of October, El Paso, when they release the water from Elephant Butte dam, so farmers in this valley can irrigate with it, El Paso takes its water supply from the Rio Grande River.

It's insane to take garbage from Fort Bliss
07:40:18 and dump it four miles upstream from where -- the city that hosts you takes their water supply, Colonel. It's insane. There's got to be a better alternative. It's one thing to affect this side of the mountain, but to take garbage and dump it upstream from El Paso's water
07:40:52 supply is unforgivable. That landfill is there. It got there by fraud. It stays there by fraud. But this expansion of Fort Bliss should not be tied in to that fraud in any form whatsoever.

MR. PERRY: Thank you very much, Mr. Moore.
07:41:31 Thank you.

Gilbert Pinon?

MR. PINON: Yes. My name is Gilbert Pinon. I am affiliated with the Sierra Club here in El Paso. One of our biggest concerns is the increase in the
07:41:53 fugitive dust emissions that's going to be coming from a

lot of construction sites that are associated with military land.

We are concerned about the health of people living in the surrounding areas by the construction sites, people with all kinds of lung-function disorders, people with chronic asthma, chronic bronchitis, COPD, emphysema. How is this -- the increased dust emissions going to affect the health of these people?

We already live in one of the dustiest cities in America. A lot of it's naturally existing dust. A lot of it comes from the numerous rock quarries in this area. How is that going to be compounded by one of the most massive, really, construction sites all over the U.S.? We're talking about a tremendous amount of increase in the amount of fugitive dust emissions coming from those construction sites. How is that going to affect the health of people living in these areas?

Already, El Paso has significant health-related issues dealing with childhood asthma, people with chronic bronchitis, people with emphysema, COPD. I'm concerned about -- how many more trips are people going to have to make to the hospital to visit emergency rooms as a re- -- as a result of all this dust coming from these construction sites? And what is the military going to do, what are they going to offer to

See Response 4.1

See Response 4.2

Response 4.1 As discussed in Sections 3.10.3 and 3.10.4, and Tables 3-61 and 3-64 of the GFS Draft EIS, particulate matter pollutants PM10 and PM2.5 levels from the proposed construction activities in the Proposed Action would be low and relatively short-term; therefore, impacts to air quality are expected to be less than significant.

Response 4.2 As discussed in Table 4-2 of the GFS Draft EIS, the proposed construction project teams at Fort Bliss would be committed to minimizing fugitive dust emissions. Potential PM emissions from construction are very small and do not impact cumulative dust effects to the area.

See Response 4.2

the people of this community, to mitigate the amount of dust that's derived from these construction sites?

MR. PERRY: Thank you, Mr. Pinon.

I invite anyone else to offer verbal comment at this time.

All right. Well, thank you very much, then, for your comments and presence, participation here this evening, and I'll conclude this portion of the meeting. The EIS staff will remain around a few more minutes, if you've got one last question. Also, you're welcome to submit additional written comments between now and December 29th, which is the deadline.

If you'd like to submit written comments today, there are comment forms available. You can fill those out and leave them with us or take the form with you, if you prefer to send it in later. Again, comments postmarked by 29th of December will be addressed in the final EIS.

See Response 5.1

MR. VEGA: Excuse me. I just -- I forgot, but I just have a simple question. To actually picture environmental impact of this activity, you actually have to go and see the site. Is it possible to go and see the site?

MR. PERRY: We are -- I -- I can't answer that question myself personally. What I would suggest,

Response 5.1 No guided tours are contemplated. The area has restricted access due to training activities. Some areas may be accessible through these Recreation Permits. The EIS provides a description of the areas and is intended to provide sufficient information for the public to evaluation and understand the training areas.

is after we conclude here, that's a great question for --

MS. HAMILTON: Talk to me after this.

MR. PERRY: Yeah, or someone else outside.

07:45:05 MR. KNOPP: State your name for our record.

MR. PERRY: Yeah, I was just going to ask. For the record, this is Armando Vega?

MR. VEGA: Vega.

MR. PERRY: Armando Vega.

07:45:14 Thank you very much.

Anyone else?

All right. Well, thanks for being here, especially the birthday girl, and have a safe drive home. Thank you very much.

07:45:24 (Public Meeting concluded at 7:45 p.m.)

REPORTER'S CERTIFICATION

State of Texas)
)
County of El Paso)

I, Ginger G. Zachary, Registered Professional Reporter, Certified Realtime Reporter, and Certified Shorthand Reporter in and for the State of Texas, do hereby certify that this transcript is a true record of the above-entitled Public Meeting, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on December 12, 2009.

_____
Ginger G. Zachary, RPR, CRR, CSR Texas #5710
Expiration Date: 12/31/09
Firm Registration #384
300 E. Main, Suite 1024
El Paso, Texas 79901
(915) 533-1199

-----Original Message-----
From: Jimmy Arterberry [mailto:jimmya@comanchenation.com]
Sent: Tuesday, November 17, 2009 10:18 AM
To: Sackett, Russell H Mr CIV USA IMCOM
Subject: RE: My correct phone number is 915-568-3134 and not 3132
(UNCLASSIFIED)

Good morning Russ...I am responding to the 'grow the army EIS Draft' request.
In Chapter 5-Mitigation and Monitoring; Table 5.1 [Cultural Resources] addresses the issues but I would like for the THPO's to be included in measures section under 'Programmatic Approaches to mitigate adverse effects'.
In the 'increased dismounted maneuver training' section, it should be made clear that these sites should be avoided and monitored as well.
Finally, under the 'increased training in South TAs, North TAs, etc'...consultations with tribes is a must, prior to formally making this decision. Thanks. jimmy

See Response 6.1

See Response 6.2

See Response 6.3

Jimmy Arterberry, THPO
Comanche Nation
P.O. Box 908
Lawton, Oklahoma 73502
(580) 595-9960 or 9618
(580) 595-9733 FAX

Response 6.1 The text on Page 5-4 of the GFS Draft EIS will be revised to incorporate consultation with federally recognized tribes in addition to SHPO as part of mitigation for potential increases in soil erosion associated with ST-3 and ST-4.

Response 6.2 Consultation will occur with the appropriate tribes and SHPOs for dismounted training with the potential to adversely affect rock art sites.

Response 6.3 Continued consultation with the tribes would be required to schedule for access.

-----Original Message-----
From: Schexnaydre, Donita K Ms CIV USA IMCOM
Sent: Thursday, November 19, 2009 3:54 PM
To: Landreth, Gerald K Mr CIV USA IMCOM; Hamilton, Vicki G Mrs CIV USA IMCOM; Barrera, John F CIV USA IMCOM; Knopp, John P CTR USA IMCOM; Wolters, Eric E CTR USA
Subject: Deputy Superintendent, Gadsden ISD, called (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI, Efren Yturralde, Deputy Superintendent, Gadsden ISD, called to let us know that the comments made last night by the gentleman (I don't remember his name) are his opinions and his opinions only.

See Response 2.2

Mr. Yturralde said that they learned today that there was a meeting last night and the gentlemen made comments about the schools. Mr. Yturralde wanted us to know that their schools have room to accommodate any new children of Soldiers moving to the area. He also said their 5-Year Plan includes building a new school.

I gave him the EIS e-mail and asked him to send this information so that it can be included as part of the official record. Explained that the comments made last night will be included as part of the official record and it is important that Mr. Yturralde, as the representative for the schools, include this information. He said he would e-mail the information.

Also asked him if he wanted me to send him any notices about future public meetings when they are scheduled. He said yes. I have his e-mail and will send him information when I send out the press releases.

Donita Kelley
Public Affairs Specialist
Public Affairs Office, Fort Bliss
(915) 568-2497/4601

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

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Email: oteroadm@co.otero.nm.us
COMMISSION / ADMINISTRATION
(575) 437-7427
FAX (575) 443-2904
886-986-8376

State of New Mexico
County of Otero

1101 NEW YORK AVE.
ALAMOGORDO, NM 88310-8935

December 2, 2009

MR. JOHN BARRERA
Attn: FB GTA EIS; IMWE-BLS-PWE
Fort Bliss, TX 79916-6812

Re: Fort Bliss Army Growth and Force Structure
Realignment - Draft Environmental Impact Statement

Dear Mr. Barrera;

This letter is written in response to the U.S. Army request for public comments concerning the Fort Bliss Army Growth and Force Structure Realignment - Draft Environmental Impact Statement. While Otero County recognizes the need for a strong and well trained military, we have some concerns with respect to some aspects of the overall Impact Statement and provide the following comments.

See Response 7.1

1) There is concern with regard to wild land fire control in the proposed impact and live fire areas, especially in the areas located to the north of highway 506. Otero County believes it prudent for the U.S. Army to construct, equip and, when there are live fire exercises in progress, staff a fire station in the area of highway 506 most appropriate to address fires in the proposed impact and live fire areas.

See Response 1.1

2) As a matter of the health, safety and welfare of the ranchers and others that make use of the road on a regular basis, it is imperative that highway 506 remain open to traffic to the maximum extent possible. Indeed the very livelihood of these citizens is dependent upon the road being opened. It would appear that Range Control could orchestrate a plan that would preclude the highway from closure in most, if not all, cases. To fully address this issue Otero County opposes impact and live fire zones north of highway 506 which would completely negate the need for such closings.

Response 7.1 As discussed in Section 3.6.4 of the GFS Draft EIS, fire suppression crews, which are required to be available for live fire exercises, would suppress such fires quickly, making it unlikely that the fires would spread and endanger the nearby montane vegetation and habitats or the community of Timberon. Fort Bliss and the Las Cruces District Office of the BLM have been cooperatively managing fuels in NE McGregor to maintain a low risk of fire moving off McGregor Range and into Timberon.

See Response 7.2

3) Where it is necessary for heavy and/or tracked military vehicles to cross highway 506, Otero County believes that concrete pathways be constructed by the U.S. Army to permit crossing with the least possible damage to the existing roadway. It is suggested that the U.S. Army consult with area residents as an aid in identifying potential crossing locations so as to have the least possible impact on the affected roadways and the traffic that they carry.

See Response 7.3

4) Finally, in conjunction with #3 above, Otero County believes that the U.S. Army needs to assist the County in the maintenance of the existing paved and dirt roadways due to potential damage that may be inflicted as a result of heavier military traffic than these roads have historically been subjected to. Additional paving of roads may be warranted as well as additional material on BLM and other area access roads.

Thank you for providing the opportunity for Otero County to voice our concerns regarding the Fort Bliss Army Growth and Force Structure Realignment – Draft Environmental Impact Statement.

RESPECTFULLY,

RAY BACKSTROM
Interim County Manager

xc: Board of County Commissioners

Response 7.2 Fort Bliss will work with the citizens of Otero county in designating the crossings of the heavy tracked vehicles in that portion of 506 in the Tularosa Basin of McGregor Range. These crossings were analyzed as part of the SEIS. Please see **Response 1.2.**

Response 7.3 Please refer to **Response 1.2**. Section 3.14.5 of the GFS Draft EIS for road maintenance associated with increase road use at the FBTC. Under the Proposed Action, Fort Bliss will coordinate with the BLM concerning road maintenance as well as potential road improvements.

THE NAVAJO NATION

JOE SHIRLEY, JR.
PRESIDENT

BEN SHELLY
VICE-PRESIDENT

December 3, 2009

John Barrera
Fort Bliss Directorate of Public Works
Environmental Division
B624 Pleasonton Rd.
Fort Bliss, TX 79916-6812

Dear Mr. Barrera:

Our apology for an oversight and missing the deadline date of our response to your request, and that the Navajo Nation Historic Preservation Department – Traditional Culture Program (NNHPD-TCP) is in receipt of the proposed project, the Fort Bliss Army Growth and Force Realignment Draft Environmental Impact Statement.

After reviewing your consultation documents, HPD-TCP has concluded the proposed undertaking/project area **will not impact** any Navajo traditional cultural properties. The HPD-TCP, on behalf of the Navajo Nation has no concerns at this time.

However, the determination made by the HPD-TCP does not necessarily mean that the Navajo Nation has no interest or concerns with the proposed project. If the proposed project inadvertently discovers habitation sites, plant gathering areas, human remains and objects of cultural patrimony the HPD-TCP request that we be notified respectively in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA).

The HPD-TCP appreciates the Department of the Army's consultation efforts, pursuant to 36 CFR Pt. 800.1 (c)(2)(iii). Should you have any additional concerns and/or questions, do not hesitate to contact me electronically at tonyjoe@navajo.org or telephone at 928-871-7750. Mr. Kelly Francis will be taking over all Section 106 Consultations soon within the near future.

Sincerely,

Tony H. Joe, Jr., Supervisory Anthropologist *(Section 106 Consultations)*
Historic Preservation Department – Traditional Culture Program

TCP 10-176
CC: Office File/Chrono

HISTORIC PRESERVATION DEPARTMENT P.O. BOX 4950 WINDOW ROCK, ARIZONA 86515 928.871.7198(V) 928.871.7886(FAX)

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

December 7, 2009

Mr. John F. Barrera
Attn: FB GFS EIA
IMWE-BLS-PWE
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79932

Dear Mr. Barrera:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the "Fort Bliss Army Growth and Force Structure Realignment" dated October 2009.

As stated in the DEIS, this current effort – the Fort Bliss Army Growth and Force Structure Realignment Environmental Impact Statement (GFS EIS) – tiers from the GTA PEIS, and evaluates alternatives at Fort Bliss for the use of stationing and training capacity, land use changes, and training infrastructure improvements. Alternatives comprising the proposed action were grouped into three categories. Category 1 contains stationing and training alternatives, Category 2 contains alternatives involving land use changes, and Category 3 contains alternatives involving training infrastructure improvements. All three categories include a No Action Alternative. The No Action Alternative is the same as Alternative in the 2007 SEIS, which is currently being implemented. These Categories and their Alternatives were developed in internal scoping meetings with the Fort Bliss Garrison, Installation Management Command – West Region (IMCOM-W), and U.S. Army Environmental Command (USAEC) staff.

The United States Section of the International Boundary and Water Commission (USIBWC) has reviewed the DEIS and does not anticipate the proposed action(s) will conflict with any project or mission of this agency. Please keep us informed of any future projects that may impact USIBWC properties within the area. The USIBWC would like to be included in any future mailings regarding this EIS. If you have any questions please call me at (915)832-4740.

Sincerely,

Carlos Peña, Jr. P.E.
Division Engineer
Environmental Management Division

The Commons, Building C, Suite 310 • 4171 N. Mesa Street • El Paso, Texas 79902
(915) 832-4100 • (FAX) (915) 832-4190 • http://www.ibwc.state.gov

WRITTEN COMMENT FORM
Public Comment on the Draft Environmental Impact Statement Analyzing the Potential Impacts of Army Growth and Force Structure Realignment at Fort Bliss

Your Name: __Richard V. Teschner_____ Address: ____1800 N. Stanton St., Unit 302. El Paso, TX 79902-3541
Phone: ____915.533.12779_____ Affiliation (if any): The Frontera Land Alliance. (Member, Board of Directors.)
COMMENTS (please print; continue on additional pages or attach pages if needed)
The Frontera Land Alliance is El Paso County's only 501(c)3 land trust organization. Frontera is legally entitled to hold conservation easements and conservation conveyances and to own, for conservation purposes, fee-simple land that we have purchased or land that has been donated to us. The *Draft Environmental Impact Statement Analyzing the Potential Impacts of Army Growth and Force Structure Realignment at Fort Bliss* makes the following statements about Castner Range: "Even though Castner Range is not part of the scope of this project, **the Army should consider cleaning up this range and transferring it to the state of Texas** [my emphasis]. This could be considered as mitigation to environmental impacts that will occur at other locations on Fort Bliss." (p. x) "Castner Range is 27 km2 and constitutes <1% of the total 4,506 km2." (p. 3-1) "Castner Range … is a former training and weapons firing area. The Army has no plans for future use or disposal of Castner Range." (p. 3-4) "The fifth [Military Munitions Response Program (MMRP)] site is Castner Range, which is not proposed for any further military use. Fort Bliss plans to complete all site investigations by 2010 and execute follow-on phases/actions as required by the

See Response 8.1

See Response 8.1

individual site cleanup strategies." (p. 3-306) What's especially important here is the fact that the Frontera Land Alliance can hold conservation conveyances. A conservation conveyance will be needed to transfer Castner Range from the Department of Defense/Army to the Texas Parks and Wildlife Department, the owners of El Paso's Franklin Mountains State Park, which Castner abuts. For some time now, Frontera (in partnership with the Franklin Mountains Wilderness Coalition, an advocacy group) has been working toward establishing that conservation conveyance. Since early 2005, Frontera has been represented by attorneys Brown, Feuille, Felsen and Hassler of the El Paso's ScottHulse PC law firm.

COMMENTS MUST BE POSTMARKED NO LATER THAN DECEMBER 29, 2009

Response 8.1 Fort Bliss plans to complete all site investigations at Castner Range by 2010, which is a comprehensive process entirely separate from the GFS Draft EIS. Following completion of site investigation activities, Fort Bliss will execute follow-up phases/actions as required by the individual site cleanup strategies and appropriate regulatory controls.

WESTSOURCE Corporation

December 14, 2009

Dr. Brian Locke
Shane Offutt
John Barreras
Conservation Branch
Building 624 S Taylor Road
Ft. Bliss, TX 79916-6816

See Response 7.2

Dear Brian, Shane and John:

First of all I want to thank you for giving me an entire day of your time and a full load of education. The visit to McGregor to learn about the expanded use of this real estate, was most informative. There are few areas like this in America. The United States Army and the Department of Defense need to maximize their utilization in order to keep America's position of global military leadership. Expanding the use of McGregor Range can be done, as you explained, while maintaining access to those folks living "down range" and needing to utilize the public roads which pass through range property.

Second, I want to thank you for the extraordinary booklet, "Watering Oro Grande". Absolutely fascinating. I learned many, many details that I was previously unaware of. Needless to say, while reading it, the question came up several times "where did the author get that information"? I only wish he had footnotes. But then it would have detracted from the readability of the document.

Thank you all, again, for giving me so much of your time. I do look forward to visiting you at Ft. Bliss to see your "museum" of artifacts and archeological specimens.

Please remember to call if you are coming to Alamogordo. I would most appreciate the opportunity to take you to lunch, individually or together.

Michael Shyne, President
Westsource Corporation

MS:rc

500 Tenth Street, Suite 301 • P. O. Box 1705, Alamogordo, NM 88311-1705
(575) 437-0220 • Fax (575) 437-0042

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 16, 2009

Mr. John Barrera
Directorate of Public Works
Environmental Division
ATTN: IMWE-BLS-PWE; B624 Pleasonton Road
Fort Bliss, TX 79916-6812

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #10036, Fort Bliss, El Paso County – Notice of Public Meetings

Dear Mr. Barrera:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

We look forward to reviewing environmental assessment documents as they become available.

We have no comment on this project.

Thank you for the opportunity to review this project. If you have any questions, please call Ms. Glenda Thorn at (512) 239-1980.

Sincerely,

Katherine Nelson

Katherine Nelson
Assistant Division Director
Water Quality Planning Division

-----Original Message-----
From: Lynn [mailto:lynnrussell@elp.rr.com]
Sent: Wednesday, December 16, 2009 5:44 PM
To: BLISS, EIS
Subject: No to any quarry on the westside of El Paso!

John Barrera, NEPA Program Manager

Attn: FB GFS EIS, IMWE-BLS-PWE, Bldg. 624 Pleasonton Rd.

Fort Bliss , TX 79932

See Response 9.1

Dear Sir,

We are life-long El Pasoans who have been saddened by the blight in our mountain by the quarry company on the northeast side. Now we hear that they are considering one on the Westside of town.

No! No! Please No!

I cannot understand why El Paso does not recognize the Franklins as an asset!

Once our mountains are gone, they cannot be restored!

Nature needs to be protected.
Sincerely,

E. Barnard and Lynn Polk
907 E. Robinson Ave.
El Paso, TX 79902
015-533-6364
lynnrussell@elp.rr.com

Classification: UNCLASSIFIED
Caveats: FOUO

Response 9.1 The State of Texas General Land Office is the agency responsible for permitting quarry operations on the eastern side of the Franklin Mountains. Fort Bliss is not involved in quarry operations in any way, and the GFS Draft EIS therefore has no need to address land use on the Franklin Mountains.

VERONICA ESCOBAR
County Commissioner, Pct. 2
commissioner#2@epcounty.com

COUNTY OF EL PASO

RUBEN VOGT
Policy and Programs
Coordinator
rvogt@epcounty.com

CELESTE A. VARELA
Administrative Assistant
cvarela@epcounty.com

December 21, 2009

John F. Barrera, NEPA Program Manager
Directorate of Public Works – Environmental Division
Attn: FB GFS EIS
IMWE-BLS-PWE
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79932

RE: Public Comment on the Draft Environmental Impact Statement Analyzing the Potential Impacts of Army Growth and Force Structure Realignment at Fort Bliss

See Response 8.1

Dear Mr. Barrera:

Let me begin by sharing how very excited we are about welcoming our new troops and the growth of Ft. Bliss, a vital part of our community. Soon, Ft Bliss will be holding community meetings regarding Army growth and force structure realignment. I am glad to see that Ft. Bliss is seeking input from its neighbors; however there is an important piece of the conversation that we have not seen mentioned and that is the future of Castner Range.

Castner Range, a former US Army firing range, borders Franklin Mountain State Park, the largest urban park in the United States. Each year, sections of Castner are carpeted with wild Gold Poppies, a sight unlike any other in Texas. Today, the community is able to enjoy Castner Range thanks to the stewardship of the Army and Ft. Bliss. El Pasoans are passionate about preserving Castner Range, it is for this reason that I am asking that you consider including Castner Range in your plans and that it be preserved as open space in its natural state. This would be mitigation for the inevitable destruction of natural habitat caused by the expansion of Fort Bliss. The ideal mechanism for this process is a Conservation Conveyance.

Protecting more natural habitat/open space in the foothills of the Franklin Mountains and surrounding area will help preserve important habitat for wildlife in the area while enhancing important ecotourism opportunities. The value of protecting natural habitat open space will also help our community create more nature focused outdoor opportunities for children growing up in El Paso, something that is largely lacking. I am passionate about advocating for green space; in fact one of the initiatives that has come from my office focuses on Ecotourism and seeks to make our tri-state region a recognized hub for nature tourism. The preservation of Castner Range is important that families continue to enjoy our mountain, the poppies and history of El Paso/Ft. Bliss. Please help us preserve this important asset.

Should you have any questions or concerns please feel free to contact me at (915) 740-5762. Again, thank you in advance for your diligence.

Sincerely,

Veronica Escobar
El Paso County Commissioner
Precinct 2

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY COURTHOUSE • 500 E. SAN ANTONIO ROOM 301 • EL PASO, TX 79901 • (915) 546-2111 • FAX (915) 543-3817

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

ER 09/1135
File 9043.1

December 22, 2009

Via Electronic Mail

John Barrera
Fort Bliss Directorate of Public Works
Environmental Division, IMWE-BLS-PWE
B624 Pleasonton Road
Fort Bliss, Texas 79916-6812

Subject: Draft Environmental Impact Statement (DEIS) for the Fort Bliss Army Growth and Force Structure Realignment Project, Texas and New Mexico

Dear Mr. Barrera:

The U.S. Department of the Interior has reviewed the subject DEIS and offers the following comments and recommendations for your consideration as you develop the final document. The DEIS evaluates the Proposed Action at Fort Bliss in the context of three Categories – stationing and training capacity, land use changes, and training facility improvements. The Army's Proposed Action supports the growth of the Army at Fort Bliss and allows for reasonably foreseeable future actions that take advantage of the training opportunities at Fort Bliss. The Army will take the Proposed Action to implement the stationing decisions for Fort Bliss as identified in the Record of Decision for the Final Programmatic EIS for Army Growth and Force Structure Realignment.

GENERAL COMMENTS AND RECOMMENDATIONS

The increased training activity in the co-use area on McGregor Range, managed by the Department of the Interior's Bureau of Land Management, may have significant impacts on sensitive ecosystems, wildlife, soils and air, as well as BLM's ability to manage livestock. The DEIS does not reach this same conclusion and the Department is concerned by the lack of mitigation proposed.

Ecosystem Impacts

The restoration and/or maintenance of high quality grasslands is a priority for the Department. Table 2-13 found on page 2-18 summarizes that Land Use (LU)-2 through LU-5 remove the grassland Limited Use Areas limitations to allow for "fixed sites" and/or "controlled fixed sites"

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See Response 10.1

2

within sensitive grassland habitats. This would be in conflict with the Integrated Natural Resource Management Plan. The impacts to grasslands could be mitigated through off-site grassland restoration, on or off McGregor Range, in cooperation with BLM's Restore New Mexico Initiative. With significant impacts to grasslands, off-site mitigation should be carried through the document, including listing in table of mitigation in Chapter 5.

See Response 10.2

Restoration measures are mentioned in the DEIS but not clearly defined. Measures can be developed and implemented to reduce erosion knowing that tracked vehicles provide greater potential for erosion through significant soil disturbance. The land use changes, particularly the increased training in the desert grazing units, and off-road vehicle training impacts on soils north of State Road 506, would constitute significant impacts to natural resources.

See Response 10.3

The DEIS does not reference the previously submitted comments from the U.S. Fish and Wildlife Service concerning invasive species. The Department recommends monitoring to determine whether project activities are causing an increase of exotics or undesirable plant species. If monitoring shows invasive species are increasing, then we recommend implementing a strategy for control.

See Response 10.4

The Department recommends locating the new rail networks to minimize habitat fragmentation and adverse impacts to ecological integrity. All new rail networks should be designed to avoid stream crossings and/or arroyos and to minimize the risk of erosion or adverse effects to aquatic or floodplain habitats. To the extent possible, areas already disturbed by past activities or those that will be used later in construction should be used for staging, parking, and equipment storage. Specific recommendations for threatened and endangered species in New Mexico will be addressed during the Section 7 consultation process conducted between the FWS and Fort Bliss.

See Response 10.5

The discussion of potential impacts on groundwater quantity and quality and surface water quantity and quality would be strengthened by adding baseline water chemistry data or reference to documents containing these data.

See Response 10.6

Minerals

There are no provisions for any mineral materials development associated with any roadwork or facilities development. Such actions may be speculative at this stage because there's no way to know pit location, activities, or other actions. But new National Environmental Policy Act documentation (Categorical Exclusion or Environmental Assessment, as appropriate) is required if a new pit is opened. There would not be any need for permits for range-related activities per Public Law 106.

It is not clear in the DEIS if the proposed action could affect BLM's disposal of minerals in McGregor Range to New Mexico Department of Transportation (NMDOT) or County Roads Department authorities for roadwork. It is also not clear if the new training regimes would possibly create areas where safety concerns (unexploded ordinance, traffic, etc.) would preclude such activity. Under the current Memorandum of Understanding with Fort Bliss, BLM has to obtain consent from Fort Bliss before issuing a free-use permit to NMDOT or a County Roads Department. However, if the proposed action would preclude free-use activities in parts of the

Response 10.1 The Record of Decision for the 2007 SEIS, written after the INRMP, established grasslands as one of the types of Limited Use Areas as a mitigation to grassland habitats and ecosystem function. When the Army assigned IBCT units to Fort Bliss it became clear that fixed sites would be needed to complete the required training missions. The impacts of fixed sites are very similar to camping sites or cattle troughs. You have isolated areas with diminished condition, but not significant impacts when managed properly. Thus the analysis does not predict significant impacts to grasslands, based on years of similar use in other portions of Fort Bliss.

Response 10.2 The Proposed Action does not increase tracked off-road vehicle maneuver on the FBTC beyond the levels discussed in the 2007 SEIS, which included training in the desert grazing units north of Highway 506 in the Tularosa Basin of McGregor Range.

Response 10.3 For many years, Fort Bliss has continually monitored and conducted control work as necessary for invasive weeds, in accordance with the INRMP. An expanded discussion on exotic species will be included in Sections 3.5.3.5 of the FEIS. The discussion will consist of the following, "Preventive and control measures are presented in the INRMP to reduce the possibility of exotic species invasions and the detrimental effects caused by those species. Surveys to detect and control exotic and noxious weed species on Fort Bliss are ongoing at selected localities."

Response 10.4 The location of the route as shown on Figure 2-10 and discussed in Section 2.2.3.4 minimizes impacts as requested. As part of the rail line design, stormwater management and soil erosion plans will be developed. With regard to Section 7 appropriate consultation with the U.S. Fish and Wildlife Service will be initiated. The proposed route does not intersect habitat or populations of any species currently listed under the Endangered Species Act. There is very little arroyo-riparian habitat along the proposed route.

Response 10.5 Discussion on the protection of stormwater and groundwater was included in section 3.12 of the DEIS. Water quality data of the potable water systems at Fort Bliss are obtained every year per USEPA regulations, the latest report is from 2008 (FBWSC 2008). Within the Tularosa Basin, Fort Bliss uses the study conducted by the Department of Interior in 1970 (U.S. Dept of Interior 1970) and data obtained from periodic studies conducted by DPW-E in connection with the oxidation ponds and sampling of wells in the ranges. These data can be obtained by contacting the Fort Bliss water compliance manager, Jack Lady at (915) 568-0558. References included within this response will be included in the FEIS.

Response 10.6 The actions described in the DEIS do not affect the process described under the McGregor Withdrawal Act (MWA), nor the McGregor Range RMP. As in the past, Fort Bliss will continue to work with the Las Cruces District Office on a case by case basis for such requests.

range, then this should be documented up-front so the transportation agencies may account for these restrictions during their planning.

SPECIFIC COMMENTS AND RECOMMENDATIONS

See Response 10.7

Key Land Use Management and Planning Documents, Page 2-14

The co-management of McGregor range should be emphasized more in the document. This section should discuss the BLM's McGregor Resource Management Plan Amendment (RMPA) which outlines the management of non-military uses in concert with Ft. Bliss's military uses. Ft. Bliss was a cooperating agency in the development of the BLM McGregor RMPA and signed a Memorandum of Agreement outlining management actions and responsibilities of both parties. It is mentioned on page 3-7, line 11 and should be discussed here as well.

See Response 10.8

Increased Use of Roads, Pages 2-47 and 3-7

The increased use of roads will have a significant impact on BLM's management of the co-use areas. On page 2-47, table 2-3, the number of overall annual vehicle trips completed under LU-5 increases when compared to LU-1 for McGregor north and south of State Road 506. This overall increase in on-road vehicle trips is not carried forward in the DEIS with respect to impacts to road conditions, potential erosion, and mitigation for these impacts. On page 3-7, line 17, there should be a section which discusses road maintenance. Currently BLM and Holloman Air Force Base (AFB) conduct road maintenance. Little or no road maintenance is conducted by Ft. Bliss. Because the DEIS proposes increases in vehicle/road traffic, Ft. Bliss should include impacts to road surfaces and surface erosion as part of the analysis in the DEIS. Mitigation should include consideration for Ft. Bliss to conduct road maintenance in coordination with BLM and Holloman AFB or provide funding to BLM for increased road maintenance needs. With additional vehicle traffic, the roads will deteriorate at an accelerated rate. The military should assist in the maintenance or reconstruction of these roads. Engineering techniques that should be considered are:

- Crowning of improved roads to facilitate drainage from roadways and decrease erosion
- Culverts/Ditches/Turn-outs
- Mitigation to reduce head/downcutting downstream of the culverts
- Measures to decrease water velocity in ditches or related drainage structures.

See Response 10.9

The impacts of increased road use to air quality should be covered more thoroughly and mitigation measures included, such as decreased activity during high winds. The increase of fugitive particulates and increases of Particulate Matter 10 and Particulate Matter 2.5 from use of diesel and JP8 and air quality standards should be analyzed.

See Response 10.10

Pipeline Management, Page 3-24

Sufficient access by BLM to water lines depends on the timing/duration of training and the need to repair a particular water line. The number of live fire training days would restrict BLM access to pipelines for emergency repairs/maintenance. These water lines provide water to cattle and wildlife within those grazing units being utilized for military training. These water lines also transport water to grazing units south of State Road 506. Water storage tanks along pipelines are

Response 10.7 As stated in the comment and other portions of the DEIS the Army recognizes the McGregor MOA and the BLM's management responsibilities outlined there, and enjoys a cordial working relationship with the Las Cruces District Office. Fort Bliss is committed to the continued implementation of the McGregor MOU between Fort Bliss and BLM. The appropriate place for reviewing BLM activities on Fort Bliss is Section 3.1.1.4.5, specifically Non-military Land Uses. Section 2.2.2.1 is part of the Description of Proposed Action and Alternatives (DOPAA). The management actions covered under the McGregor RMPA are not part of the proposed actions undergoing environmental analysis. Those NEPA analyses were completed by the McGregor RMPA.

Response 10.8 Section 3.14 described the impacts to roads as less than significant because of the ability to maintain the roads, and the soil types those roads occur in. Fort Bliss recognized the need for road maintenance and in accordance with the McGregor MOU, will work with BLM to jointly develop a road maintenance strategy that will specify agency responsibilities for maintenance and maintenance standards. Fort Bliss has done a significant amount of road work, but the majority of it is done where the majority of the mission has occurred. As the mission becomes more intense in other areas, the maintenance will also.

designed to provide water for 2-3 days should a pipeline fail. If access is restricted longer than this, it would impact BLM's ability to supply water to livestock. Unless this document states that access will not be restricted for more than 2-3 days, the statement that "access to pipelines would be sufficient" is not accurate.

See Response 10.11

Affected Environment and Environmental Consequences, Pages 3-71 -- 3-74

The DEIS identified several protected species of birds and bats that have the potential to occur in the Fort Bliss area but lists several factors why their occurrence and distribution are believed to be rare or unknown, further indicating that surveys would be conducted to determine their distribution and abundance. The public would benefit if the final EIS included information from the most recent Breeding Bird Survey in the impact assessment section. Information such as status and trends, distribution and trend maps, and population change analysis results (Sauer et al. 2008) may then inform proposed mitigation actions for the proposed activities.

It would also benefit the public if the final EIS included available monitoring studies of bat species (Ellison et al. 2003) and discussed the methodology used for any new surveys conducted such as, the type of acoustic equipment used, the expertise of the observer, the season (e.g., winter or summer), and timing of observation (e.g., evening versus morning). This information will help the reader understand the challenges of obtaining accurate information and the number of bat species present.

The public would also benefit if the final EIS included available scientific studies that discuss roosting requirements and impacts of disturbance on bat species that have the potential to occur in the Fort Bliss area. For instance, studies (Fellers and Pierson, 2002) demonstrate that the endangered Townsend's big-eared bat (*Plecotus townsendii*) shows considerable loyalty to their primary roosting sites, so any loss of roosting habitat, including loss of snags, could negatively impact this species. This same study also demonstrated that human disturbance of Townsend's big-eared bat roosts, particularly recreational caving, has shown to be a significant threat to the species. It would help the reader if discussions of how impacts associated with the proposed action and any alternatives will be mitigated to reduce or eliminate loss of roosting habitat.

See Response 10.12

Wildlife Issues, Page 3-78, Section 3.6

The analysis has repeated statements that 17 percent or 21 percent or some other amount of disturbance of a particular habitat type is less than significant. Disturbance of over 2 percent of any habitat type is significant, because the impacts may extend to adjacent habitat one quarter mile or more for certain species. Impacts to wildlife will be significant in many circumstances.

See Response 10.13

Temporary displacement of wildlife, page 3-101, is significant depending on the duration and type of training exercises. Existing water sources for wildlife are located along pipelines in the drainage bottoms, most of which are along existing roads. Displacement of wildlife will occur away from water sources. This could be mitigated by constructing wildlife waters in higher terrain away from existing roadways.

Response 10.11 Currently, surveys are being conducted for bats, as indicated in the GFA Draft EIS. Bird surveys have been completed over several years. A summary of the most recent data, including the locations or potential habitat, appears in Table 3-22. Preliminary results from the ongoing, extensive bat survey were used to update Table 3-22 before it was officially published. The GFA Draft cites the most recent data and provides information on sensitive species known to occur, or have potential because of existing habitats. The GFA Draft also cites the extensive information on this topic published in the SEIS, PEIS, and INRMP. Fort Bliss has conducted surveys for significant bat roosting areas in the past, as well as species surveys. Significant roosts have not been found since there is a noticeable lack of caves on Fort Bliss. There have been substantial surveys for caves by biological and archeological survey teams. An acoustical survey was conducted in 1997, and the current survey is using both acoustical and trapping techniques to document species. More details will be available when the project final report is completed.

There are no Breeding Bird Survey routes on Fort Bliss according to internet survey information. The scope of the data is more regional and probably not fine scaled enough to detect impacts. Our impact analyses for sensitive species occupying Fort Bliss are based on impacts to the habitats used by those species. Previous work on Fort Bliss (see PEIS and SEIS) shows large variations in annual numbers and nesting success in Neotropical birds. Since no ground training was occurring in the area, results suggest variability in desert weather patterns has large affects on Neotropical birds. The large variability in desert weather patterns greatly impact the ability to detect changes in populations.

The impact assessments for bats were based on the lack of impact to roosting habitats (rock crevices, or snags), and the lack of caves. Townsend's big-eared bat is a sensitive species and is not currently listed as an endangered species under the ESA.

Response 10.12 Impacts on wildlife from an increase in the proposed disturbance of affected grassland and arroyo-riparian LINRs will be less than significant. Impacts are based on the low Soldier and vehicle densities associated with an IBCT training in the Northeast McGregor Range North of Highway 506. These factors result in minimal habitat disturbance. References cited in Section 3.6.4 state that levels of activity similar to the Proposed Action would not result in significant impacts to wildlife.

Measuring populations, or even habitat measurements to a few percent is below the detectable limit of almost all field investigations. Approximately 50% of occupied gray vireo territories were not occupied in a subsequent year. These data were recently acquired, before any of the proposed training described, was approximately 50%.

Response 10.13 Based on the percentage of training days scheduled in Chapter 2, Controlled FTX sites would not be permanently occupied by Soldiers. In addition, as a mitigation to minimize this effect, fixed sites within Controlled FTX areas would be located at least 300 meters away from water sources to allow access for wildlife and livestock (Table 5-1). This would limit displacement of wildlife from water sources. Fort Bliss will continue to work with the Las Cruces District BLM office to create wildlife watering locations in accordance with guidelines provided by the Mule Deer Working Group of the Western Association of Fish and Wildlife Agencies.

5

Oryx Management, Page 3-69

A discussion of the New Mexico Department of Game and Fish/White Sands Missile Range (NMDGF/WSMR) Comprehensive Oryx Management Plan (2000) and the objective of this plan to control oryx numbers off WSMR is warranted. Increased training days could limit current abilities for Ft. Bliss, BLM and NMDGF to harvest oryx on McGregor Range. Increased training days and associated activities could also displace oryx onto adjacent lands outside the Fort Bliss Training Complex.

The Department recommends discussing the increase in number of training days and how this might affect hunting opportunities and impacts to wildlife especially oryx hunts (Page 3-101). Closing the area north of State Road 506 to hunting will only serve to increase the existing refugia area that now exists south of State Road 506.

Fire Management, Page 3-101

The comment about "let burn" needs to be managed very carefully. The community of Timberon is designated as a community at risk of catastrophic wildfire. The community is in danger of a fire coming off of the range and into town.

Technical Recommendations Including Methods of Analysis and Typos

Page 2-17, lines 7-20 - This section/discussion is vague with regard to what uses are allowed within Wilderness Study Areas/Areas of Critical Environmental Concern (WSAs/ACECs). Please add the statement that WSAs/ACECs are closed to motorized vehicle use.

Page 2-22, Table 2-14 - This table represents the percent of training days scheduled for each ST alternative within LU-1. However, it is not clear if the percentage indicated represents the percent of the 365 day calendar year (i.e. 10 percent = 36.5 days). This would be better explained if the table reflected the number of days.

Page 2-38 - Three of the Controlled FTX Sites (conceptual) on the map are located at existing livestock working corrals. This is not compatible with BLM management.

Page 2-39, Table 2-24 (LU-4) - This table states 75 percent of training days north of State Road 506. Assuming this means 75 percent of 365 calendar days, this would be 274 days per year that the area north of State Road 506 would be utilized for training and closed to public access. Please make this clearer in the analysis of each alternative. It is not clear what the percentages are referring to (i.e., percent of a 365 day year).

Page 3-7 - Add the following language so the DEIS is consistent with the BLM/Ft. Bliss MOA: Fort Bliss will control construction and maintenance of improvements in hazardous and army fee-owned areas, to include the boundary fence for the Range.

Page 3-7 - The BLM maintains pipelines on McGregor. Cooperative maintenance would be invited by BLM, but there are no known pipelines within the "impact" or "military use" areas.

Page 3-7, line 17 - Please clarify this section since Ft. Bliss controls access on McGregor Range.

See Response 10.14
See Response 10.15
See Response 10.16
See Response 10.17
See Response 10.18
See Response 10.19
See Response 10.20
See Response 10.21
See Response 10.22

Response 10.14 As discussed in Chapter 2, the percentage of training days scheduled in the Northeast McGregor Range North of Highway 506, ranges from 30 to 75 percent under the Proposed Action. This equals approximately 109 to 274 days per year. The McGregor Oryx hunts reserves only two weekends per year for oryx hunting on McGregor Range. Therefore, the proposed increased percentage of training days can accommodate for the hunting schedule. An expanded discussion on days available for hunting is included in Sections 3.2 of the FEIS.

Response 10.15 The Army understands the sensitivity of potential wildfire issues resulting from the proposed Live Fire Military Activities in the Northeast McGregor Range North of Highway 506. As discussed in Section 3.6.4, the "Let Burn" policy is part of forest management and will be controlled to benefit the ecosystem. Fort Bliss and the Las Cruces District Office of the BLM have been cooperatively managing fuels in NE McGregor to maintain a low risk of fire moving off McGregor Range and into Timberon. .

Response 10.16 The section has been modified to be more clear. Table 2-12 indicates that no vehicles are allowed in the WSA. Off-road maneuver is not conducted in the Black Grama ACEC; Figures 2-3, 2-4, 2-5 and 2-6 show no off-road vehicle maneuver on Otero Mesa, where the ACEC is located.

Response 10.17 Percent training days/ scheduled in a 365 day year to meet maneuver requirements. Percentages are used for direct comparisons between subdivisions of the FBTC. The comparison of percentages between areas is a more precise index than the specific percentage or number of days of expected use in any particular subdivision of the FBTC.

Response 10.18 The sites depicted in Figure 2-6 are not placed anywhere specifically, they are conceptual and are shown to illustrate scale of use. Fort Bliss will coordinate with BLM prior to locating the controlled FTX sites.

Response 10.19 Please refer to Response 10.17.

Response 10.20 Section 3.1.1.4.5 has been modified to more correctly reflect the following wording in the McGregor MOA.:. "Per the MOA between BLM and Fort Bliss, Fort Bliss controls construction and maintenance of improvements in hazardous and Army fee-owned areas, to include the boundary fence for the Range."

Response 10.21 Please see response 10.20. However, the McGregor Withdrawal Act withdraws all of McGregor Range for Military Use.

Response 10.22 The section has been reworded as follows: "The BLM authorizes rights-of-way (ROWs) on a case-by-case basis with the concurrence of Fort Bliss (BLM 2006)." Fort Bliss controls public access to all of Fort Bliss, but there are public roads that allow access across McGregor Range.

See Response 10.23

Page 3-15, lines 31-38 - The Organ Mountains Coordinated Resource Management Plan (CRMP) does not address three WSAs, only one was designated when the CRMP was completed. The Organ Needles and Peña Blanca WSAs were designated in the 1993 Mimbres RMP. The Organ/Franklin ACEC was also designated through the Mimbres RMP, and designated mountainous BLM lands in the Organ and Franklin Mountains (generally above 5,000 feet) are designated as Visual Resource Management Class I.

See Response 10.24

Page 3-15, line 47. This section should be rewritten to reflect the current status of BLM's Fluid Minerals RMPA and the recent 10th Circuit decision. The 10th Circuit recently vacated BLM's RMPA for Fluid Leasing, which means that the McGregor RMPA and the White Sands Resource Management Plan (RMP) are the guiding planning documents on Oil and Gas Leasing. A paragraph in this section describes a document that has been deemed invalid.

See Response 10.25

Page 3-25, lines 4-11 - Please explain how you arrived at the potential affect of 466 Animal Unit Months (AUM) and what that means. Table 3-2 states 9,314 AUMs for grazing units 3, 4/5, 7, and 8. If 39 percent of these areas are grasslands (3,632 AUMs) and the percent of actual areas impacted is 31 percent (as per p. 2-28, lines 11–12, Table 2-13), then it would be 1,126 AUMs.

See Response 10.26

Page 3-26, lines 11-20 - Please discuss impacts for LU-3 in terms of AUMs as you have discussed for LU-2.

See Response 10.27

Page 3-26, lines 18-19 - Please explain if access will be limited during live fire training.

See Response 10.28

Page 3-26, lines 21-22 - Please explain how LU-3 can have the same level of impacts to recreation as LU-1 given the increased use of North East McGregor.

See Response 10.28

Page 3-26, lines 21-22, Tables 2-14 and 2-10 - These tables do not indicate the same impacts with regard to increased training and limits to recreation access.

Page 3-27, lines 35-36 – 931 AUMs are 10 percent of AUMs listed in Table 3-2 for grazing units 3, 4/5, 7, and 8.

See Response 10.28

Page 3-28, lines 4-5, Table 2-14 (LU-1) - This table states 55 percent for that area north of State Road 506 and 30 percent for that area south of State Road 506.

See Response 10.29

Page 3-29, lines18-22 - Comparing the number of AUMs authorized on McGregor Range to the number of AUMs authorized elsewhere in the BLM Las Cruces District is not relevant. Eliminating all the livestock grazing on McGregor might not be significant under this comparison. Elimination of livestock grazing on one allotment within the Las Cruces District may not be significant in comparison to the entire district; however, it would certainly be significant to that one livestock operator. This section does not outline what the potential impacts might be under LU-5 to authorized AUMs within these training units.

See Responses 10.28,and 10.30

Page 3-29, lines 23-24 - Please explain how the impacts of LU-5 can be the same as LU-1. It should read RMPA instead of RPMA. Please check throughout the document.

Response 10.23 The following statement was added to the FEIS "Resources Management Plans for the Organ Mountains. The BLM completed the Mimbres RMP in 1993 that addressed two WSAs bordering the Doña Ana Range: Peña Blanca, totaling 19 square kilometers (4,780 acres) to the west; Organ Needles, totaling 31 square kilometers (7,604 acres) to the northwest. This RMP also designated a portion of the Organ Mountains west of the Doña Ana Range as a scenic ACEC and managed as a Class I area, with the objective of preserving the existing character of the landscape. The BLM has prepared a Coordinated Resources Management Plan (CRMP) that addressed the Organ Mountains WSA, totaling 30 square kilometers (7,283 acres) to the northwest."

Response 10.24 The paragraph referencing an invalid document (beginning on line 39) was deleted in response to this comment. In fact, The paragraph in question did note the current status of BLM' Fluid Minerals RMPA and the recent 10th Circuit decision. As mentioned, the Tri-County plan will update the WSRA RMP. The paragraph referencing an invalid document (beginning on line 39) was deleted in response to this comment.

Response 10.25 In Section 3.2.6 of the FEIS, the Non-Military Land Use section has been revised as follows, "The Sacramento Mountain grasslands represent 106 square kilometers (approximately 43 percent) of the total 247 square kilometers jointly used for livestock grazing in Grazing Units 3, 4, 5, 7, and 8. This would potentially affect 4,005 AUMs in the five grazing units, or 17 percent of total 23,755 AUMs contracted for McGregor Range (Table 3-2). Taking into account that the livestock grazing areas would be limited to minimal impacts associated with dismounted FTX (foot traffic), implementation of LU-2 would have less than significant impacts."

Response 10.26 In Section 3.2.7 of the FEIS, the Non-Military Land Use section has been revised as follows, "The Controlled FTX zone in the Sacramento Mountains would add a low density of vehicles and troops (Table 3-28, Section 3.6) in approximately 35 of the 106 square kilometers that would be open to Fixed Sites under LU-2. This would slightly increase impact for 1,321 AUMs in the five grazing units, or 6 percent of total 23,755 AUMs contracted for McGregor Range (Table 3-2). Due to the low density of the company and platoon size units training in this area, impacts to livestock grazing would be less than significant."

Response 10.27 In Section 3.2.7 of the FEIS, the Non-Military Land Use section the following statement has been added, "Live Fire Military Activities would be included with the On-Road Vehicle Maneuver, Off-Road Vehicle Maneuver, Dismounted Maneuver, and Controlled FTX military activities, and in the Fixed Site areas. The Live Fire activities would occur under controlled conditions and in specific areas. Live fire military activities would temporarily preclude non-military access to the specific live-fire area and the safety buffer surrounding that live-fire area."

Response 10.28 This statement was revised to concur with Table 2-14. Impact is expected to be less than significant. See response to comment 10-10.

Response 10.29 No part of the DEIS suggests that grazing on McGregor Range will be eliminated. Had the analysis suggested that, the impact could not be termed "less than significant impact to non-military useò.–In Section 3.2.9 of the FEIS, the Non-Military Land Use section has been revised as follows, "The additional three square kilometers of Controlled FTX zone would affect approximately 1,118 AUMs in the five grazing units, or 5 percent of total 23,755 AUMs contracted for McGregor Range (Table 3-2). Due to the low density of the company and platoon size units training in this area, impacts to livestock grazing would be less than significant.

Response 10.30 Lines 23-24 have been modified to explain that the 20 percent schedule increase should not significantly affect grazing or public access. The vast majority of public access is on weekends. If 70 percent of days are scheduled for military activities, then the vast majority of weekends are expected to be available for public access. All references to the RPMA will be changed to RMPA in the FEIS.

7

Page 3-89, line 12 - Recommend removing the sentence "It is known that many species of wildlife readily acclimate to human disturbance." Also remove the statement that over time, the wildlife would become accustomed to the vehicles and soldiers.

See Response 10.31

Page 3-109, lines 32-39 - The effect determination for the aplomado falcon (*Falco femoralis*) is not clear. Currently the aplomado falcon is designated as 10j, a nonessential experimental population in Arizona and New Mexico. The Department treats the aplomado falcon as a proposed species and would only conference if an adverse impact is expected from the proposed action. Regarding the aplomado falcon on page 3-72, Table 3-22, the footnote should read the species is "proposed" under 10j, not "threatened." The Federal Register states the 10j designation considers them as proposed.

See Response 10.32

Page 4-6, LU-1 through LU-5 - There is no recreational off road use on McGregor.

See Response 10.33

Thank you for allowing the Department to comment. We will provide further comments as the DEIS is updated and revised. If there are any questions or you need further information, please feel free to contact me at 505-563-3572 or at Stephen_Spencer@ios.doi.gov.

Sincerely,

Stephen R. Spencer
Regional Environmental Officer

Response 10.31 This section will be updated to include the following statement pertaining to human disturbance, "Habituation to human disturbance does occur in many species, but not all (Bowles 1995). Bisson et. al 2008, Bisson et. al 2009 , and Doresky et. al 2001 present evidence for minimal impacts by the types of military training this EIS evaluates."

Response 10.32 Fort Bliss occupies portions of TX and NM. In TX, the aplomado falcon is listed as endangered. The footnote to Table 3-22 (page 3-75) indicates the 10j, nonessential population designation for NM and AZ. The ESA, Section 10 (j) (C) states, "an experimental population will be treated as threatened" except solely for the purposes of Section 7, for which a non-essential population would be treated as proposed, per Section 4 of the ESA. Since this is a NEPA document and not a biological assessment document per Section 7, the Army is treating the aplomado falcon as a threatened species. Therefore, an effects determination is not made in this document, per Section 7.

Response 10.33 The word recreational has been removed from this statement in the FEIS.

References

Ellison, L.E., O'Shea, T.J., Bogan, M.A., Everette, A.L., and Schneider, D.M., 2003, Existing data on colonies of bats in the United States; summary and analysis of the U.S. Geological Survey's Bat Population Database, *in* O'Shea, T.J., and Bogan, M.A., ,eds.,. Monitoring trends in bat populations of the United States and territories; problems and prospects: Information and Technology Report 2003-0003, U.S. Geological Survey, 127-237 p.

Fellers, G.M. and Pierson, E.D., 2002, Habitat use and foraging behavior of Townsend's big-eared bat (*Corynorhinus townsendii*) in coastal California: Journal of Mammalogy, 83(1):167-177. Available electronically from: http://www.werc.usgs.gov/pt-reyes/pdfs/Big-eared%20bat%20foraging.pdf

Sauer, J.R., Hines, J.E., and Fallon, J., 2008, The North American Breeding Bird Survey, Results and Analysis 1966 - 2007, Version 5.15.2008: USGS Patuxent Wildlife Research Center, Laurel, MD.

White Sands Missile Range, 2000. Comprehensive Oryx Management Plan. Developed through cooperative effort by White Sands Missile Range and New Mexico Deptartment of Game and Fish.

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22 December 2009

John F. Barrera, NEPA Program Manager
Directorate of Public Works -Environmental Division
Attn: FB GFS EIS
IMWE-BLS-PWE
Bldg. 624, Pleasonton Road
Ft Bliss, TX 79932

Re: Fort Bliss Army Growth and Force Realignment Draft Environmental Impact Statement, dtd October 2009

Dear Mr. Barrera,

The State Land Office has reviewed the Fort Bliss Army Growth and Force Realignment Draft Environmental Impact Statement (EIS). The EIS is thorough and comprehensive and addresses our concerns about impacts to state trust lands, as well as mitigation and monitoring measures. Based on the EIS, the State Land Office believes that any impacts will be minimal to nearby state trust lands. For the record, we offer the following comments:

- There is an increased danger of wildfire from munitions and small arms fire. The U.S. Army should make every effort to mitigate this danger.

-- Increased erosion and sediment will be caused by the additional ground disturbance, especially in arroyo riparian areas. This erosion could eventually migrate to state trust lands. The U.S. Army should make every effort to mitigate erosion and improve vegetative cover.

-- Wildlife disturbed by the increased activity on the Ft Bliss Training Complex may migrate to nearby state trust lands and private lands. Construction and range operations should attempt to minimize impacts to wildlife.

-- The increased ground disturbance provides increased opportunities for growth of noxious weeds. The U.S. Army should make every effort to follow Best Management Practices during construction and range operations to avoid the spreading and introduction of noxious weeds.

See Response 10.15
See Response 11.1
See Response 11.2
See Response 10.3

Response 11.1 Potential increases in erosion within arroyo-riparian areas will be mitigated by the continuation of these areas as LUAs and the soil erosion and sediment controls managed in part through the Land Rehabilitation and Maintenance (LRAM) program of ITAM. The Army does intend to minimize erosion in order to sustain training. However, there are not any State Trust Lands likely to receive sediment or surface water from watersheds affected by off-road maneuvers described in this document because of the locations of the watersheds involved and adjacent State Trust Lands.

Response 11.2 Construction and Range operations will be conducted to minimize impacts to wildlife habitat and still support required training. Arroyo-riparian and playa habitats have been avoided as locations for target placement. Fort Bliss anticipates little, if any, permanent migration of wildlife to nearby state trust lands and private lands due to construction and range operations under the Proposed Action.

-- Increased Army traffic on Highway 506 could impede local access to state trust lands. Planning of U.S. Army traffic on this and other local roads should have the goal of minimizing disruption of local traffic.

See Responses 1.1 and 7.2

We acknowledge the EIS has addressed satisfactory mitigation and monitoring measures for all these areas, assuming their thorough implementation. We reserve the right to request a review of any environmental monitoring data in the future.

Thank you for the opportunity to review and comment on the Fort Bliss Army Growth and Force Realignment Draft Environmental Impact Statement. If you have any questions about our comments, please contact Ann Demint, Range Conservationist, at 505-827-5856 or ademint@slo.state.nm.us.

Jim Norwick
Director, Field Operations
New Mexico State Land Office

Review of
Fort Bliss Army Growth and Force Realignment Draft EIS

SUMMARY

- This EIS analyzes the environmental impacts of land use changes and training infrastructure improvements at Ft Bliss that supports the U.S. Army's Grow the Army (GTA) initiative. Several alternatives were considered which involve multiple units of three types of brigade combat teams (BCTs) (Heavy, Infantry, and Stryker) along with the required support (Artillery, Sustainment, and Combat Aviation).

  -- EIS Figure 3-4 shows the jurisdictional land ownership in the area of the Ft Bliss Training Complex.
  -- EIS Table S-1 summarizes the stationing alternatives.
  -- EIS Tables S-2 and S-3 address the direct/indirect and cumulative effects of the alternatives, respectively, on Valued Environmental Components.

- OVERALL EFFECT: increased use of the McGregor and Dona Ana Ranges, with increased fixed sites, live fire uses, additional off-road vehicle maneuvering, and removal of existing grassland Limited Use Areas.
  -- The EIS states there will be less than significant impacts to non-military land uses, such as grazing and public access.

- IMPACT TO SLO: My review of the EIS indicates minimal impacts to nearby state trust lands; these impacts will be mitigated by Best Management Practices administered by the Army environmental management unit on Ft Bliss. Potential minor impacts include:

  -- Increased danger of wildfire from munitions and small arms fire.
  -- Increased erosion and sediment from ground disturbance, especially in arroyo riparian areas. This erosion could eventually migrate to state trust lands.
  -- Increased utilization of state trust lands by wildlife disturbed by the activity on the Ft Bliss ranges.
  -- Increased opportunities for growth of noxious weeds from the ground disturbance by off-road vehicles and foot traffic. The additional vehicle traffic, especially the increased off-road maneuvering, could spread existing noxious weeds as well as bring in new species.
  -- Increased Army traffic on Highway 506 could slightly impede lessee access to state trust lands.

- The impact to grazing on Ft Bliss will be less than significant so there should be no additional grazing pressure on state trust lands.

  -- New fixed sites and off-road maneuvering will affect only a small portion of the grazing areas.
  -- New ranges will not be placed in areas where grazing is allowed.
  -- Field training exercise sites will be located at least 300 meters from water sources to allow access for livestock and wildlife.

- A draft letter of comments is provided. The purpose of the letter is mainly to inform the Army of our review, rather than make significant comments.

A. Demint/Field Operations/7-5856/21 Dec 09

DETAILED INFORMATION

- Three categories of interacting alternatives were addressed in the EIS:

  -- Stationing and Training
  -- Land Use Changes
  -- Training Infrastructure Improvements

- The stationing and training category considers the possible combinations of units. The potential impacts to state trust lands due to these stationing and training combinations are embedded as part of the analysis of land use changes and the training infrastructure improvements.

- EIS Table 5-1 provides a summary of the impacts for each Valued Environmental Component and the associated mitigation and monitoring measures.

- Potential impacts of the land use and training infrastructure improvements are:

  -- Land Use Alternative 1: No action alternative.

  -- Land Use Alternative 2: Removes grassland Limited Use Area restrictions on 4 km^2 in the southeast McGregor Range and on 31% of the range in the Sacramento Mountains portion of the northeast McGregor Range (north of Highway 506). Access to water will be protected and grazing will not be significantly affected. Foot traffic will increase, but soldiers are instructed to not interact with wildlife or livestock.

  -- Land Use Alternative 3: Allows live fire uses in the northeast McGregor Range. This increases the danger of wildfire plus there is the minor potential for unexploded ordnance landing off range. The Army plans to expand the fire station at McGregor and soldiers are currently trained to respond to fires while training in the field. Also, the Army is currently working on fuel reduction and fire breaks on Forest Service land in the Ft Bliss Training Complex.

  -- Land Use Alternative 4: Permits off-road vehicle use in the northeast McGregor Range. The Army expects that less than 10% of grazing land will be affected by off-road vehicles and crossing of arroyo riparian areas will be very limited. However, the vehicles will decrease vegetative cover to some extent, with the potential for increased wind and water erosion. The Army will monitor, mitigate, and rehabilitate areas as needed. Soil issues are actively worked by the Ft Bliss environmental management unit IAW Army regulations and federal, state, and local laws and ordinances.

  -- Land Use Alternative 5: Removes grassland Limited Use Area restrictions on 3 km^2 in the Otero Mesa area south of Highway 506. This is only 1% of the Otero Mesa portion of McGregor Range. Fixed sites will be located adjacent to roads and only on-road vehicles will be allowed. Erosion due to wind and water will be monitored and mitigated by the Army.

  -- Training Infrastructure Alternative 1: No impact

  -- Training Infrastructure Alternative 2: New ranges will be constructed in areas not open to grazing. Minor erosions concerns are possible.

  -- Training Infrastructure Alternative 3: The new ranges will not be constructed in proximity to grazing areas.

  -- Training Infrastructure Alternative 4: Involves a rail line roughly parallel to US 54 connecting the Fort Bliss Cantonment to a location north of the Orogrande Range Complex. No impacts to state trust land.

- The impacts of these alternatives will be mitigated by the use of Best Management Practices (BMPs). Chapter 14 of the Ft Bliss Range Management Standard Operating Procedure, covering Environmental Stewardship and Protection, will be updated to reflect the BMPs and other mitigating actions. Furthermore, Ft Bliss has an active Land Rehabilitation and Maintenance program to monitor and rehabilitate damaged areas, include soil stabilization and creating long term vegetative cover. Threatened and endangered species are actively considered during all range operations planning and execution. Finally, the impact to grazing by local ranchers has been carefully analyzed and all alternatives have a less than significant impact.

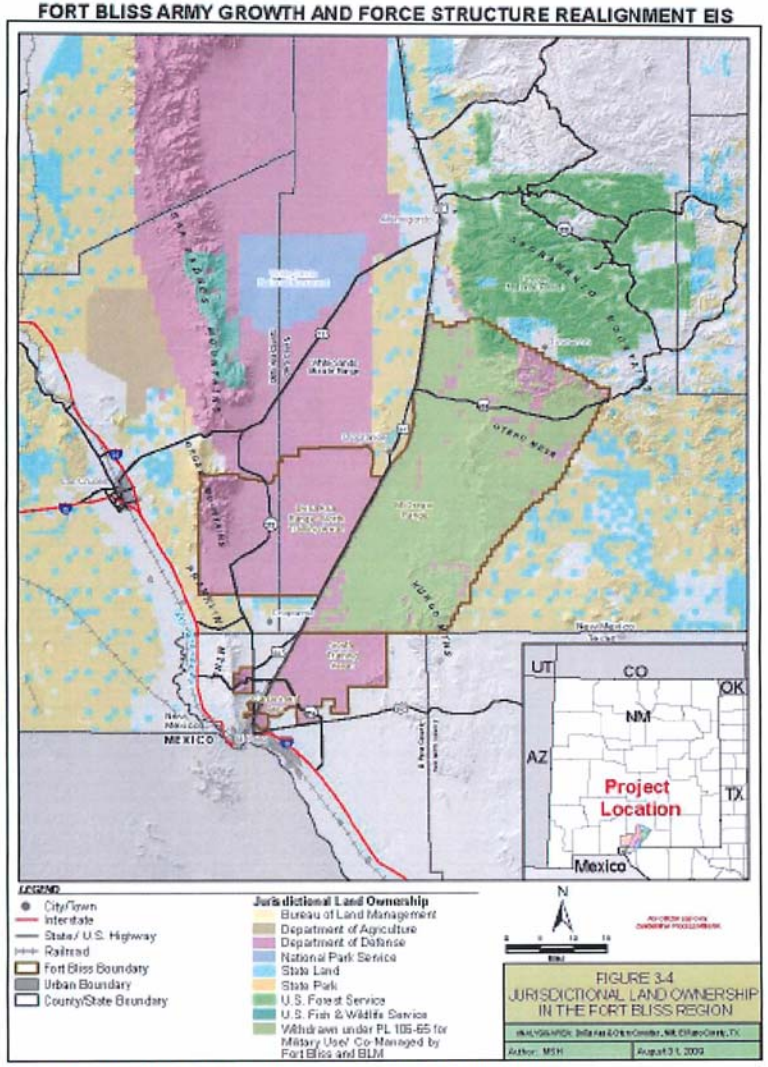

Figure 3-4. Jurisdictional Land Ownership in the Fort Bliss Region.

Table S-1. Summary of Stationed and Training Units by Alternative.

	Stationed Units				Training Units			
Alternative	HBCT	IBCT	SBCT	Other Units	HBCT	IBCT	SBCT	Other Units
ST-1	4	2	0	*	4[a]	2	0	*
ST-2	4	2	0	*	5[b]	2	0	*
ST-3	4	2	1	*	5[b]	2	1	*
ST-4	4	2	2	**	6[c]	2	2	**

* Collection of support units that include one Fires brigade, six SBEs, two CABs, and other combat service and support units at Fort Bliss.

** Adds one Fires brigade and three SBEs to the collection of Other Units at Fort Bliss.

a. Training HBCTs = 4 Bliss + 1 TDY minus 1 deployed.

b. Training HBCTs = 4 Bliss + 1 TDY.

c. Training HBCTs = 4 Bliss + 2 TDY.

Table S-2. Summary of VEC Classifications for Direct and Indirect Effects

VEC	Stationing and Training				Land Use Changes																				Training Infrastructure Improvements			
					LU-1				LU-2				LU-3				LU-4				LU-5							
	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	ST-1	ST-2	ST-3	ST-4	TI-1	TI-2	TI-3	TI-4
Land Use	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊘	⊘
Earth Resources	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	○	⊙	⊙	⊗
Natural Resources	○[1]	○[1]	○[1]	○[1]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	⊙[2]	○[1]	⊙[2]	⊙[2]	⊙[2]
Cultural Resources	○[1]	⊘[1]	⊘[1]	⊘[1]	⊘[2]	⊘[2]	⊘[2]	⊗[2]	⊘[2]	⊘[2]	⊘[2]	⊗[2]	⊘[2]	⊘[2]	⊘[2]	⊗[2]	⊘[2]	⊘[2]	⊘[2]	⊗[2]	⊘[2]	⊘[2]	⊘[2]	⊗[2]	○[1]	⊘[2]	⊘[2]	⊘[2]
Air Quality	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Water Resources	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	○	⊘	⊘	⊘
Facilities	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙
Transportation and Traffic	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Air Space	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Energy	○	⊙	⊙	⊙	○	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙
Solid Waste and Hazardous Materials/ Waste	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Noise	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊙	⊙	⊙	⊙
Socioeconomics	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	○	○	○	○

⊗ Significant
⊘ Significant but mitigable to less than significant
⊙ Less than Significant
○ No Impact
1 Classification of impacts to the Fort Bliss Cantonment only.
2 Classification of impacts to the Fort Bliss Training Complex only.

Table S-3. Summary of Cumulative Effects Associated with the Proposed Action Alternatives.

VEC	Stationing and Training				Land Use Changes					Training Infrastructure Improvements			
	ST-1	ST-2	ST-3	ST-4	LU-1	LU-2	LU-3	LU-4	LU-5	TI-1	TI-2	TI-3	TI-4
Land Use	⊙	⊙	⊙	⊙	○	○	○	○	⊙	○	⊙	⊙	⊙
Earth Resources	○	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Natural Resources	○	○	○	○	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Cultural Resources	○	○	○	○	○	⊙	⊙	⊙	⊙	○	○	⊙	⊙
Air Quality	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○
Water Resources	⊙	⊘	⊘	⊘	○	○	○	○	○	○	○	○	○
Facilities	○	○	○	○	○	○	○	○	○	○	○	○	○
Transportation and Traffic	⊘	⊘	⊘	⊘	○	○	○	○	○	○	○	○	○
Air Space	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Energy	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Solid Waste and Hazardous Materials/ Waste	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○
Noise	⊙	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	⊙	⊙
Socioeconomics	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○

⊗ Significant but mitigable to less than significant
⊙ Less than Significant
○ No Impact

6 **Table 5-1. Summary of the Impacts and Potential Mitigation and Monitoring Measures.**

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
Land Use and Visual Resources		
All Stationing and Training Alternatives	Training day schedule requirements would be close to, equal, or exceed 100 percent in the South Training Areas. Under ST-4, training requirements also would equal or exceed 100 percent in the North Training Areas and in the Tularosa Basin of McGregor Range.	Practice concurrent use in FBTC subdivisions with percent training days scheduled at or over 100 percent would result in less than significant impacts. Continue to coordinate with BLM and USFS to ensure they have the opportunity to accomplish their resource management obligations on the FBTC.
Earth Resources		
ST-2, ST-3, and ST-4	Training days scheduled and vehicle maneuver training in the FBTC would result in soil erosion.	The ITAM work plan will continue to be annually updated account for the selected alternative and will continue to use adaptive measures based on the actual number of BCTs training.
ST-3 and ST-4	Construction activities on the cantonment to accommodate the additional stationing of Soldiers would result in increased soil erosion.	Construction contract terms and conditions would include installation and maintaining BMPs, erosion and sediment controls, and stormwater management measures during and immediately following construction; minimizing the area of exposed soil during construction and use soil stockpiling methods that minimize dust generation; and installation ground cover on remaining exposed areas after construction is complete.
TI-4	Construction of rail line would interfere with natural drainage over time and would impact surrounding soils with creosote from the railroad ties.	Rail line construction plans would include a storm water management plan and a soil management plan to address creosote impacted soils.
Natural Resources		
ST-2, ST-3, and ST-4	Increased in training days scheduled would result in increased impacts to vegetation, wildlife, and sensitive species.	Impacts are reduced by integrating training needs with natural resource management. Modifications in the ITAM and INRMP may be necessary so that the flora and fauna as well as the sensitive species are minimally affected.
LU-3, LU-4, and LU-5	Potential impacts of Controlled FTX upon wildlife and livestock use of water sources.	Controlled FTX sites will be at least 300 meters away from the water sources to allow access for wildlife and livestock.
LU-3, LU-4, and LU-5	Live fire training and off-road vehicle maneuver in the Sacramento Mountains portion of the Northeast McGregor Range North of Highway 506 might impact nesting season of the Gray Vireo.	Periodic monitoring of the Grey Vireo will continue in accordance with existing Army Policy.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
Cultural Resources		
ST-3, ST-4	Increased percent training days scheduled could increase soil erosion in areas that are known to contain prehistoric sites with good integrity and the potential to be eligible for the National Register. As described in the *Fort Bliss Mitigation and Monitoring Plan* (US Army 2008), Fort Bliss has processes in place to monitor the effectiveness of mitigation measures to avoid, minimize, and reduce adverse impacts of training on the environment. One of these is the monitoring of soils and vegetation in all ecosites on the installation. At present, the amount and intensity of soil erosion that could impact archaeological sites is unknown.	A parallel monitoring of archaeological sites is needed. Two archaeological sites eligible for the National Register should be chosen in each ecosite. Where possible, one site would be in an OLA and one in a nearby area available for use in maneuvers. Monitoring of archaeological sites in OLAs would provide needed control information on the extent to which natural processes (not associated with maneuvers) affect site stability. Monitoring would measure type and frequency of use and percent of soil loss with the objective of correlating intensity of use for off-road maneuver with increase in erosion of the sites for each soil type/geographic area. If ground cover were reduced more than 20 percent from baseline (existing) conditions, adjustments could be made in permitted level/intensity of use, or alternative erosion control mechanisms (e.g., physical stabilizers, wind breaks) can be employed. This objective (20 percent) could be adjusted either upward or downward if the archaeological site is deeply buried or if monitoring finds more or less soil loss occurring and the area is more or less resilient to disturbance.
ST-3, ST-4	Increased on-road training on unpaved roads would result in greater potential to create temporary bypasses when the road deteriorates. Cultural resources eligible for the National Register within the bypass would be adversely affected.	Based on soils and topography, identify sites eligible for inclusion in the National Register that are adjacent to or bisected by roads in locations likely to degrade and prompt bypasses. Develop and implement a plan for appropriate treatment (data recovery specialized road stabilization, etc) in those locations.
ST-3, ST-4	Increased percent training days scheduled could increase soil erosion in areas that are known to contain prehistoric sites with good integrity and the potential to be eligible for the National Register. If erosion occurs, such sites would be adversely affected.	Programmatic approaches to mitigate adverse effects could be taken to avoid or lessen adverse effects. These include: A. Increase monitoring of existing OLAs, LUAs, and known National Register sites after completion of training exercises. If adverse effects are found, Fort Bliss could use SOP 7 to resolve them. B. Establish new OLAs when multiple sites eligible for the National Register are identified in a concentrated area; C. In consultation with the SHPO, consider off-site mitigation; In consultation with the SHPO and other parties, identify unique treatment measures such as sampling strategies for specific individual types of sites.
LU-4/ST-3, LU4/ST-4, LU5/ST-3, and LU-5/ST-4	Increased dismounted maneuver training in the Sacramento Foothills North of Highway 506 and Otero Mesa South of Highway 506 may lead to impacts to rock art sites that are sacred sites and/or eligible for the National Register.	Include avoidance of impacts in individual soldier training. Monitor individual sites to identify sites that may benefit from new techniques for rock art preservation. Consider these new techniques in a periodic monitoring and adaptive management program.
TI-2	Construction of new ranges could potentially impact sites eligible for the National Register.	As a programmatic approach, Fort Bliss could identify areas within the FBTC that are ideal candidates for these types of construction activities. If eligible sites are present within these areas and avoidance during construction or shifting the training activity to another location would reduce the quality of training, the sites could be mitigated through data recovery.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
LU-2, LU-3, LU-5, and TI-3	Construction of FTX sites, COLs and expansion of existing range camps could potentially impact sites eligible for the National Register.	During the RFMSS/NEPA process for siting of new FTX sites, COLs, or other construction in the FBTC, avoidance of sites eligible for the National Register could be the preferred alternative. If the site cannot be avoided, then data recovery could be used to mitigate the impacts of the construction.
ST-3, ST-4, TI-4	Increased training in South TAs, North TAs, and Tularosa Basin, could potentially restrict or limit Native American access to TCPs or sacred sites.	Continued consultation with tribes would be required to schedule for access.
Air Quality		
ST-3 and ST-4	Construction activities on the cantonment to accommodate the additional stationing of Soldiers would result in increased fugitive dust emissions.	Dust control practices in the construction contract terms and conditions would include maintaining moisture in aggregate materials, limiting vehicle speeds on unpaved areas, prompt cleanup of tracked out materials and covering haul trucks when possible.
ST-3 and ST-4	Completion of additional buildings on the cantonment to accommodate the additional stationing of Soldiers would result in increased demand for fuel; thereby, increasing the associated air pollutant emissions. Additional air pollutant sources associated with building operations would increase emissions.	The use of energy efficient building and support facilities designs would reduce the amount of fuel that must be burned to supply energy and thereby reduce the associated air pollutant emissions.
Water Resources		
ST-3 and ST-4	Water demands would increase with additional population influx in the region and the stationing of additional Soldiers at Fort Bliss.	Implementation of water conservation measures, such as using more reclaimed water for on post landscaping would reduce the consumption of potable water. Utilization of desalination plant that significantly increases availability of potable water in the area and decreases the amount of water needed to meet demand.
ST-2, ST-3, ST-4, TI-2, TI-3, and TI-4	Increase in stationed Soldiers, maneuver, range training, and rail transportation would result in increased spills throughout Fort Bliss.	Impacts from spills would be addressed effectively through SWP3 and standard procedures, including training personnel in spill prevention and control techniques and requirements, maintaining appropriate spill control equipment in areas where refueling may occur, and complying with all hazardous materials management regulations. Preventative measures would also include safe driving practices, and the proper way to transport hazardous materials in compliance with Army, state, and federal regulations.
ST-2, ST-3, and ST-4	Increased maneuver training in the FBTC may result in increased degradation of waterways and watershed.	Monitor compliance within the arroyo riparian Limited Use Areas.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
ST-3, ST-4, TI-2, TI-3, and TI-4	Cantonment and FBTC construction activities would increase impacts associated with stormwater runoff.	Construction contract terms and conditions would include the following BMPs: dredging, filling, or grading in or adjacent to streams and riparian areas would be scheduled to occur during low-flow periods and would be in compliance with the Clean Water Act. No project-related materials (such as fill, revetment rock, and pipe) would be stockpiled in the water or in riparian areas. All project-related materials and equipment placed in the water would be cleaned prior to use to ensure that they are free of pollutants. Trash or debris would be collected and disposed of properly. Project vehicles and equipment would be fueled away from streams and riparian areas. Turbidity and siltation from project-related work would be minimized and contained to the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse weather conditions. Application of dust-suppressing materials would occur according to industry standards.
ST-3 and ST-4, TI-3 and TI-4	Increase waste-water demand associated with range construction and range camp expansion.	Upgrade waste water treatment as required to support the added population.
LU-3, LU-4, and LU-5	Live fire training in the Northeast McGregor Range North of Highway 506 could impact waterways.	Continue implementation of arroyo riparian Limited Use Areas.
Transportation and Traffic		
ST-2, ST-3, ST-4	Additional training BCTs would result in potential adverse effects due to an increase in military convoys within the more developed areas near the Cantonment area.	Work cooperatively with State, County, and City transportation agencies so that their planning takes into account unique military traffic requirements.
ST-3 and ST-4	Additional stationing units would result in significant back-ups at the gates during peak hours. In addition, the level of safety would decrease along the U.S. 54 turning lanes as large amounts of traffic exit the highway.	Size gates to mitigate back-ups and increase the level of safety where traffic exits highways. Follow Army regulations regarding the size, spacing, etc for convoys. Continue to provide the media with information regarding anticipated high traffic events and other actions that could adversely affect traffic when consistent with security concerns.
Air Space Use and Management		
All Stationing and Training Alternatives and Training Infrastructure Improvement Alternatives	Airspace in the ROI is constrained.	Constraints can be minimized through careful scheduling and management of Fort Bliss will need to schedule and manage airspace.

Alternative(s)	Impacts of the Alternative(s)	Potential Mitigation and Monitoring Measures
Energy Demand and Infrastructure		
ST-3, ST-4, TI-2, TI-3, and TI-4,	Energy demand associated with construction and operation of new facilities in the cantonment and FBTC.	New Army facilities would be designed with energy saving features and would comply with current Army Regulations, Executive Orders, etc. Currently those include AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; and the requirements under the new Energy Independence and Security Act of 2007. Energy conservation measures would continue to be implemented as described in the *Fort Bliss Final Mitigation and Monitoring Plan* (US Army 2008).
Solid Waste and Hazardous Waste/Materials		
ST-3, ST-4, TI-2, TI-3, and TI-4	Cantonment and range construction projects would require the use of additional amounts of hazardous materials.	Contract specifications would control the purchase amounts and use of hazardous materials and require compliance with federal, state, and local requirements and with installation policy on hazardous materials. Standard spill prevention measures would be implemenned during construction.
Noise		
All Stationing and Training Alternatives	Large caliber weapon firing on ranges in the FBTC may result in increased noise complaints.	Participation in public outreach and continued use of noise complaint hotline.
Socioeconomics		
All Stationing and Training Alternatives	Increased housing demand from Fort Bliss military personnel	Continue quarterly meetings with realtors and apartment associations to ensure they have the best available planning information. Work with the privatized housing partner at Fort Bliss to consider the advisability of constructing more housing on the Installation.
All Stationing and Training Alternatives	Impact of increase in student population on area schools	Military student impact aid.
All Stationing and Training Alternatives	Impact of increased demand for medical services.	Cooperate with local entities in plans to address shortfalls in healthcare.

Subject: FW: Environmental Impact Statement (UNCLASSIFIED)
Attachments: --static--liam_crowdsurfer_bottom.gif

-----Original Message-----
From: Christine Montgomery [mailto:cmontgomery17@yahoo.com]
Sent: Wednesday, December 23, 2009 11:27 PM
To: BLISS, EIS
Subject: Environmental Impact Statement

I beg of you to for the sake of the Franklin Mountains Wilderness Coalition to specifically include in your plan that Castner Range be preserved as open space in its natural state.

This would be a mitigation for the inevitable destruction of natural habitat caused by the expansion of Fort Bliss . The ideal mechanism for this process is a Conservation Conveyance.

Please do what you can to preserve Castner Range as open space and keep it as its natural space.

See Response 8.1

Best Regards,

Christine Montgomery

Classification: UNCLASSIFIED
Caveats: FOUO

Subject: FW: Comments on the Draft EIS (UNCLASSIFIED)

-----Original Message-----
From: judy Ackerman [mailto:j.p.ackerman@sbcglobal.net]
Sent: Thursday, December 24, 2009 10:59 AM
To: BLISS, EIS
Subject: Comments on the Draft EIS

24 Dec 09

3344 Eileen Dr

El Paso, TX 7990

915-755-7371

j.p.ackerman@sbcglobal.net

John F. Barrera, NEPA Program Manager

Directorate of Public Works - Environmental Division

Attn: FB GFS EIS

IMWE-BLS-PWE

Bldg. 624, Pleasonton Road

Fort Bliss, TX 79932

Dear John F. Barrera,

The following are Comments on the Draft Environmental Impact Statement Analyzing the Potential Impacts of Army Growth and Force Structure Realignment at Fort Bliss from The Frontera Land Alliance.

As a military veteran with 26 years of service, I understand the need for national defense and necessity to train military personnel. I greatly appreciate the benefits that the Fort Bliss expansion bring to our area and support El Paso's partnership with the military.

See Response 8.1

As Fort Bliss expands, there has been, and continues to be, significant habitat destruction. I recommend that as a mitigation for the past and continuing inevitable environmental damage, Fort Bliss actively seek permanent preservation of Castner Range as natural open space. The appropriate end state would be when Castner Range is cleared of unexploded ordnance and the property is transferred to the Franklin Mountains State Park.

Preserving Castner Range benefits all El Pasoans including military members and their extended families. This project could be completed in phases starting with a conservation conveyance. This is a natural follow on to the Wide Area Assessment that the Army Environmental Command is currently conducting on Castner Range.

At a minimum, Fort Bliss should commit to a long range plan that specifies that Castner Range should be preserved in its natural state.

Thank you for the opportunity to make these comments.

Sincerely,

SGM (Ret) Judith P. Ackerman

Classification: UNCLASSIFIED
Caveats: FOUO

Subject: FW: Draft EIS for Fort Bliss Army Growth and Force Structure Realignment. (UNCLASSIFIED)

-----Original Message-----
From: R LoBello [mailto:rickllobello@cs.com]
Sent: Sunday, December 27, 2009 8:37 PM
To: BLISS, EIS
Subject: Draft EIS for Fort Bliss Army Growth and Force Structure Realignment.

Dear Mr. Barrera,

I am writing to comment on the Draft EIS for Fort Bliss Army Growth and Force Structure Realignment.

I am very concerned about Fort Bliss's plans for the future of the Castner Range. This large wilderness area protected by all the unexploded ordinance on the property is important to the ecological integrity of the Franklin Mountains Chihuahuan Desert Wilderness. I hope that the army will continue to protect the area by either donating the land to Franklin Mountains State Park or by continuing to bomb the area so that there will always be unexploded ordinance keeping people out of the area for the lands long term protection.

See Response 8.1

Sincerely,

Rick LoBello

Classification: UNCLASSIFIED
Caveats: FOUO

Subject: FW: comments re. GFS Draft EIS (UNCLASSIFIED)

-----Original Message-----
From: Scott Cutler [mailto:scottmcutler@sbcglobal.net]
Sent: Monday, December 28, 2009 9:29 AM
To: BLISS, EIS
Subject: comments re. GFS Draft EIS

John F. Barrera, NEPA Program Manager

Directorate of Public Works – Environmental Division

Attn: FB GFS EIS

IMWE-BLS-PWE

Bldg. 624, Pleasonton Road

Fort Bliss, TX 79932

Dear Mr. Barrera,

I am writing to provide comments about the Fort Bliss Army Growth and Force Structure Realignment on behalf of the Franklin Mountains Wilderness Coalition.

See Response 8.1

It is understood that negative impacts to the desert are an inevitable result of the exercises and infrastructure needed to fulfill the Army's mission. With this in mind, the Coalition urges Fort Bliss to mitigate these habitat losses through the designation of Castner Range as natural open space with the eventual transfer of the property to the Franklin Mountains State Park. While the Park cannot accept the property with its unexploded ordinances, there are means available to insure the land is protected from development or subdivision until the UXO's are cleared.

Within the 2003 National Defense Authorization Act are provisions that allow for military land to be conveyed to non-profit organizations that will maintain the land as open space in perpetuity. This process is a Conservation Conveyance. The conservation organization would hold the land until the Army removes the UXO's, a process can occur at any time in the future. The advantage is that the land is protected and maintains its function as mitigation for habitat losses sustained on McGregor Range.

The Frontera Land Alliance is a non-profit land trust in El Paso that is available to act as the vehicle to allow the conservation conveyance to be implemented for Castner Range. They have the knowledge and contacts to assist the Army in crafting the conveyance.

This is a time of momentous change at Fort Bliss during which it's ability to prepare our troops to fulfill their missions will increase dramatically. This readiness comes with a price to the environment. Protecting Castner Range through a conservation conveyance will help mitigate some of the losses and provide an important recreational resource for Fort Bliss families and the El Paso community.

Sincerely yours,

Scott Cutler

President,

Franklin Mountains Wilderness Coalition

915-581-6071

Classification: UNCLASSIFIED
Caveats: FOUO

NEW MEXICO ARCHEOLOGICAL COUNCIL
P.O. Box 25691, Albuquerque, NM 87125

December 28, 2009
VIA ELECTRONIC SUBMISSION (bliss.eis@conus.army.mil)

Mr. John Barrera
Fort Bliss Directorate of Public Works
Environmental Division
ATTN: IMWE-BLS-PWE
B624 Pleasonton Road
Fort Bliss, TX 79916-8612

Re: Comments for DEIS for Fort Bliss Army Growth and Force Realignment

Dear Mr. Barrera:

Thank you for inviting the New Mexico Archeological Council (NMAC) to comment on the Draft Environmental Impact Statement (DEIS) for the proposed Fort Bliss growth and realignment action. NMAC welcomes the opportunity to provide our concerns and suggestions regarding the proposed project.

NMAC is a nonprofit organization whose purpose is to maintain and promote the goals of professional archaeology in the State of New Mexico. These goals include promoting awareness of New Mexico's cultural resources among public agencies, corporations, and members of the public. The majority of our membership is comprised of professional archaeologists who are permitted to conduct archaeological studies on state lands and on federal lands subject to the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). These members have extensive knowledge related to the archaeology of the proposed project area in New Mexico as well as expertise in agency compliance with NEPA and NHPA.

Our comments come from personal experience with contract archaeological work at Fort Bliss, familiarity with the Jornada Mogollon area, archaeological work in areas immediately surrounding Fort Bliss, and familiarity with Fort Bliss reports and significance standards.

See Response 12.1

NMAC's primary concern with the draft EIS is that Fort Bliss has not adequately identified cultural properties potentially impacted by the proposed project and, as a result, has not evaluated direct,

Response 12.1 On page 3-118 of the GFS, Draft EIS notes that cultural resources are Valued Environmental Components at Fort Bliss. NEPA, 42 USC § 4321, et seq. and NHPA, 16 U.S.C. 470 et seq. require that the types of resources likely to be affected be disclosed to the public and considered in federal decisions where proposed actions may cause impacts to important historic, cultural, and natural aspects of our national heritage. They also require that such resources be identified prior to any adverse impacts or that processes are put in place to identify and mitigate those resources that may be adversely affected by a proposed action.
As discussed in Section 3.7.4, inventories of archaeological and architectural resources in the cantonment and the FBTC are on-going. At present, over 18,000 archaeological sites and over 4,000 architectural resources have been recorded. While Section 3.7.4.1 acknowledges that not all areas of the FBTC have been subjected to inventory or subjected to inventory that meets modern standards, processes have been put in place to identify, evaluate, and treat or mitigate those sites determined eligible for the National Register. Those processes are detailed in Fort Bliss'Amended PA and ICRMP (see Section 3.7.2.2 and 3.7.3). The direct, indirect, and cumulative effects of the Proposed Action have been evaluated using the substantial database of known cultural resources and the processes in place at Fort Bliss.

See Response 12.1

indirect, and cumulative impacts on those properties as required by NEPA, 42 USC § 4321, et seq., and NHPA, 16 U.S.C. 470 et seq. We explain in detail below the bases for our concern.

See Response 12.2

3.7.3 Existing Management Plans, Agreements, and Procedures

Page 3-125:
The significance standards just prepared do not adequately account for new findings over the past decade that substantially affect the way data are retrieved, analyzed, and interpreted. This is especially relevant to historic Native American resources and those that pertain to mobile groups, which are typical of the area through time.

The significance standards are largely prehistoric significance standards. While historic-period Native American sites are discussed there is a need for historic significance standards that are separate from architectural properties or historic buildings, and a recognition that they must be dealt with and evaluated differently than prehistoric sites.

See Response 12.3

Pages 3-126-127, 3-131-132:
No mention or analysis is made of the under representation of historic sites including Native American sites and the reasons for this. Workshops and training sessions by experts outside of the Fort Bliss contractor circle would improve the recognition of such sites, because many of the archaeological signatures have only recently been defined. Widespread dissemination of this knowledge has not been accomplished which presents a real possibility that a large sector of the cultural inventory is not being identified, including residential and logistical sites of mobile groups through time.

See Response 12.4

3.7.4.1 Archaeological Inventories

Page 3-127, line 14:
Castner Range is omitted from the site tallies suggesting that on-going impacts to this range from recreation and other factors is not being considered as part of this DEIS. Significant and eligible historic and prehistoric sites are known in the area and many found recently suggest additional surveys are needed in order to evaluate on-going impacts. Even though this is not an active range it is on Fort Bliss and resource protection is a concern given the growing size of El Paso and documented intrusions into the area by local residents.

See Response 12.5

Page 3-130, Table 3-35, etc.
An absence of a discussion of multi-componentcy is of concern and suggests that reuse of sites through time is not being considered in discussions of eligibility. The absence of a category for addressing multi-componentcy suggests that field and in-house efforts are not adequate considering the high occurrence of multiple site uses. Some of this problem can be mitigated by training. By focusing on the main or most obvious component many highly significant components are being destroyed. This must be remedied by acknowledging the high incidences of multiple componentcy (including overlying and in the fill of Jornada structures), training to recognize these, and focus of mitigation efforts on these less obvious components (many of which date to the historic period).

Response 12.2 Over 18,000 sites have been recorded at Fort Bliss; fewer than 100 of these are known to date to the protohistoric or historic Native American eras. In contrast, several thousand of these represent the use of the FBTC by mobile groups during prehistory. Further, surveys being conducted each year on the FBTC continue to document new sites of mobile groups (see Stowe et al. 2009), indicating that such sites are being identified, analyzed, and interpreted.

The significance standards solely address prehistoric sites because they represent such a substantial proportion of the sites on the FBTC. As stated on page 3-125 of the GFS Draft EIS, the draft of the significance standards was submitted to the SHPOs, federally-recognized tribes, and interested parties in the fall of 2008. Those standards were finalized after receipt of comments from the New Mexico and Texas SHPOs, Advisory Council on Historic Preservation (ACHP), interested tribes, and a number of professional archaeologists with considerable experience in southern New Mexico and west Texas.

Response 12.3 Historic-era Native American and Euro-American sites have been recorded in the FBTC. Documents completed for Fort Bliss are disseminated among researchers working at the installation to ensure understanding of all resource types. These documents include reports such as Seymour (2002, 2003), Baugh and Sechrist (2001), and others that discuss protohistoric and historic Native American sites.

The recommendations for workshops and outside training are noted. A specialist will be consulted when appropriate. Outside peer reviews of Fort Bliss survey, evaluation, research designs, and mitigation documents undertaken by professional staff at the New Mexico and Texas SHPOs, ACHP, and interested tribes have not, to date, identified the deficiencies mentioned. If they should they do so in the future, the Amended PA provides a process for consultation to determine the means to resolve these issues.

Further, as noted in Sections 3.7.2.2 and 3.7.3, processes are detailed in Fort Bliss'Amended PA that explains how cultural resources are to be identified. The Amended PA includes 15 SOPs, of which SOP 4 specifically requires that archaeological surveys are conducted under the direct supervision of cultural resource professionals that meet the qualifications of 36 CFR Part 61. Fort Bliss is consulting with the tribes who have expressed an interest in the installation' lands to identify cultural resources of importance to them.

Response 12.4. As noted in Section 3.7.5.1, recreational activities on Castner Range are not part of the alternatives analyzed in the GFS Draft EIS. See **Response 8.1** above.

Response 12.5. Table 3-35 is intended for illustrative purposes to show the quantities of sites and the dominant time periods (i.e., components) represented at sites in the OLAs and LUAs, not to provide information on all time periods represented at each site. Fort Bliss is aware that multi-component sites are common throughout New Mexico and Texas, and many of the sites recorded at Fort Bliss have multiple components or time periods. Fort Bliss'Amended PA includes 15 SOPs, of which SOP 4 requires that all components be evaluated rather than restricting evaluations to a single component. Further, NEPA regulations (Section 1508) require that environmental documents be written in plain language with clear prose. Terms like "multi-components" can be confusing to the public.

3.7.4.4 Traditional Cultural Properties

See Response 12.6

Page 3-135, line 17:
Failure to acknowledge past work or cite past TCP studies for Native American groups conducted on Fort Bliss is troublesome and suggests incomplete research and analysis.

See Responses 12.7 and 12.8

Page 3-135, lines 25-27:
The Mescalero Tribe claims links to the Jano and Jocome (see their Tribal statement on this matter) and these people did use the basin floor. It has also been argued, based upon archaeological and historic documentary evidence, that ancestral Apaches did in fact use portions of the basin floor. Analysts must take care in using and analyzing historic and ethnographic data, rather than taking it at face value. The direct historical approach is not appropriate and shows inadequate analysis of available archaeological data. Evidence inferred to be connected to a variety of mobile groups has been documented on Fort Bliss. Whether the connection to these specific groups is accepted or not, there are protohistoric and historic mobile group sites on the basin floor that should not be ignored. In fact, it has been argued that they must be specifically looked for if they are to be found. They are often components of earlier sites and are difficult to detect. No mention of special archaeological training or workshops is included to ensure that these types of sites and TCPs will be identified.

See Response 12.6

Page 3-135, lines 29-30:
Documentation of the Mescalero use of the escarpment as a travel route and for other purposes has been substantially documented previously on Fort Bliss and this work is not referenced (in and cited in Seymour 2002, 2003, Seymour and Church 2007). Citation of this past work will strengthen this argument with both archaeological and documentary evidence. Failure to reference these past Fort Bliss documents suggests an incomplete analysis.

See Response 12.9

Page 3-135, lines 31-33:
Documentation of the Kiowa use of portions of Fort Bliss was previously suggested in Fort Bliss documents (Seymour 2002). Fort Bliss is encouraged to identify the material culture that would differentiate this group and the Comanche from one another and from other groups. Fort Bliss has a responsibility to identify the signature of historical culture groups known to have used the installation so that sites can be identified, properly evaluated, and adequately mitigated. Methodologies have been devised for doing such work.

See Response 12.10

3.7.4.5 Sacred Sites

Page 3-135, lines 39-44:
Cite earlier consultations conducted by Lone Mountain to show a basic grasp of Fort Bliss' own literature on this issue.

3.7.5.3 South Training Areas (TAs 1-2)

See Response 12.3

Page 3-137, lines 2-4:
NMAC agrees that "most of the survey does not meet the modern standards for adequate inventory and will require re-survey for specific undertakings that have the potential to affect sites eligible for the National Register." Prior to undertaking this survey however, there is a substantial need for

Response 12.6 Fort Bliss has reviewed all relevant and applicable studies and consults with interested tribes so that they can identify those cultural or natural resources that are significant or important to them. Please note that the only group that can determine if cultural or natural resources are significant to them is the group to whom they are important. Fort Bliss does not consider a property to be a TCP or sacred until a tribe has stated that they consider it to be a TCP or sacred site. Therefore, Section 3.7.4.4 discusses how the Mescalero Apache Tribe is presently working with Fort Bliss to identify resources important to them, including TCPs and sacred sites. For example, as noted on page 3-135, Section 3.7.4.4, the determination that the escarpment is significant to the Mescalero Apache Tribe came directly from the tribe and is the most relevant determination of significance. Consultations with other federally-recognized tribes about the same types of resources are on-going. The processes to identify, evaluate, and mitigate cultural resources on the installation, including historic-era Native American sites, are in Fort Bliss' Amended PA and ICRMP (see Section 3.7.3).

Response 12.7 The statement on page 3-135, lines 25-27, about use of the basin floor reads: "The Ysleta del Sur Pueblo indicated that historically their people avoided the basin but used the mountains." However, the FEIS will add the statement: "On-going consultations are being conducted with other tribes to identify areas of the FBTC used by their people."

Response 12.8 Site identification efforts have been undertaken on the basin floor in the FBTC. As shown in Table 3-34, significant portions of the basin floor have been subjected to archaeological survey. Specifically, over 95 percent of the South TAs, 83 percent of Doña Ana Range-North TAs, and 83 percent of the Tularosa Basin portion of McGregor Range have been surveyed. Most of the basin floor is contained within these areas of the FBTC. As noted in Response 12.5, SOP 4 of the Amended PA requires that all components be evaluated, including at sites located on the basin floor.

Response 12.9 Fort Bliss is presently engaged in on-going government-to-government consultation with both the Kiowa Tribe of Oklahoma and the Comanche Nation, which Fort Bliss believes is a more relevant methodology for identifying sites and material culture for each group that might be affected by the Proposed Action.

Response 12.10 Fort Bliss is currently in consultation with the Mescalero Apache Tribe to identify sacred sites. The information provided in the Lone Mountain citation that NMAC references has been submitted to this tribe for their use to determine if sites in that report are or are not important to them.

See Response 12.3

upgrading and updating the training of field personnel. Lithic identification (ground stone and flaked stone) is fundamentally important and the majority of fieldworkers have demonstrated an insufficient grasp of knowledge in this regard. Training by an outside expert widely recognized for their abilities in this area is recommended. Recognition of low visibility thermal features is also deficient, as is the recognition of mobile group structural remains. The ability to identify terminal prehistoric and historic Native American sites is below acceptable standards. All field and management personnel would benefit from training by experts outside the Fort Bliss pool of contractors.

It would be of considerable value for Fort Bliss to take on outside advisors to assist Fort Bliss personnel in evaluating research designs, reports, field procedures, and significance standards. Such supplemental oversight by archaeologists versed in current method and theory and with training on and beyond Fort Bliss would bring a fresh perspective to research in the area and would surmount the problem of conducting the same research over and over again. Biases are apparent in the significance standards and in this DEIS that suggest fresh perspectives by PhDs versed in the realities of the contact world but also familiar with local and regional resources would benefit the program and advance its purpose beyond rudimentary compliance to the realm of truly addressing significance standards and addressing National Register Criterion D in a meaningful way.

See Response 12.3

Page 3-137, lines 14-15:
It is of concern that only 94 historic period sites have been identified and most of these are European American sites. The long history of historic Native American use of this area suggests that the under representation is a lack of training among local archaeologists and managers. The low number of historic Native American sites is troublesome given the importance of this area to all four tribes.

3.7.5.4 Doña Ana Range–North Training Areas (TAs 3-7)

See Response 12.3

Page 3-137, lines 34-38:
Many historic Native American sites have been found in this area and many more are expected. Limited knowledge among fieldworkers as to the signature of these many groups is likely contributing to their underrepresentation among historic sites. The preliminary signature for many of these groups was defined and published as part of Fort Bliss projects and so is accessible to fieldworkers.

3.7.5.5 Tularosa Basin portion of McGregor Range (TAs 8-11, 12 west of 39 the Northeast McGregor, 29-32)

See Response 12.11

A personal communication from Stowe is cited (although not identified as a personal communication in text) rather than Fort Bliss reports or site files checks which convey this information. Is Stowe the foremost expert in this area and are these resources not reported in site files and in existing Fort Bliss reports? Use of a personal communication in this context demonstrates a lack of depth of research and presents questions as to how adequately the effects to this area have been considered. We have a special concern that resources of a specific type will be missed owing to lack of familiarity with the literature from the area as gauged by its lack of citation.

Response 12.11 The text has been revised to cite to the references below. These references will be included in Chapter 8 of the FEIS.

Baugh, Timothy G. and Mark T. Sechrist 2001. *Protohistoric Apachean Adaptations within the Basin and Range Province of South-Central New Mexico and West Texas: A Perspective from the Fort Bliss Reservation*. Fort Bliss Cultural Resource Investigations, TRC Mariah Associates, Inc., El Paso

Kenmotsu, N. A., and M. R. Miller 2008. Re-evaluation of Cerro Rojo: A Response to Seymour. *Plains Anthropologist* 53 (206):223-240.

Seymour, D. J. 2002. *Conquest and Concealment: After the El Paso Phase on Fort Bliss Am Archaeological Study of the Manso, Suma, and Early Apache*. Lone Mountain Report 525/528, Historic and Natural Resources Report No. 01-06, Conservation Division, Directorate of Environment, United State Army Air Defense Artillery Center, Fort Bliss, Texas.

A Rancheria in the Gran Apacheria: Evidence of Intercultural Interaction at the Cerro Rojo Site. 2004. *Plains Anthropology* 49:153-191.

Surfing Behind the Wave: A Counterpoint Discussion Relating to "A Ranchería in the Gran Apacheria." 2008. *Plains Anthropologist* 53(206):241-262.

Seymour, D. J., and T. Church *2007 Apache, Spanish, and Protohistoric Archaeology on Fort Bliss.* Lone Mountain Report 560-005, Historic and Natural Resources Report No. 03-05, Conservation Division, Directorate of Environment, United State Army Air Defense Artillery Center, Fort Bliss, Texas.

Stowe, M., M. Swanson, and A. Hoiness 2009 *Casas en el Cielo: An Inventory of Rockshelters and Other Archaeological Sites in Training Areas 10 and 33, Fort Bliss Military Reservation, Otero County, New Mexico.* Geo-Marine Inc. Report 770EP, Cultural Resources Report No. 08-47, Directorate of Public Works, Environmental Division, Fort Bliss Garrison Command, Fort Bliss, Texas.

See Response 12.12

There is a clear biased towards appreciation of longer term residential occupations, especially those that contain pit houses and pueblos. While these are important, they should not be studied at the expense of sites more representative of the area over a longer period of time. Contractors and those who evaluate impacts would do well to consider the ways in which these more typical resources (smaller sites) contribute to our knowledge of the area, by applying techniques and methodologies specifically applicable to understanding and extracting valuable information these types of sites.

3.7.5.6 Southeast McGregor Range (TAs 24-27)

See Response 12.12

Page 3-138:
McGregor Range has a heightened likelihood of producing evidence of historic Native American sites. The low percentages of these identified (and absence of a specific statement about them) is of concern. Many of these sites are small and relatively non-descript and so when not recognized as Apache or other mobile group they have a high potential of being evaluated as ineligible. When this occurs no further work is completed and they may be destroyed and so cannot be studied or their descriptions and evaluations updated in the future.

See Response 12.13

Page 3-138, lines 18-19:
The following statement demonstrates devaluation of small sites in the area:

"Most of the Native American sites date from A.D. 200 to 1450, and they tend to be small sites that were briefly used to gather and cook plant foods (Cason et al. 2008)."

This is of concern because most sites are small and these represent an important part of the record in this area. By dismissing the importance of these sites in favor of larger sites the unique patterns characteristics of this area are being ignored and therefore work is not lending to their understanding.

See Responses 12.6, 12.9, and 12.10

Page 3-138, lines 25-27:
It seems that this statement is not factual: "No sacred sites or TCPs have yet been identified in this portion of Fort Bliss." While we do not have the report immediately available, there were TCPs or sacred sites identified in this area as part of projects specifically focused on these resources and are discussed in Fort Bliss reports.

3.7.5.7 North of 506-Northeast McGregor Range (TAs 12-15 and 33)

See Response 12.3

Page 3-138:
McGregor Range has a heightened likelihood of producing evidence of historic Native American sites.

Failure to acknowledge the likelihood of mobile group structures is troublesome. These have been defined in Fort Bliss' own reports (Seymour 2002, 2003, Seymour and Church 2007) and have been identified within this portion of McGregor Range.

Page 3-138, lines 40-41:

Response 12.14 The Stowe personal communication has been changed to Stowe et al. (2009); the report citation is provided below. It will be included in Chapter 8.

Stowe, M., C. Norred, and A. Hoiness 2009 *An Archaeological Survey of 9,872 Acres in Training Areas 13, 14, 15, and 16 on McGregor Range, Fort Bliss Military Reservation, Otero County, New Mexico.* Geo-Marine Inc. Report 761EP, Cultural Resources Report No. 08-25, Directorate of Public Works, Environmental Division, Fort Bliss Garrison Command, Fort Bliss, Texas.

Several other references were provided in this summary paragraph including Miller and Knight (2003), Russell (2008), and Seymour (2002). Each of these contains information on recent investigations in this portion of the FBTC.

Response 12.13 The statement on page 3-138, lines 18-19 discloses the types of sites that have been recorded in the TAs in Southeast McGregor Range. Each site is evaluated on its merit, the statement referenced is factual.

See Response 12.14

A personal communication from Stowe is cited (although not identified as a personal communication in text) rather than Fort Bliss reports or site files checks which convey this information. This demonstrates a lack of depth of research and presents questions as to how adequately the effects to this area were considered. We have a special concern that resources of a specific type will be missed owing to lack of familiarity with the literature from the area as gauged by its lack of citation.

See Responses 12.6, 12.9, and 12.10

Page 3-138, lines 45-46:
It seems that this statement is not factual: "Cultural landscapes, sacred sites, and TCPs may be present in this area. To date none have been identified in this portion of Fort Bliss." While we do not have the report immediately available, there were TCPs and sacred sites identified in this area and are discussed in Fort Bliss reports for these TCP/sacred-site-specific projects. This is a problem inherent to this analysis; past work and reports have not been incorporated and adequately considered.

3.7.5.8 Otero Mesa South of Highway 506 (TAs 16-23)

See Responses 12.3, 12.6, and 12.15

Page 3-138, lines 7-10:
The following statement is troublesome and demonstrates a lack of awareness of current studies of mobile group and non-sedentary sites:

> "Most Native American sites consist of scatters of the debris from stone-tool making and remains of campfires and roasting pits of varying sizes that contain heated stones used in cooking. Those sites located on hill slopes or relatively flat mesa surfaces tend to have relatively shallow soils with limited subsurface integrity (Quigg et al. 2002). Sites located on alluvial slopes have deeper soils and greater probability of subsurface integrity (Quigg et al. 2002)."

The concern is that these sites are being under evaluated, and that because they do not contain buried cultural deposits or stratigraphy they are deemed insignificant. This assumption of no significance has been shown to be untrue and there is a growing literature that demonstrates the high research value of these types of shallow or surface sites, even when they are palimpsests. Moreover, additional ways of dating and analyzing materials from these sites has proven valuable. Many such sites derive from the under-represented protohistoric and historic groups (as well as Archaic and PaleoIndian) and so should not be dismissed simply because they do not fit within the sedentary farmer model of significance. Lack of familiarity with these current tends in archaeology in general and as they relate to the Jornada Mogollon area specifically suggest that sites will be under evaluated and that survey will have to be conducted again by trained personnel in the near future, unless damaged by maneuvers in the mean time. This concern extends to the Significance Standards which does not convey adequate understanding of these issues.

These aspects of the archaeological record are what distinguish the archaeological record of this area from surrounding culture groups. Application of inappropriate significance standards and lack of training in relevant and important theoretical and methodological advances are detrimental to the cultural properties. The closed community of archaeologists who have little experience in surrounding areas and who have not kept up with recent literature contributes to this problem.

Response 12.14 Mr. Stowe was referenced because an archaeological survey was in progress in the TAs north of Highway 506 during the period when the GFS Draft EIS was prepared. That area of the Tularosa Basin had not been previously surveyed using modern standards and the report had not been prepared. Mr. Stowe was the Assistant Principal Investigator supervising that survey and the only resource who could provide information on the quantity of rockshelters with evidence of human use. The report has now been completed, and the citation changed to Stowe et al. 2009. The Stowe personal communication has been changed to Stowe et al. (2009); the report citation is provided below. It will be included in Chapter 8.

Stowe, M., C. Norred, and A. Hoiness
2009 *An Archaeological Survey of 9,872 Acres in Training Areas 13, 14, 15, and 16 on McGregor Range, Fort Bliss Military Reservation, Otero County, New Mexico.* Geo-Marine Inc. Report 761EP, Cultural Resources Report No. 08-25, Directorate of Public Works, Environmental Division, Fort Bliss Garrison Command, Fort Bliss, Texas.
Several other references were provided in this summary paragraph including Miller and Knight (2003), Russell (2008), and Seymour (2002). Each of these contain information on recent investigations in this portion of the FBTC.

Response 12.15 Section 3.7.5.8 describes the known sites on Otero Mesa south of Highway 506. The statements quoted represent accurate information about sites recently investigated as required in NEPA analyses. The quoted portion was not intended to represent a qualitative statement about whether the sites are or are not significant. Rather, the quote addresses subsurface integrity. As discussed in Section 3.7.4, Fort Bliss uses standards and procedures, agreed to by both the New Mexico and Texas SHPOs, and set forth in the Amended PA to evaluate each site for the National Register on its own merits.

See Responses 12.6, 12.9, and 12.10

Page 3-139, lines 14-15:
This statement is false and unsubstantiated: "No cultural landscapes, sacred sites, or TCPs have yet been identified in this portion of Fort Bliss." Fort Bliss reports specifically document TCPs or sacred sites in this area. Again, a serious problem with lack of analysis and research is indicated.

3.8 Cultural Resources: Direct and Indirect Effects

See Response 12.3

Page 3-141:
A significant impact must also be listed to include lack of recognition by archaeologists and the subsequent under evaluation and damage to sites.

We wonder how significant impacts can be mitigated when most field works are not sufficiently familiar with the archaeological signature of many of the groups from the historic period and the difficulty of distinguishing and separating this signature in the field. This is of special concern because the newly devised significance standards at Fort Bliss do not convey a grasp of this information, and understanding of the basic attributes of residential sites, and so on.

See Responses 12.6, 12.9, and 12.10

Page 3-141, lines 20-21:
Again this section does not acknowledge work done in this regard (TCPs) in the past on Fort Bliss.

Chapter 8 References Cited

See Responses 12.11 and 12.14

The Stowe personal communication lacks dates information was obtained. This information is provided for most of the other personal communications in the volume. The text also cites Stowe 2009 rather than Stowe personal communication 2009a. Also these personal communications need to be individually cited and supported with specific dates. Unless Stowe is a recognized expert beyond Fort Bliss it would be of value to have greater documentation to substantiate these very important points. The content of these personal communications should be filed at Fort Bliss along with the EIS so that their content may be referenced by others and evaluated. Individual citation events should be listed as Stowe personal communication 2009a, Stowe personal communication 2009b, Stowe personal communication 2009c. Citation of reports, completed or in progress, would be more effective that these personal communications by an unknown contributor.

See Response 12.16

There is a paucity of archaeological reports cited to substantiate the claims made in the text about site types, distributions, and edibility. The concern is that some of the statements are inaccurate and for this reason more statements should be substantiated with citations.

Final Statement

NMAC understands and supports the need for military training at Fort Bliss. We understand that cultural resources will be impacted and therefore adequate measures must be taken to mitigate those effects. Our concern is that this DEIS and contractors actively conducting work have not conducted sufficient analysis of existing work including:

Response 12.16 A number of reports are cited throughout Section 3.7, including those containing investigations on historic-era Native American sites. However, additional references are being added to the text **(see Responses 12.11 and 12.14)**. These reports are available at Fort Bliss, the New Mexico and Texas SHPOs, and made available to researchers upon request.

See Responses 12.1 through 12.16

(a) existing Native American TCP and sacred site studies,
(b) studies that define a portion (and in a preliminary way) of the signature of historic Native American sites,
(c) studies that address the issue of recognition of structures and unobtrusive thermal features on mobile group sites,
(d) studies that address methodological problems of identifying and dealing with multicomponent sites,
(e) those that make use of shallow or surface sites and palimpsests, which are typical of the area and should not be disregarded in favor of the pueblos and larger sites with stratigraphy,
(f) providing adequate training of field personnel in identification of flaked stone, groundstone, specific ceramic types, and in the most current research in the Jornada area by researchers outside the Fort Bliss circle that have substantial relevance to the work being done there.

If the information value of as cultural property can be mitigated through research, it is imperative that contractors conduct research using state of the art techniques and up to date method and theory, recognizing recent advances in many areas of relevance. Without this the meaning and intent of the laws and regulations are not being met. It is critical to understand that even minimal non-mechanized impacts to these unobtrusive sites (especially historic Native American sites) can be substantial and detrimental. It is also important to acknowledge the ways in which archaeologists miss opportunities to extract the information value required under Criterion D by applying uninformed, routine, and simplistic excavations and analyses. For these reasons it is important that these sites be recognized, fully recorded, and subjected to adequate levels of data recovery to address potential impacts.

Thank you,

/s/ Deni J. Seymour
Deni J. Seymour, Ph.D.
President, New Mexico Archeological Council

/s/ Samantha Ruscavage-Barz
Samantha Ruscavage-Barz, Ph.D.
Legislative Chair, New Mexico Archeological Council

cc: Jan Biella, Interim New Mexico State Historic Preservation Officer

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December 29, 2009

Mr. John Barrera
Fort Bliss Directorate of Public Works
Environmental Division, ATTN: IMWE-BLS-PWE
B624 Pleasanton Road
Fort Bliss, TX 79916-6812

RE: Draft Environmental Impact Statement Fort Bliss Army Growth and Force Structure Realignment Draft Environmental Impact Statement (GFS DEIS), El Paso County Texas, and Otero and Dona Ana Counties, New Mexico

Dear Mr. Barrera:

Texas Parks and Wildlife Department (TPWD) reviewed the Fort Bliss Army GFS DEIS and would like to provide the following comments and recommendations.

Mission Support

Locally, TPWD manages three state parks in El Paso County – the Franklin Mountains State Park, Hueco Tanks State Park and Historic Site, and the Wyler Aerial Tramway. TPWD supports the mission of the U.S. Army at Ft. Bliss. Members of various brigades stationed at Ft. Bliss hike and train in the mountains of both the Franklin Mountains State Park and Hueco Tanks. Ft. Bliss personnel hike the trails at the Wyler Aerial Tramway and use the venue for re-enlistment ceremonies. In turn, TPWD appreciates the volunteer efforts of active duty personnel on projects and maintenance in the state parks.

Castner Range

In the enabling state legislation (1979) for the Franklin Mountains State Park, the Castner Range was specifically identified by the State of Texas as a permitted future addition to the state park, without further legislative action. Section 3.1.1.3 of the GFS DEIS report states: "The Army has no plans for future use or disposal of Castner Range." TPWD respectfully requests that the wishes of the State be adequately considered in any future plans for Castner Range. Castner Range has preserved an impressive natural corridor from the crest of the Franklin Mountains to its foothills. Transfer to the state park will provide additional access opportunities for visitors and long-term protection for the natural and cultural

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See Response 8.1

resources. As was discussed in public hearings on the GFS Draft EIS, a conveyance of Castner Range could serve as mitigation for deleterious impacts in other parts of Ft. Bliss.

I appreciate the opportunity to review and comment on this project. TPWD strives to respond to requests for project reviews within the review period. Response may be delayed due to workload and lack of staff. Failure to meet the review time frame does not constitute concurrence from TPWD that the proposed project will not adversely impact fish and wildlife resources. Please contact me at (512) 389-8054 or by email at karen.clary@tpwd.state.tx.us if I may be of further assistance.

Sincerely,

Karen H. Clary

Karen H. Clary, Ph.D.
Wildlife Habitat Assessment Program
Wildlife Division

KHC:gg.14652

-----Original Message-----
From: Bob Geyer [mailto:BGeyer@epcounty.com]
Sent: Tuesday, December 29, 2009 5:39 PM
To: BLISS, EIS
Cc: Bob Geyer
Subject: DEIS / Fort Bliss Army Growth & Force Realignment / Sierra Club Comments / 12/29/09

El Paso Regional Group of the Sierra Club Comments

On page 3-309 the Draft EIS (DEIS) discusses previous concerns raised by the El Paso Regional Group of the Sierra Club regarding Depleted Uranium (DU). Following are comments and questions concerning the information provided in the DEIS:

1. The DEIS states that current Army Policy prohibits the use of DU ammunition for training world-wide.

See Response 2.1

Questions/Comments: On what date was that policy effective? Were Abrams Tanks and DU tipped long-rod penetrators (shells) utilized prior to this date at Fort Bliss/MacGregor Range? If the answer to the previous question is yes, please give a complete disclosure of DU contamination caused by the utilization of Abrams Tanks and DU tipped long-rod penetrators (shells) prior to the Army Policy change.

2. The DEIS states that DU emits alpha, beta and gamma radiation. Alpha particles, the primary type produced by DU, are blocked by the skin and pose no hazard. Beta particles are blocked by clothing.

Questions/Comments: Our research concerning alpha, beta and gamma radiation differs from the DEIS as follows:

See Response 13.1

Alpha Rays - The health effects of alpha particles depend heavily upon how exposure takes place. External exposure (external to the body) is of far less concern than internal exposure, because alpha particles lack the energy to penetrate the outer dead layer of skin. However, if alpha emitters have been inhaled, ingested (swallowed), or absorbed into the blood stream, sensitive living tissue can be exposed to alpha radiation. The resulting biological damage increases the risk of cancer; in particular, alpha radiation is known to cause lung cancer in humans when alpha emitters are inhaled.

Beta Rays - Beta particles are much more penetrating than alpha particles. Very high energy beta particles can penetrate to a depth of about a centimeter in tissue. Eye and skin damage is possible if the source is strong. Therefore beta sources do present an external radiation hazard. Chronic effects result from fairly low-level exposures over a long period of time. They develop relatively slowly (5 to 30 years for example). When ingested internally beta emitters can cause tissue damage and increase the risk of cancer.

Gamma Rays - The DEIS did not even address Gamma rays other than to mention than when DU decays it produces Gamma rays. Gamma rays are high-energy electromagnetic radiation (photons) emitted in an attempt by the radionuclide to become stable, i.e., radioactive decay. Gamma rays have moderate-to-high penetrating power, are often able to penetrate deep into the body, and generally require some form of shielding, such as lead or concrete.

3. The DEIS states that some M1 tanks include armor that contains encased DU in the turret. The risk of exposure to radiation from the DU in the M1 tank armor is extremely low because the DU is encased and therefore represents a low risk for human or environmental exposure. No maintenance or repair activities performed at Fort Bliss would result in DU exposure (SEIS U.S. Army 2007).

See Response 13.1

Questions/Comments: The DEIS states that the risk of exposure to radiation from the DU in the M1 tank armor is extremely low. Please provide a complete disclosure including the amount and type of radiation omitted by the M-1 tank armor as defined by the DEIS as being an "extremely low" risk factor of exposure to radiation because the DU is encased in the turret. Also, please provide documentation as to why/how there would be no DU exposure to personnel during maintenance or repair of the M-1 tanks --- especially the turrets.

This concludes the comments of the El Paso Regional Group of the Sierra Club and we would appreciate a response that you received this e-mail.

Bob Geyer

Executive Committee
El Paso Regional Group of the Sierra Club
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Classification: UNCLASSIFIED
Caveats: FOUO

Response 13.1 As stated in Response 2.1, vehicles undergo a rigorous inspection process prior to their return from overseas deployments, including the removal of any DU armor. Section 3.21.2.1.7 of the FEIS will be revised to include this information and discussion on gamma rays.

-----Original Message-----
From: Debra Beene [mailto:Debra.Beene@thc.state.tx.us]
Sent: Wednesday, December 30, 2009 1:27 PM
To: Sitton, Sue CIV USA IMCOM; Knight, Brian D Mr CIV USA IMCOM
Subject: EIS-Growth & force Structure Realignment

FYI:

At Fort Bliss, the PA and SOPs, along with the recent Significance Standards, ensure that the process is in place <<image001.jpg>> to avoid, reduce or mitigate adverse affects to historic properties. We have no comments from archeology or architecture and look forward to further consultation in the future.

debra l. beene

Archeologist III, Archeology Division

Texas Historical Commission

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Classification: UNCLASSIFIED
Caveats: FOUO

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December 30, 2009

Mr. John Barrera
Attn: FB GTA EIS; IMWE-BLS-PWE
Fort Bliss, TX 79916-6812

Re: Fort Bliss Army Growth and Force Structure Realignment Draft Environmental Impact Statement; NMDGF Doc. No. 13064

Dear Mr. Barrera:

The New Mexico Department of Game and Fish (Department) has reviewed the Fort Bliss Army Growth and Force Structure Realignment Draft Environmental Impact Statement (DEIS). In December 2007, the Army signed a Record of Decision (ROD) for the Final Programmatic Environmental Impact Statement for Army Growth and Force Structure realignment (GTA PEIS). That ROD directed the stationing of four Heavy Brigade Combat Teams (HBCTs) and two light Infantry Brigade Combat Teams (IBCTs) at Fort Bliss. This DEIS tiers off of the GTA PEIS, and evaluates alternatives at Fort Bliss for the use of stationing and training capacity, land use changes, and training infrastructure improvements.

The Department's concerns with the authorization of overland vehicle maneuvers throughout Fort Bliss except for the Sacramento Mountains foothills are detailed in the attached 12 December 2006 comments on the GTA PEIS. This DEIS appears to use various development scenarios to generally re-authorize overland maneuvers, but is only fundamentally different from the GTA PEIS in that it would authorize overland maneuvers of an IBCT into the Sacramento Mountains Ecological Management Unit (EMU). Each IBCT (3,500 soldiers) includes two infantry battalions, a brigade special troops battalion, a reconnaissance, surveillance and target acquisition squadron, a fires battalion, a brigade support battalion, and a brigade headquarters. In addition to dismounted infantry exercises in this EMU, selection of Alternative LU-4 would authorize establishment of:

1) fixed sites in the Sacramento Mountains EMU by removing the Grasslands Limited Use Area designation;
2) Controlled Field Training Exercise (FTX sites, which are headquarter sites of concentrated troops and vehicles) on all areas within 500 meters of existing roads on slopes of less than 30%; and

3) off-road light wheeled vehicle maneuvers in all areas within 500 meters of existing roads on slopes of less than 30%. As stated on page 2-37,

"This would affect approximately 27% of Northeast McGregor Range north of Highway 506, resulting in the Off-Road Vehicle Maneuver: Light Military Use shifting from other FBTC subdivisions that allow Off-Road Vehicle Maneuver to this area. Under this alternative, the Controlled FTX sites and zone (allowed under LU-3) and the off-road military use would make the Northeast McGregor Range North of Highway 506 the most attractive training destination for the IBCTs at the FBCT [Fort Bliss Training Complex]."

Our 12 December 2006 comments documented concerns about the GTA PEIS, which opened up all of Fort Bliss to overland tracked and wheeled vehicle maneuvers except the Sacramento Mountains EMU. Additionally, the Department has the following concerns with this additive proposal: 1) effects of these overland maneuvers on pronghorn, mule deer, elk and oryx hunts on McGregor Range; and 2) potential adverse impacts on the state Threatened Gray Vireo (*Vireo vicinior*).

See Responses 14.1 and 10.14

Members of my staff conducted a field visit to portions of the Sacramento Mountains EMU of McGregor Range with Fort Bliss personnel on 16 December 2009. Based their discussions, it is our understanding that big game hunts will continue, but that their duration might be shortened under certain training situations. We urge you to continue to coordinate planning and access for these hunts with our Roswell Field Office staff, and request that information addressing this situation be included in the EIS.

See Response 14.2

Alternatives LU-3 and LU-4 would limit off-road vehicle maneuvers and establishing FTX sites but they would still permit FTX establishment within up to 20% of known Gray Vireo territories in the Sacramento Mountains EMU. We believe that of all the training activities being authorized in this DEIS; establishing FTX sites within Gray Vireo territories will have the most serious (but not be the only) adverse impacts on the population. Therefore, we request that seasonal restrictions be placed on the creation of FTX sites within known Gray Vireo breeding territories during the breeding season (1 April through 1 September) to avoid disturbance that could lead to nest abandonment. If FTX sites are established within these known Gray Vireo breeding territories, we request that you conduct presence-absence surveys and nest monitoring before FTXs are established and after exercises are concluded. These surveys would provide an opportunity to assess potential impacts of such exercises on nesting Gray Vireos. We would request that the information be provided to the Department in an annual (or as often as feasible) report.

We appreciate the opportunity to comment on this proposed project. If you have any questions regarding our comments, please contact Mark Watson, Habitat Specialist, at 505-476-8115, or mark.watson@state.nm.us.

Sincerely,

Matt Wunder, Ph.D.
Chief, Conservation Services Division

Response 14.1 Fort Bliss will continue to coordinate with the SE and SW area offices of the NM Department of Game and Fish. Please see response 10.14.

Response 14.2 The Proposed Action is not expected to noticeably impact Gray Vireo nesting habitat nor nesting success because of the sparse density of vehicles and limited nature of impacts expected. As stated in Section 3.6.4, the low density, repetitive Controlled FTX activities in the Controlled FTX zone of the Northeast McGregor Range North of Highway 506 should not significantly impact the nesting behavior of the Grey Vireo (Bisson et. al 2008, Bisson et. al 2009).

Attch: (1)

CC:

Wally Murphy (Ecological Services Office Supervisor, USFWS)
Leon Redman (Southeast Area Operations Chief, NMDGF)
Ryan McBee (Southeast Area Operations Game Manager, NMDGF)
George Farmer (Southeast Area Operations Habitat Specialist, NMDGF)
Hira Walker (Conservation Services Non-game Ornithologist, NMDGF)
Mark Watson (Conservation Services Habitat Specialist, NMDGF)